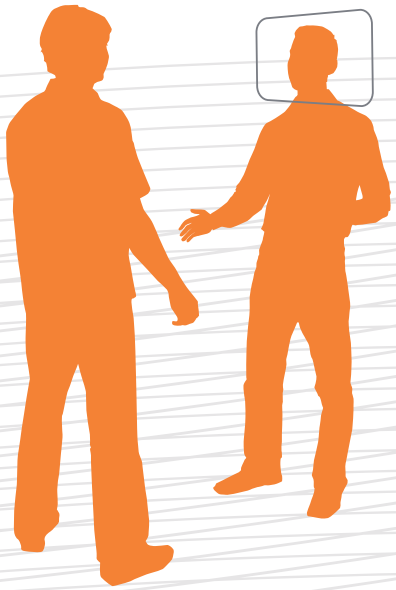
Software version F8
APRIL 2009

# TANDBERG *MXP*

## Administrator Guide



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# What's in this guide?

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# Table of contents

**Introduction**

What's new in version F8? ... 8
New products added to the guide ... 9
Intellectual Property Rights ... 10
Trademark ... 10
Disclaimer ... 10
Patent Information ... 10
Copyright Notice ... 10
Safety Instructions ... 11
TANDBERG 8000 MXP ... 11
TANDBERG 6000 MXP Profile ... 11
TANDBERG Profile 52" with Codec 6000 MXP ... 11
TANDBERG 3000 MXP Profile ... 11
TANDBERG 1700 MXP ... 11
TANDBERG 1000 MXP ... 11
TANDBERG Edge 95/85/75 MXP ... 11
TANDBERG 990/880/770 MXP ... 11
TANDBERG 550 MXP ... 11
TANDBERG Compass MXP ... 12
TANDBERG Utility MXP ... 12
TANDBERG Tactical MXP ... 13
Environmental Issues ... 14
Monitors - After Image Lagging ... 15
After image lagging due to remaining electrical load ... 15
After-image lagging due to sticking ... 15
Solving after-image lagging problems ... 15
China RoHS table ... 16

**Getting started**

TANDBERG Remote control TRC3 ... 18
TANDBERG Remote control TRC4 ... 19
The Installation Wizard ... 20
Description of the settings ... 20
Choose a language for the system ... 20
Enter a system name ... 20
Enter software options ... 21
IP settings ... 21
If you need to set a static IP address ... 21
SIP Settings ... 21
External management ... 21
External manager settings ... 21
Specify how to register your system ... 22
Enter gatekeeper settings ... 22
- or enter Call manager settings ... 22
- or select Direct call setup ... 22
Save and restart ... 22
Verify your settings ... 23
View the default system settings ... 24
Restore to default system settings ... 24
Installation Profiles ... 25
Save Profile ... 25
Activate Profile ... 25
Delete Profile ... 25

**The Control Panel menu structure**

Select your video meeting system ... 27
Menu structure for 8000 MXP, 6000 MXP Profile, Maestro MXP ... 28
About the Control Panel ... 29
Password Protection ... 29
Remote control shortcut keys ... 29
The Control Panel overview ... 30
The General settings menus - Part 1 ... 31
The General settings menus - Part 2 ... 32
The Menu settings menus ... 33
The Presentation settings menus ... 34
The Call Quality settings menus ... 35
The Audio settings menus - Part 1 ... 36
The Audio settings menus - Part 2 ... 37
The Video settings menus ... 38
The Security settings menu ... 39
The Network settings menus - Part 1 ... 40
The Network settings menus - Part 2 ... 41
The Network settings menus - Part 3 ... 42

The Network settings menus - Part 4 ..... 43
The Network settings menus - Part 5 ..... 44
The Network settings menus - Part 6 ..... 45
The Network settings menus - Part 7 ..... 46
The Network settings menus - Part 8 ..... 47
The Network settings menus - Part 9 ..... 48
The other Control Panel menu buttons ..... 49
The Diagnostics menu - Part 1 ..... 50
The Diagnostics menu - Part 2 ..... 51

Menu structure for 3000 MXP Profile, Tactical MXP ..... 52
About the Control Panel ..... 53
Password Protection ..... 53
Remote control shortcut keys ..... 53
The Control Panel overview ..... 54
The General settings menus - Part 1 ..... 55
The General settings menus - Part 2 ..... 56
The Menu settings menus ..... 57
The Presentation settings menus ..... 58
The Call Quality settings menus ..... 59
The Audio settings menus - Part 1 ..... 60
The Audio settings menus - Part 2 ..... 61
The Video settings menus ..... 62
The Security settings menus ..... 63
The Network settings menus - Part 1 ..... 64
The Network settings menus - Part 2 ..... 65
The Network settings menus - Part 3 ..... 66
The Network settings menus - Part 4 ..... 67
The Network settings menus - Part 5 ..... 68
The Network settings menus - Part 6 ..... 69
The Network settings menus - Part 7 ..... 70
The other Control Panel menu buttons ..... 71
The Diagnostics menus - Part 1 ..... 72
The Diagnostics menus - Part 2 ..... 73

Menu structure for 1700 MXP ..... 74
About the Control Panel ..... 75
Password Protection ..... 75
Remote control shortcut keys ..... 75
The Control Panel overview ..... 76
The General settings menus - Part 1 ..... 77
The General settings menus - Part 2 ..... 78
The Menu settings menus ..... 79
The Presentation settings menus ..... 80
The Call Quality settings menus ..... 81
The Audio settings menus ..... 82
The Video settings menus ..... 83
The Security settings menus ..... 84
The Network settings menus - Part 1 ..... 85
The Network settings menus - Part 2 ..... 86
The Network settings menus - Part 3 ..... 87
The Network settings menus - Part 4 ..... 88
The Network settings menus - Part 5 ..... 89
The Network settings menus - Part 6 ..... 90
The other Control Panel menu buttons ..... 91
The Diagnostics menus - Part 1 ..... 92
The Diagnostics menus - Part 2 ..... 93

Menu structure for 1000 MXP, Compass MXP, Utility MXP ..... 94
About the Control Panel ..... 95
Password Protection ..... 95
Remote control shortcut keys ..... 95
The Control Panel overview ..... 96
The General settings menus - Part 1 ..... 97
The General settings menus - Part 2 ..... 98
The Menu settings menus ..... 99
The Presentation settings menus ..... 100
The Call Quality settings menus ..... 101
The Audio settings menus ..... 102
The Video settings menus ..... 103
The Security settings menus ..... 104
The Network settings menus - Part 1 ..... 105
The Network settings menus - Part 2 ..... 106
The Network settings menus - Part 3 ..... 107
The Network settings menus - Part 4 ..... 108
The Network settings menus - Part 5 ..... 109
The Network settings menus - Part 6 ..... 110
The Network settings menus - Part 7 ..... 111
The other Control Panel menu buttons ..... 112
The Diagnostics menus - Part 1 ..... 113
The Diagnostics menus - Part 2 ..... 114

Menu structure for Edge 95/85/75 MXP, 990/880/770 MXP ..... 115
About the Control Panel ..... 116
Password Protection ..... 116
Remote control shortcut keys ..... 116
The Control Panel overview ..... 117
The General settings menus - Part 1 ..... 118
The General settings menus - Part 2 ..... 119
The Menu settings menus ..... 120
The Presentation settings menus ..... 121
The Call Quality settings menus ..... 122
The Audio settings menus - Part 1 ..... 123
The Audio settings menus - Part 2 ..... 124
The Video settings menus ..... 125
The Security settings menus ..... 126
The Network settings menus - Part 1 ..... 127
The Network settings menus - Part 2 ..... 128
The Network settings menus - Part 3 ..... 129
The Network settings menus - Part 4 ..... 130
The Network settings menus - Part 5 ..... 131
The Network settings menus - Part 6 ..... 132
The Network settings menus - Part 7 ..... 133
The other Control Panel menu buttons ..... 134
The Diagnostics menus - Part 1 ..... 135
The Diagnostics menus - Part 2 ..... 136

Menu structure for 550 MXP ..... 137
About the Control Panel ..... 138
Password Protection ..... 138
Remote control shortcut keys ..... 138
The Control Panel overview ..... 139
The General settings menus - Part 1 ..... 140
The General settings menus - Part 2 ..... 141
The Menu settings menus ..... 142
The Presentation settings menus ..... 143
The Call Quality settings menus ..... 144
The Audio settings menus ..... 145
The Video settings menus ..... 146
The Security settings menus ..... 147
The Network settings menus - Part 1 ..... 148
The Network settings menus - Part 2 ..... 149
The Network settings menus - Part 3 ..... 150
The Network settings menus - Part 4 ..... 151

The Network settings menus - Part 5 ... 152
The Network settings menus - Part 6 ... 153
The Network settings menus - Part 7 ... 154
The other Control Panel menu buttons ... 155
The Diagnostics menus - Part 1 ... 156
The Diagnostics menus - Part 2 ... 157

**The Control Panel settings library**

Table of contents ... 159

The Control Panel settings listed in the same order as they appear in the menus ... 163

**Using the system**

Password Protection of the Control Panel Settings ... 233
About administrator password ... 233
Gain Access to a Password Protected Control Panel Menu ... 233
Setting the administrator password ... 233
Clear the administrator password ... 233

General room guidelines ... 234
The physical conditions ... 234
The room equipment ... 234
Environmental considerations ... 234
The audio quality ... 235
Natural communication ... 235

Guidelines for meeting room setup ... 236
Sharing a PC presentation ... 237
Other presentation sources ... 237

PC Presenter ... 238
Using PC Presenter ... 238
Configuration ... 238

PC SoftPresenter and VNC ... 239
Using PC SoftPresenter ... 239
VNC Server Software ... 239
VNC Server Software Configuration ... 239
Showing PC contents on the video system ... 239

Dual Video Stream (DuoVideo™/H.239/BFCP) ... 240
Dual Video Stream and Bandwidth ... 240
Presentation Settings and Dual Video Stream ... 240
Example with Presentation Start set to Auto ... 240
Example with Presentation Start set to Manual ... 240
Call Rate with DuoVideoTF/H.239/BFCP ... 240
When network is H.323 ... 240
When network is SIP ... 240
When network is ISDN ... 240

Wireless Network Adapters ... 241
Recommended cards ... 241
Recommended access points ... 241
Recommended Wireless Network Adapters ... 241
Configuration ... 241

Services for Multipoint Calls ... 242
Embedded or external MCU ... 242
External services from TMS ... 242
About the External Services Menu ... 242
How to Enable the External Services Menu ... 242
External services features ... 242

Call Control with Access Codes ... 243
How to activate access codes ... 243
How to create an access code file and upload the file ... 243
TANDBERG Management Suite ... 243

Kiosk Mode ... 244
How to activate Kiosk Mode ... 244
How to deactivate Kiosk Mode ... 244
Waking up the system ... 244
Quick Key for IP Address ... 244
Quick Key to Deactivate Kiosk Mode ... 244

Intelligent Video Management (IVM) ... 245
Video input configured to Motion ... 245
At low bit rate: ... 245
At high bit rate: ... 245
Video input configured to Sharpness ... 245

Dialing in From Outside the Enterprise ... 246
Dialing in without being registered to a TANDBERG Gatekeeper 246

Connecting the System to ISDN using NT1 Network Adapter ... 247
Placing the NT1 Adapter ... 247
Connecting Cables ... 247
Configure the Video System ... 247
Setting up a call ... 247

Connecting the System to PRI/T1 ... 248
Using a CSU (Channel Service Unit) adapter ... 248
Connecting to Adtran T1 ESF CSU ACE ... 248
Configure the Video system ... 248
Configure the Adtran T1 ESF CSU ACE ... 248
Setting up a call ... 248

Connecting the System to Switched 56k Network ... 249
Using Telesync TS-256 SW56/ISDN adapter ... 249
Connecting Cables ... 249
Configure the Video system ... 249
Setting up a call ... 249

Setting up Bonded ISDN Calls using H.221 or 2x64k (2x56k) ... 250
H.221 or 2x64 (2x56) Calling ... 250
Setting up a call ... 250

About Sub-address ... 251
How to Specify a Sub-address ... 251

About Extension Address ... 251

About MCU Password ... 251

Using the file system ... 252
Description of files ... 252
Snapshot files ... 252
Configure the video system for snapshots ... 252
Using a DOS window to access a JPG-file ... 252
Using a Web browser to access a JPG-file ... 252

Apply your own logo ... 253
Apply your own logo using a DOS window ... 253
Apply your own logo using a web browser ... 253

Dual Monitor, XGA Monitors and Projectors ... 254
Dual monitor ... 254
Control Panel Settings ... 254
XGA Monitors and Projectors ... 254
Control Panel Settings ... 254

**Physical interfaces**

The Digital Visual Interface (DVI) ... 256
DVI Specifications ... 256
VGA formats supported on DVI-I in ... 256
Supported DVI Cables ... 256
DVI Cable Length ... 256
The DVI-I Connector ... 256
The DVI-I Pin-Out table ... 256

The VGA to DVI Cable ..... 257
VGA - DVI Connector with audio ..... 257
PC cable, VGA - DVI with integrated audio ..... 257
The VGA to DVI-A Cable ..... 258
VGA to DVI-A Cable Pin Assignments ..... 258
VGA to DVI-A Cable Pinouts ..... 258
Codec 6000 MXP Interfaces and sockets ..... 259
Audio Sockets ..... 259
Audio Signal Levels in Vpp and dBu ..... 260
Video sockets ..... 261
Camera sockets ..... 262
Data ports ..... 263
Power Socket & On/Off Switch ..... 264
Codec 3000 MXP and 3000 MXP Net Interfaces and sockets ... 265
Rear panel sockets and interface groups ..... 265
Audio Sockets ..... 266
Audio Signal levels in Vpp and dBu ..... 267
Video Sockets ..... 268
Camera Sockets ..... 269
ISDN BRI Sockets ..... 270
Net Socket ..... 271
Network interface sockets ..... 272
Power Socket & On/Off Switch ..... 273
TANDBERG 1700 MXP interfaces and sockets ..... 274
Rear Panel Sockets ..... 274
Video, Audio and Network ..... 275
Audio level settings table ..... 276
TANDBERG 1000 MXP, Compass/Utility MXP interfaces and sockets 278
Rear Panel Sockets ..... 278
Video, Audio and Network ..... 279
TANDBERG Edge 95/85/75 MXP interfaces and sockets ..... 280
Rear Panel Sockets ..... 280
Video input/output and Audio input ..... 281
Audio output, Network and ISDN BRI ..... 282
Data port and Camera port ..... 283
TANDBERG 990/880/770 MXP interfaces and sockets ..... 284
Rear Panel Sockets ..... 284
Rear panel and sockets with V.35 interface ..... 285
Video inputs/outputs and Audio inputs ..... 286
Audio outputs, Network and ISDN BRI interface ..... 287
TANDBERG 550 MXP interfaces and sockets ..... 289
Rear Panel Sockets ..... 289
Video inputs/outputs and Audio inputs ..... 290
Audio output, Network and Data port ..... 291
Cable specification ..... 292
External Network Pinout ..... 292
External Network V.35/RS-366 Cable ..... 294
External Network RS-449 Cable ..... 295
External Network RS-449/RS-366 Cable ..... 296
External Network RS-530 Cable ..... 297
External Network RS-530/RS-366 Cable ..... 298
External Network RS-449 Cable to KIV-7 ..... 299

**Peripheral equipment**

TANDBERG PrecisionHD camera ..... 301
TANDBERG WAVE II camera ..... 302
Multiple cameras ..... 303
Document camera ..... 304
TANDBERG Remote Controls Key Map ..... 305
TANDBERG Camera Tracker ..... 306
Remote Control for Camera ..... 306
Using Camera Tracking ..... 306
Preparations ..... 306
Using Camera Tracking ..... 306
Moving the Camera - Using the remote control ..... 306
Moving the Camera - Using the menu ..... 306
DVD/VCR Recording and Playback ..... 307
DVD/VCR Recording ..... 307
Recording a video conference ..... 307
Stereo recording ..... 307
Configurations ..... 307
DVD/VCR Playback, Mono ..... 307
Configurations ..... 307
Additional Microphones ..... 308
Voice Activated Camera Tracking ..... 308
Audio Science Microphone ..... 308
DNAM for Profile 52” with Codec 6000 MXP ..... 309
The DNAM Loudspeaker Cabinet ..... 309
The DNAM Amplifier ..... 309
TANDBERG DNAM with Amplifier and Speakers ..... 310
TANDBERG DNAM (Digital Natural Audio Module)* ..... 310
The DNAM Amplifier* ..... 310
The DNAM Loudspeaker Cabinet (Center Speakers)* ..... 310
Integrated Stereo Speakers** ..... 310
Interface Required for Playback ..... 310
TANDBERG DNAM Configurations ..... 311
TANDBERG Mini-DNAM with Amplifier and Speaker ..... 312
TANDBERG Mini-DNAM* ..... 312
Mini-DNAM Loudspeaker Cabinet* ..... 312
Mini-DNAM Amplifier* ..... 312
Stereo Speaker Kit ..... 313
Stereo Speaker Kit ..... 313
Control Panel Settings ..... 313
Installation ..... 313
Stereo Speaker Kit specification ..... 313
Telephone Add-On ..... 314

**Appendices**

Security ..... 316
Access Code ..... 316
Administrator Password ..... 316
Streaming password ..... 316
IP Password ..... 316
IP Services ..... 316
SNMP Security alert ..... 316
Encryption ..... 316
IEEE 802.1x /EAP (Extensible Authentication Protocol) ..... 316
The Web Interface ..... 317
System upgrade using the web interface ..... 318
Software File ..... 318
Release Key ..... 318
Backup ..... 318
What happens If the upgrade is interrupted ..... 318
The system upgrade procedure ..... 318
System upgrade using FTP ..... 319
Software File ..... 319
Release Key ..... 319

Backup ... 319
What happens If the upgrade is interrupted ... 319
The system upgrade procedure ... 319

System upgrade using ISDN ... 320
Software File ... 320
Release Key ... 320
Backup ... 320
What happens If the upgrade is interrupted ... 320
About far end ISDN system upgrade ... 320
The system upgrade procedure ... 320

Diagnostics Tools for IP ... 321
Using Diagnostic Tools for IP (H.323) ... 321
Q.931 ... 321
Ping ... 321
Traceroute ... 321
Layer 4 Ports used in H.323 calls ... 321

Monitor Power Management Systems ... 322
VESA Display Power Management ... 322
VESA DPMS Standard ... 322
Digital Monitor Power Management ... 322
Monitor On Power state ... 322
Intermediate Power state ... 322
Active-off Power state ... 322
Non-Link Recoverable Off Power State ... 322
Monitor Power Switch Off Power state ... 322

Extended Display Identification Data (EDID) ... 323

E1/T1 Networks - NSF Service Codes ... 324

About FIPS Mode ... 325
How to activate FIPS Mode ... 325
How to deactivate FIPS Mode ... 325
Menus disabled in FIPS mode ... 325
Certificate management ... 326
Uploading HTTPS certificate for FIPS Mode ... 326
The software upload procedure ... 326
After having uploaded the Certificate ... 326

Cisco CallManager Registration ... 327
Configuring TANDBERG MXP on Cisco CallManager 4.1 ... 327

Supported RFCs in SIP ... 328

Bandwidth information for TANDBERG endpoints ... 329

Declaration of conformity ... 330

Dimensions ... 333
TANDBERG 8000 MXP dimensions ... 333
TANDBERG Profile 52” with Codec 6000 MXP dimensions ... 334
TANDBERG 6000 MXP Profile dimensions ... 335
TANDBERG 3000 MXP Profile 42” dimensions ... 336
TANDBERG 3000 MXP Profile 32” dimensions ... 337
TANDBERG Maestro MXP dimensions ... 338
TANDBERG 1700 MXP dimensions ... 339
TANDBERG 1000 MXP dimensions ... 340
TANDBERG Edge 95/85/75 MXP dimensions ... 341
TANDBERG 990/880/770 MXP and 550 MXP dimensions ... 342
TANDBERG Compass MXP dimensions ... 343
TANDBERG Utility MXP dimensions ... 344
TANDBERG PrecisionHD camera dimensions ... 345
TANDBERG WAVE II camera dimensions ... 346

Technical specifications ... 347
TANDBERG 8000 MXP ... 347
TANDBERG 6000 MXP Profile ... 349
TANDBERG 3000 MXP Profile ... 351
TANDBERG Maestro MXP ... 353
TANDBERG 1700 MXP ... 355
TANDBERG 1000 MXP ... 357
TANDBERG Edge 95/85/75 MXP ... 359
TANDBERG 990/880/770 MXP ... 361
TANDBERG 550 MXP ... 363
TANDBERG Tactical MXP ... 365
TANDBERG Compass MXP ... 367
TANDBERG Utility MXP ... 369

Glossary ... 371

# Chapter 1

# Introduction

Thank you for choosing TANDBERG!

The Administrator Guide describes the TANDBERG *MXP* video systems (F-series) and is designed for system administrators..

### How to read this document

You will find that some places information has been copied from other chapters (but adapted, when needed) to let you have all the relevant information there and then. This helps eliminating the need to read through long sections before you can even think of getting started.

Our main objective with this user guide is to address your goals and needs. Please let us know how well we succeeded!

## Stay up-to-date

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In this chapter...


- What's new?
- Intellectual property rights
- Trademark
- Disclaimer
- Copyright notice
- License information
- Patent information
- Safety instructions
- Environmental issues
- Monitor information
- China RoHS table

# What's new in version F8?

## Multiway

This feature will extend point to point calls to conferences on MCUs hosted in the network. The new participant will be consulted before he is added to the conference. The feature is supported on H.323 and SIP.

## SIP ICE

Standards based NAT traversal for the SIP protocol.

## MNS support

The NAT traversal functionality is extended with MNS ("Media Network Services") mode. This mode prioritizes use of TURN, so that all media traffic is relayed, unless sent to an endpoint on the local network. This mode is intended for use with dedicated media transport networks (see e.g. http://www.medianetworkservices.com).

## Security improvements.

- Removed known vulnerabilities with regards to cross-site scripting
- Security log
- Password restriction

## Call features

- H.323 Call Transfer
- Direct DNS dialling. The ability to launch a call via DNS lookup for calls that are dialed to a true A-record, not a full URI.
- Call last number with double press on Connect button.

## Improved usability

- Move keypad icon in DTMF mode. In the Icons menu you can configure the keypad icon to be displayed on the right or left side of the screen.
- Number key mode, added an "always use this" option
- Configurable Aspect ratio on local display
- Calls received when "Do not disturb" is active will be put in Missed Calls list (earlier they were put in Received Calls)
- Russian search in Phonebook
- Mic on/off indication for SIP calls
- New layout for 3-party calls on dual monitor systems. The two called parties on a Mulitisite host can be displayed on separate screens. This is default enabled for T7000/T8000 systems. For other dual screen systems it can be enabled from the menu.
- Wide CP layout
- Reverse Camera steering. Configuration to decide what direction the camera will move when you press the arrow keys.

## OCS Integration

TANDBERG MXP systems can be natively integrated into an OCS 2007 R2 environment. When a TANDBERG MXP system has been registered and authenticated with the OCS R2, the MXP endpoint will appear as a contact with presence information in the Microsoft Office Communicator contact list.

The TANDBERG MXP also supports the OCS' MPOP mechanism, which means that a user can register his endpoint on his/her OCS R2 account. All incoming calls to this user will be forked to both the Communicator client as well as to the TANDBERG MXP system.

## Miscellaneous

- Support WXGA as PC input
- Added ALD support (hearing impaired feature)
- Enhance Picture control menu. Added white balance to the picture control menu.

## Software release note

The software release note is found at the TANDBERG web site.

Go to: http://www.tandberg.com/support/documentation.php?p=Upgrades_and_Diagnostics

# New products added to the guide

The TANDBERG Profile 52” with Codec 6000 MXP is added to this version of the MXP Administrator Guide.

## System overview

A high-performance HD team-meeting solution for both IP and ISDN networks. Easily share presentations and multimedia.

- Fully integrated system with 1080p 52” widescreen LCD, PrecisionHD 720p camera and 6000 MXP Codec
- Optimal definition up to 720p
- Join up to 6 video and 5 audio sites with embedded MultiSite functionality
- Choice of Network: up to 2 Mbps ISDN or external network (H.320)/4 Mbps IP (H.323 or SIP)/6 Mbps in MultiSite

### Monitor

52” Full HD LCD, 16:9, 1080 x 1920 resolution

### Audio

- Optimized DNAM for TANDBERG Profile 52”, providing crystal clear and natural audio.
- Wide band audio module supporting: 20 kHz AAC-LD, full echo canceling, stereo

### Microphones

3 x Microphones

### Remote control

TANDBERG Remote Control with batteries

### Foot stand

Foot stand: Standalone, wheelbase or wall mounting

TANDBERG Profile 52” with Codec 6000 MXP

## Intellectual Property Rights

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The specifications for the Products and the information in this document are subject to change at any time, without notice, by TANDBERG.

Every effort has been made to supply complete and accurate information in this Administrator Guide, however, TANDBERG assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

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This Product is



## Patent Information

The products described in this manual are covered by one or more of the following patents:

| | | |
|---|---|---|
| US6,584,077 | US5,838,664 | US5,600,646 |
| US5,768,263 | US5,991,277 | US7,034,860 |
| US7,010,119 | US7.283.588 | US5,886,734 |
| US5,990,933 | EP01953201 | GB1338127 |

Other patents pending.

Please view ▶ http://www.tandberg.com/tandberg_pm.jsp for an updated list

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Navigate to User manuals > TANDBERG MXP Copyright and License Information to download the pdf.

IMPORTANT: USE OF THIS PRODUCT IS SUBJECT IN ALL CASES TO THE COPYRIGHT RIGHTS AND THE TERMS AND CONDITIONS OF USE REFERRED TO ABOVE. USE OF THIS PRODUCT CONSTITUTES AGREEMENT TO SUCH TERMS AND CONDITIONS.

# Safety Instructions

The following safety instructions applies to:

TANDBERG 8000 MXP

TANDBERG 6000 MXP Profile

TANDBERG Profile 52” with Codec 6000 MXP

TANDBERG 3000 MXP Profile

TANDBERG 1700 MXP

TANDBERG 1000 MXP

TANDBERG Edge 95/85/75 MXP

TANDBERG 990/880/770 MXP

TANDBERG 550 MXP

For your protection please read these safety instructions completely before you connect the equipment to the power source. Carefully observe all warnings, precautions and instructions both on the apparatus and in these operating instructions.

Retain this manual for future reference.

## WATER AND MOISTURE

Do not operate the apparatus under or near water – for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, near a swimming pool or in other areas with high humidity.

- Never install jacks for communication cables in wet locations unless the jack is specifically designed for wet locations.
- Do not touch the product with wet hands.

## CLEANING

Unplug the apparatus from communication lines, mains power-outlet or any power source before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

## VENTILATION

Do not block any of the ventilation openings of the apparatus. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not place the product in direct sunlight or close to a surface directly heated by the sun.

## LIGHTNING

Never use this apparatus, or connect/disconnect communication cables or power cables during lightning storms.

## DUST

Do not operate the apparatus in areas with high concentration of dust.

## VIBRATION

Do not operate the apparatus in areas with vibration or place it on an unstable surface.

## POWER CONNECTION AND HAZARDOUS VOLTAGE

The product may have hazardous voltage inside.

- Never attempt to open this product, or any peripherals connected to the product, where this action requires a tool.
- This product should always be powered from an grounded power outlet.
- Never connect attached power supply cord to other products.
- In case any parts of the product has visual damage never attempt to connect main power, or any other power source, before consulting service personnel
- The plug connecting the power cord to the product/power supply serves as the main disconnect device for this equipment. The power cord must always be easily accessible.
- Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it. Pay particular attention to the plugs, receptacles and the point where the cord exits from the apparatus.
- Do not tug the power cord.
- If the provided plug does not fit into your outlet, consult an electrician.
- Never install cables, or any peripherals, without first unplugging the device from its power source.

Applies to: TANDBERG 3000 *MXP* Profile, Codec 3000 *MXP*, 1700 *MXP*, 1000 *MXP*, 990/880/770 *MXP*, 550 *MXP*

- Always use the power supply (AC–DC adaptor) provided with this product.
- Replace only with power supply (AC–DC adaptor) specified by TANDBERG.
- Never connect attached power supply (AC–DC adaptor) to other products.

## SERVICING

- Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.
- Unplug the apparatus from its power source and refer servicing to qualified personnel under the following conditions:
  - If the power cord or plug is damaged or frayed.
  - If liquid has been spilled into the apparatus.
  - If objects have fallen into the apparatus.
  - If the apparatus has been exposed to rain or moisture
  - If the apparatus has been subjected to excessive shock by being dropped.
  - If the cabinet has been damaged.
  - If the apparatus seems to be overheated.
  - If the apparatus emits smoke or abnormal odor.
  - If the apparatus fails to operate in accordance with the operating instructions.

## ACCESSORIES

Use only accessories specified by the manufacturer, or sold with the apparatus.

## COMMUNICATION LINES

Do not use communication equipment to report a gas leak in the vicinity of the leak.

Applies to: TANDBERG 8000*MXP*, 6000*MXP* Profile, TANDBERG Profile 52” with Codec 6000*MXP*, 3000*MXP* Profile, 1000*MXP*, 95/85/75*MXP*, 990/880/770*MXP*, 550*MXP*

- Never touch uninstalled communication wires or terminals unless the telephone line has been disconnected at the network interface.
- To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord (ISDN cables).

### A Class Declaration for TANDBERG 8000 *MXP*

声 明

□□□级□□□□□□□□□□□生□□□品□环□□产明□□□□活为□□□□□品中在声□□□□□境□□□□，此□□□

# Safety Instructions

The following safety instructions applies to:

TANDBERG Compass MXP

TANDBERG Utility MXP

For your protection please read these safety instructions completely before you connect the equipment to the power source. Carefully observe all warnings, precautions and instructions both on the apparatus and in these operating instructions.

Retain this manual for future reference.

## OPERATOR SAFETY INSTRUCTIONS

For your protection please read these safety instructions completely before you connect the equipment to the power source.

The information in this summary is intended for operators.

Carefully observe all warnings, precautions and instructions both on the apparatus and in these operating instructions.

Retain this manual for future reference.

## WATER AND MOISTURE

- Do not operate the apparatus under or near water – for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, near a swimming pool or in other areas with high humidity.
- Never install jacks for communication cables in wet locations unless the jack is specifically designed for wet locations.
- Do not touch the product with wet hands.

## CLEANING

- Unplug the apparatus from communication lines, mains power-outlet or any power source before cleaning or polishing.
- Do not use liquid cleaners or aerosol cleaners.
- Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

## VENTILATION

- Do not block any of the ventilation openings of the apparatus. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not place the product in direct sunlight or close to a surface directly heated by the sun.

## LIGHTNING

Never use this apparatus, or connect/disconnect communication cables during lightning storms.

## DUST

Do not operate the apparatus in areas with high concentration of dust

## VIBRATION

Do not operate the apparatus in areas with vibration.

## POWER CONNECTION AND HAZARDOUS VOLTAGE

- The product may have hazardous voltage inside. Never attempt to open this product, or any peripherals connected to the product, where this action requires a tool.

## SERVICING

- Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.
- Refer servicing to qualified personnel under the following conditions:
  - If liquid has been spilled into the apparatus.
  - If objects have fallen into the apparatus.
  - If the apparatus has been exposed to rain or moisture
  - If the apparatus has been subjected to excessive shock by being dropped.
  - If the cabinet has been damaged.
  - If the apparatus seems to be overheated.
  - If the apparatus emits smoke or abnormal odor.
  - If the apparatus fails to operate in accordance with the operating instructions

## ACCESSORIES

Use only accessories specified by the manufacturer, or sold with the apparatus.

## COMMUNICATION LINES

- Never touch uninstalled communication wires or terminals unless the telephone line has been disconnected at the network interface.
- Do not use communication equipment to report a gas leak in the vicinity of the leak.
- To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord (ISDN cables).

# Safety Instructions

The following safety instructions applies to:

TANDBERG Tactical MXP

For your protection please read these safety instructions completely before you connect the equipment to the power source. Carefully observe all warnings, precautions and instructions both on the apparatus and in these operating instructions.

Retain this manual for future reference.

## OPERATIONAL ENVIRONMENT TESTING

- The product complies testing in the following environmental parameters:
  - Air temperature low: -5 deg C (16h)
  - Air temperature high: 40 deg C (16h)
  - Air temperature change: 25 deg C / 40 deg C, 0,5 cycle (T=3h), 0,5 deg C / min
  - Humidity relative high: 93%rh, 30 deg C (4 days)
  - Humidity relative condensation: 30 deg C, 90-100%rh, 1 cycle (12+12h)
  - Vibration random: 5-10Hz (+12dB/oct.), 10-50Hz (0,02m2/s3), 50-100Hz (-12dB/oct.). 3 axis x 30min
  - Shocks: Half sine, 11ms, 30m/s2, 6 directions, 3 in each direction.

## WATER AND MOISTURE

- Do not operate the apparatus under or near water - for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, near a swimming pool or in other areas with high humidity (See Operational Environment Testing above).
- Never install jacks for communication cables in wet locations unless the jack is specifically designed for wet locations.
- Do not touch the product with wet hands.

## CLEANING

- Unplug the apparatus from communication lines, mains power-outlet or any power source before cleaning or polishing.
- Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

## VENTILATION

- Do not block any of the ventilation openings of the apparatus. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not place the product in direct sunlight or close to a surface directly heated by the sun.

## LIGHTNING

Never use this apparatus, or connect/disconnect communication cables during lightning storms.

## DUST

Do not operate the apparatus in areas with high concentration of dust

## VIBRATION

- Do not operate the apparatus in areas with extensive vibration or place it on an unstable surface. (See Operational Environment Testing above).

## POWER CONNECTION AND HAZARDOUS VOLTAGE

- The product may have hazardous voltage inside. Never attempt to open this product, or any peripherals connected to the product, where this action requires a tool.
- This product should always be powered from an grounded power outlet.
- Never connect attached power supply cord to other products.
- In case any parts of the product has visual damage never attempt to connect mains power, or any other power source, before consulting service personnel.
- The plug connecting the power cord to the product/power supply serves as the main disconnect device for this equipment. The power cord must always be easily accessible.
- Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it. Pay particular attention to the plugs, receptacles and the point where the cord exits from the apparatus.
- Do not tug the power cord.
- If the provided plug does not fit into your outlet, consult an electrician.
- Never install cables, or any peripherals, without first unplugging the device from it's power source.
- Always use the power supply (AC-DC adapter) provided with this product.
- Replace only with power supply (AC-DC adapter) specified by TANDBERG.
- Never connect attached power supply (AC-DC adapter) to other products.

## SERVICING

- Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.
- Unplug the apparatus from it's power source and refer servicing to qualified personnel under the following conditions:
  - If the power cord or plug is damaged or frayed.
  - If liquid has been spilled into the apparatus.
  - If objects have fallen into the apparatus.
  - If the apparatus has been exposed to rain or moisture
  - If the apparatus has been subjected to excessive shock by being dropped.
  - If the cabinet has been damaged.
  - If the apparatus seems to be overheated.
  - If the apparatus emits smoke or abnormal odor.
  - If the apparatus fails to operate in accordance with the operating instructions

## ACCESSORIES

Use only accessories specified by the manufacturer, or sold with the apparatus.

## COMMUNICATION LINES

- Never touch uninstalled communication wires or terminals unless the telephone line has been disconnected at the network interface.
- Do not use communication equipment to report a gas leak in the vicinity of the leak.
- To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord (ISDN cables).

# Environmental Issues

Thank you for buying a product which contributes to a reduction in pollution, and thereby helps save the environment. Our products reduce the need for travel and transport and thereby reduce pollution. Our products have either none or few consumable parts (chemicals, toner, gas, paper).

## TANDBERG'S ENVIRONMENTAL POLICY

Environmental stewardship is important to TANDBERG's culture. As a global company with strong corporate values, TANDBERG is committed to following international environmental legislation and designing technologies that help companies, individuals and communities creatively address environmental challenges.

TANDBERG's environmental objectives are to:

- Develop products that reduce energy consumption, CO2 emissions, and traffic congestion
- Provide products and services that improve quality of life for our customers
- Produce products that can be recycled or disposed of safely at the end of product life
- Comply with all relevant environmental legislation.

## DIGITAL USER GUIDES

TANDBERG is pleased to announce that we have replaced the printed versions of our user guides with digital versions available on the TANDBERG web site: ▶ http://www.tandberg.com/docs. The environmental benefits of this are significant. The user guides can still be printed locally, whenever needed.

## EUROPEAN ENVIRONMENTAL DIRECTIVES

As a manufacturer of electrical and electronic equipment TANDBERG is responsible for compliance with the requirements in the European Directives 2002/96/EC (WEEE - Waste Electrical and Electronic Equipment) and 2002/95/EC (RoHS).

The primary aim of the WEEE Directive and RoHS Directive is to reduce the impact of disposal of electrical and electronic equipment at end-of-life. The WEEE Directive aims to reduce the amount of waste electrical and electronic equipment sent for disposal to landfill or incineration by requiring producers to arrange for collection and recycling. The RoHS Directive bans the use of certain heavy metals and brominated flame retardants to reduce the environmental impact of WEEE which is in landfill or incinerated.

TANDBERG has implemented necessary process changes to comply with the European WEEE Directive (2002/96/EC) and the European RoHS Directive (2002/95/EC).

## WASTE HANDLING

In order to avoid the dissemination of hazardous substances in our environment and to diminish the pressure on natural resources, we encourage you to use the appropriate recycling systems in your area. Those systems will reuse or recycle most of the materials of your end of life equipment in a sound way.

TANDBERG products put on the market after August 2005 are marked with a crossed-out wheelie bin symbol that invites you to use those take-back systems.

Please contact your local supplier, the regional waste administration or visit our web page ▶ http://www.tandberg.com/recycling if you need more information on the collection and recycling system in your area.

## INFORMATION FOR RECYCLERS

As part of compliance with the European WEEE Directive, TANDBERG provides recycling information on request for all types of new equipment put on the market in Europe after August 13th 2005.

Please contact TANDBERG and provide the following details for the product for which you would like to receive recycling information:

- Model number of TANDBERG product
- Your company's name
- Contact name
- Address
- Telephone number
- E-mail.

TANDBERG See: green

# Monitors - After Image Lagging

**CAUTION!** Avoid displaying the same images continuously over a long period of time on the monitors.

Displaying the same images such as still images for a long time may cause after-image lagging. This may occur in the cases described here.

## After image lagging due to remaining electrical load

When image patterns with very high peak luminance are displayed for more than 1 minute, after-image lagging may occur due to the remaining electric load. The after-images remaining on the screen will disappear when moving images are displayed. The time for the after-images to disappear depends on the luminance of the still images and the time they had been displayed.

## After-image lagging due to sticking

When images of the same pattern are displayed continuously for several hours or displayed for a short period of time every day, after-images may remain on the screen due to the sticking of the fluorescent materials. In this case, these images may decrease if moving images are displayed after them, but basically they will not disappear.

## Solving after-image lagging problems

If you have got after-image lagging on your monitors, you can reduce the problem to an acceptable level by displaying a white image on the monitors for a few hours. This can be accomplished by focusing the camera towards a white paper and setting maximum brightness. See the 'User Manual' for details.

**NOTE:** Warranty may be invalidated if the precautions listed above are not followed.

# China RoHS table

These products complies with the Chineese RoHS.

## 产品中有毒有害物质表

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 | 汞 | 镉 | 六价铬 | 多溴联苯 | 多溴二苯醚 |
| 金属部件 | X | O | O | O | O | O |
| 印刷电路板及组件 | X | O | O | O | O | O |
| 线缆和线缆组装 | X | O | O | O | O | O |
| 显示器（包括照明灯） | X | X | O | O | O | O |

**说明:**

O：表示该有毒有害物质在此部件所有均质材料中的含量均在中国标准《电子信息产品中有毒有害物质的限量要求》(SJ/T 11363-2006) 所规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出中国标准《电子信息产品中有毒有害物质的限量要求》(SJ/T 11363-2006) 所规定的限量要求。

注意：在所售产品中未必包含所有上述所列部件。

除非在产品上有另外特别的标注，以下标志为针对所涉及产品的环保使用期限标志。环保使用期限只适用于产品在产品手册中所规定的使用条件。

## Chapter 2

# Getting started

This chapter introduces you to your MXP product and gets you up and going.

### Remote control

For your convenience you can print out the description of the remote control and plastic laminate the page.

### Installation Wizard

The Installation Wizard takes you through the basic configurations of the video system and is described in this section.

### Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: ▶ http://www.tandberg.com/docs

In this chapter...

- Using the remote control
- Installation Wizard
- Verify the settings
- Installation Profiles
- View default settings
- Restore to defaults

# TANDBERG Remote control TRC3

d R d turns your microphone on and off.

Press R PA to show the menu and select menu items.

IR A d and w adjusts the Codec volume only and not the monitor volume.

CRATc key toggles between full screen and different display layouts.

Press the key to place a call.

S dES N TN Camera presets define specific camera positions. To activate a preset whilst in a call, simply press and release that number key. Move the camera to the desired position and press and hold a number key for one second to save the current camera position to that number key.

The E PA S d CE functions in the same manner as a cellular phone.

NP EN RT takes a snapshot of your video during a call.


ES N PT T RP key switches to a predefined presentation source. If the Presentation key is held down for one second then the Presentation video sources menu will appear.

SSRO keys are used to navigate in the menus and for moving the camera* when the menu is hidden.

Use RR d and wd to zoom the camera* in and out.

The N I O key displays your outgoing video. Press again to turn off.

The P key takes you back one step in the menu system, i.e. to leave a menu undoing any changes. Use P d to delete characters in an input field. Press and hold the P key for one second to close the menu.

Use the P d key to end the current call. You can also use the P d key to exit a menu, and if you press the P d key once again the NT P C menu will be displayed and you can put the system in to NT P Cd mode.

Use the E RPd RR key to store and recall video contacts for easy placement of calls.

Press TRA dTRP N key when you are in a call and need to dial extension numbers. Toggle between ABC and abc mode by pressing the # key. To switch between letter and 123 mode press the # key for one second. Press the R PA button to exit TRA dTRP N.

* Applies to systems with controllable cameras.

# TANDBERG Remote control TRC4

P d l RdNRAS . Select the desired video source (Main Cam, PC, DocCam, DVD, AUX). Press the video source button again to deselect the video source.

d R d turns your microphone on and off.

Press R PA to show the menu and select menu items.

IR A d and w adjusts the Codec volume only and not the monitor volume.

CRATdkey toggles between full screen and different display layouts.

Press the key to place a call.

S dES N TN Camera presets define specific camera positions. To activate a preset whilst in a call, simply press and release that number key. Move the camera to the desired position and press and hold a number key for one second to save the current camera position to that number key.

The E PA S d CE functions in the same manner as a cellular phone.

NP EN RT takes a snapshot of your video during a call.

ES N T Press Preset + a number to activate a preset.

N SI N Press the Services button to open the Services menu.

Sd P Pressing Far End turns Far End control on and off.

E Press the Help button to open the User Guide menu


ES N PT T RP key switches to a predefined presentation source. If the Presentation key is held down for one second then the Presentation video sources menu will appear.

SSRO keys are used to navigate in the menus and for moving the camera* when the menu is hidden.

Use RR d and wto zoom the camera* in and out.

The N I O key displays your outgoing video. Press again to turn off.

The P key takes you back one step in the menu system, i.e. to leave a menu undoing any changes. Use P d to delete characters in an input field. Press and hold the P key for one second to close the menu.

Use the P d key to end the current call. You can also use the P d key to exit a menu, and if you press the P d key once again the NT P C menu will be displayed and you can put the system in to NT P Cdmode.

Use the E RPd RR key to store and recall video contacts for easy placement of calls.

Press TRA dTRP N key when you are in a call and need to dial extension numbers. Toggle between ABC and abc mode by pressing the # key. To switch between letter and 123 mode press the # key for one second. Press the R PA button to exit TRA dTRP N.

* Applies to systems with controllable cameras.

# The Installation Wizard

The Installation Wizard starts automatically when the video system is installed at the first time and guides you through the basic configuration of the system in the following steps:

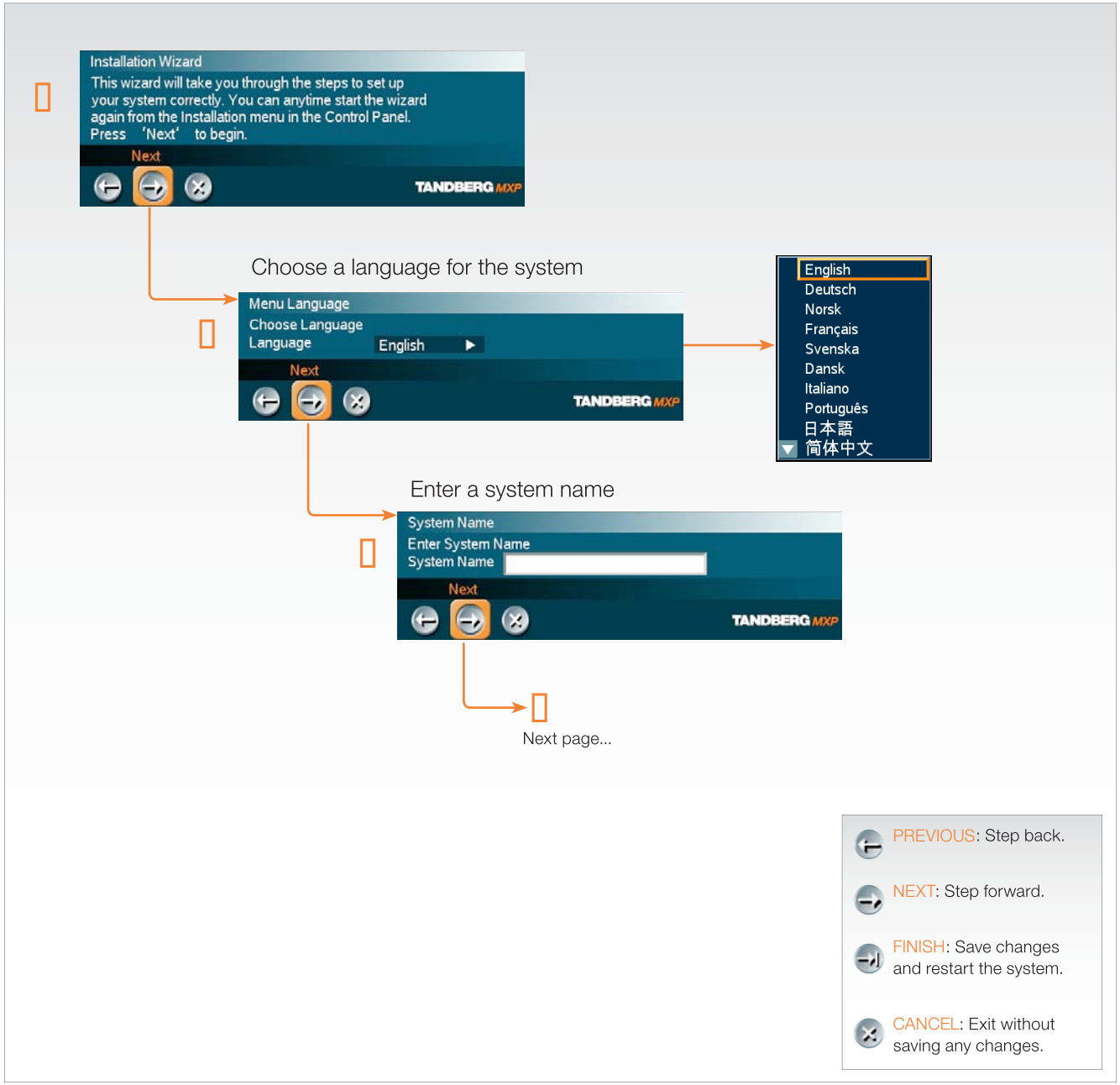
1. Welcome page
2. Select Language
3. Enter System Name
4. Enter Software Option Keys
5. Enter IP Settings
   - Obtain IP Address Automatically
   - Static IP Address (address, subnet, gateway)
6. Enter SIP Settings
7. Enter External Management settings
   - On: Enter information for your TMS server (address, path)
   - Off: Select from the list:
     - Gatekeeper and enter the gatekeeper settings
     - Call Manager and enter the call manager settings
     - Direct
8. Finish the wizard. The system will automatically restart the system.

The Installation Wizard can be run any time from the Control Panel menu.

## Description of the settings

Each setting is described in in The settings library.

Press The settings library menu button on top of the page to go the settings library or use the search functionality in the Adobe Acrobat PDF document to make a search for the setting.



## The Installation Wizard, *cont...*

### Description of the settings

Each setting is described in in The settings library.

Press The settings library menu button on top of the page to go the settings library or use the search functionality in the Adobe Acrobat PDF document to make a search for the setting.

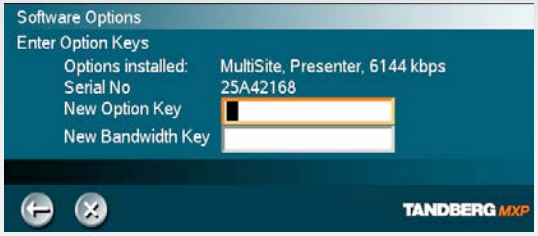
PREVIOUS: Step back.

NEXT: Step forward.

FINISH: Save changes and restart the system.

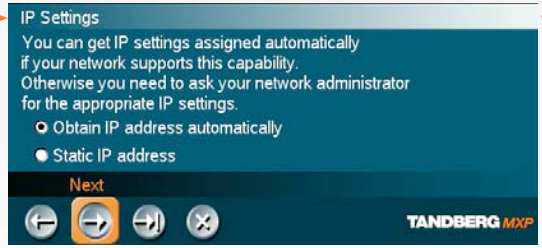
CANCEL: Exit without saving any changes.

### Enter software options

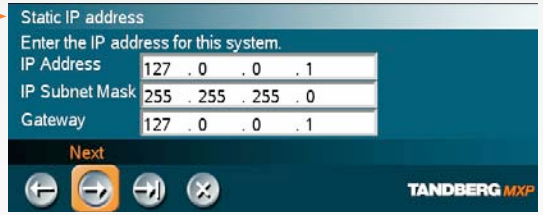



Read more about Software options...

### IP settings




### If you need to set a static IP address

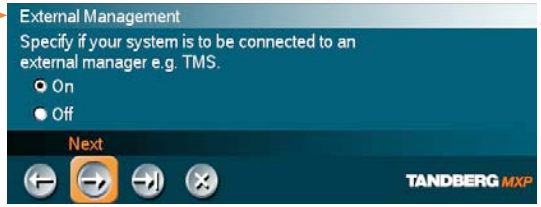



Read more about Static IP address...

### SIP Settings


Read more about SIP settings...

### External management




Next page...

### External manager settings


Read more about External manager settings...

13
Next page...

## The Installation Wizard, *cont...*

PREVIOUS: Step back.

NEXT: Step forward.

FINISH: Save changes and restart the system.

CANCEL: Exit without saving any changes.

### Specify how to register your system

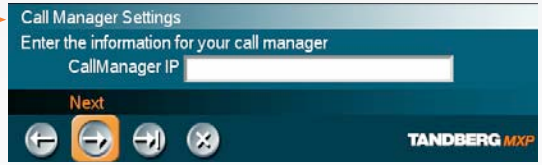

### Enter gatekeeper settings

11


Read more about Gatekeeper settings...

### - or enter Call manager settings

12

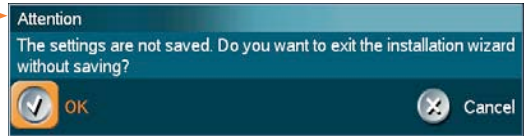


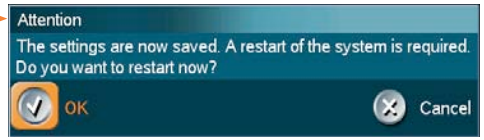

Read more about Call manager settings...

### - or select Direct call setup

13


Save and restart



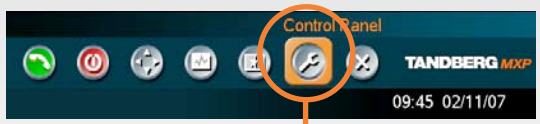

### Description of the settings

Each setting is described in in The settings library.

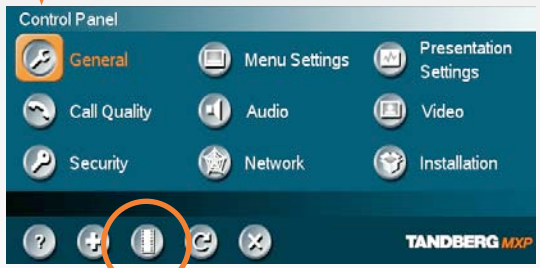
Press The settings library menu button on top of the page to go the settings library or use the search functionality in the Adobe Acrobat PDF document to make a search for the setting.

# Verify your settings

Press any button on the remote control to wake up the system. Navigate to the System Information page, as described below, to verify the settings.

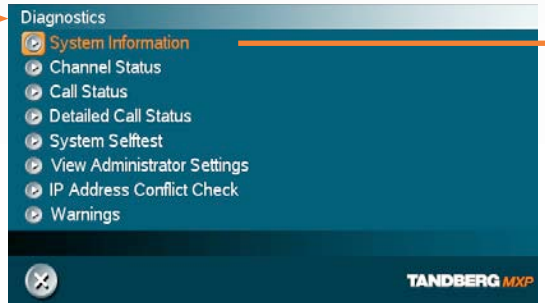



In the Call menu, press the Control Panel button.




In the Control Panel menu, press the Diagnostics button.

In the Diagnostics menu, press the System Information button.




Verify your settings in the System Information page.


## Description of the settings

Each setting is described in in The settings library.

Press The settings library menu button on top of the page to go the settings library or use the search functionality in the Adobe Acrobat PDF document to make a search for the setting.

PREVIOUS: Step back.

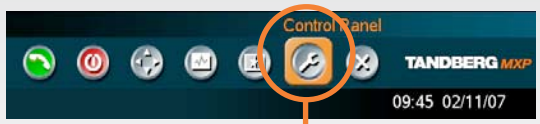
NEXT: Step forward.

FINISH: Save changes and restart the system.

CANCEL: Exit without saving any changes.

# View the default system settings

Press any button on the remote control to wake up the system. Go to the Installation menu and View default settings menu to see a listing of the default system settings.




In the Call menu, press the Control Panel button.


In the Control Panel menu, press the Diagnostics button.



## Restore to default system settings

Click on Restore Defaults button to restore to default settings.

### Description of the settings

Each setting is described in in The settings library.

Press The settings library menu button on top of the page to go the settings library or use the search functionality in the Adobe Acrobat PDF document to make a search for the setting.

PREVIOUS: Step back.

NEXT: Step forward.

FINISH: Save changes and restart the system.

CANCEL: Exit without saving any changes.

# Installation Profiles

You can create installation profiles to easily switch between different sets of configurations for the system.

Configure the system and save the settings in an Installation profile.

### Description of the settings

Each setting is described in in The settings library.

Press The settings library menu button on top of the page to go the settings library or use the search functionality in the Adobe Acrobat PDF document to make a search for the setting.

PREVIOUS: Step back.

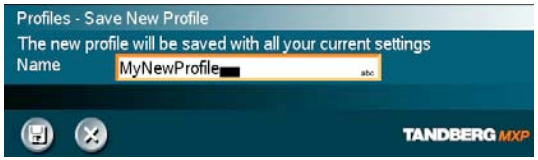
NEXT: Step forward.

FINISH: Save changes and restart the system.

CANCEL: Exit without saving any changes.


Read more about Installation Profiles...

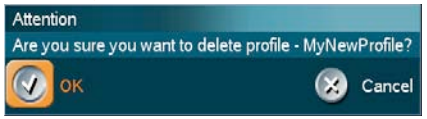
## Save Profile


## Activate Profile



## Delete Profile

## Chapter 3

# The Control Panel menu structure

The Control Panel menu structure section gives an overview of all the Control Panel menus for all video systems in the MXP F–series.

Detailed information about each setting is found in the The settings library. The settings available will vary within the MXP system range, depending on the system and software options installed.

Overleaf you can select a video system and go directly to a description of the Control Panel menu structure for this system.

### Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide.

Go to: ▶ http://www.tandberg.com/docs

### MXP User Guide

You may find descriptions of a few of the menus outside the Control Panel in this guide, but in general these menus are described in the MXP User Guide.

Go to: ▶ http://www.tandberg.com/docs

In this chapter...

- Select your video system
- Overview of the menu structure for
  - 8000 MXP
  - 6000 MXP Profile
  - 6000 MXP Profile 52”
  - Maestro MXP
  - 3000 MXP Profile
  - Tactical MXP
  - 1700 MXP
  - 1000 MXP
  - Compass MXP
  - Utility MXP
  - Edge 95/85/75 MXP
  - Set top 990/880/770
  - Set top 550 MXP

Go the next page to select a video system ▶

# Select your video meeting system

Click on a picture, or the link below the picture, to go directly to a description of the menu structure for your video system.

TANDBERG 8000 MXP

TANDBERG Profile 52” with Codec 6000 MXP

TANDBERG 6000 MXP Profile

TANDBERG 3000 MXP Profile

TANDBERG Maestro MXP

TANDBERG 1700 MXP

TANDBERG Edge 95/85/75 MXP

TANDBERG 990/880/770 MXP

TANDBERG 550 MXP

TANDBERG 1000 MXP

TANDBERG Tactical MXP

TANDBERG Compass MXP

See also Kiosk Mode

TANDBERG Utility MXP

See also Kiosk Mode

# Control Panel menu structure for:

This guide describes the menu structure for the systems displayed on this page, with all options installed.

Descriptions of each menu item are found in The settings library section.

TANDBERG 8000 MXP

TANDBERG PROFILE 52” with Codec 6000 MXP

TANDBERG 6000 MXP Profile

TANDBERG Maestro MXP

## About the Control Panel

The different parts of the Control Panel are explained on the following pages.

The menu structure section presents all the Control Panel menus by product. This section applies to:

- TANDBERG 8000 *MXP*
- TANDBERG 6000 *MXP* Profile
- TANDBERG Profile 52" with Codec 6000 *MXP*
- TANDBERG Maestro *MXP*

### Password Protection

Making changes to the Control Panel Settings will change the behavior of the system. We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system. Set an Administrator Password to control the access to these settings.

Read more about password protection in the Using the system section.

### Remote control shortcut keys

RE-DIAL: Double click on the green call button on the remote control to start calling the last number.

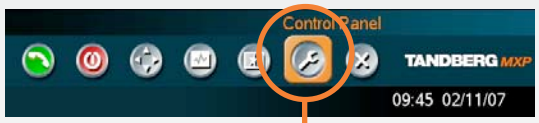
STANDBY: Double click on the red end call button on the remote control to set the system into standby.

SHOW SYSTEM INFORMATION: Open the call menu and press the arrow up key once to show the System information page.

RESET MENU LANGUAGE: Click on the Phone Book button 5 times and then press the number key 1 to reset the menu language to English.

### Open the Control Panel

Press the OK key on the remote control to wake up the system, and to display the Call menu.




In the Call menu, use the arrow keys on the remote control to navigate to the Control Panel button and press the OK key to display the Control Panel.


BACK

RESTART (the system switches itself Off and On again)

AUDIO DEMO (demonstrates the audio of the system)

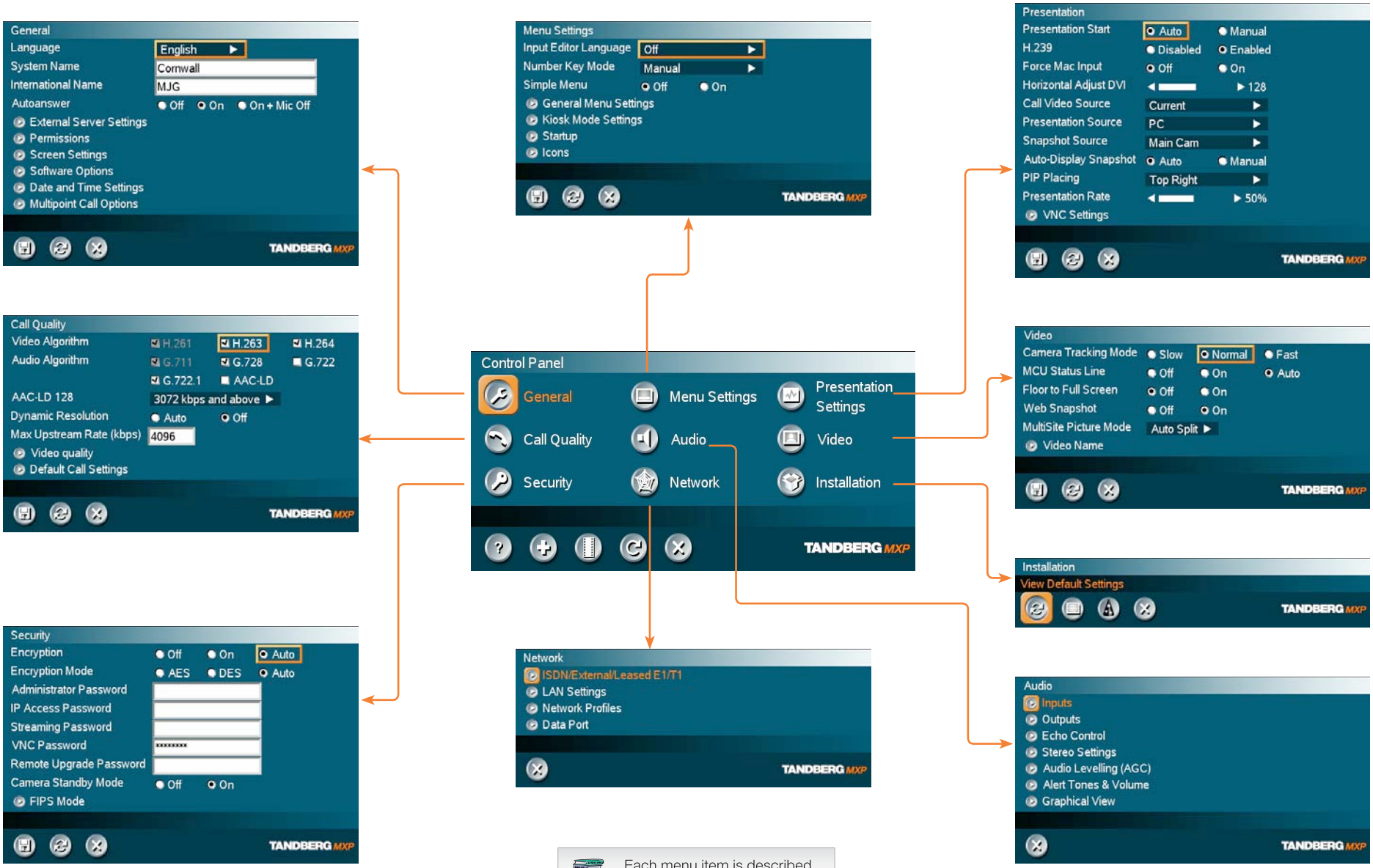
DIAGNOSTICS (see the system status and warnings))

ON-LINE USER GUIDE (open the online user guide).

Each menu item is described in The settings library section.

## The Control Panel overview

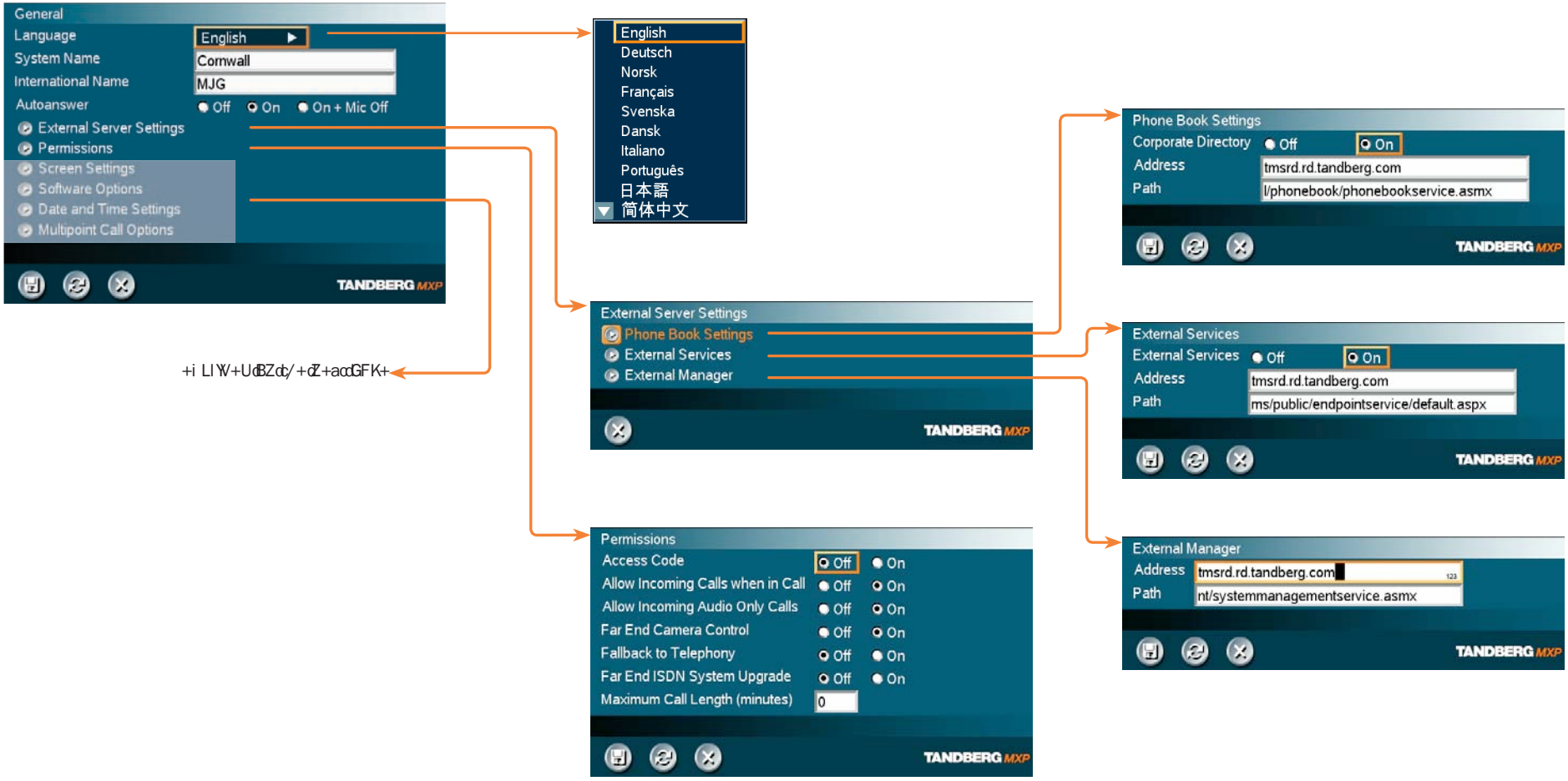
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 1

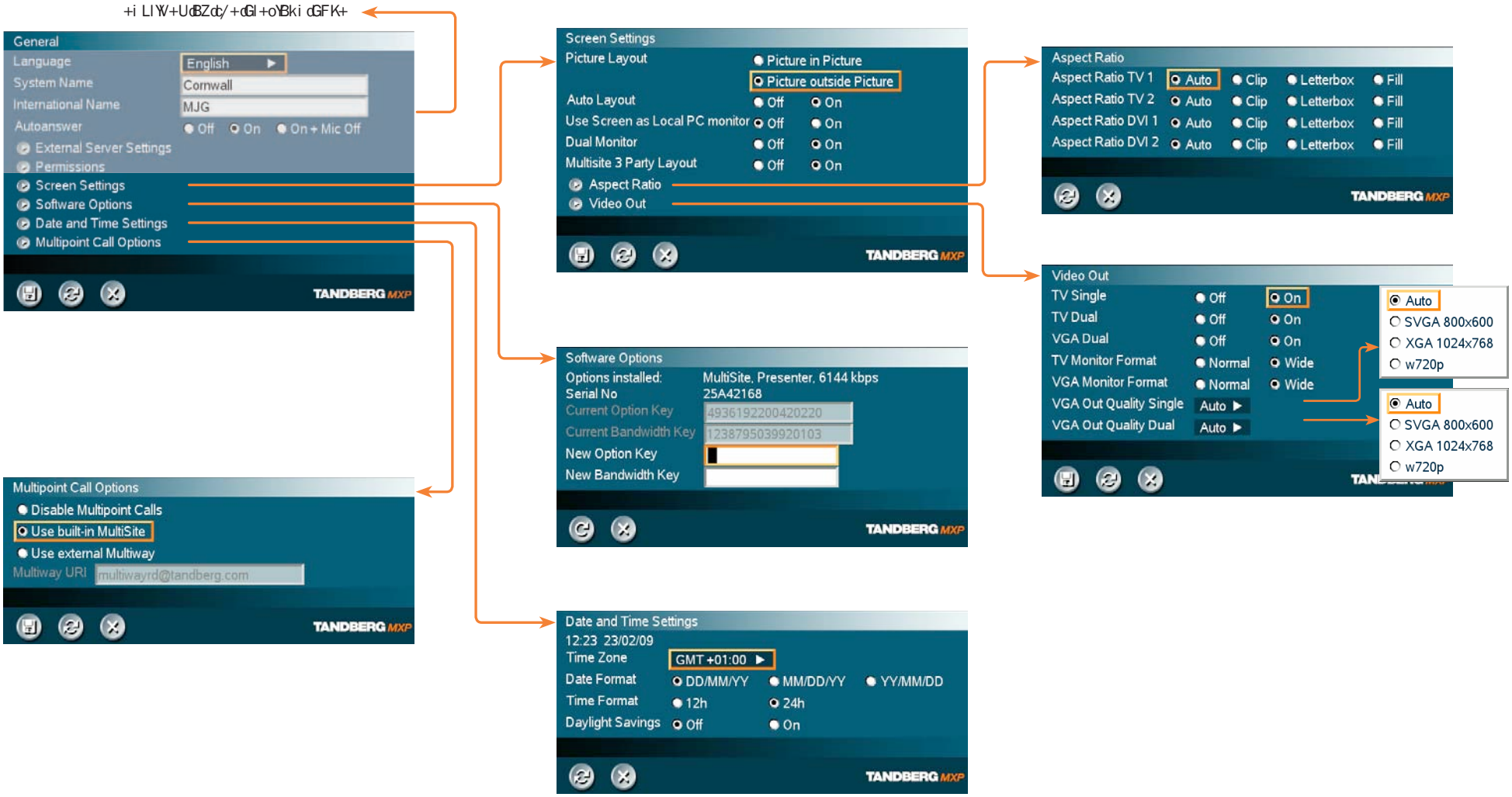
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 2

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

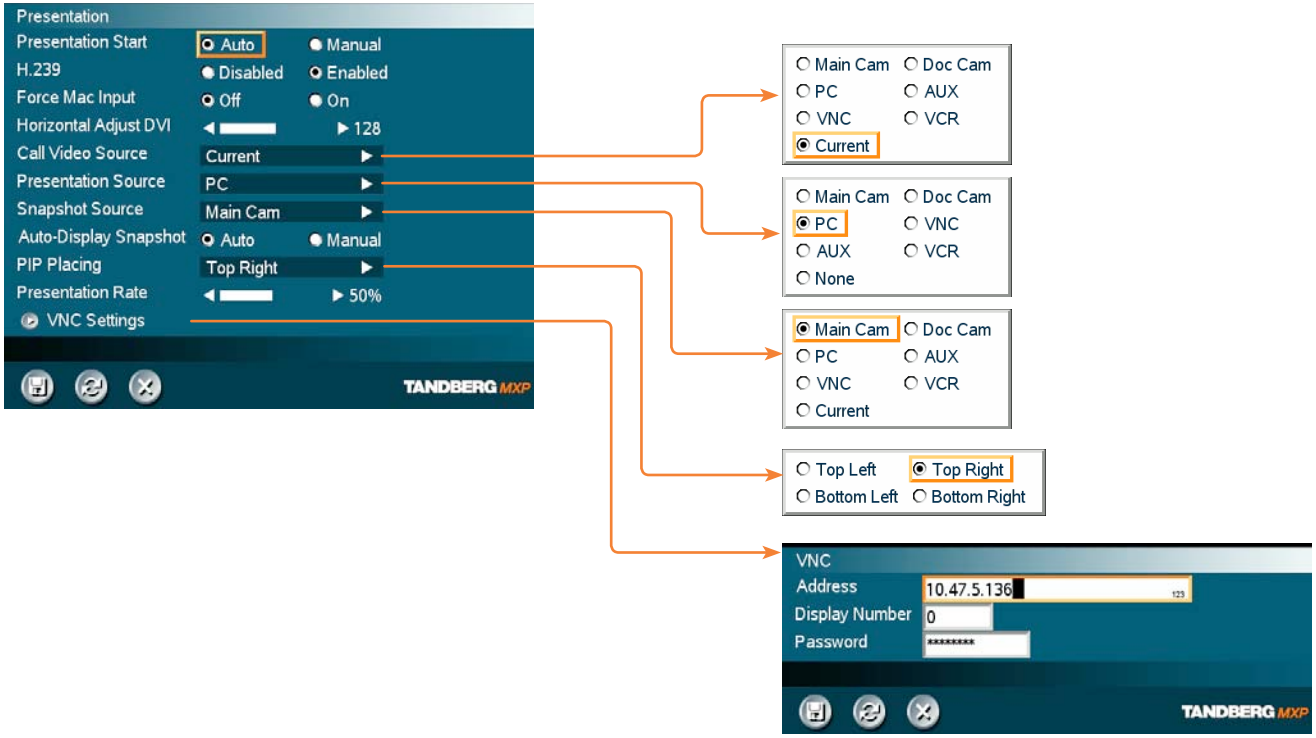
## The Menu settings menus

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**


Each menu item is described in The settings library section.

## The Presentation settings menus

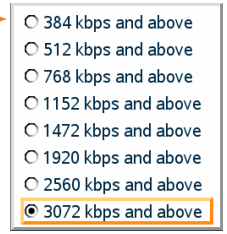
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

## The Call Quality settings menus

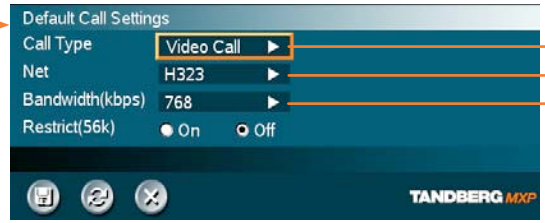
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**

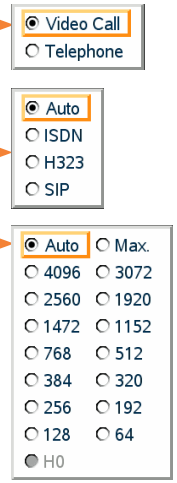





**NOTE!** The Call Settings are also available from the Call Menu. When making a call you can change the Call Settings. Choose SET AS DEFAULT to make the changes the new DEFAULT CALL SETTINGS.



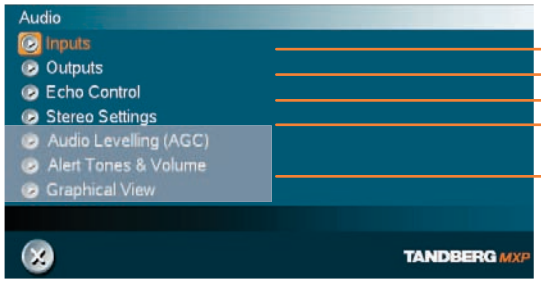


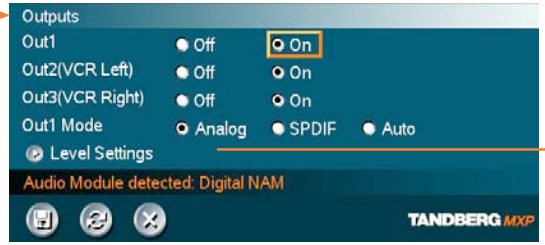

Each menu item is described in The settings library section.

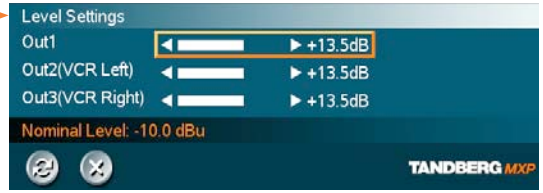
## The Audio settings menus - Part 1

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**

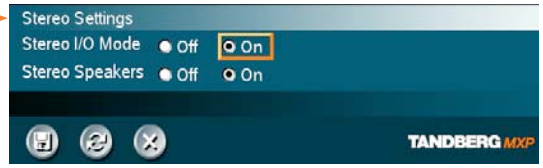









**TIP!** If Stereo Speakers are enabled in the menu without having any stereo speakers connected to the Digital NAM, it may cause the acoustic echo-canceller to malfunction.

**TIP!** It is your echo canceller that improves the audio quality experienced by the other side. When you hear an echo of your own audio it is most likely the far end's echo canceller that is malfunctioning.

OTHER AUDIO 5/6 INPUT OPTIONS:

- Audio 5 for VCR Left
- Audio 6 for VCR Right.

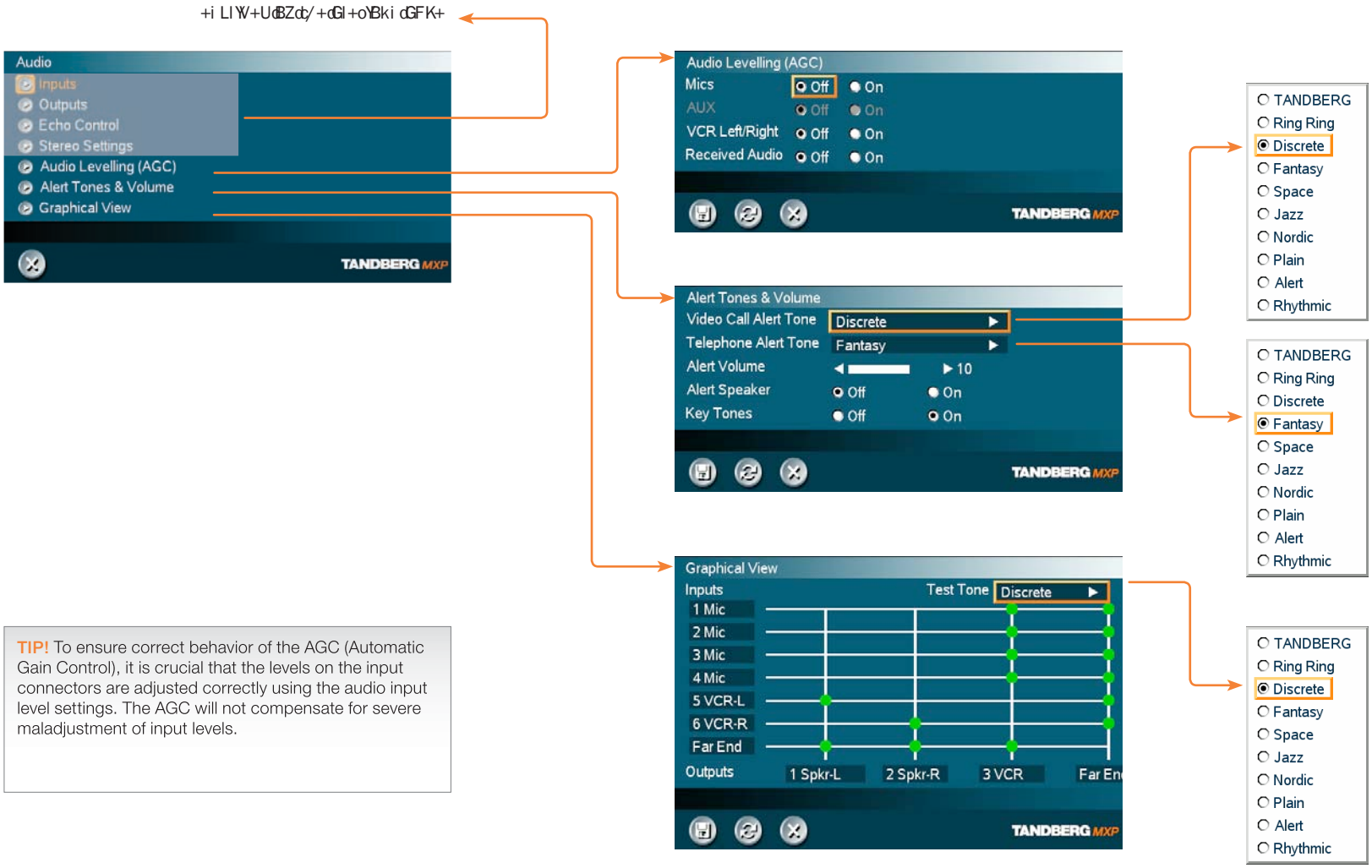
OTHER AUDIO OUTPUT 2/3 OPTIONS:

- Out 2 for VCR Left
- Out 3 for VCR Right.

Each menu item is described in The settings library section.

## The Audio settings menus - Part 2

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**

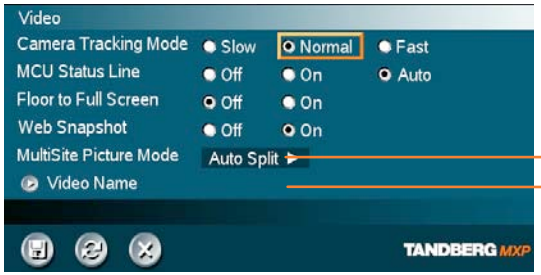


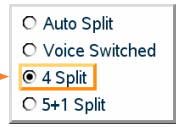

**TIP!** To ensure correct behavior of the AGC (Automatic Gain Control), it is crucial that the levels on the input connectors are adjusted correctly using the audio input level settings. The AGC will not compensate for severe maladjustment of input levels.

Each menu item is described in The settings library section.

## The Video settings menus

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**



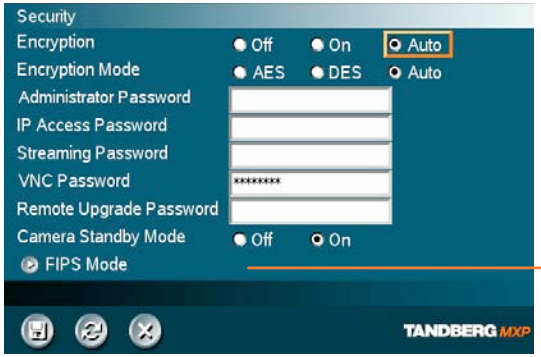



The Video Name typed in will appear in the Presentation menu. To find the Presentation menu, press the OK button on the remote control and select the Presentation button.

Each menu item is described in The settings library section.

## The Security settings menu

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**





### Password Protection of the Control Panel

Making changes to the Control Panel Settings will change the behavior of the system.

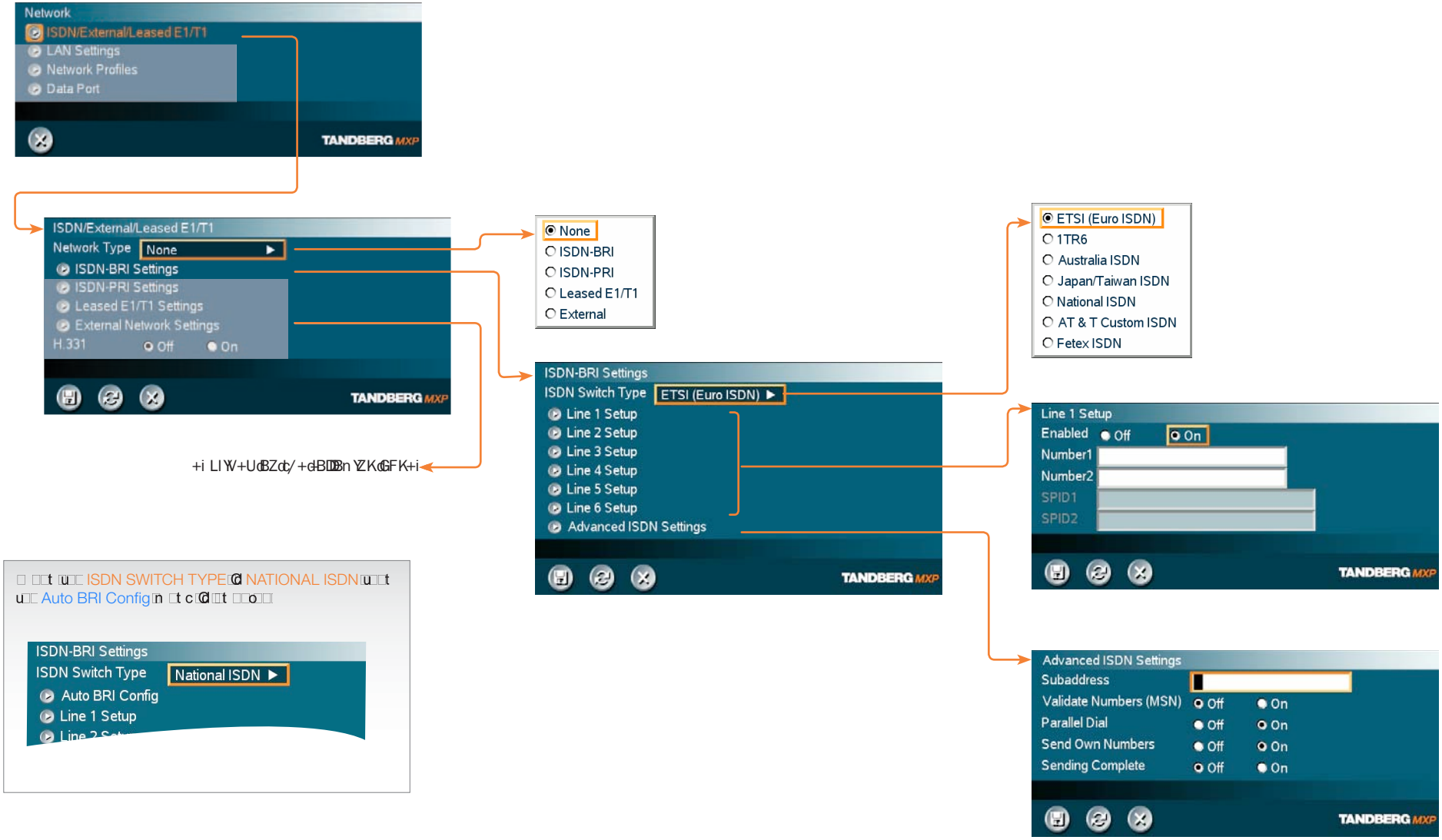
We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system.

Set an Administrator Password to control the access to these settings.

Each menu item is described in The settings library section.

## The Network settings menus - Part 1

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**



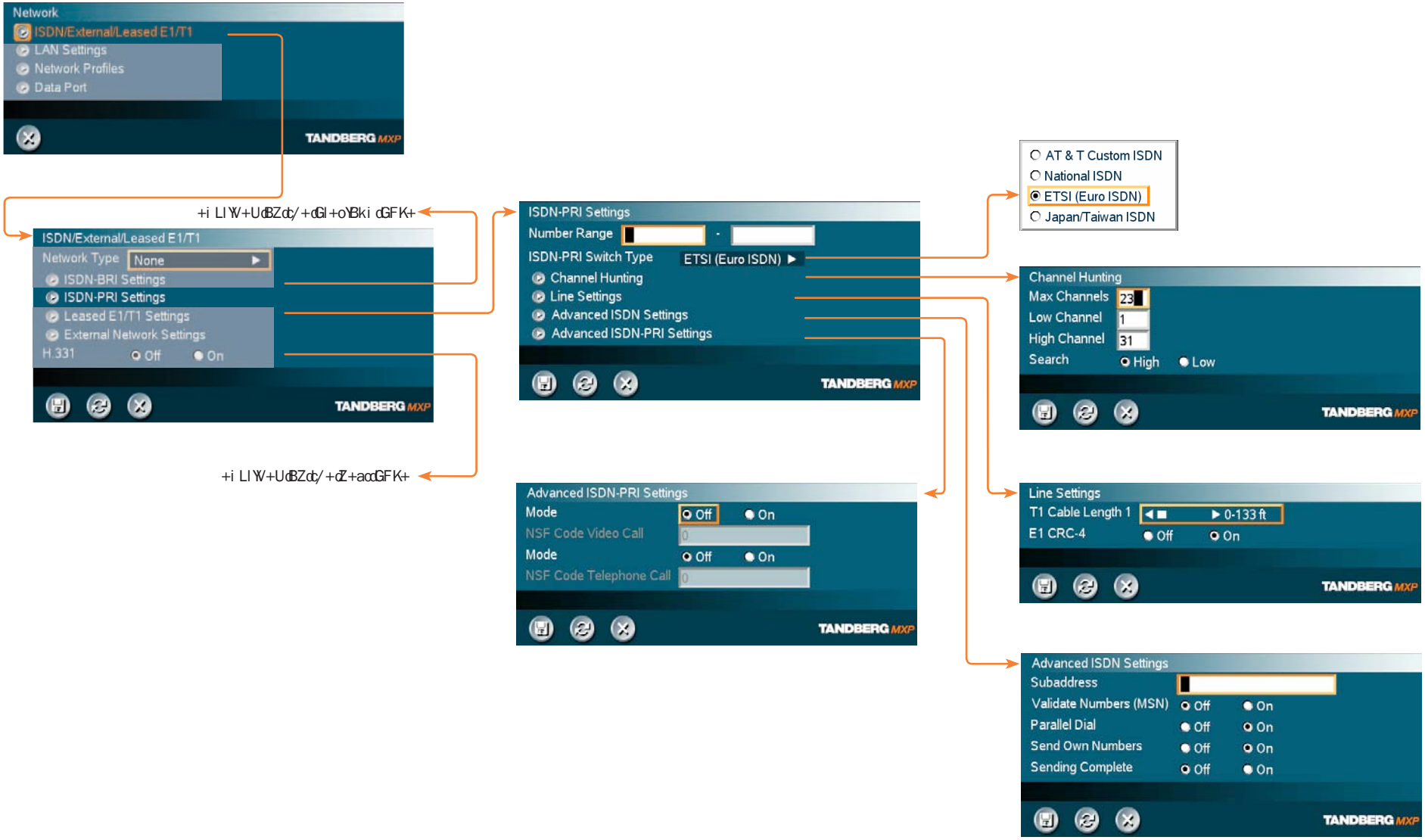




Each menu item is described in The settings library section.

## The Network settings menus - Part 2

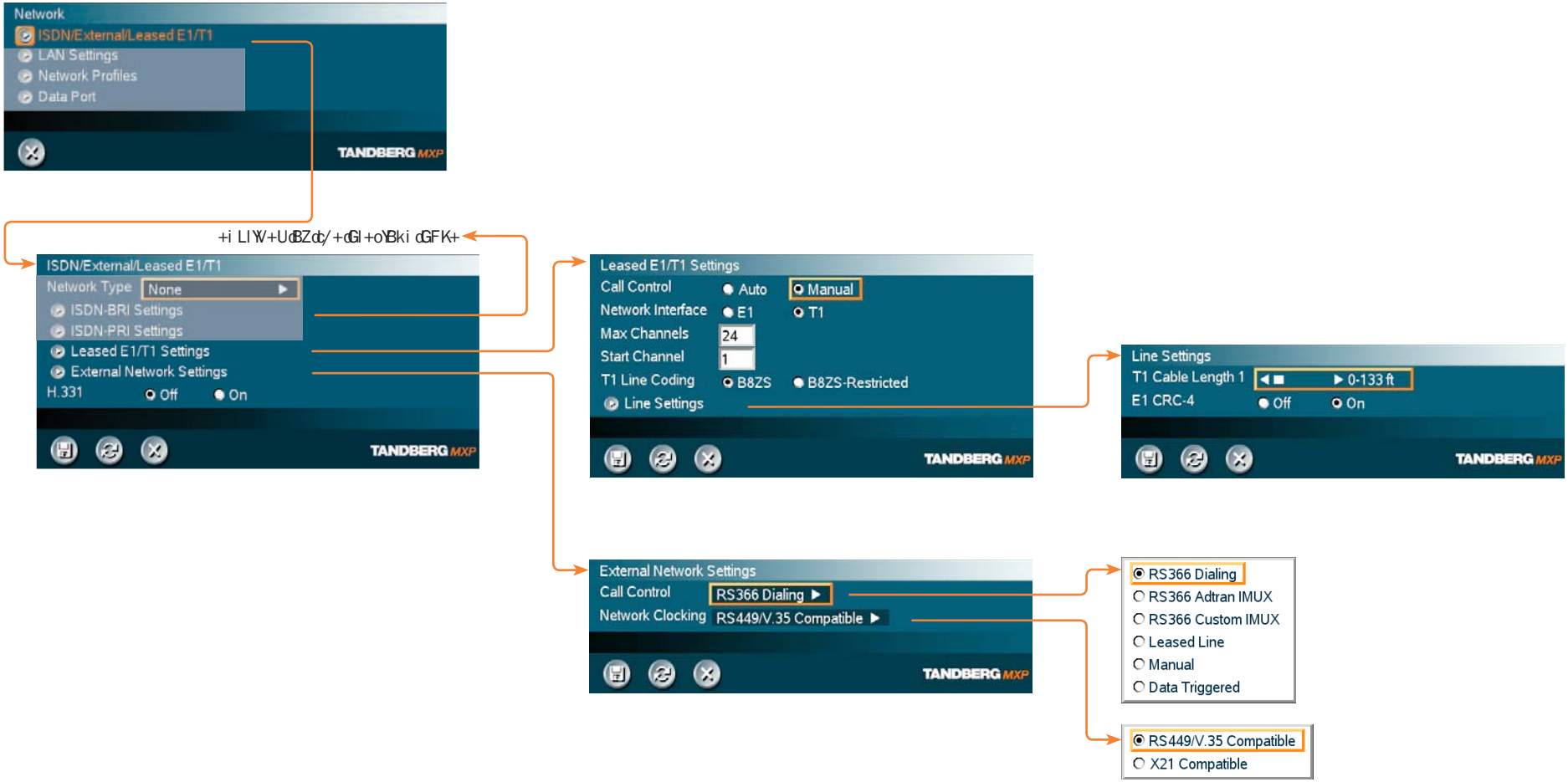
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

## The Network settings menus - Part 3

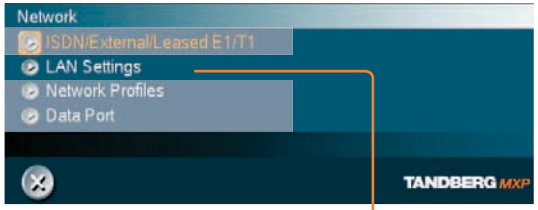
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**

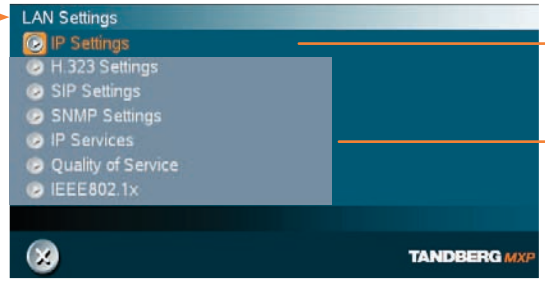



Each menu item is described in The settings library section.

## The Network settings menus - Part 4

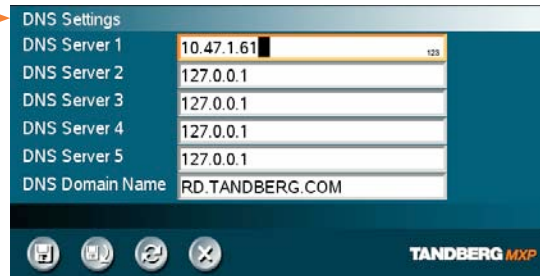
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**





Select SAVE AND RESTART after making changes to IP Settings

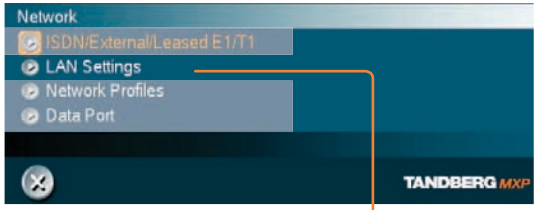



Select SAVE AND RESTART after making changes to DNS Settings

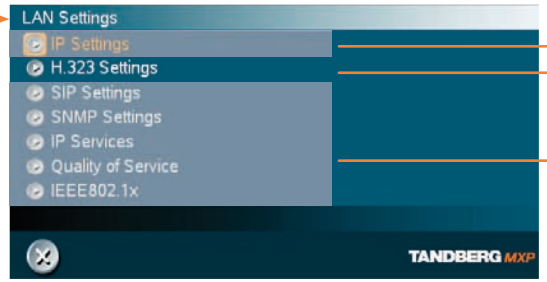
Each menu item is described in The settings library section.

## The Network settings menus - Part 5

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**

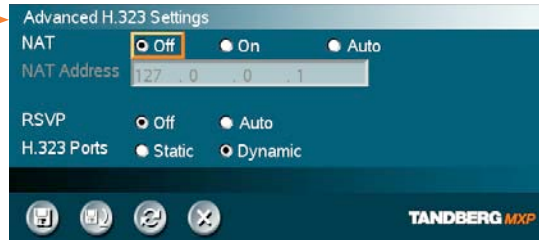



Described on the previous page.





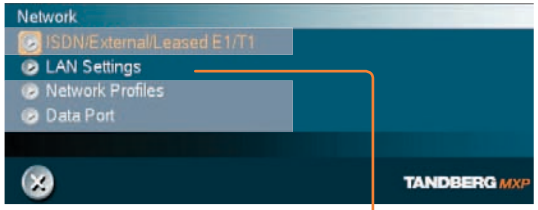




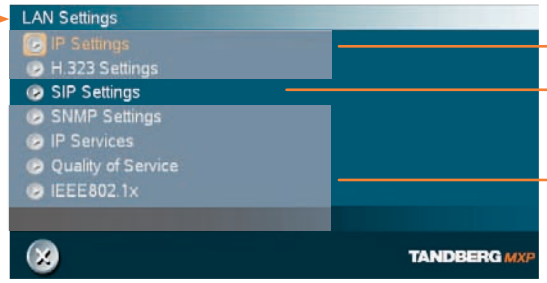

Each menu item is described in The settings library section.

## The Network settings menus - Part 6

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Described on the previous page.





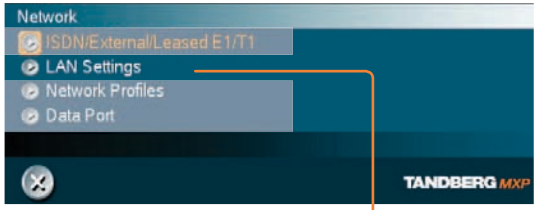
Select SAVE AND RESTART after making changes to SIP Settings



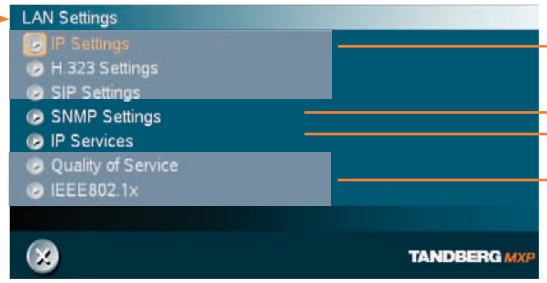

Each menu item is described in The settings library section.

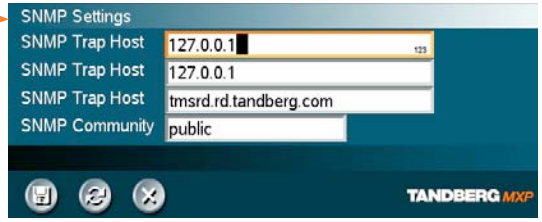
## The Network settings menus - Part 7

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Described on the previous page.





Select SAVE AND RESTART after making changes to IP Services

Each menu item is described in The settings library section.

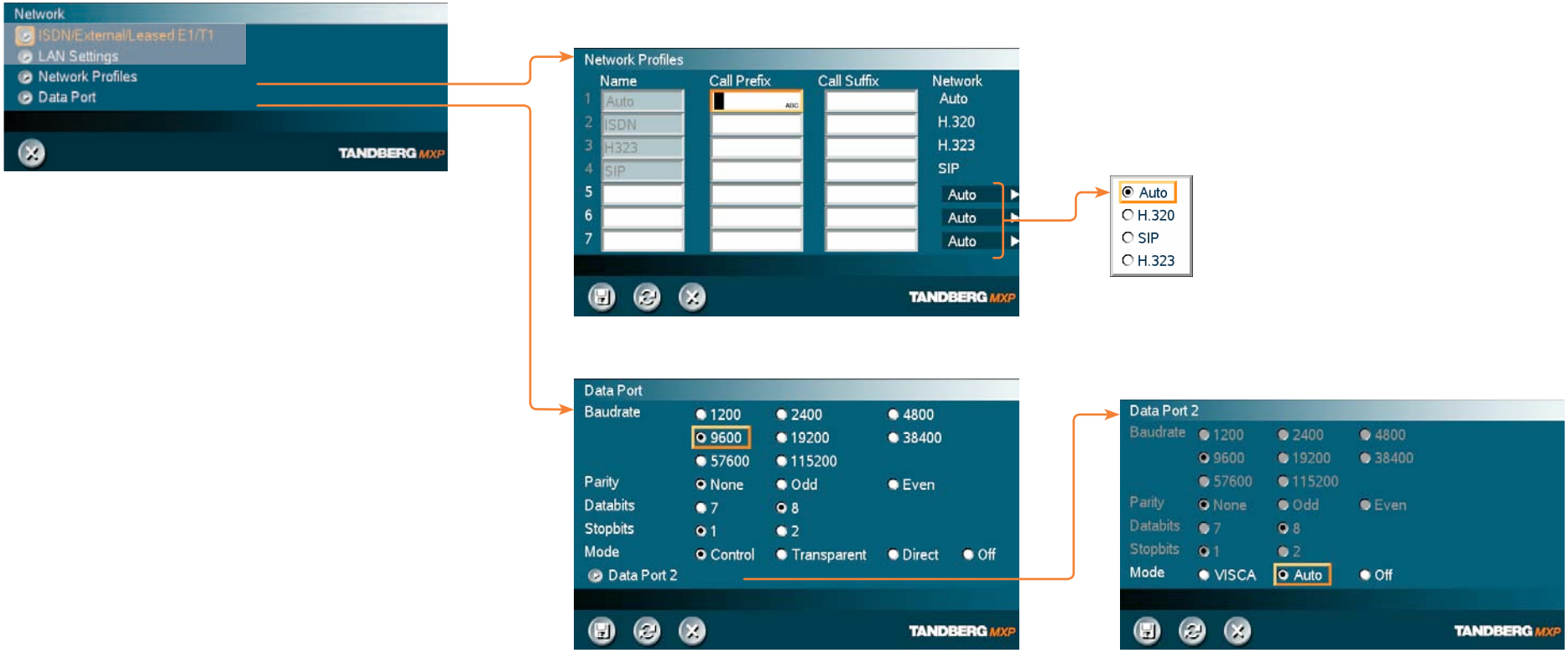
## The Network settings menus - Part 8

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**


Each menu item is described in The settings library section.

## The Network settings menus - Part 9

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**

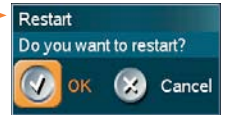


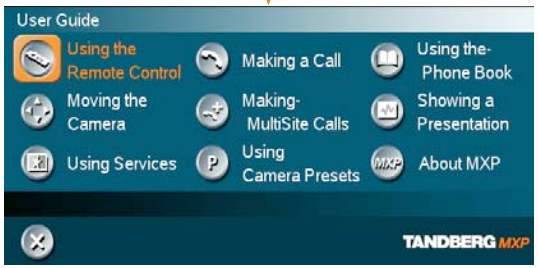

Each menu item is described in The settings library section.

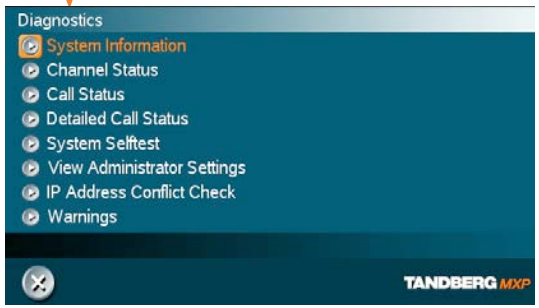
## The other Control Panel menu buttons

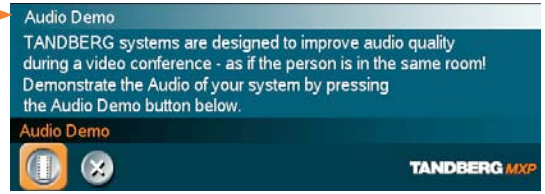
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**


The Installation menu is described in the Getting started section.

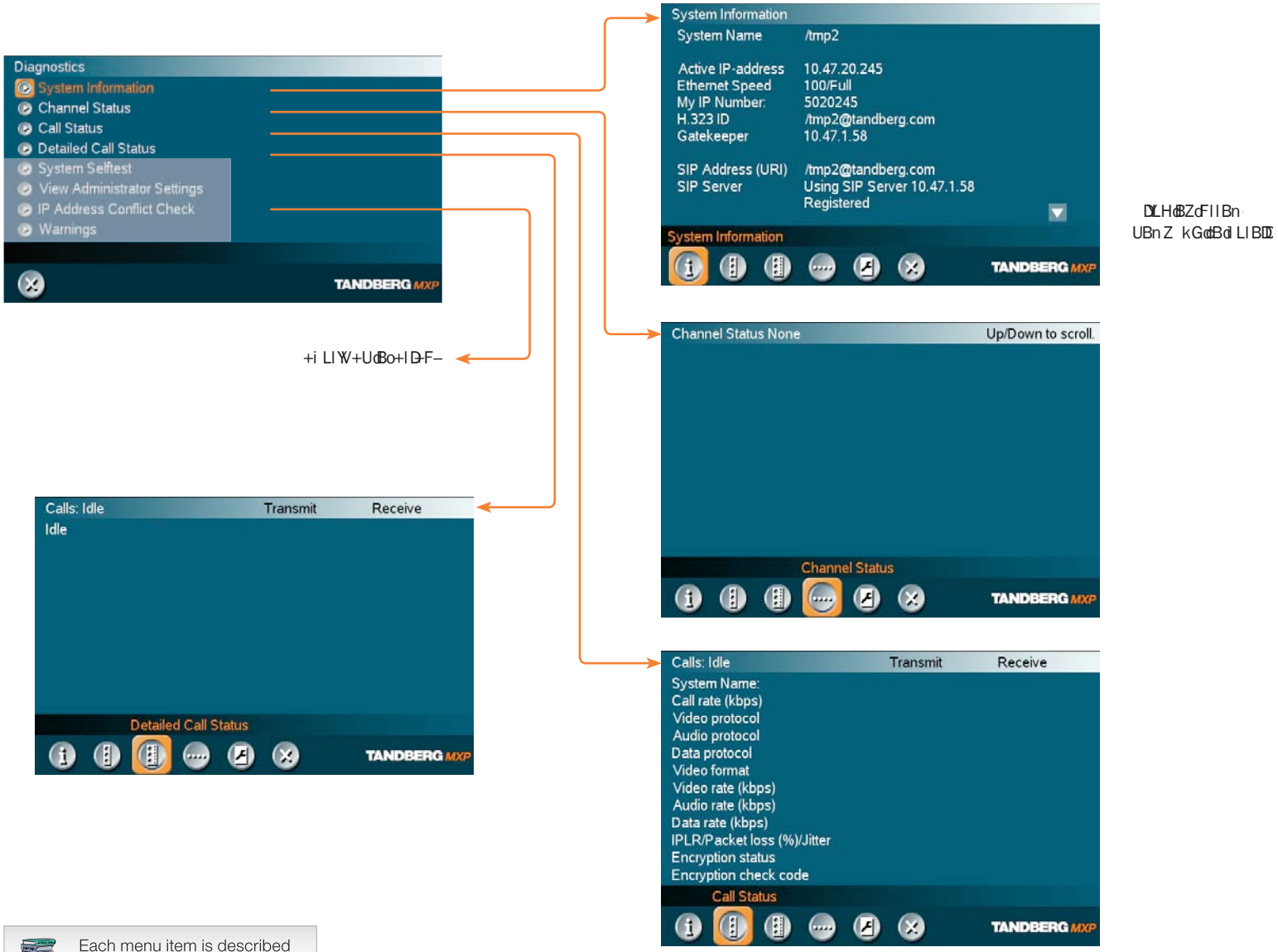




The Diagnostics menu is described overleaf...

Each menu item is described in The settings library section.

## The Diagnostics menu - Part 1

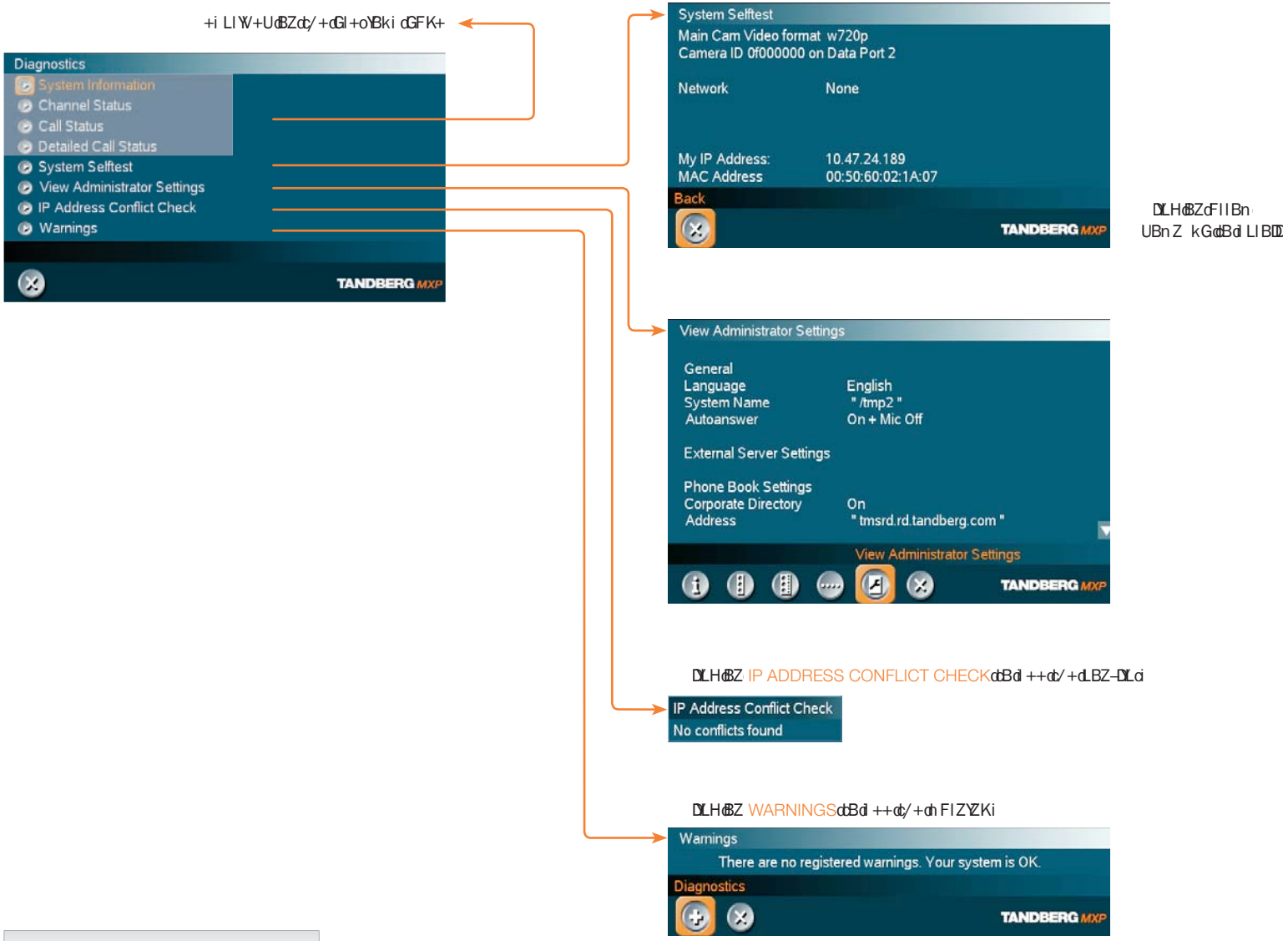
**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

## The Diagnostics menu - Part 2

**Applies to: 8000 MXP, 6000 MXP Profile, Maestro MXP**




Each menu item is described in The settings library section.

# Control Panel menu structure for:

This guide describes the menu structure for the systems displayed on this page, with all options installed.

Descriptions of each menu item are found in The settings library section.

TANDBERG 3000 MXP Profile

TANDBERG Tactical MXP

## About the Control Panel

The different parts of the Control Panel are explained on the following pages.

The menu structure section presents all the Control Panel menus by product. This section applies to:

- TANDBERG 3000 *MXP* Profile
- TANDBERG Tactical *MXP*

### Password Protection

Making changes to the Control Panel Settings will change the behavior of the system. We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system. Set an Administrator Password to control the access to these settings.

Read more about password protection in the Using the system section.

### Remote control shortcut keys

RE-DIAL: Double click on the green call button on the remote control to start calling the last number.

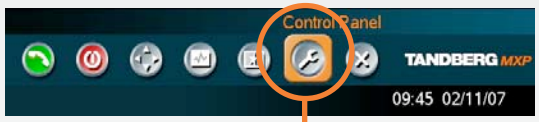
STANDBY: Double click on the red end call button on the remote control to set the system into standby.

SHOW SYSTEM INFORMATION: Open the call menu and press the arrow up key once to show the System information page.

RESET MENU LANGUAGE: Click on the Phone Book button 5 times and then press the number key 1 to reset the menu language to English.

### Open the Control Panel

Press the OK key on the remote control to wake up the system, and to display the Call menu.




In the Call menu, use the arrow keys on the remote control to navigate to the Control Panel button and press the OK key to display the Control Panel.


BACK

RESTART (the system switches itself Off and On again)

AUDIO DEMO (demonstrates the audio of the system)

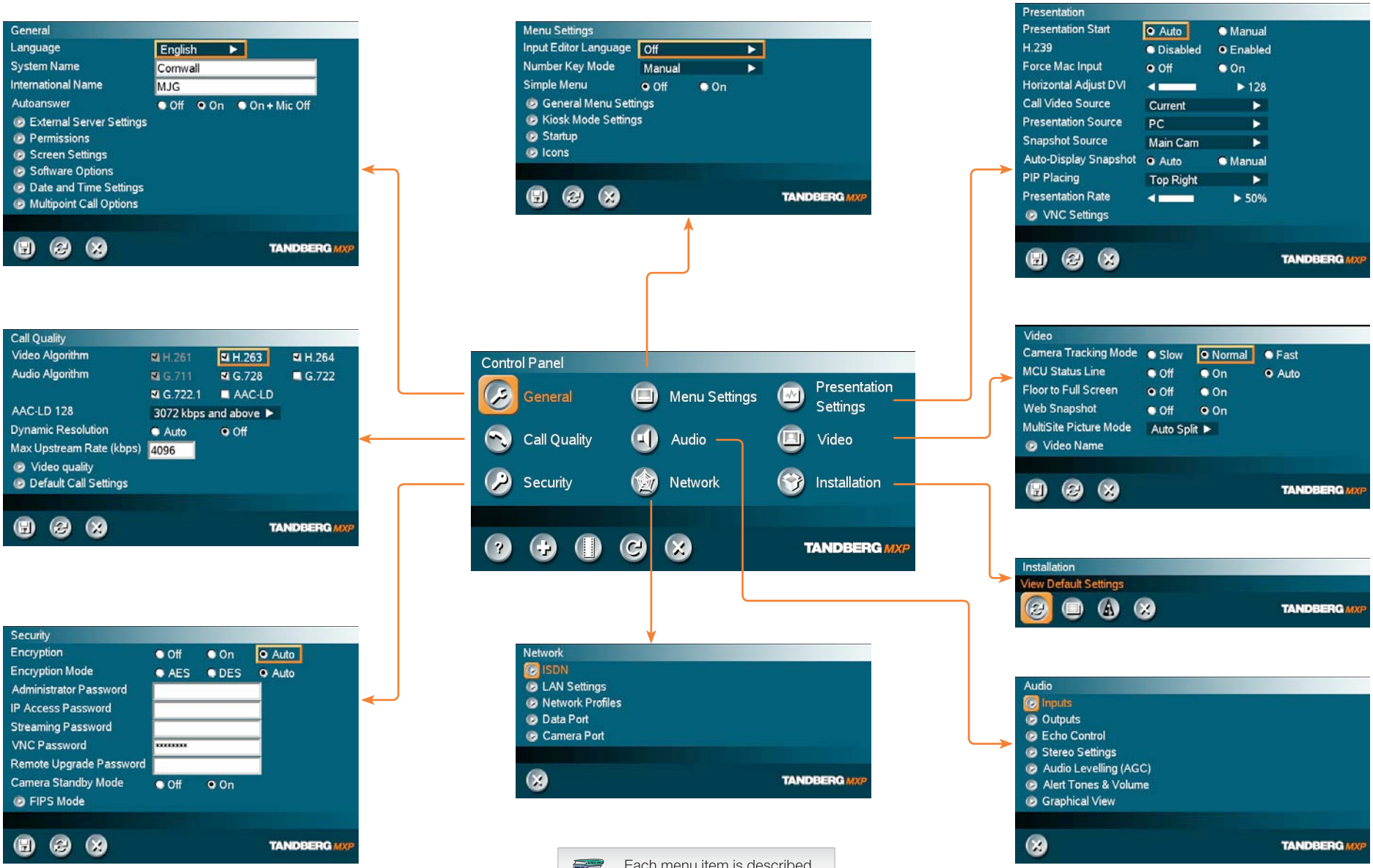
DIAGNOSTICS (see the system status and warnings))

ON-LINE USER GUIDE (open the online user guide).

Each menu item is described in The settings library section.

## The Control Panel overview

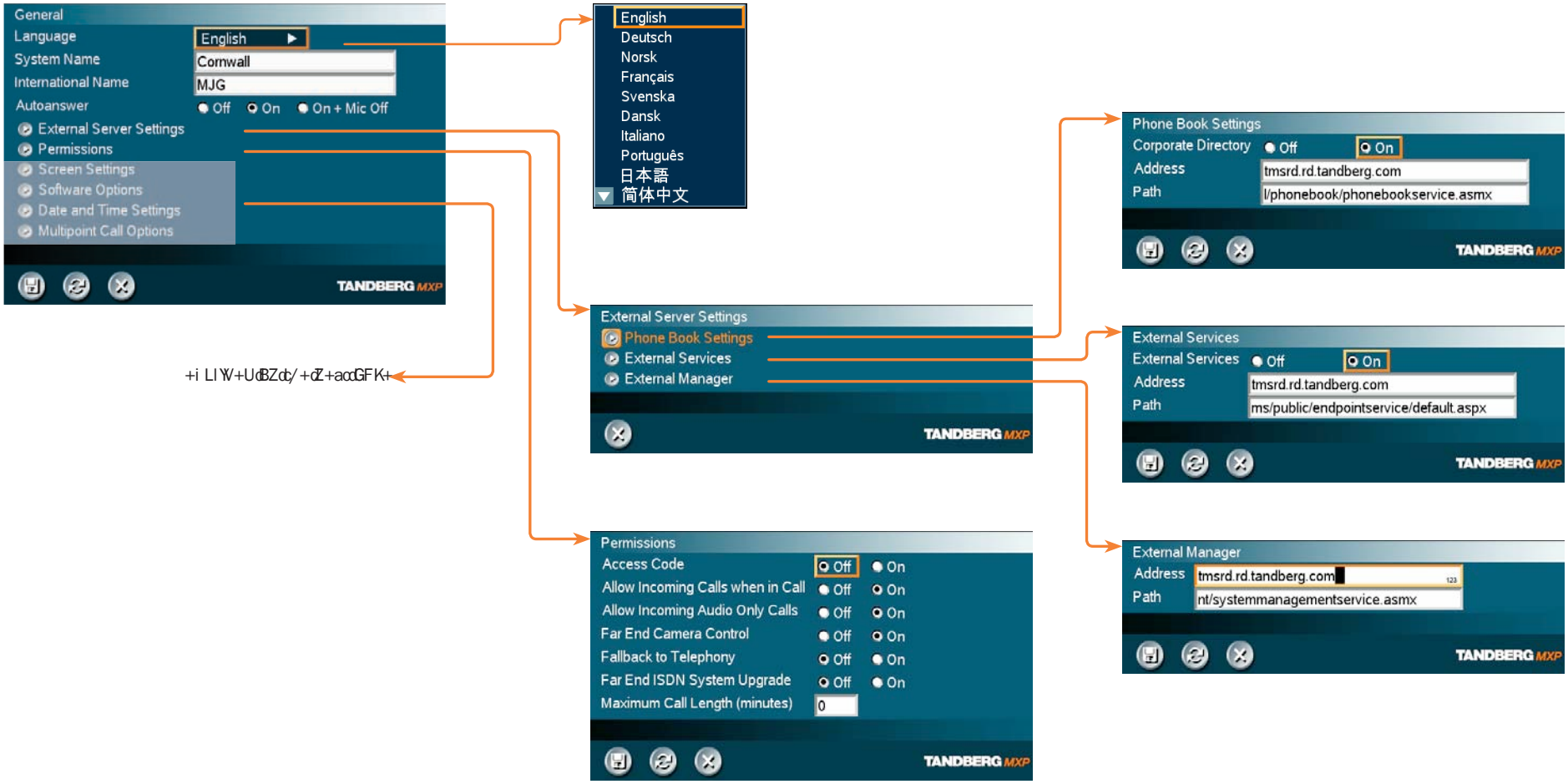
**Applies to: 3000 MXP Profile, Tactical MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 1

**Applies to: 3000 MXP Profile, Tactical MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 2

**Applies to: 3000 MXP Profile, Tactical MXP**


NOTE: The Monitor Brightness, Monitor Contrast and Monitor Color settings applies to systems shipped with TANDBERG Remote Control only, which means there will not be any second remote control for the monitor.

Each menu item is described in The settings library section.

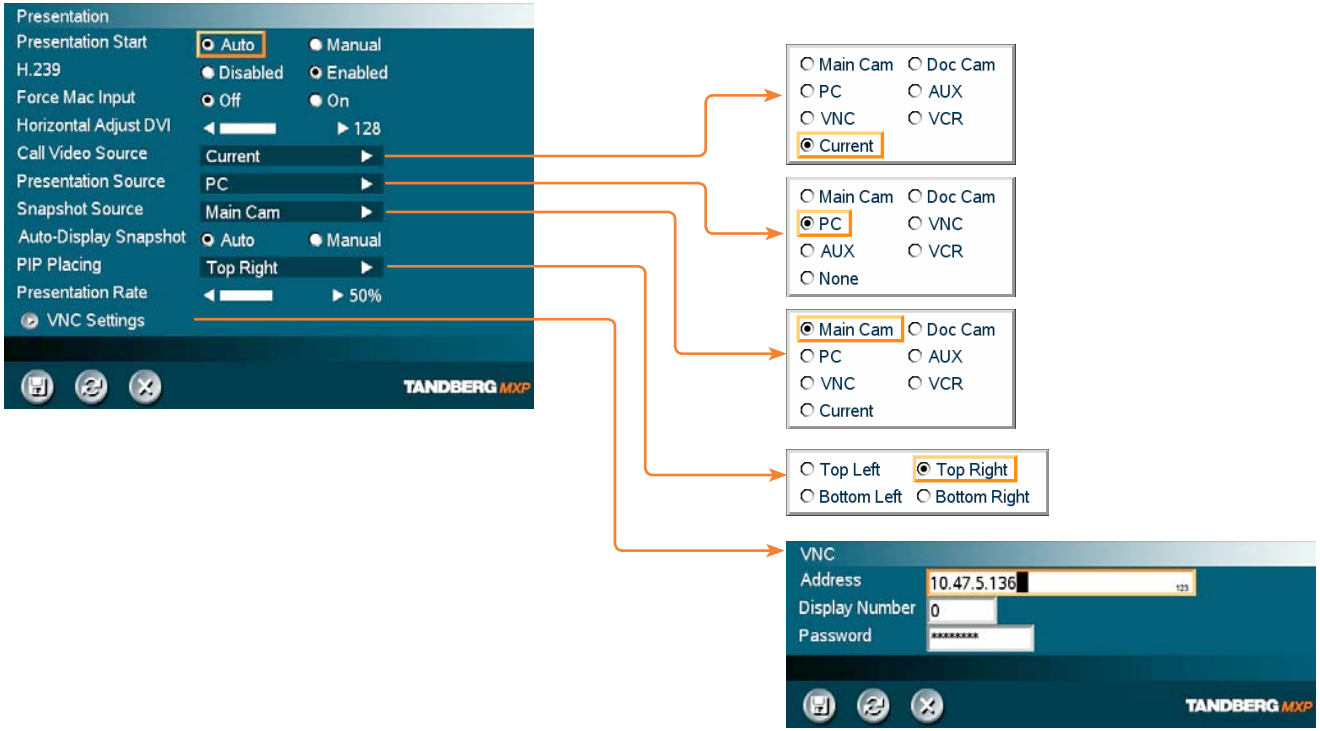
## The Menu settings menus

**Applies to: 3000 MXP Profile, Tactical MXP**


Each menu item is described in The settings library section.

## The Presentation settings menus

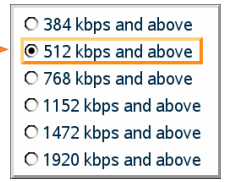
**Applies to: 3000 MXP Profile, Tactical MXP**




Each menu item is described in The settings library section.

## The Call Quality settings menus

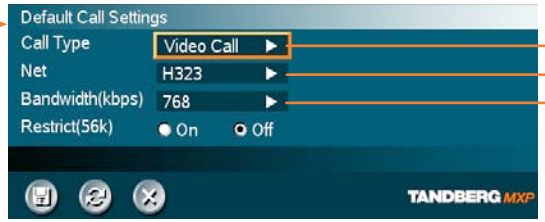
**Applies to: 3000 MXP Profile, Tactical MXP**

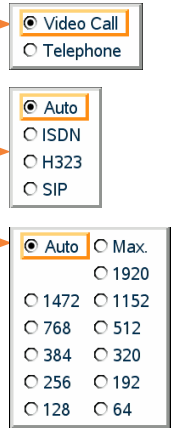





**NOTE!** The Call Settings are also available from the Call Menu. When making a call you can change the Call Settings. Choose SET AS DEFAULT to make the changes the new DEFAULT CALL SETTINGS.



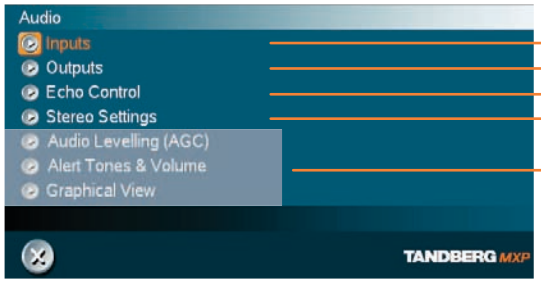


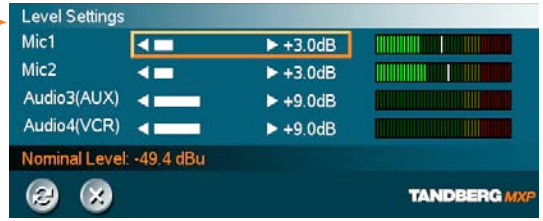

Each menu item is described in The settings library section.

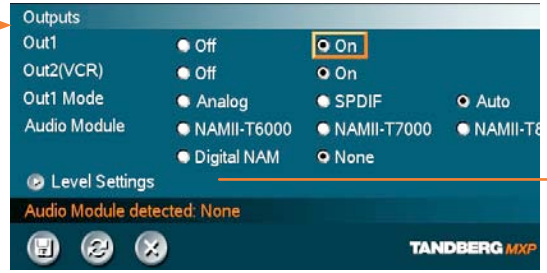
## The Audio settings menus - Part 1

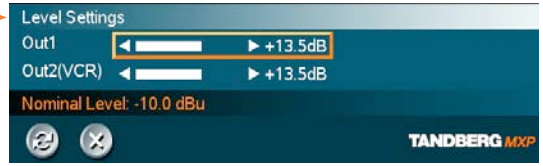
**Applies to: 3000 MXP Profile, Tactical MXP**




+i LIYW+UdBZdb/+dZ+aadGFK+




**TIP!** If Stereo Speakers are enabled in the menu without having any stereo speakers connected to the Digital NAM, it may cause the acoustic echo-canceller to malfunction.

**TIP!** It is your echo canceller that improves the audio quality experienced by the other side. When you hear an echo of your own audio it is most likely the far end's echo canceller that is malfunctioning.

OTHER AUDIO 5/6 INPUT OPTIONS:

- Audio 5 for VCR Left
- Audio 6 for VCR Right.

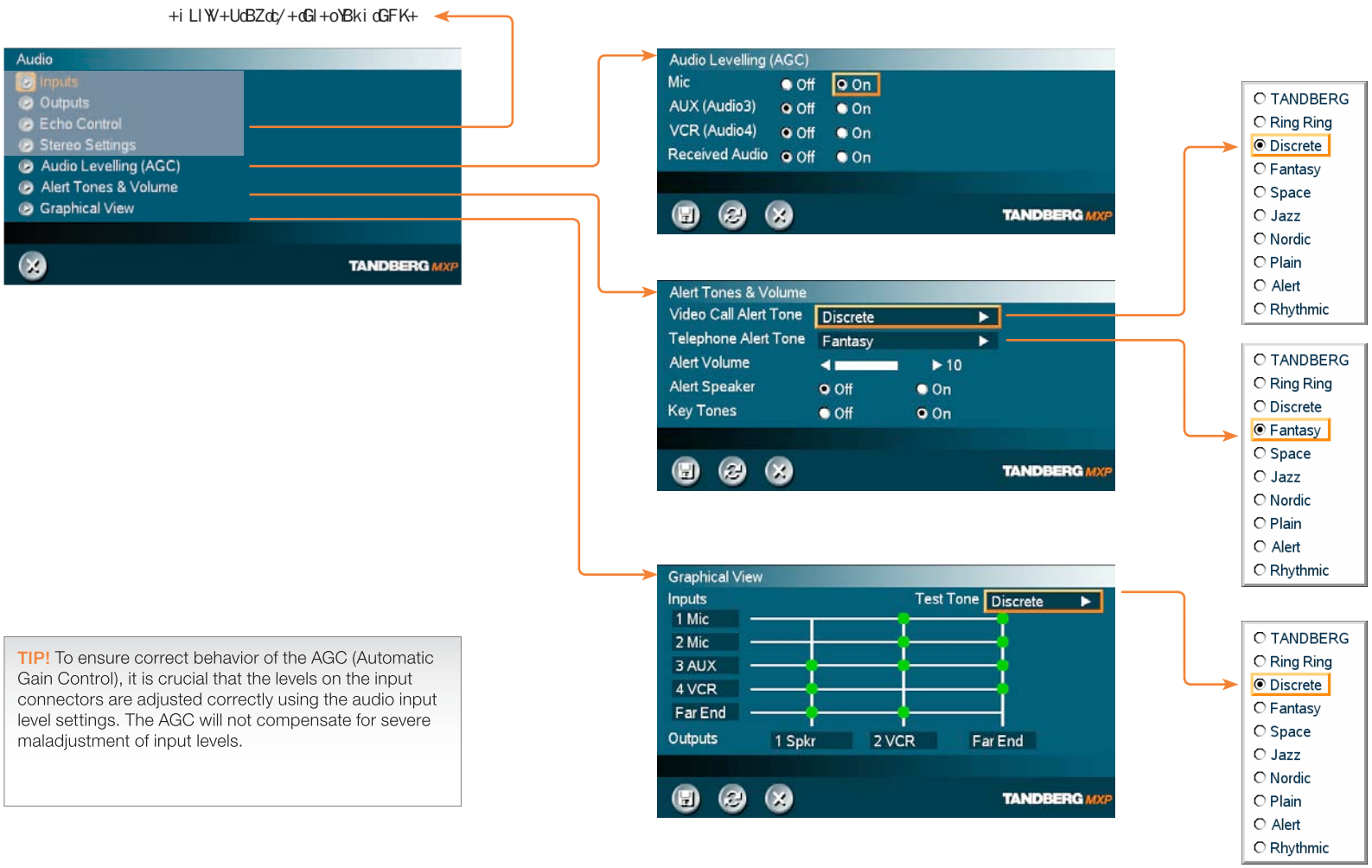
OTHER AUDIO OUTPUT 2/3 OPTIONS:

- Out 2 for VCR Left
- Out 3 for VCR Right.

Each menu item is described in The settings library section.

## The Audio settings menus - Part 2

**Applies to: 3000 MXP Profile, Tactical MXP**

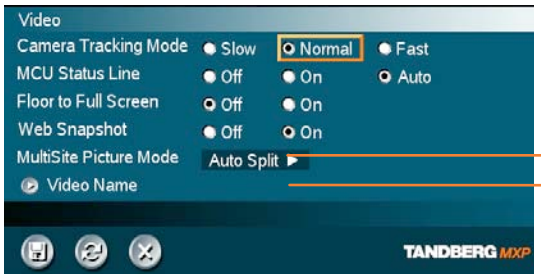


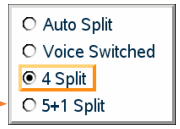

**TIP!** To ensure correct behavior of the AGC (Automatic Gain Control), it is crucial that the levels on the input connectors are adjusted correctly using the audio input level settings. The AGC will not compensate for severe maladjustment of input levels.

Each menu item is described in The settings library section.

## The Video settings menus

**Applies to: 3000 MXP Profile, Tactical MXP**



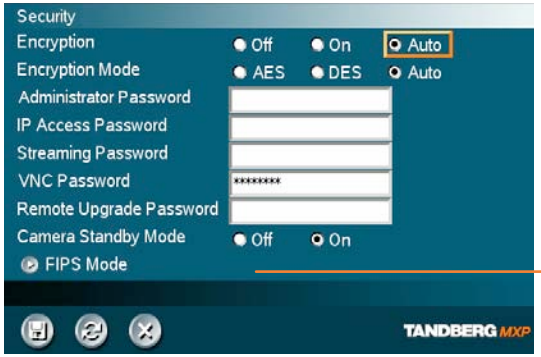



The Video Name typed in will appear in the Presentation menu. To find the Presentation menu, press the OK button on the remote control and select the Presentation button.

Each menu item is described in The settings library section.

## The Security settings menus

**Applies to: 3000 MXP Profile, Tactical MXP**





### Password Protection of the Control Panel

Making changes to the Control Panel Settings will change the behavior of the system.

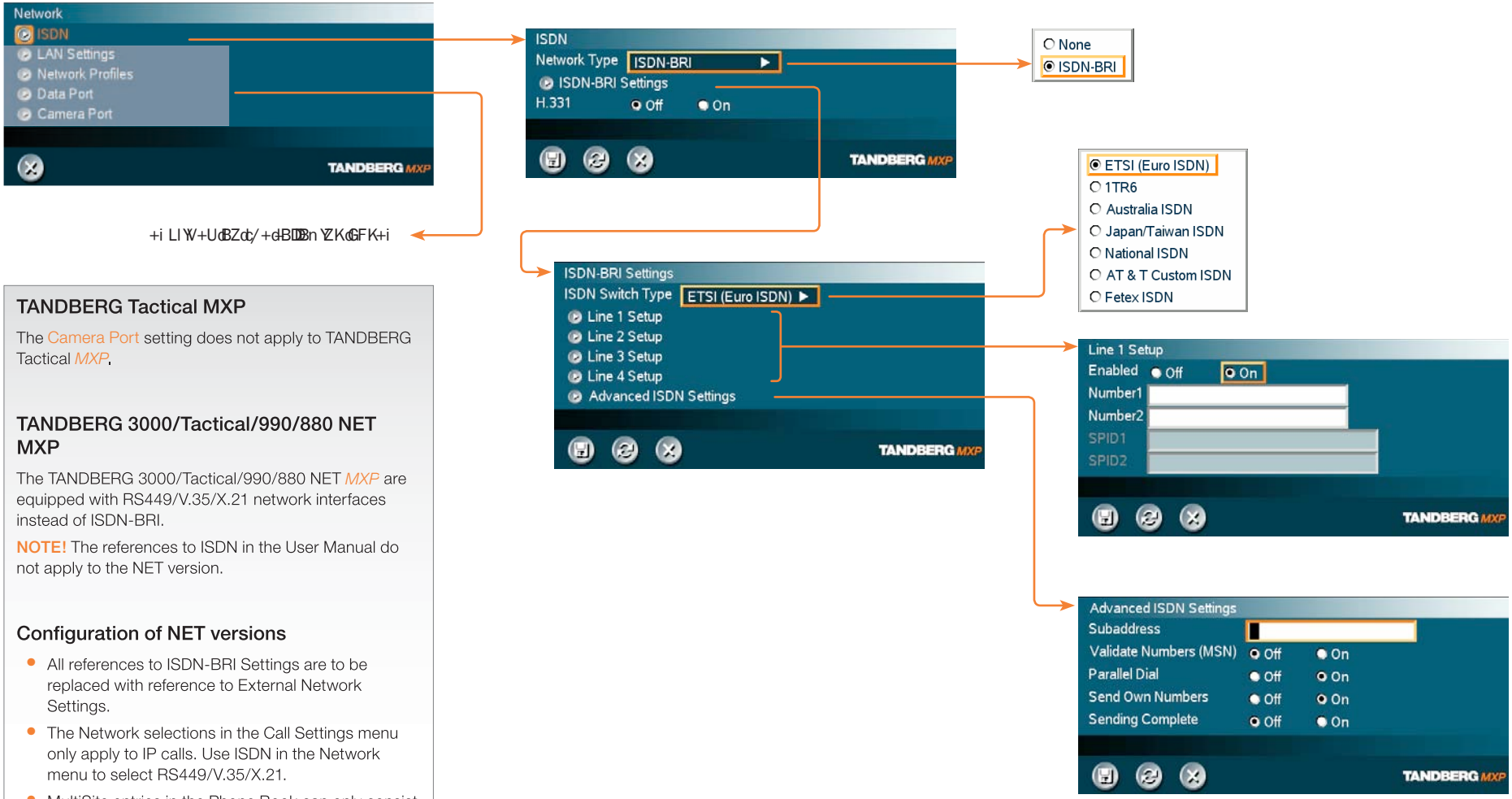
We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system.

Set an Administrator Password to control the access to these settings.

Each menu item is described in The settings library section.

## The Network settings menus - Part 1

**Applies to: 3000 MXP Profile, Tactical MXP**




### TANDBERG Tactical MXP

The Camera Port setting does not apply to TANDBERG Tactical *MXP*.

### TANDBERG 3000/Tactical/990/880 NET MXP

The TANDBERG 3000/Tactical/990/880 NET *MXP* are equipped with RS449/V.35/X.21 network interfaces instead of ISDN-BRI.

**NOTE!** The references to ISDN in the User Manual do not apply to the NET version.

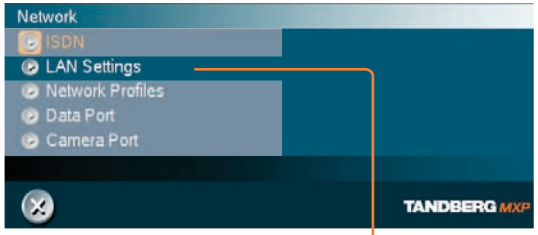
### Configuration of NET versions

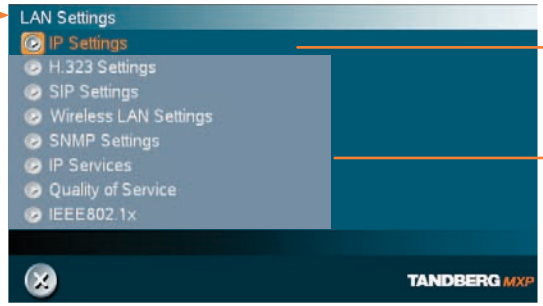
- All references to ISDN-BRI Settings are to be replaced with reference to External Network Settings.
- The Network selections in the Call Settings menu only apply to IP calls. Use ISDN in the Network menu to select RS449/V.35/X.21.
- MultiSite entries in the Phone Book can only consist of IP sites.

Each menu item is described in The settings library section.

## The Network settings menus - Part 2

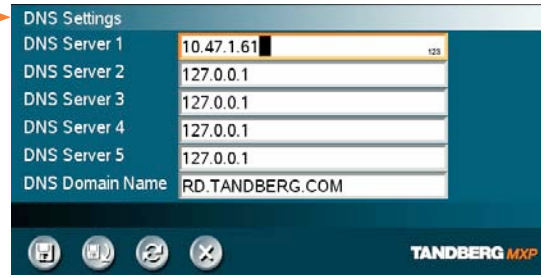
**Applies to: 3000 MXP Profile, Tactical MXP**





Select SAVE AND RESTART after making changes to IP Settings

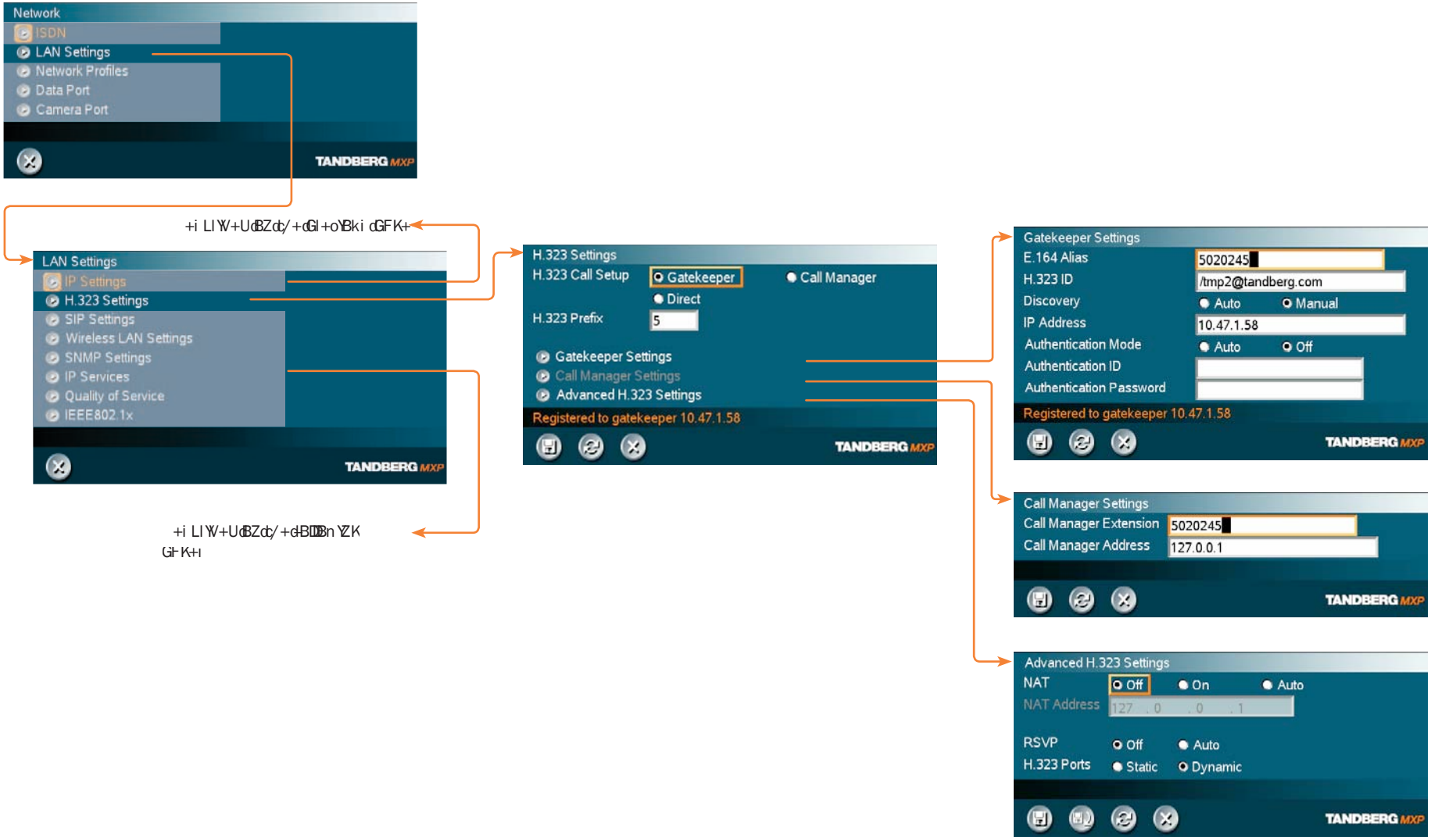



Select SAVE AND RESTART after making changes to DNS Settings

Each menu item is described in The settings library section.

## The Network settings menus - Part 3

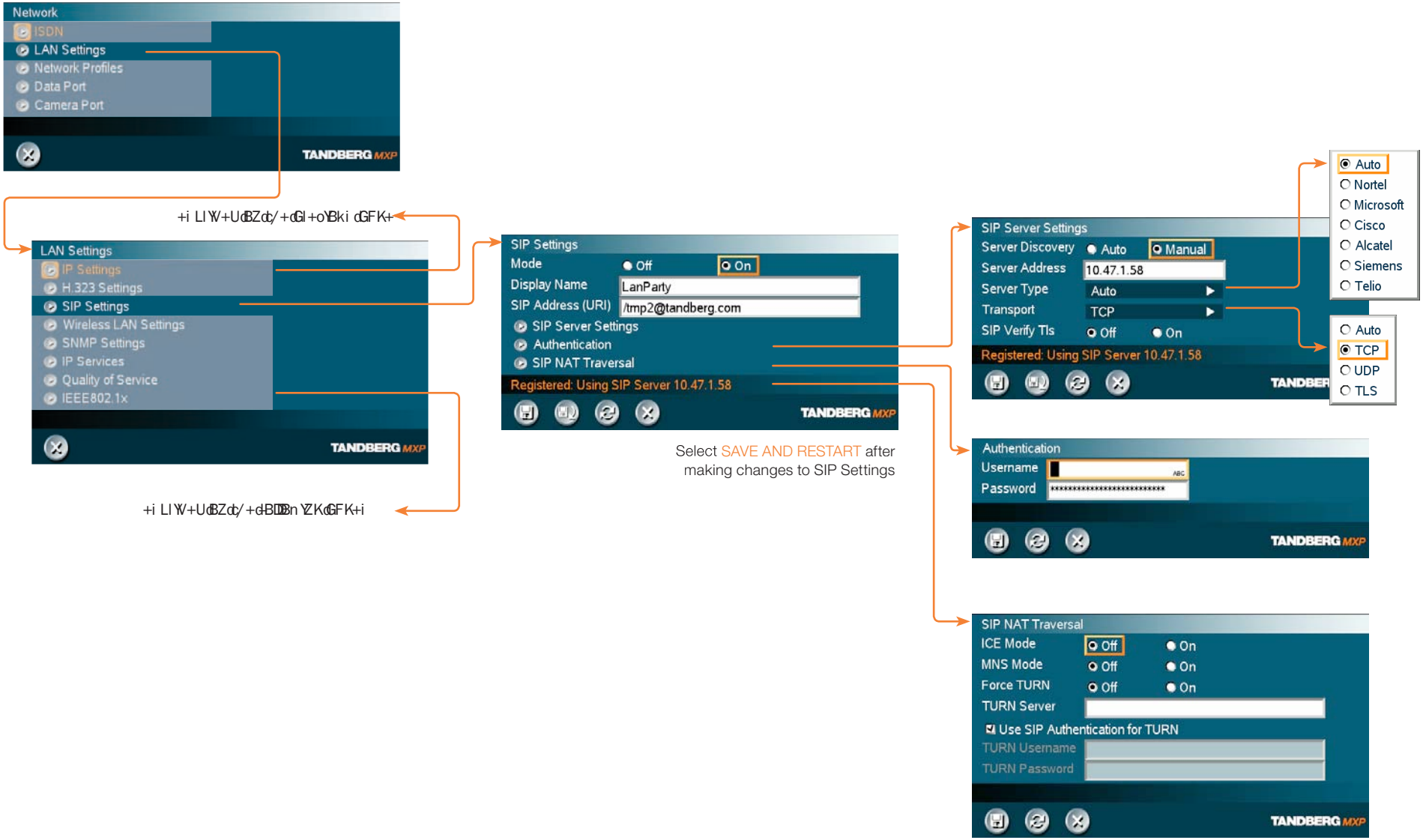
**Applies to: 3000 MXP Profile, Tactical MXP**




Each menu item is described in The settings library section.

## The Network settings menus - Part 4

**Applies to: 3000 MXP Profile, Tactical MXP**

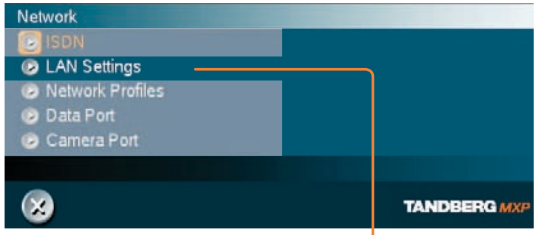


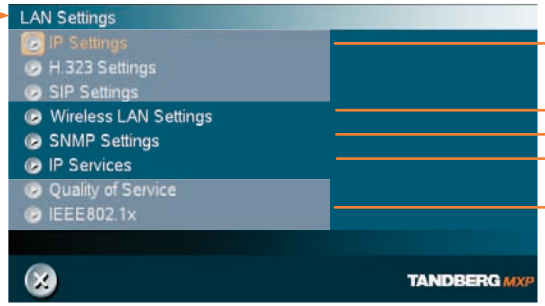

Select SAVE AND RESTART after making changes to SIP Settings

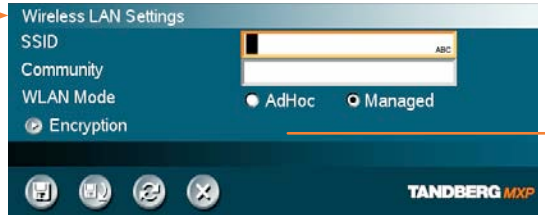
Each menu item is described in The settings library section.

## The Network settings menus - Part 5

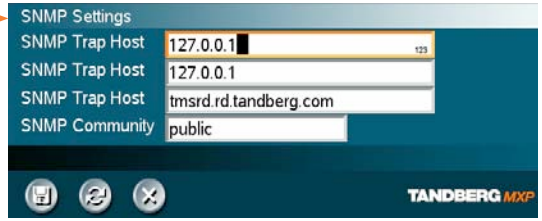
**Applies to: 3000 MXP Profile, Tactical MXP**




Select SAVE AND RESTART after making changes to WLAN Settings



Select SAVE AND RESTART after making changes to IP Services

Each menu item is described in The settings library section.

## The Network settings menus - Part 6

**Applies to: 3000 MXP Profile, Tactical MXP**


Each menu item is described in The settings library section.

## The Network settings menus - Part 7

**Applies to: 3000 MXP Profile, Tactical MXP**


**T P S d T d *MXP***

The Camera Port setting does not apply to TANDBERG Tactical *MXP*.

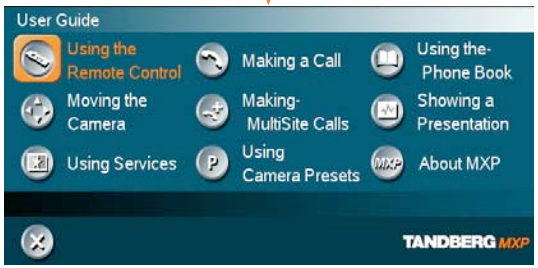
Each menu item is described in The settings library section.

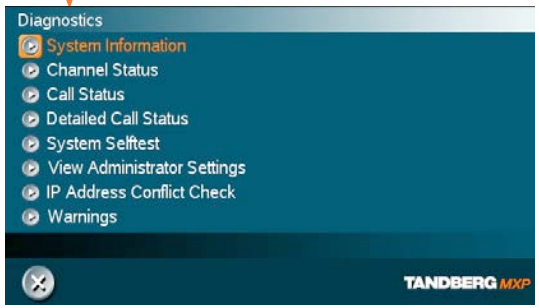
## The other Control Panel menu buttons

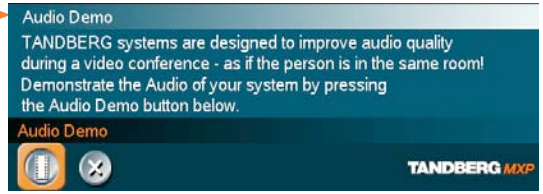
**Applies to: 3000 MXP Profile, Tactical MXP**


The Installation menu is described in the Getting started section.





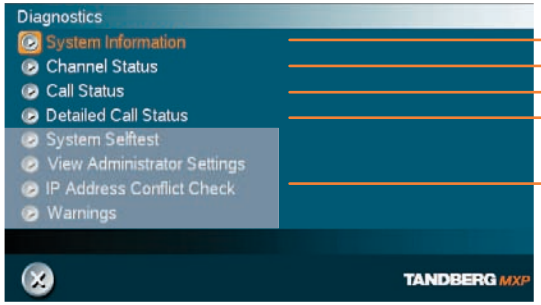



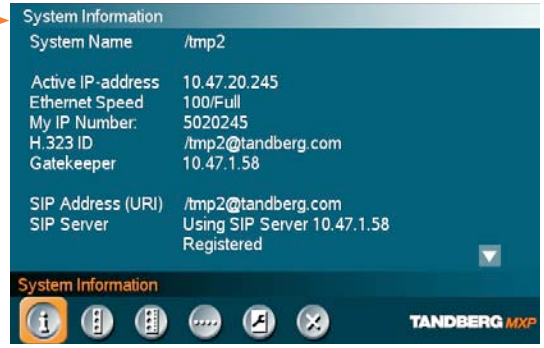

The Diagnostics menu is described overleaf...

Each menu item is described in The settings library section.

## The Diagnostics menus - Part 1

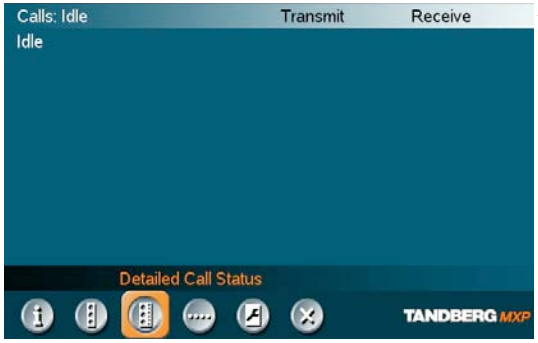
**Applies to: 3000 MXP Profile, Tactical MXP**

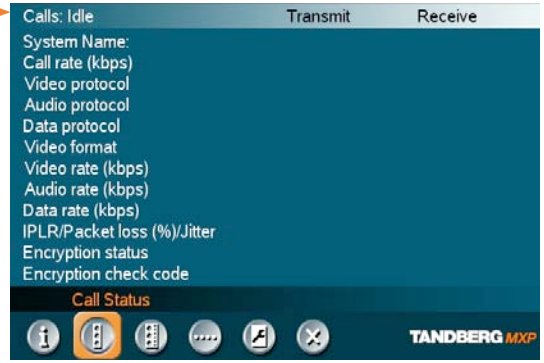




**NOTE:** The CHANNEL STATUS do not apply to NET versions.



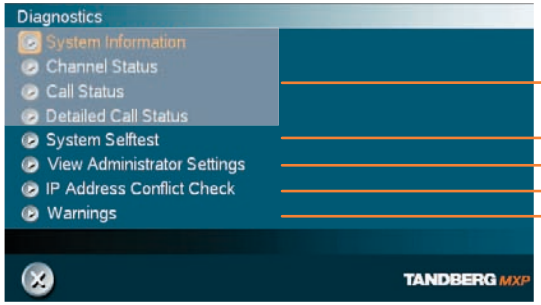



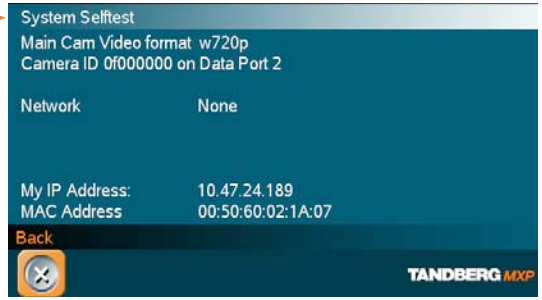

Each menu item is described in The settings library section.

## The Diagnostics menus - Part 2

**Applies to: 3000 MXP Profile, Tactical MXP**

+i LIYV+UdBZdc/+dGl+oYBki dGFK+

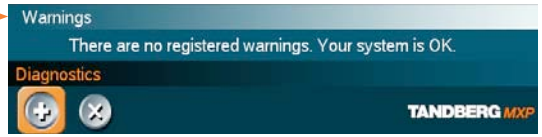



DYLHdBZdFIIBn
UBnZ kGdBdi LIBDZ


DYLHdBZ IP ADDRESS CONFLICT CHECKdBdi ++dc/+dLBZ-DYLci


DYLHdBZ WARNINGSdBdi ++dc/+dh FIZYZKi




Each menu item is described in The settings library section.

# Control Panel menu structure for:

This guide describes the menu structure for the systems displayed on this page, with all options installed.

Descriptions of each menu item are found in The settings library section.

TANDBERG 1700 MXP

## About the Control Panel

The different parts of the Control Panel are explained on the following pages.

The menu structure section presents all the Control Panel menus by product. This section applies to:

- TANDBERG 1700 *MXP*

### Password Protection

Making changes to the Control Panel Settings will change the behavior of the system. We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system. Set an Administrator Password to control the access to these settings.

Read more about password protection in the Using the system section.

### Remote control shortcut keys

RE-DIAL: Double click on the green call button on the remote control to start calling the last number.

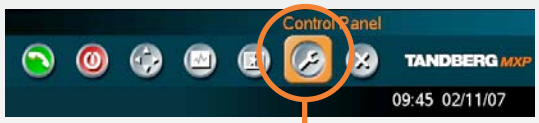
STANDBY: Double click on the red end call button on the remote control to set the system into standby.

SHOW SYSTEM INFORMATION: Open the call menu and press the arrow up key once to show the System information page.

RESET MENU LANGUAGE: Click on the Phone Book button 5 times and then press the number key 1 to reset the menu language to English.

### Open the Control Panel

Press the OK key on the remote control to wake up the system, and to display the Call menu.



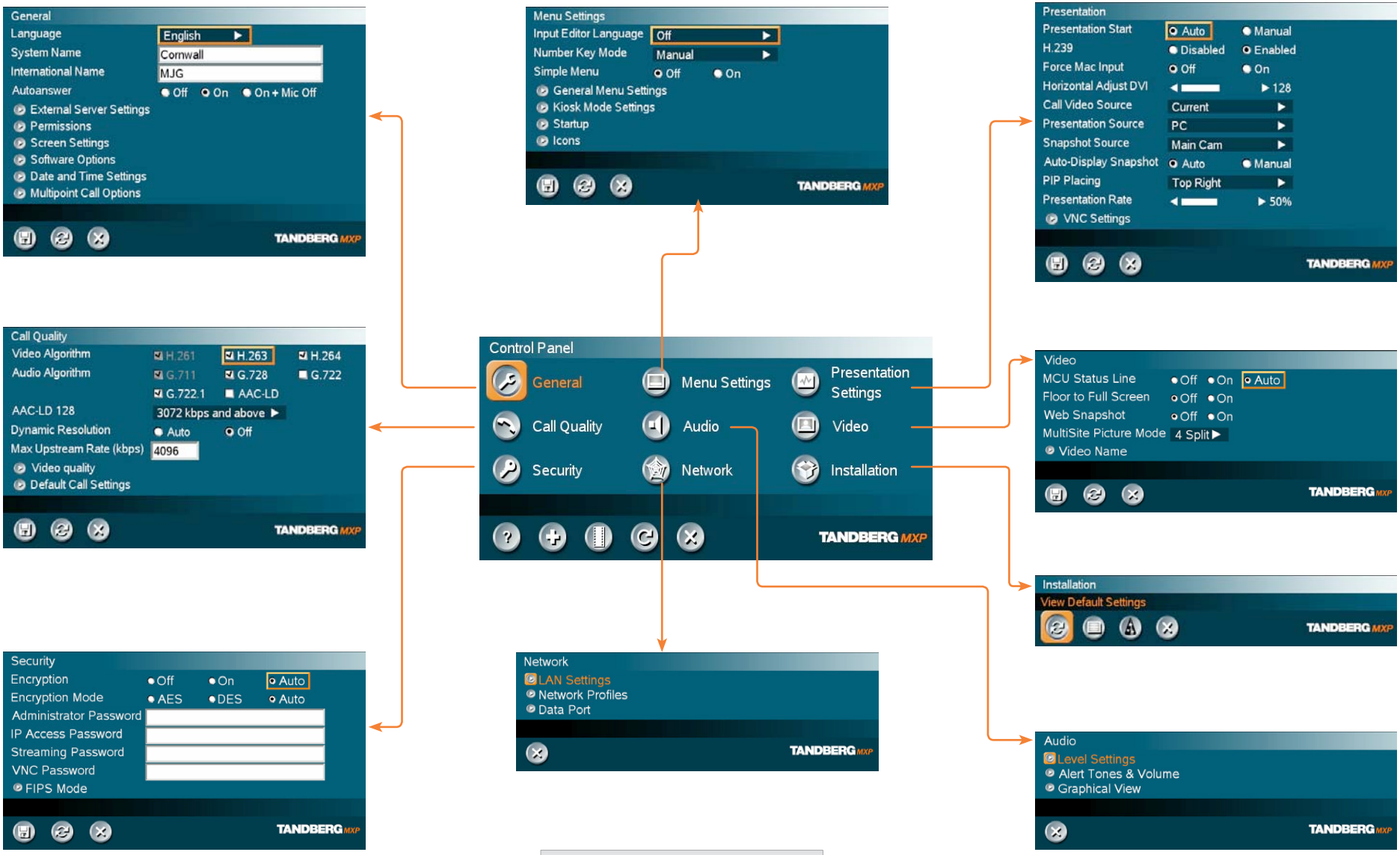

In the Call menu, use the arrow keys on the remote control to navigate to the Control Panel button and press the OK key to display the Control Panel.


- BACK
- RESTART (the system switches itself Off and On again)
- AUDIO DEMO (demonstrates the audio of the system)
- DIAGNOSTICS (see the system status and warnings))
- ON-LINE USER GUIDE (open the online user guide).

Each menu item is described in The settings library section.

## The Control Panel overview

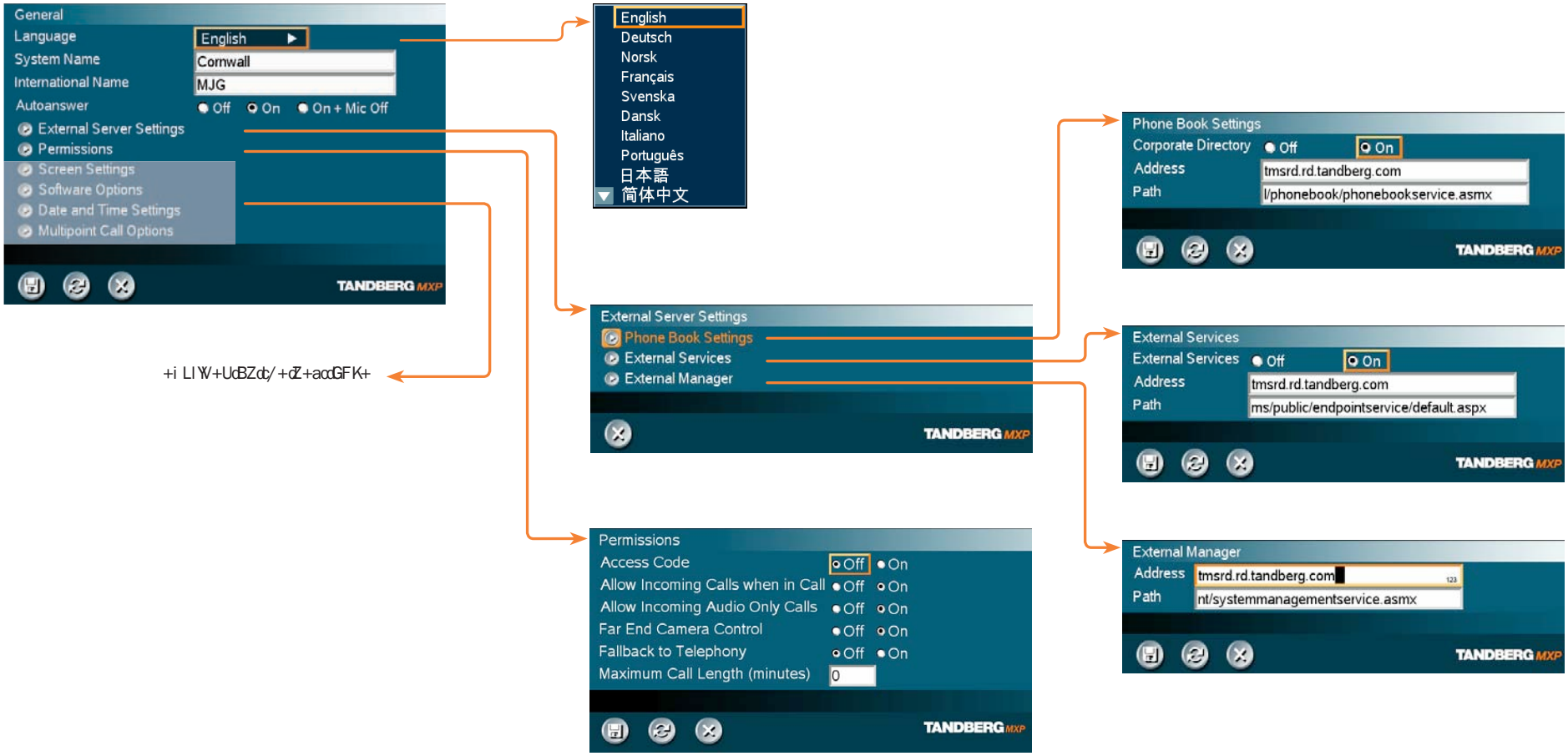
**Applies to: 1700 MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 1

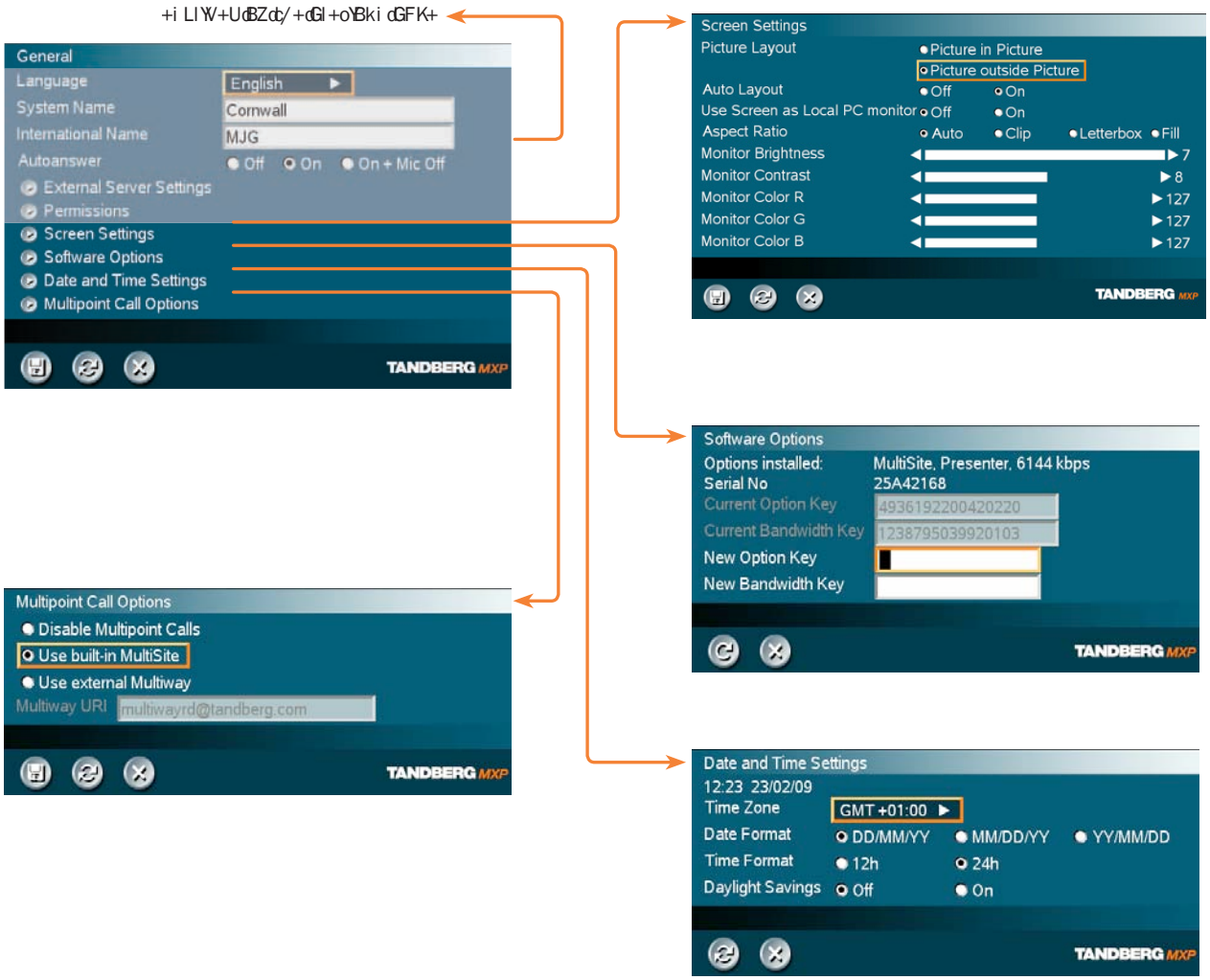
**Applies to: 1700 MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 2

**Applies to: 1700 MXP**




Each menu item is described in The settings library section.

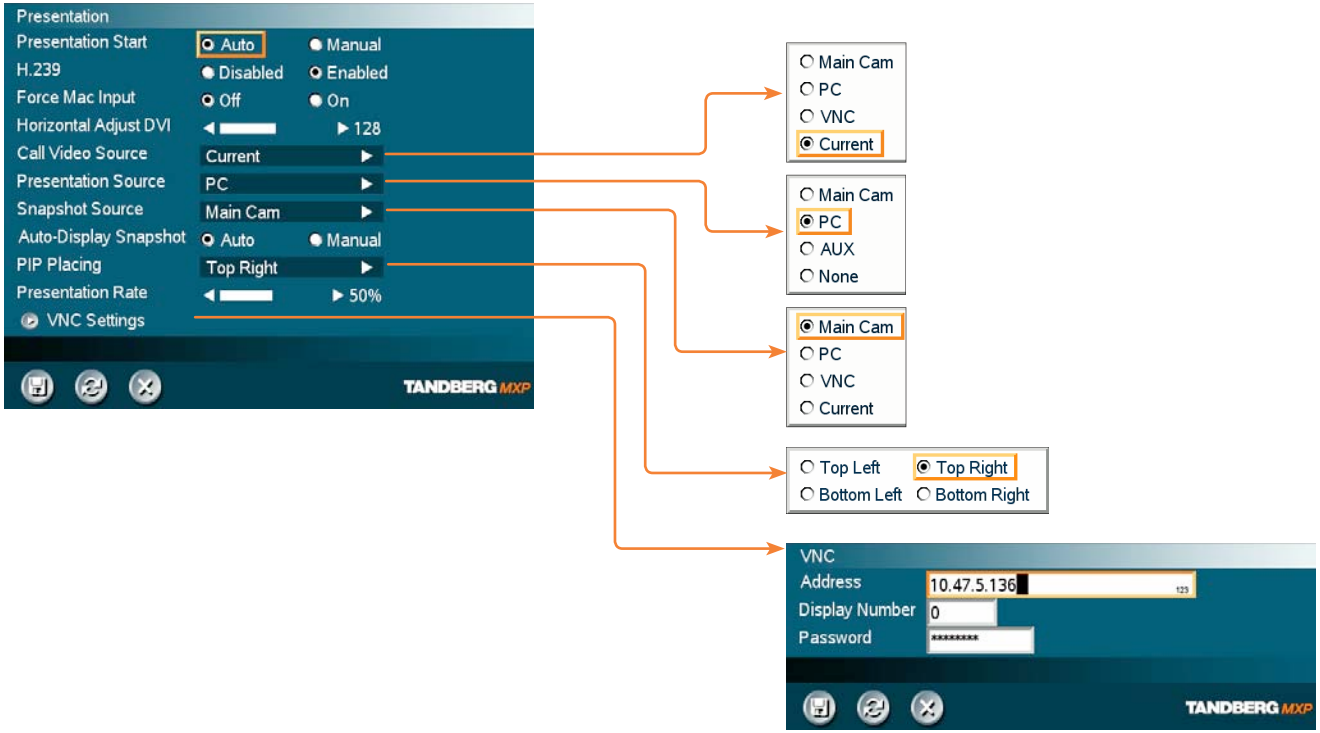
## The Menu settings menus

**Applies to: 1700 MXP**


Each menu item is described in The settings library section.

## The Presentation settings menus

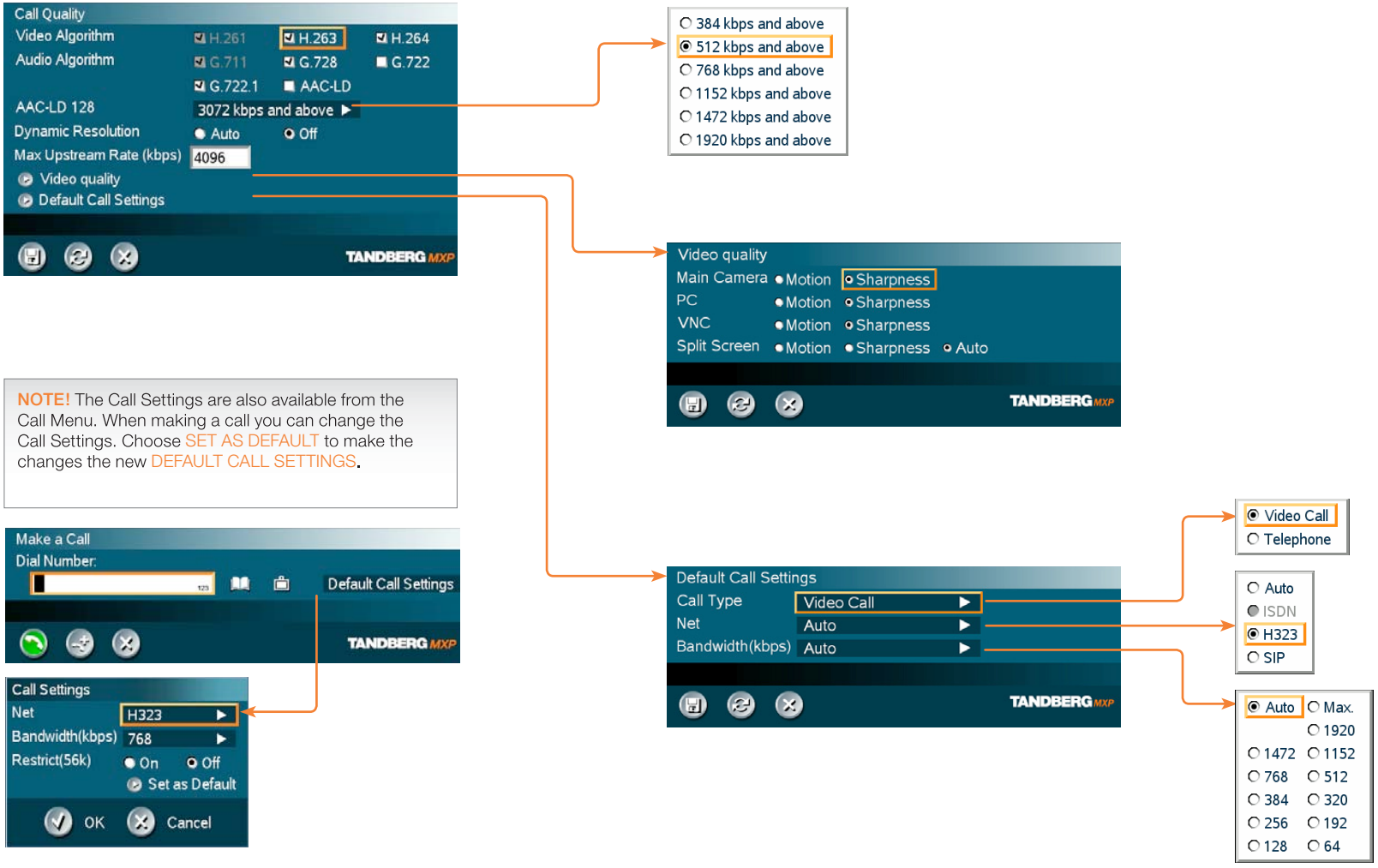
**Applies to: 1700 MXP**




Each menu item is described in The settings library section.

## The Call Quality settings menus

**Applies to: 1700 MXP**




**NOTE!** The Call Settings are also available from the Call Menu. When making a call you can change the Call Settings. Choose SET AS DEFAULT to make the changes the new DEFAULT CALL SETTINGS.




Each menu item is described in The settings library section.

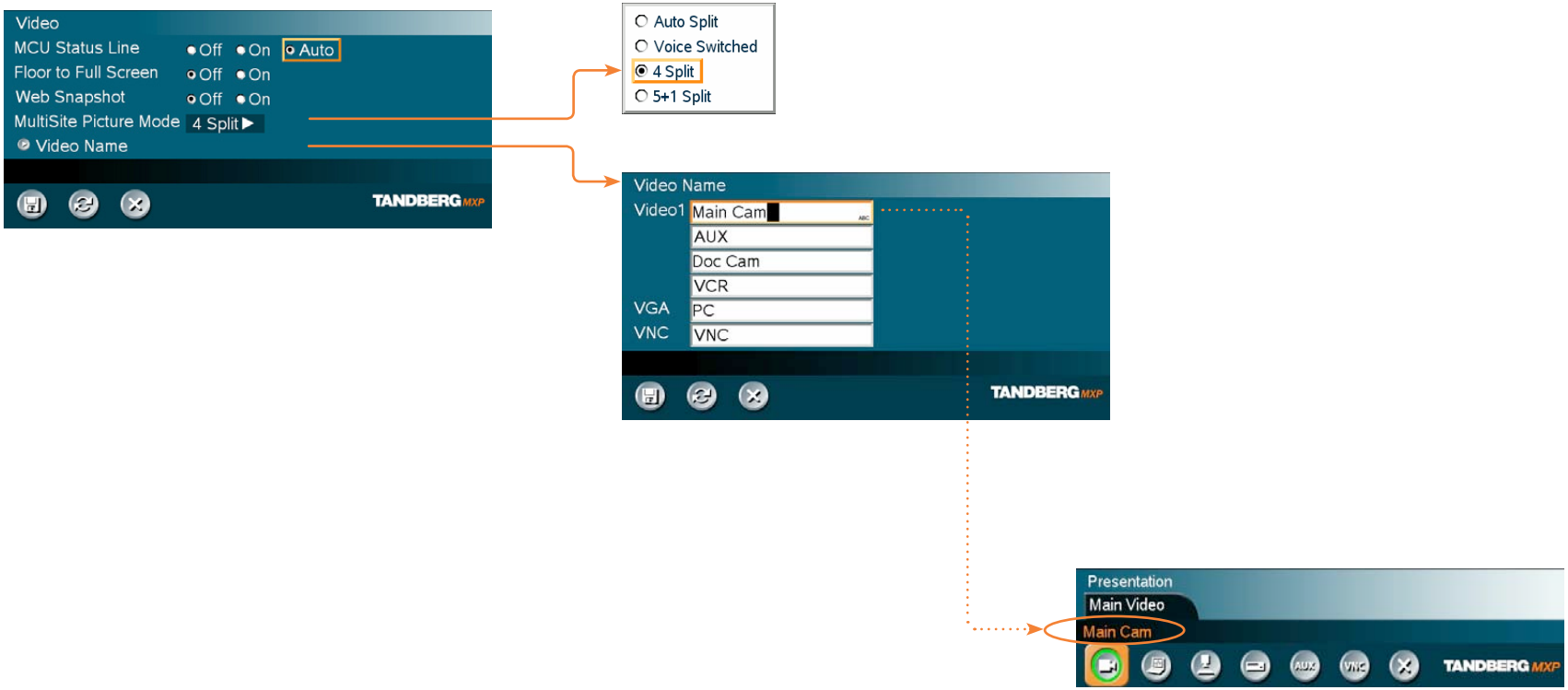
## The Audio settings menus

**Applies to: 1700 MXP**


Each menu item is described in The settings library section.

## The Video settings menus

**Applies to: 1700 MXP**

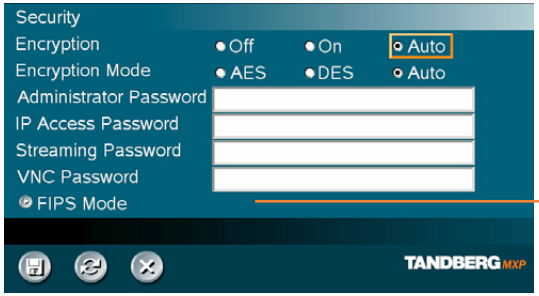


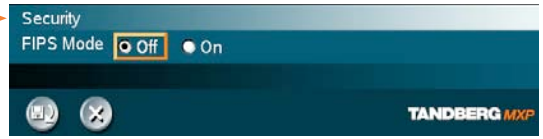

The Video Name typed in will appear in the Presentation menu. To find the Presentation menu, press the OK button on the remote control and select the Presentation button.

Each menu item is described in The settings library section.

## The Security settings menus

**Applies to: 1700 MXP**




### Password Protection of the Control Panel

Making changes to the Control Panel Settings will change the behavior of the system.

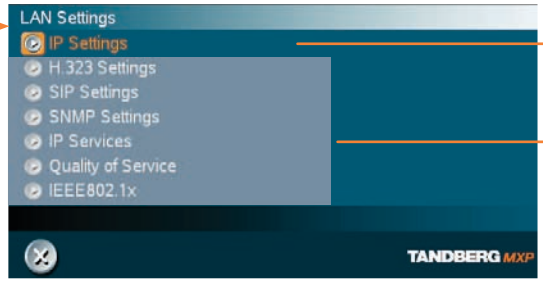
We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system.

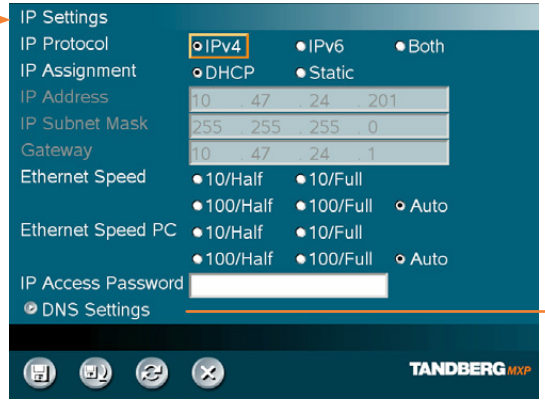
Set an Administrator Password to control the access to these settings.

Each menu item is described in The settings library section.

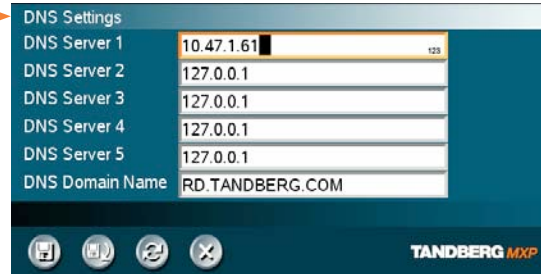
## The Network settings menus - Part 1

**Applies to: 1700 MXP**


Select SAVE AND RESTART after making changes to IP Settings

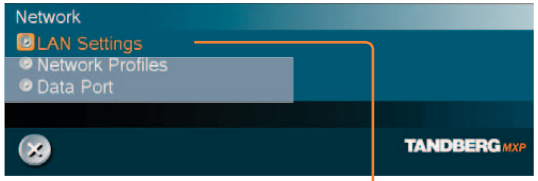



Select SAVE AND RESTART after making changes to DNS Settings

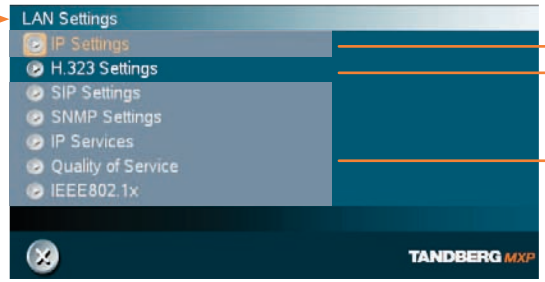
Each menu item is described in The settings library section.

## The Network settings menus - Part 2

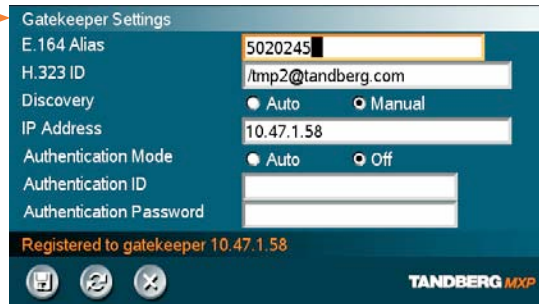
**Applies to: 1700 MXP**



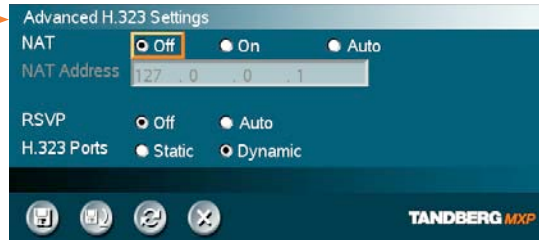

Described on the previous page.









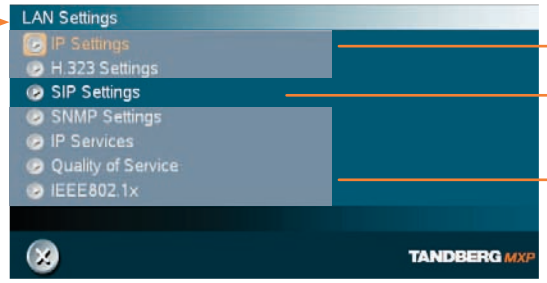



Each menu item is described in The settings library section.

## The Network settings menus - Part 3

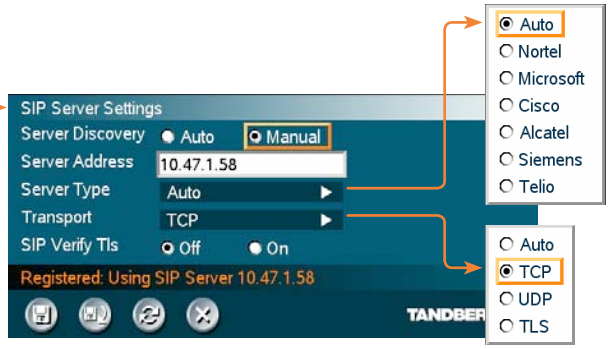
**Applies to: 1700 MXP**


Described on the previous page.





Select SAVE AND RESTART after making changes to SIP Settings

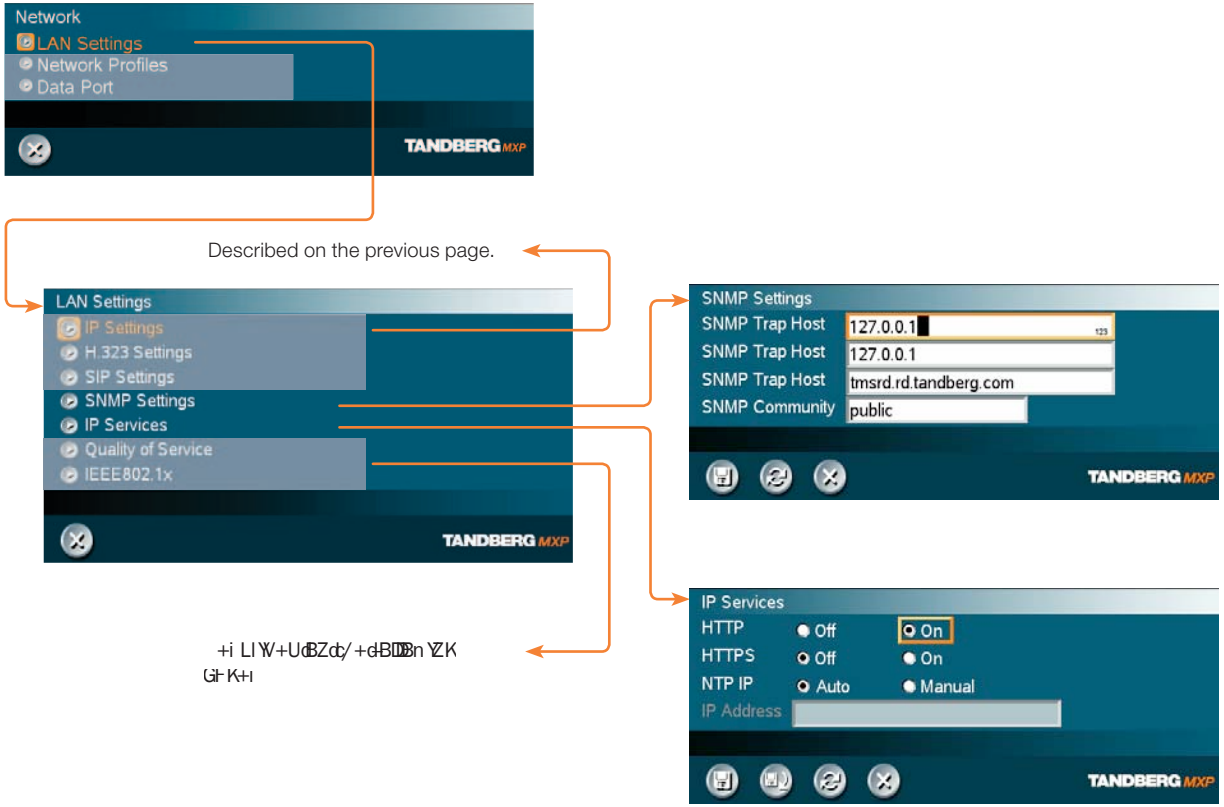





Each menu item is described in The settings library section.

## The Network settings menus - Part 4

**Applies to: 1700 MXP**

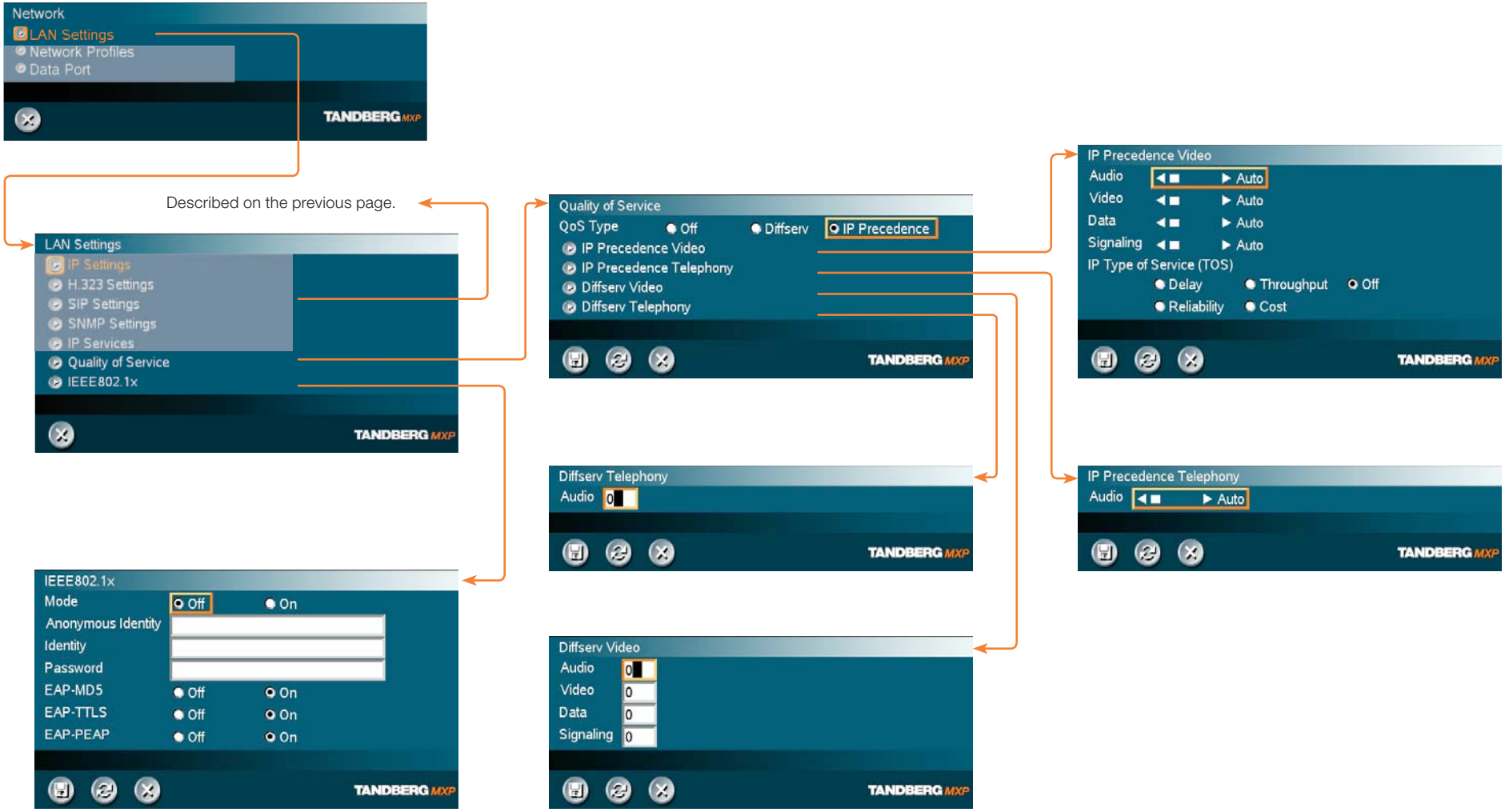



Select SAVE AND RESTART after making changes to IP Services

Each menu item is described in The settings library section.

## The Network settings menus - Part 5

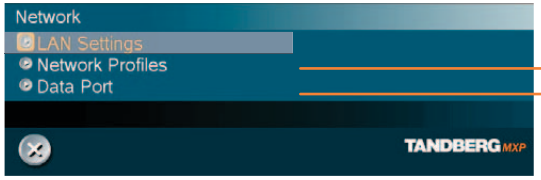
**Applies to: 1700 MXP**

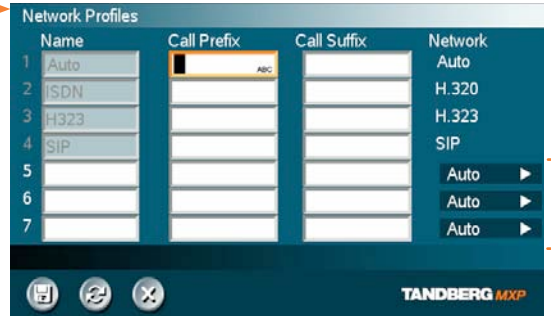


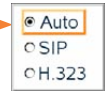

Each menu item is described in The settings library section.

## The Network settings menus - Part 6

**Applies to: 1700 MXP**



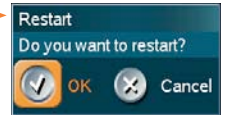

**INFO:** The ISDN profile, which is profile number 2, does not apply to the TANDBERG 1700 *MXP*.


Each menu item is described in The settings library section.

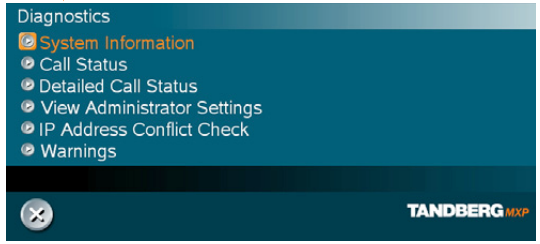
## The other Control Panel menu buttons

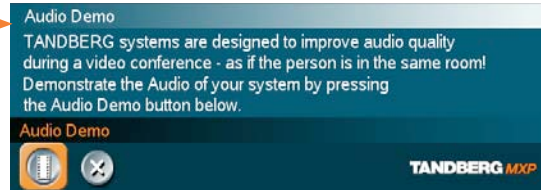
**Applies to: 1700 MXP**


The Installation menu is described in the Getting started section.





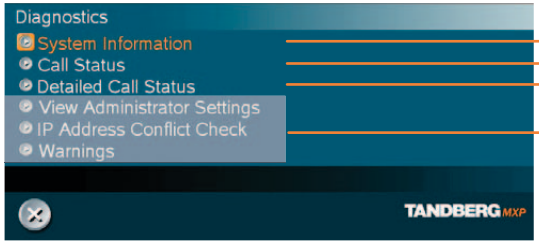




The Diagnostics menu is described overleaf...

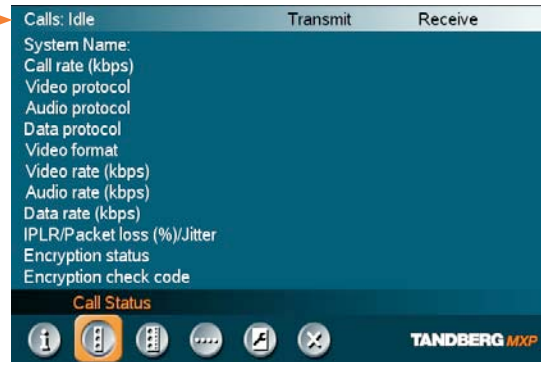
Each menu item is described in The settings library section.

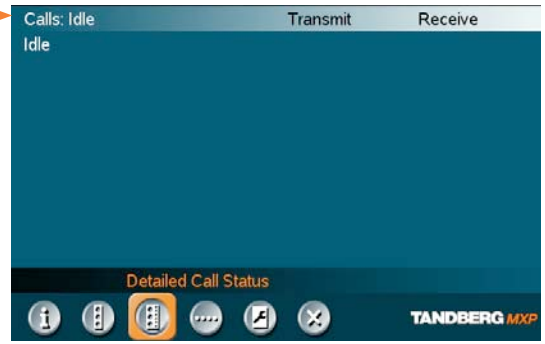
## The Diagnostics menus - Part 1

**Applies to: 1700 MXP**





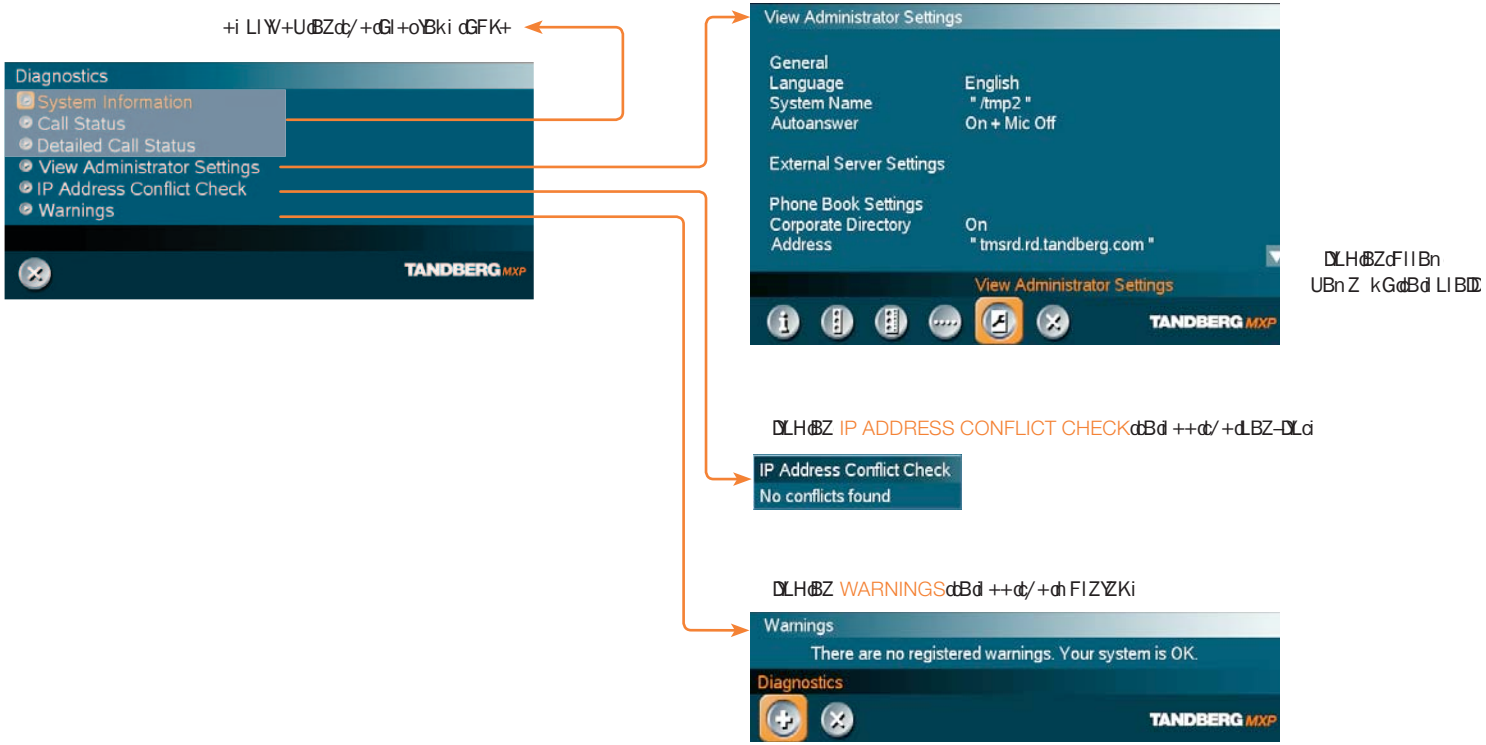



Each menu item is described in The settings library section.

## The Diagnostics menus - Part 2

**Applies to: 1700 MXP**




Each menu item is described in The settings library section.

# Control Panel menu structure for:

This guide describes the menu structure for the systems displayed on this page, with all options installed.

Descriptions of each menu item are found in The settings library section.

TANDBERG 1000 MXP

TANDBERG Compass MXP

TANDBERG Utility MXP

## About the Control Panel

The different parts of the Control Panel are explained on the following pages.

The menu structure section presents all the Control Panel menus by product. This section applies to:

- TANDBERG 1000 *MXP*
- TANDBERG Compass *MXP*
- TANDBERG Utility *MXP*

### Password Protection

Making changes to the Control Panel Settings will change the behavior of the system. We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system. Set an Administrator Password to control the access to these settings.

Read more about password protection in the Using the system section.

### Remote control shortcut keys

RE-DIAL: Double click on the green call button on the remote control to start calling the last number.

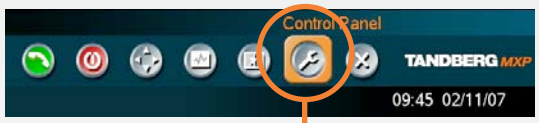
STANDBY: Double click on the red end call button on the remote control to set the system into standby.

SHOW SYSTEM INFORMATION: Open the call menu and press the arrow up key once to show the System information page.

RESET MENU LANGUAGE: Click on the Phone Book button 5 times and then press the number key 1 to reset the menu language to English.

### Open the Control Panel

Press the OK key on the remote control to wake up the system, and to display the Call menu.



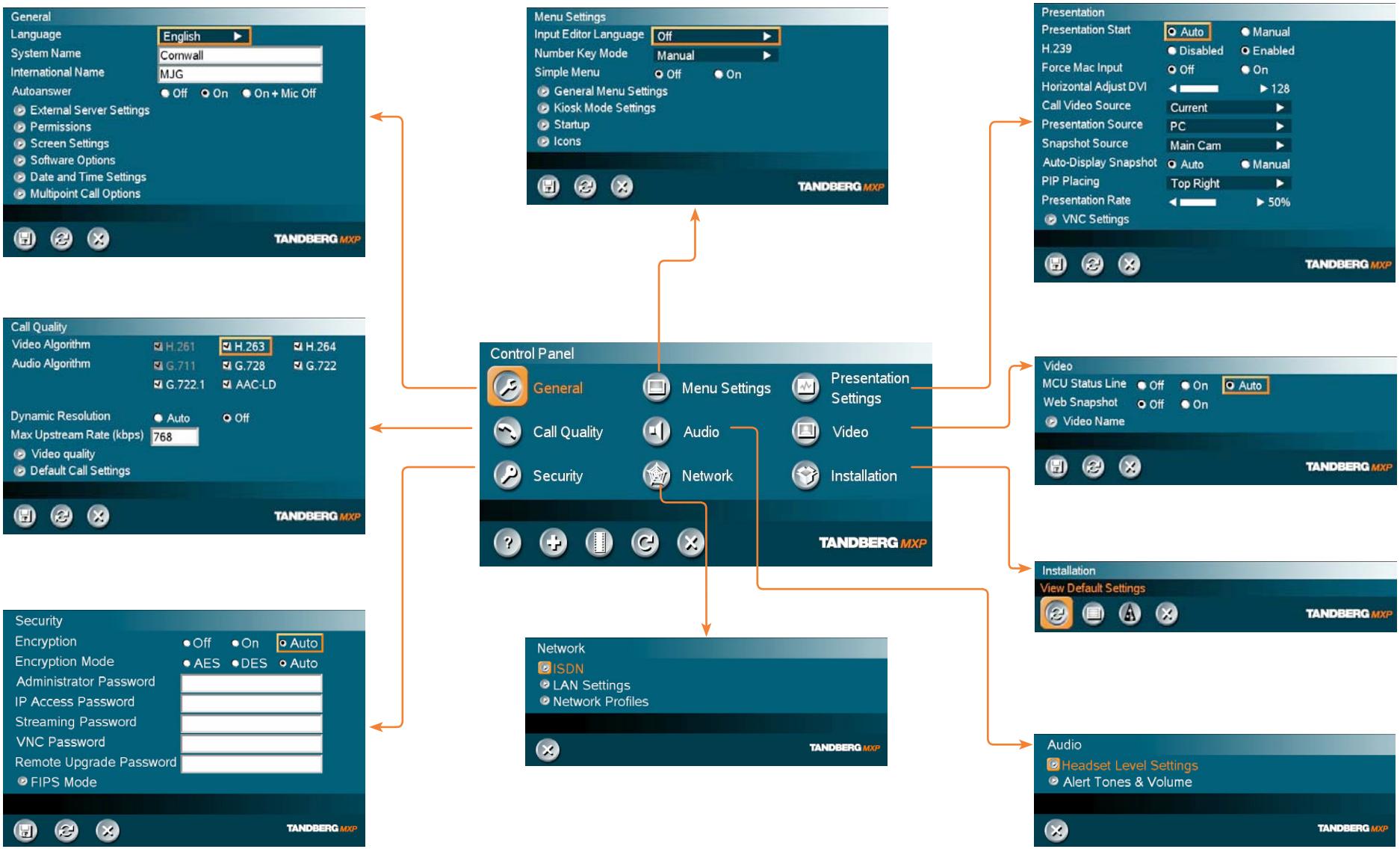

In the Call menu, use the arrow keys on the remote control to navigate to the Control Panel button and press the OK key to display the Control Panel.


- BACK
- RESTART (the system switches itself Off and On again)
- AUDIO DEMO (demonstrates the audio of the system)
- DIAGNOSTICS (see the system status and warnings))
- ON-LINE USER GUIDE (open the online user guide).

Each menu item is described in The settings library section.

## The Control Panel overview

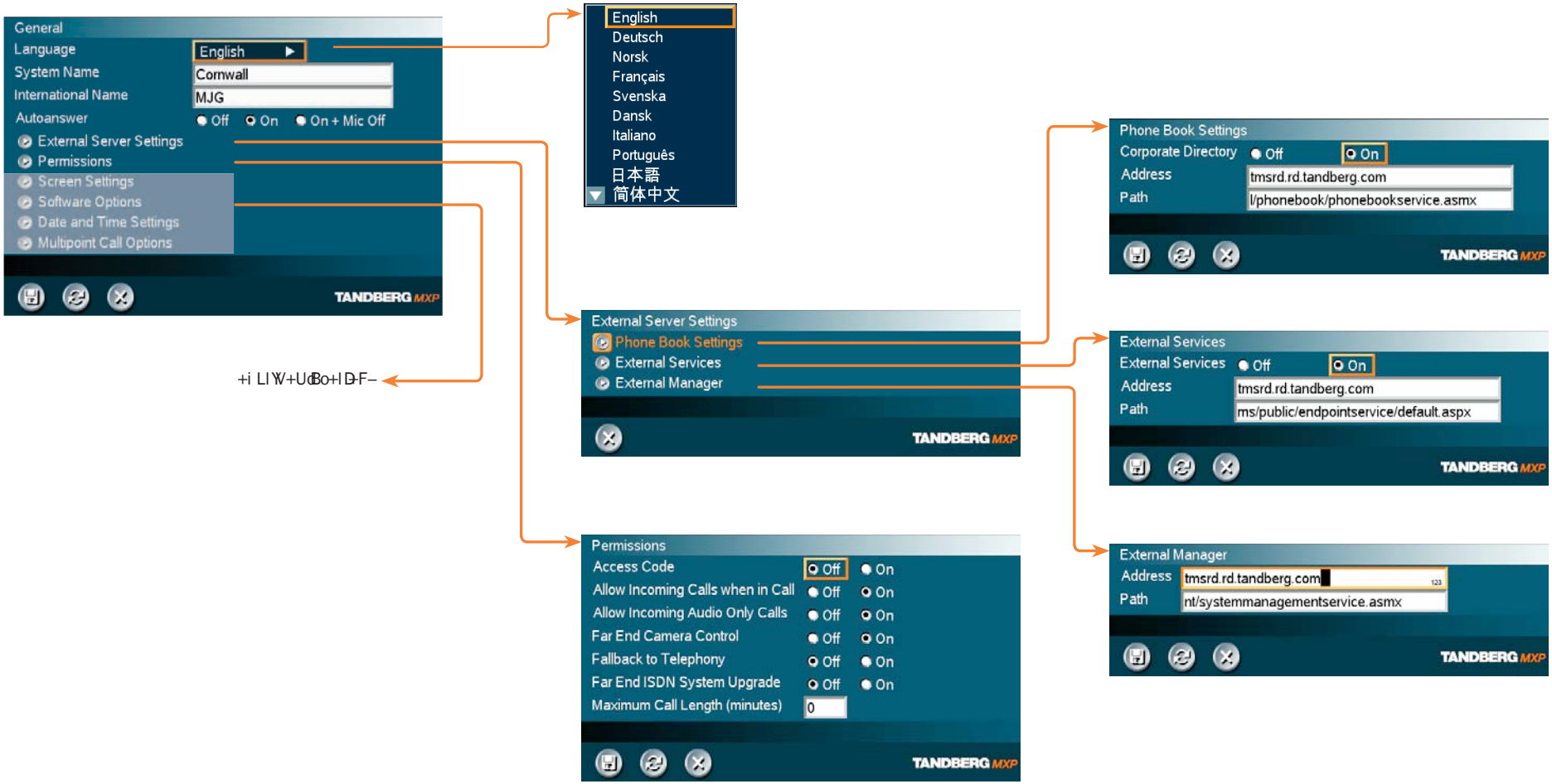
**Applies to: 1000 MXP, Compass MXP, Utility MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 1

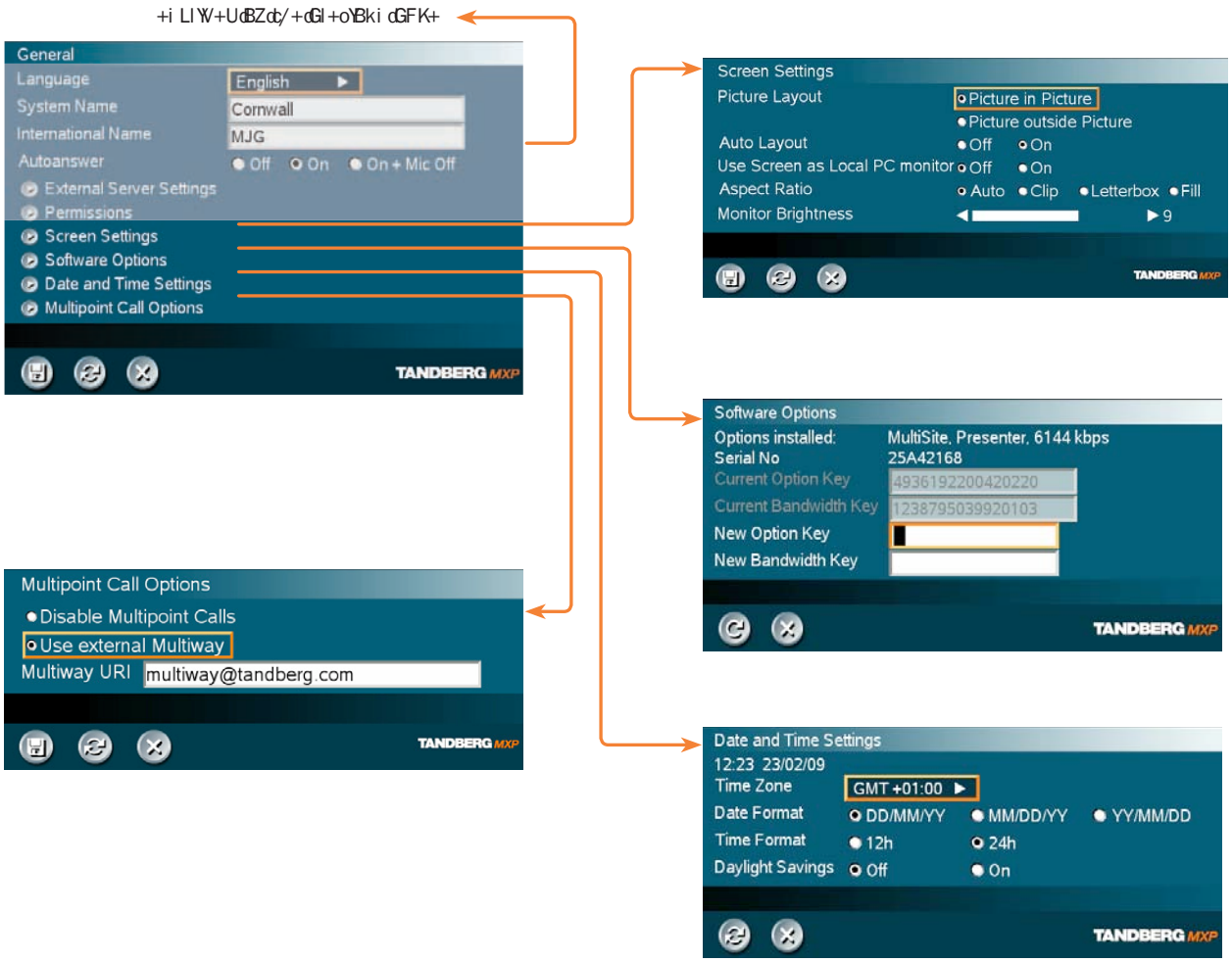
**Applies to: 1000 MXP, Compass MXP, Utility MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 2

**Applies to: 1000 MXP, Compass MXP, Utility MXP**




Each menu item is described in The settings library section.

## The Menu settings menus

**Applies to: 1000 MXP, Compass MXP, Utility MXP**


### Kiosk Mode

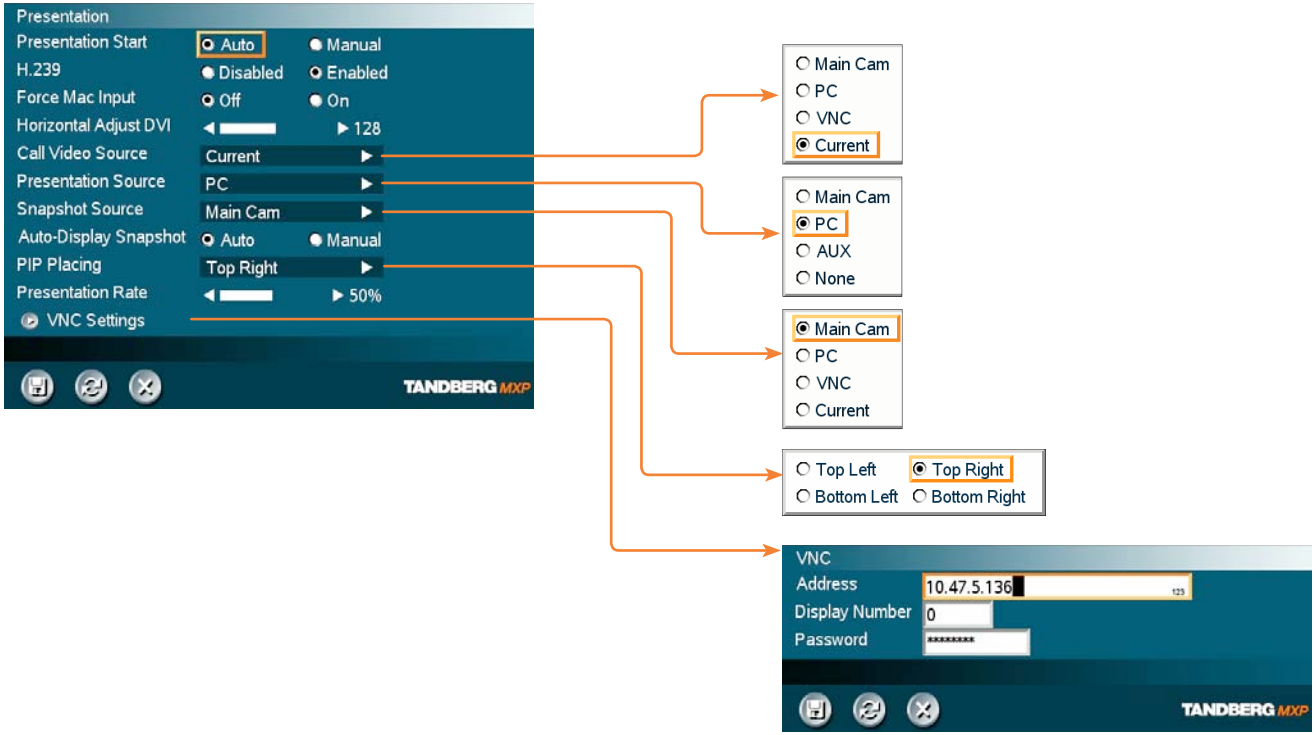
Functionality will be heavily restricted in Kiosk Mode!

Read more about Kiosk Mode in the Appendices section.

Each menu item is described in The settings library section.

## The Presentation settings menus

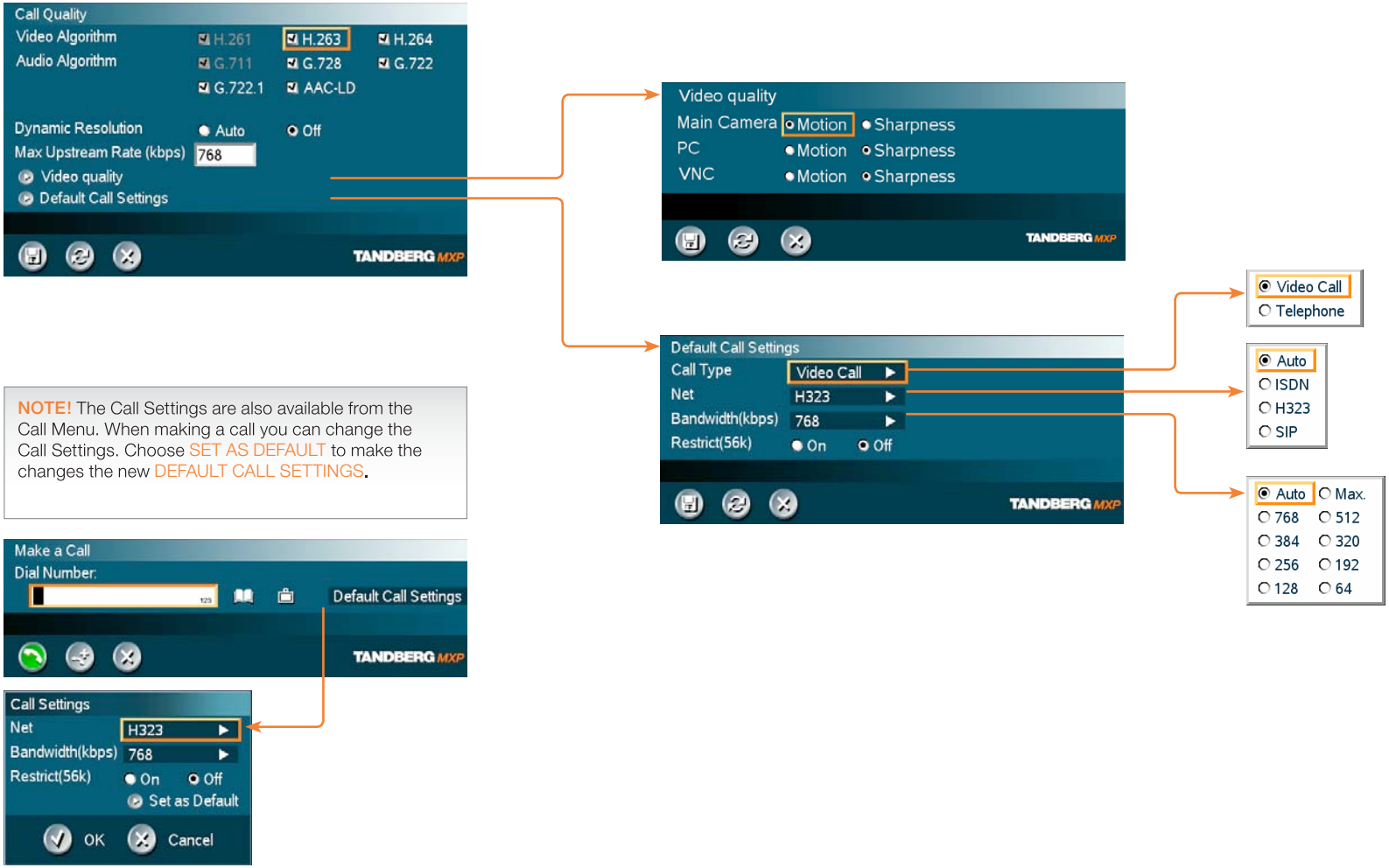
**Applies to: 1000 MXP, Compass MXP, Utility MXP**




Each menu item is described in The settings library section.

## The Call Quality settings menus

**Applies to: 1000 MXP, Compass MXP, Utility MXP**

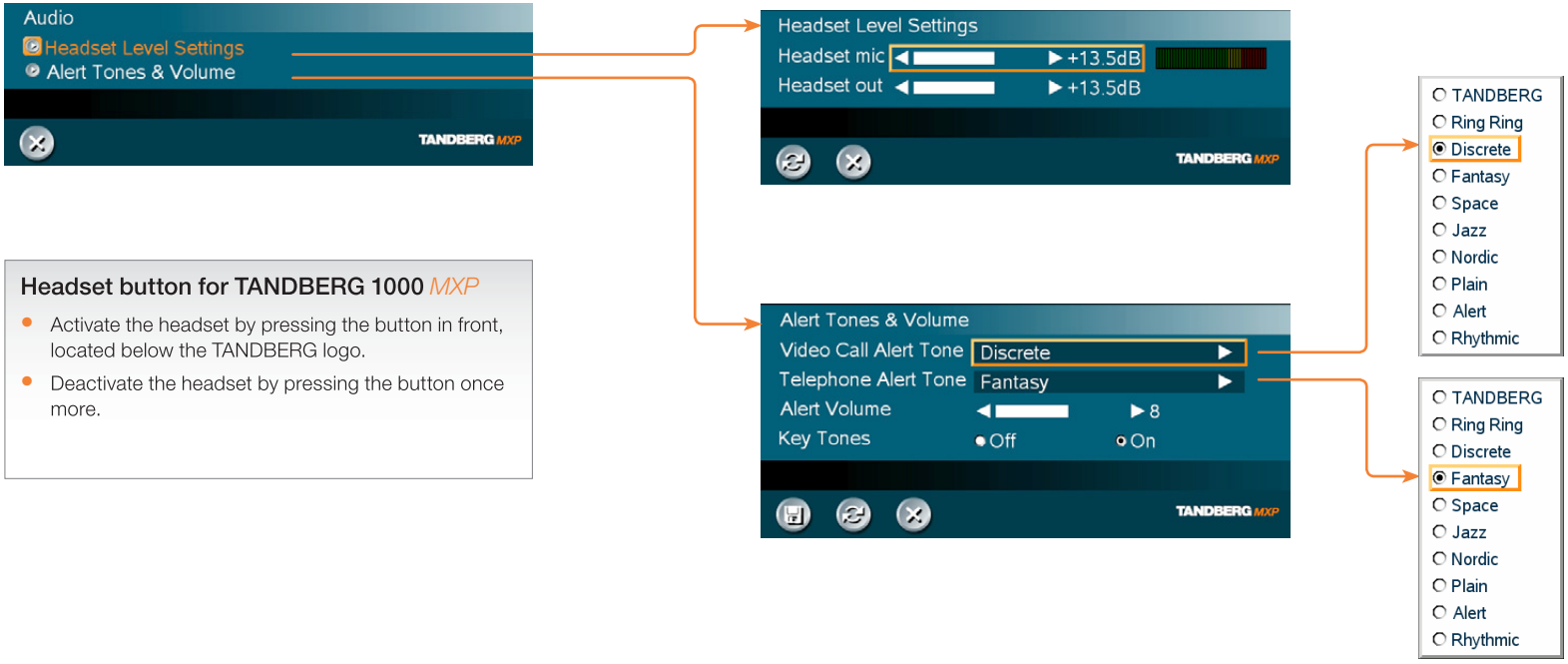



**NOTE!** The Call Settings are also available from the Call Menu. When making a call you can change the Call Settings. Choose SET AS DEFAULT to make the changes the new DEFAULT CALL SETTINGS.

Each menu item is described in The settings library section.

## The Audio settings menus

**Applies to: 1000 MXP, Compass MXP, Utility MXP**



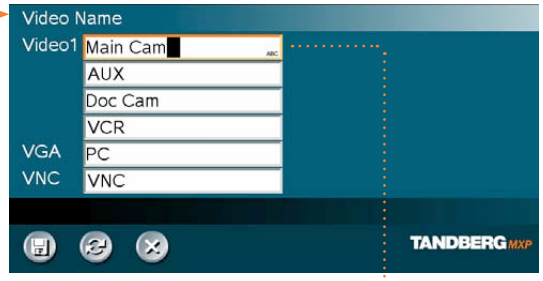

### Headset button for TANDBERG 1000 *MXP*

- Activate the headset by pressing the button in front, located below the TANDBERG logo.
- Deactivate the headset by pressing the button once more.

Each menu item is described in The settings library section.

## The Video settings menus

**Applies to: 1000 MXP, Compass MXP, Utility MXP**

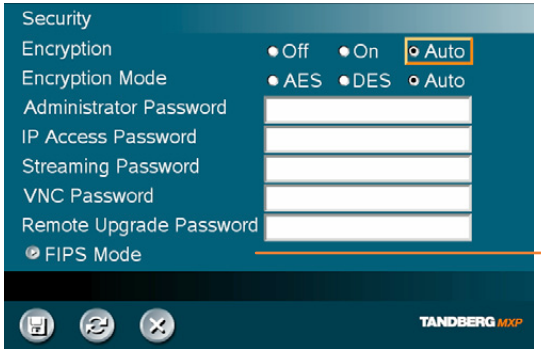


The Video Name typed in will appear in the Presentation menu. To find the Presentation menu, press the OK button on the remote control and select the Presentation button.

Each menu item is described in The settings library section.

## The Security settings menus

**Applies to: 1000 MXP, Compass MXP, Utility MXP**





### Password Protection of the Control Panel

Making changes to the Control Panel Settings will change the behavior of the system.

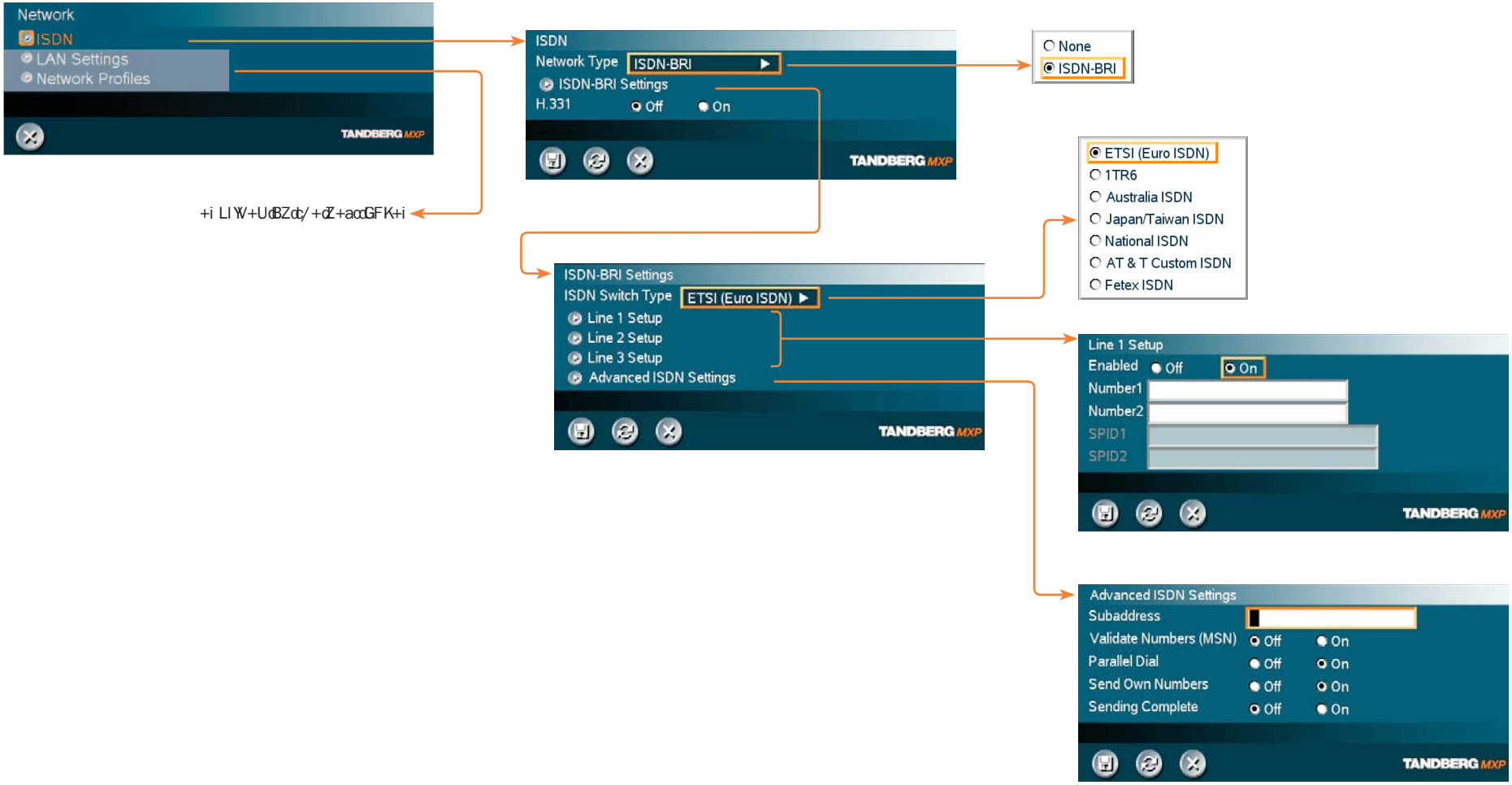
We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system.

Set an Administrator Password to control the access to these settings.

Each menu item is described in The settings library section.

## The Network settings menus - Part 1

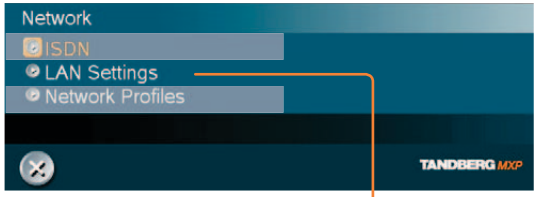
**Applies to: 1000 MXP, Compass MXP, Utility MXP**

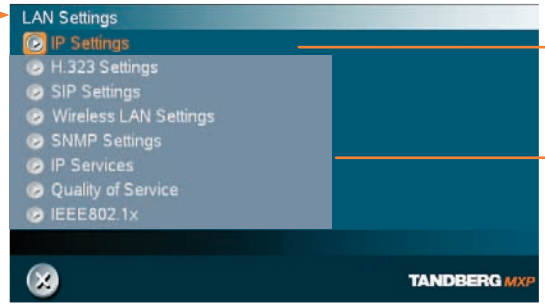



Each menu item is described in The settings library section.

## The Network settings menus - Part 2

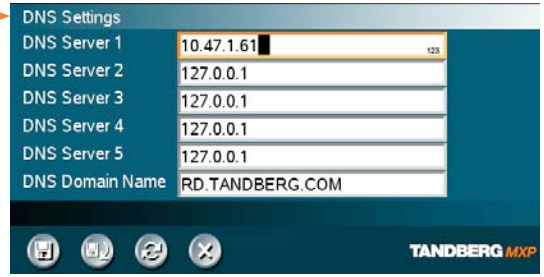
**Applies to: 1000 MXP, Compass MXP, Utility MXP**





Select SAVE AND RESTART after making changes to IP Settings

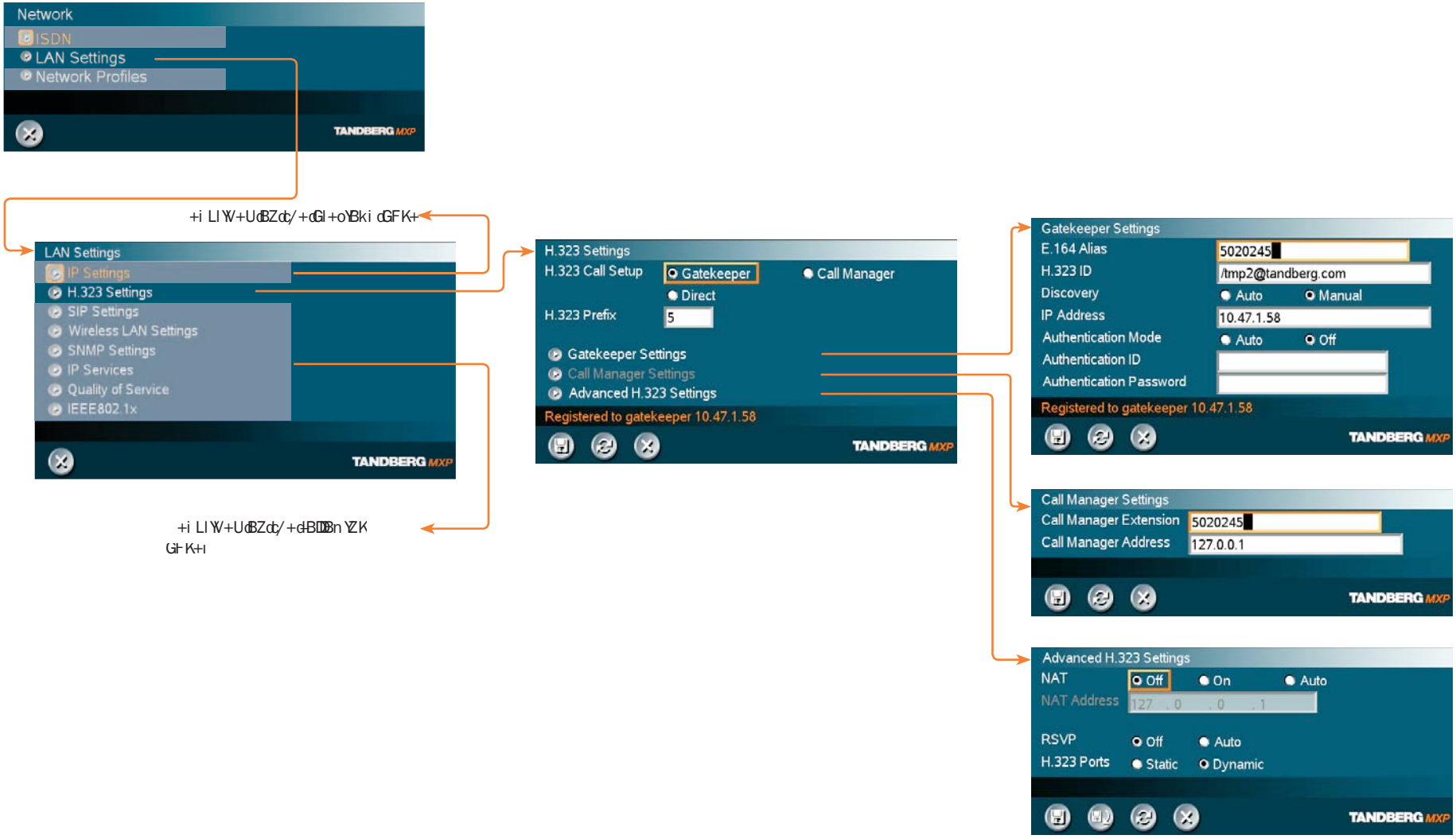



Select SAVE AND RESTART after making changes to DNS Settings

Each menu item is described in The settings library section.

## The Network settings menus - Part 3

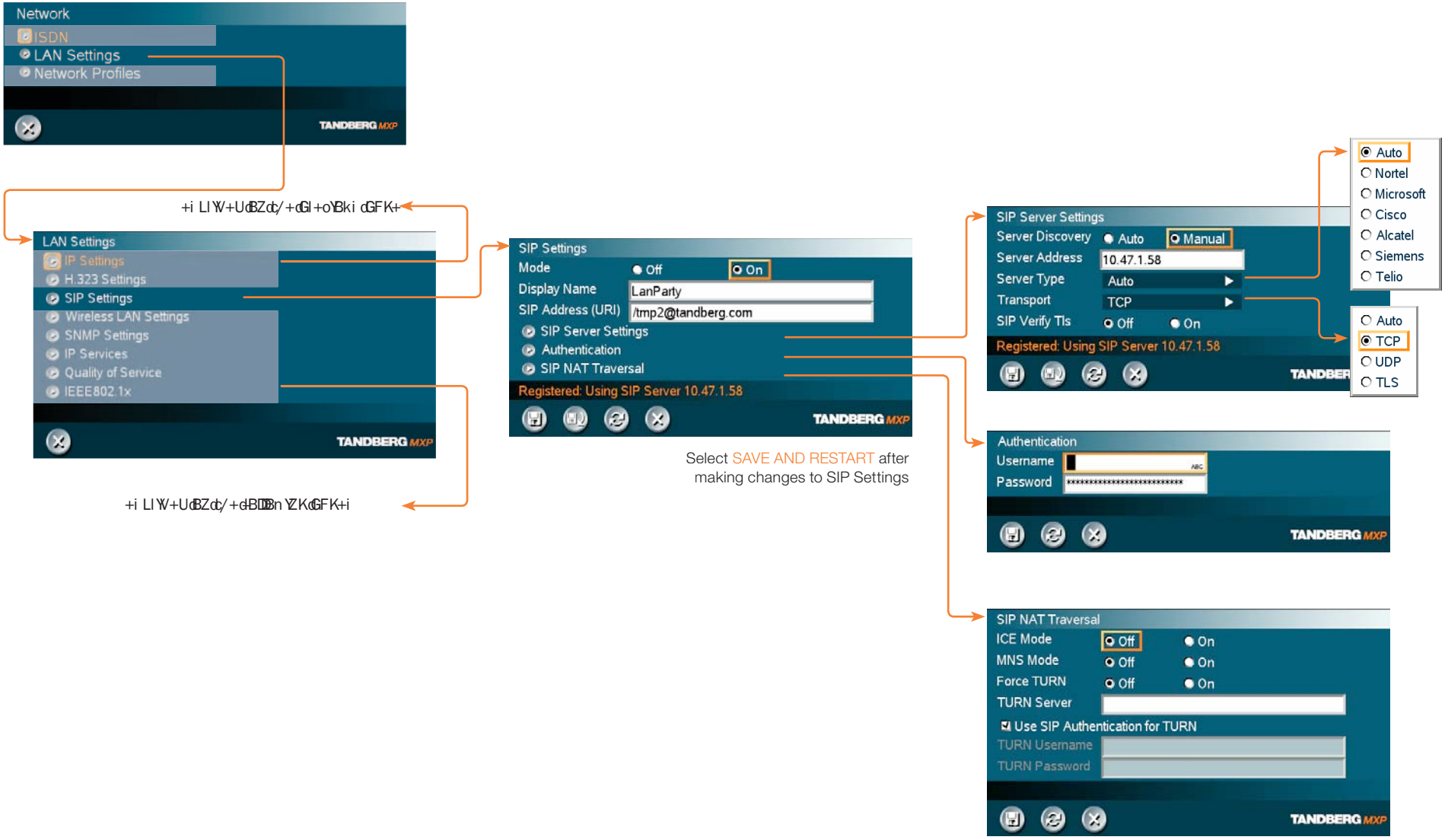
**Applies to: 1000 MXP, Compass MXP, Utility MXP**




Each menu item is described in The settings library section.

## The Network settings menus - Part 4

**Applies to: 1000 MXP, Compass MXP, Utility MXP**

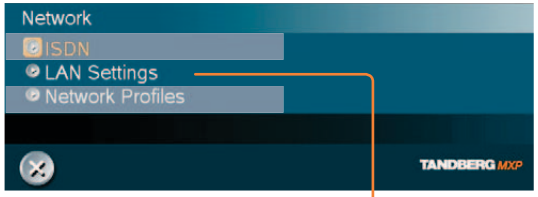


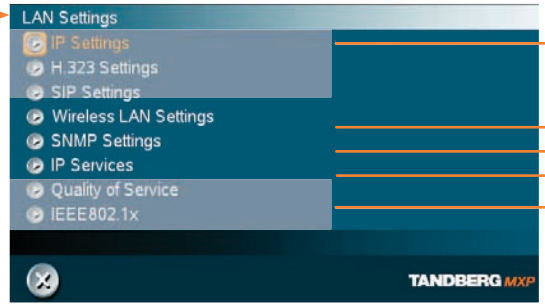

Select SAVE AND RESTART after making changes to SIP Settings

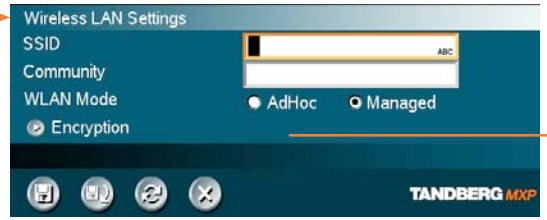
Each menu item is described in The settings library section.

## The Network settings menus - Part 5

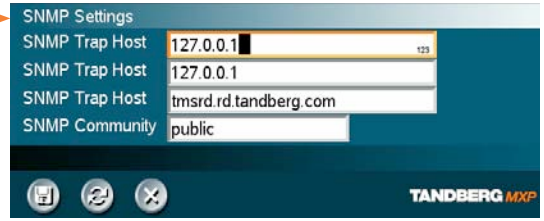
**Applies to: 1000 MXP, Compass MXP, Utility MXP**




Select SAVE AND RESTART after making changes to WLAN Settings



Select SAVE AND RESTART after making changes to IP Services

Each menu item is described in The settings library section.

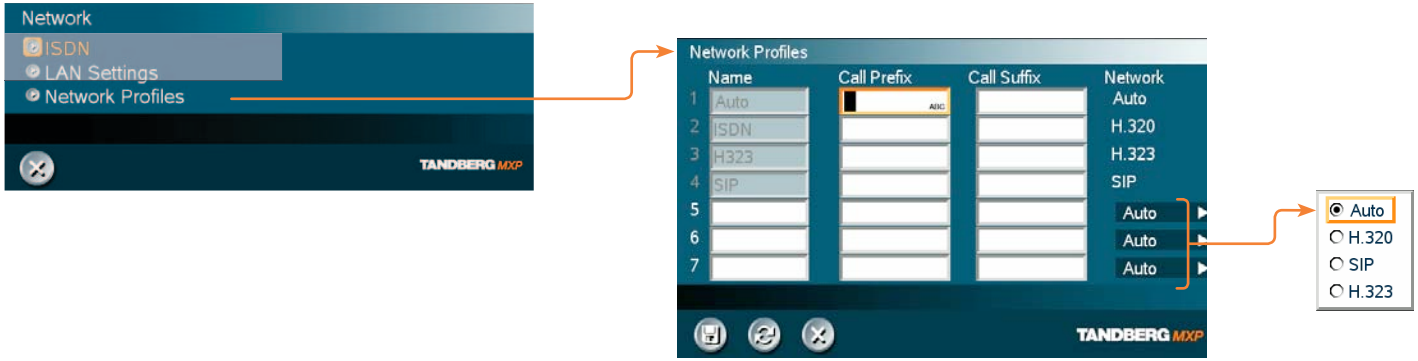
## The Network settings menus - Part 6

**Applies to: 1000 MXP, Compass MXP, Utility MXP**


Each menu item is described in The settings library section.

## The Network settings menus - Part 7

**Applies to: 1000 MXP, Compass MXP, Utility MXP**



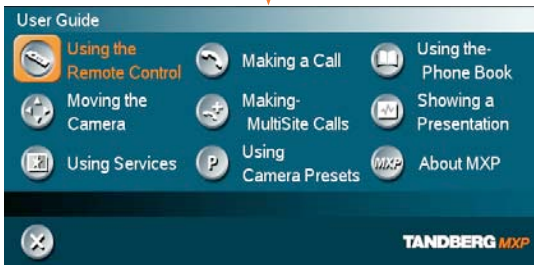

Each menu item is described in The settings library section.

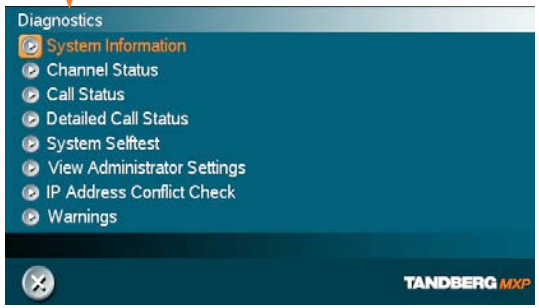
## The other Control Panel menu buttons

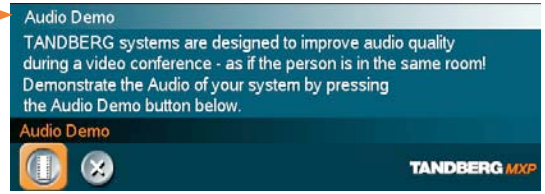
**Applies to: 1000 MXP, Compass MXP, Utility MXP**


The Installation menu is described in the Getting started section.






The Diagnostics menu is described overleaf...

Each menu item is described in The settings library section.

## The Diagnostics menus - Part 1

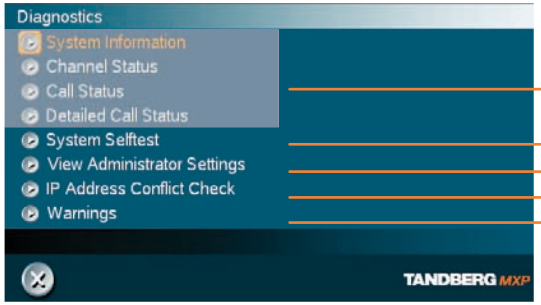
**Applies to: 1000 MXP, Compass MXP, Utility MXP**

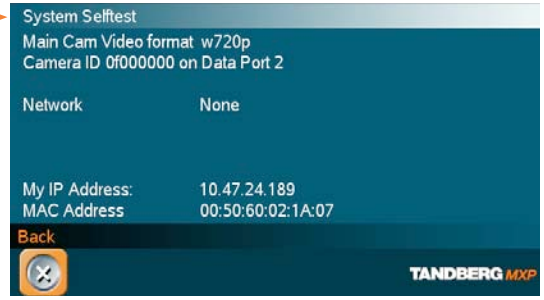

Each menu item is described in The settings library section.

## The Diagnostics menus - Part 2

**Applies to: 1000 MXP, Compass MXP, Utility MXP**

+i LIY+UdBZdc/+dGl+oYBki dGFK+

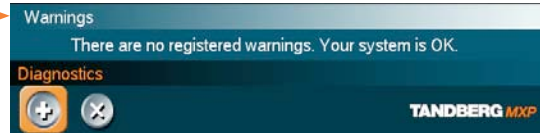



DYLHdBZdFIIBn
UBnZ kGdBdI LIBDI


DYLHdBZ IP ADDRESS CONFLICT CHECKdBdI ++dc/+dLBZ-DYLdi


DYLHdBZ WARNINGSdBdI ++dc/+dh FIZYZKi




Each menu item is described in The settings library section.

# Control Panel menu structure for:

This guide describes the menu structure for the systems displayed on this page, with all options installed.

Descriptions of each menu item are found in The settings library section.

TANDBERG Edge 95/85/75 MXP

TANDBERG 990/880/770 MXP

## About the Control Panel

The different parts of the Control Panel are explained on the following pages.

The menu structure section presents all the Control Panel menus by product. This section applies to:

- TANDBERG Edge 95/85/75 *MXP*
- TANDBERG 990/880/770 *MXP*

### Password Protection

Making changes to the Control Panel Settings will change the behavior of the system. We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system. Set an Administrator Password to control the access to these settings.

Read more about password protection in the Using the system section.

### Remote control shortcut keys

RE-DIAL: Double click on the green call button on the remote control to start calling the last number.

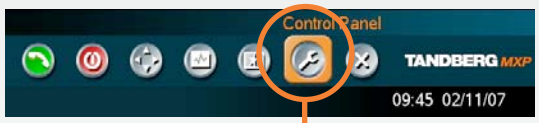
STANDBY: Double click on the red end call button on the remote control to set the system into standby.

SHOW SYSTEM INFORMATION: Open the call menu and press the arrow up key once to show the System information page.

RESET MENU LANGUAGE: Click on the Phone Book button 5 times and then press the number key 1 to reset the menu language to English.

### Open the Control Panel

Press the OK key on the remote control to wake up the system, and to display the Call menu.




In the Call menu, use the arrow keys on the remote control to navigate to the Control Panel button and press the OK key to display the Control Panel.


BACK

RESTART (the system switches itself Off and On again)

AUDIO DEMO (demonstrates the audio of the system)

DIAGNOSTICS (see the system status and warnings))

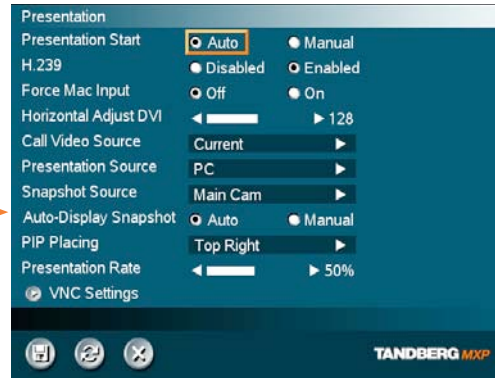
ON-LINE USER GUIDE (open the online user guide).

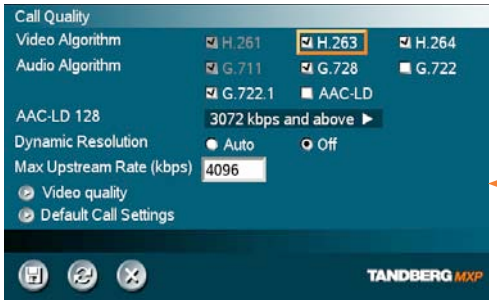
Each menu item is described in The settings library section.

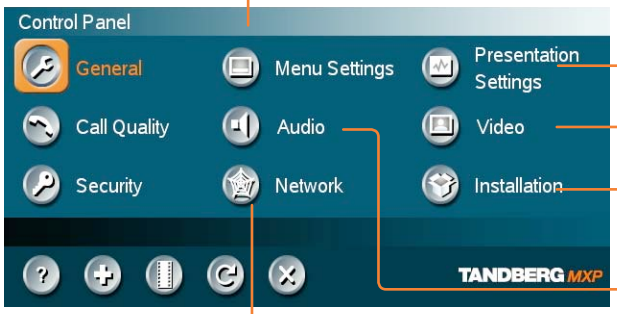
## The Control Panel overview

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**



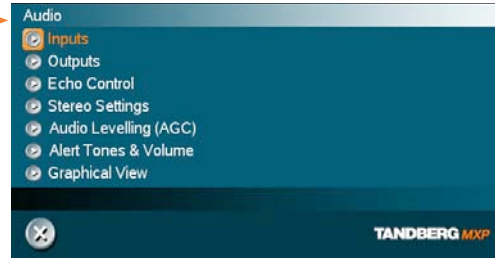




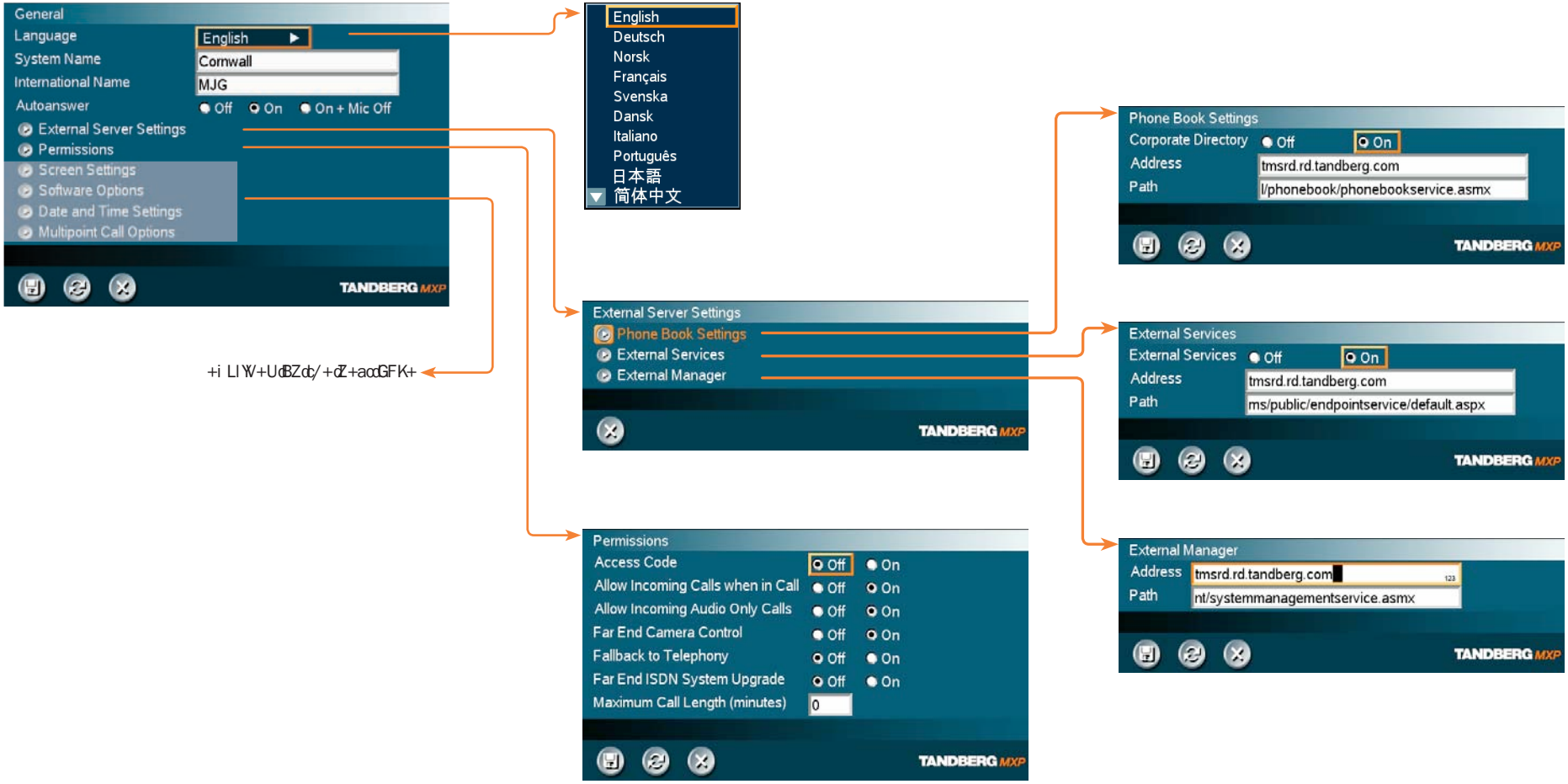



Each menu item is described in The settings library section.

## The General settings menus - Part 1

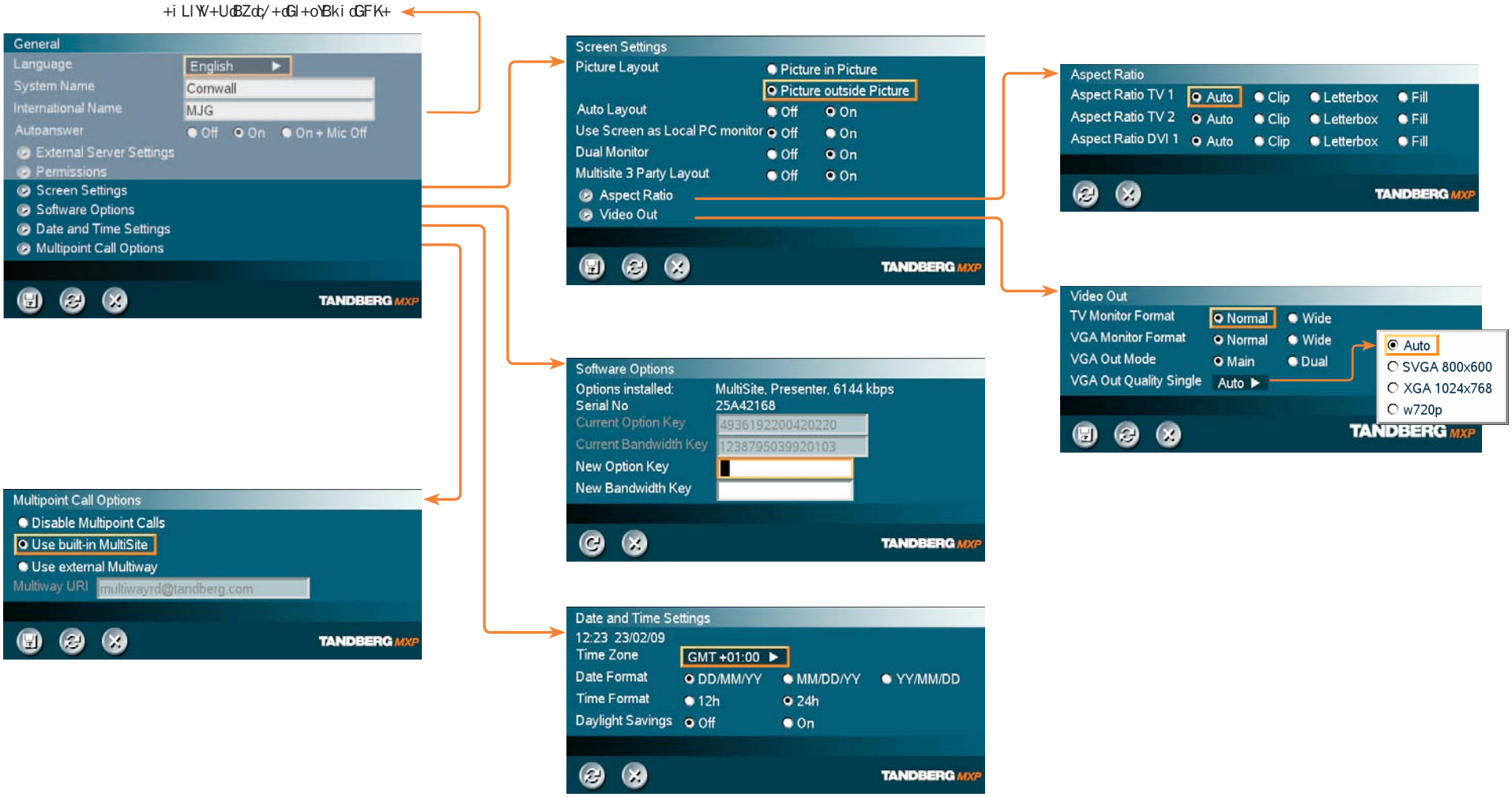
**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 2

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**




Each menu item is described in The settings library section.

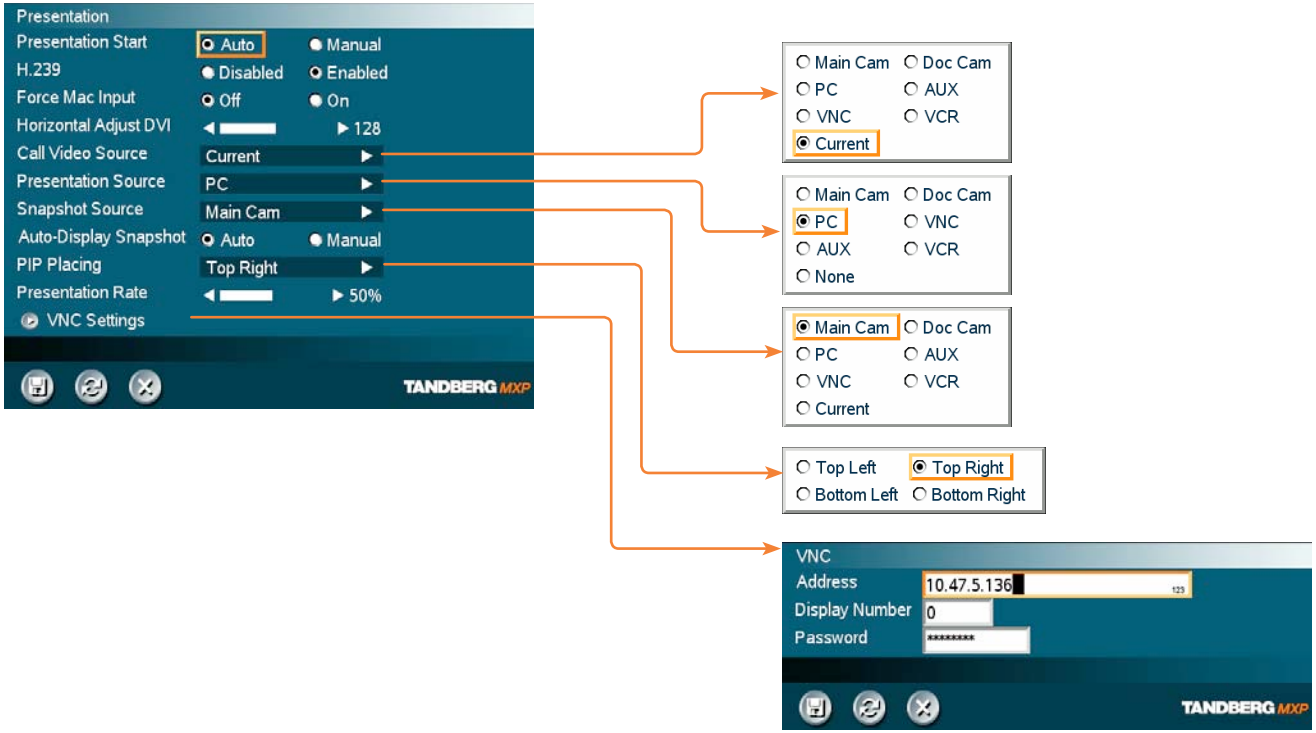
## The Menu settings menus

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**


Each menu item is described in The settings library section.

## The Presentation settings menus

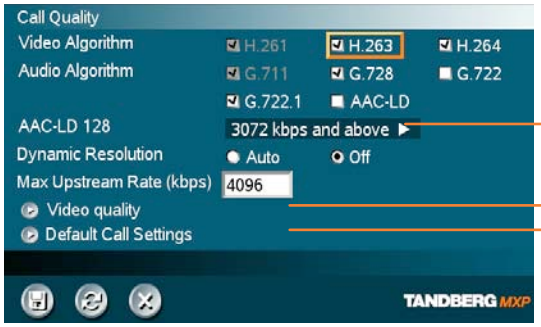
**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**

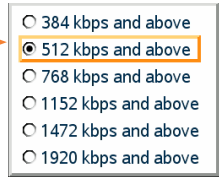



Each menu item is described in The settings library section.

## The Call Quality settings menus

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**

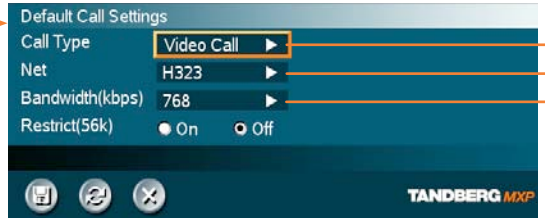


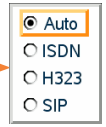


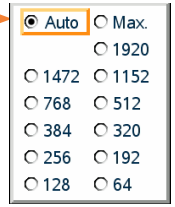
**NOTE!** The Call Settings are also available from the Call Menu. When making a call you can change the Call Settings. Choose SET AS DEFAULT to make the changes the new DEFAULT CALL SETTINGS.







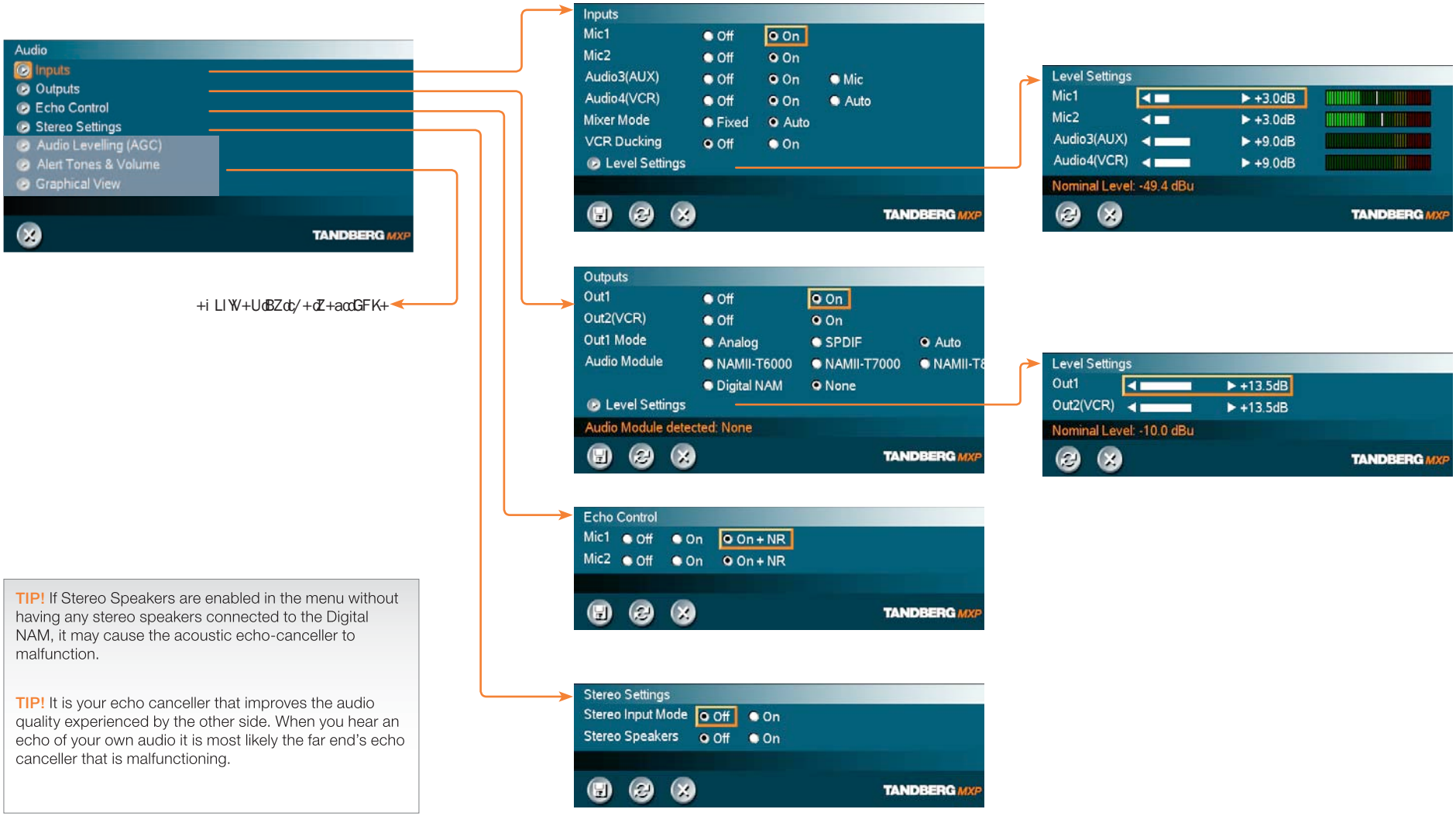



Each menu item is described in The settings library section.

## The Audio settings menus - Part 1

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**



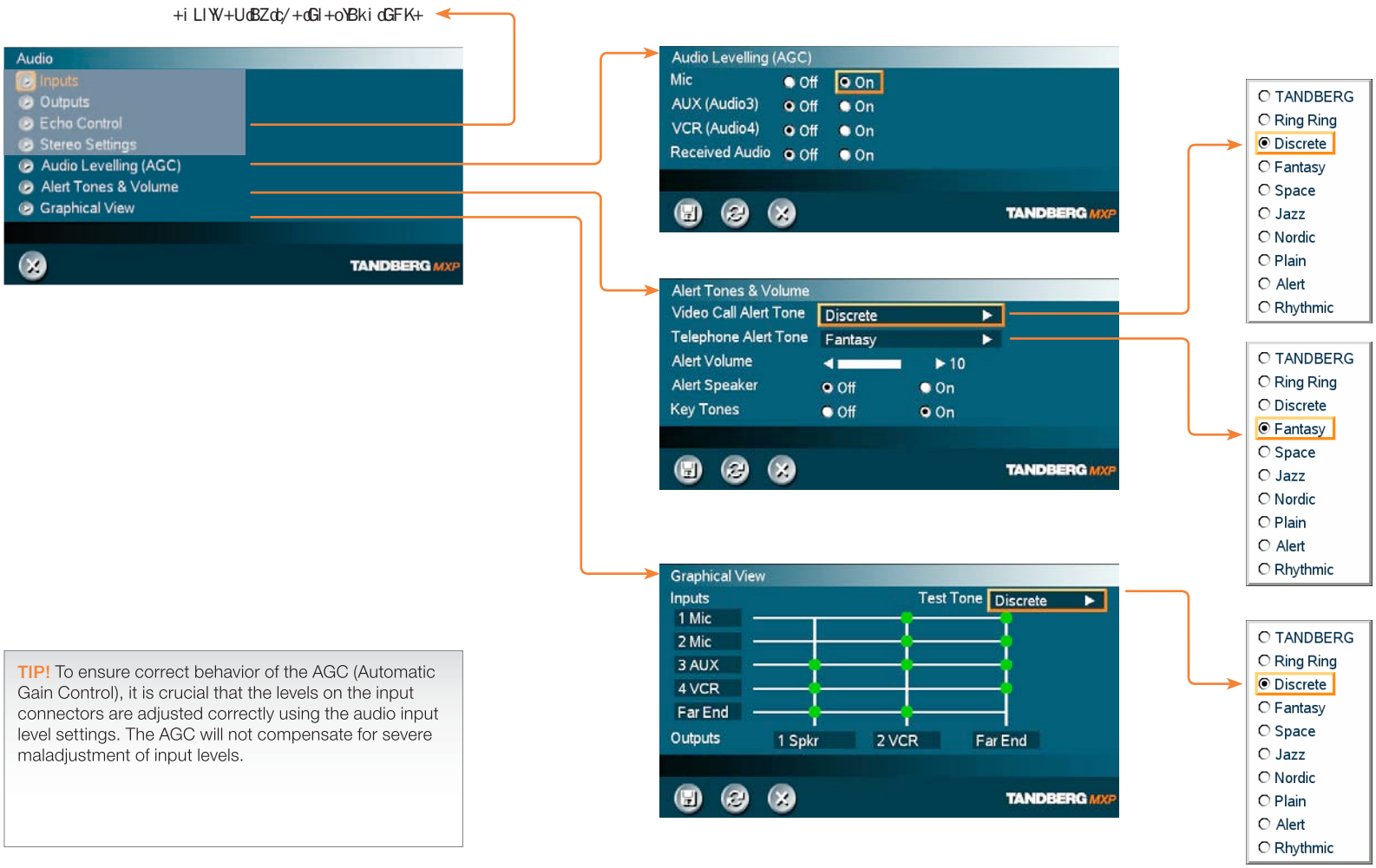

**TIP!** If Stereo Speakers are enabled in the menu without having any stereo speakers connected to the Digital NAM, it may cause the acoustic echo-canceller to malfunction.

**TIP!** It is your echo canceller that improves the audio quality experienced by the other side. When you hear an echo of your own audio it is most likely the far end's echo canceller that is malfunctioning.

Each menu item is described in The settings library section.

## The Audio settings menus - Part 2

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**

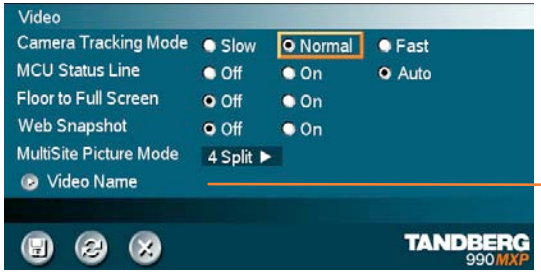


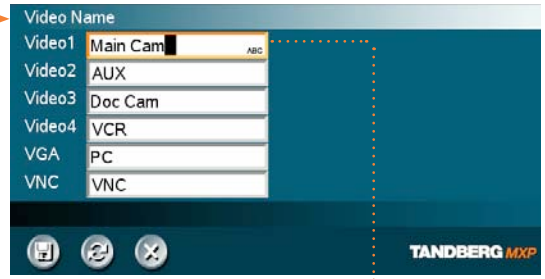

**TIP!** To ensure correct behavior of the AGC (Automatic Gain Control), it is crucial that the levels on the input connectors are adjusted correctly using the audio input level settings. The AGC will not compensate for severe maladjustment of input levels.

Each menu item is described in The settings library section.

## The Video settings menus

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**



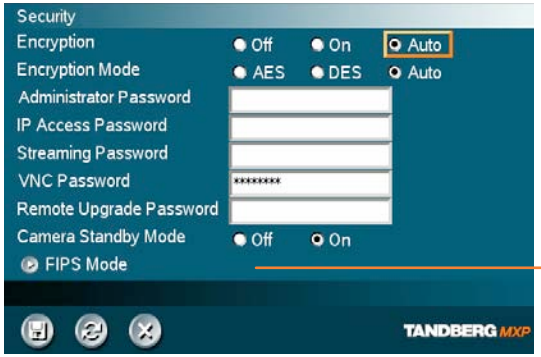


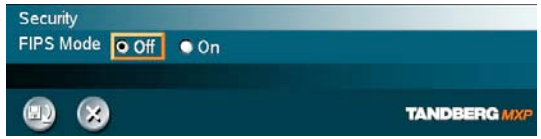
The Video Name typed in will appear in the Presentation menu. To find the Presentation menu, press the OK button on the remote control and select the Presentation button.

Each menu item is described in The settings library section.

## The Security settings menus

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**




### Password Protection of the Control Panel

Making changes to the Control Panel Settings will change the behavior of the system.

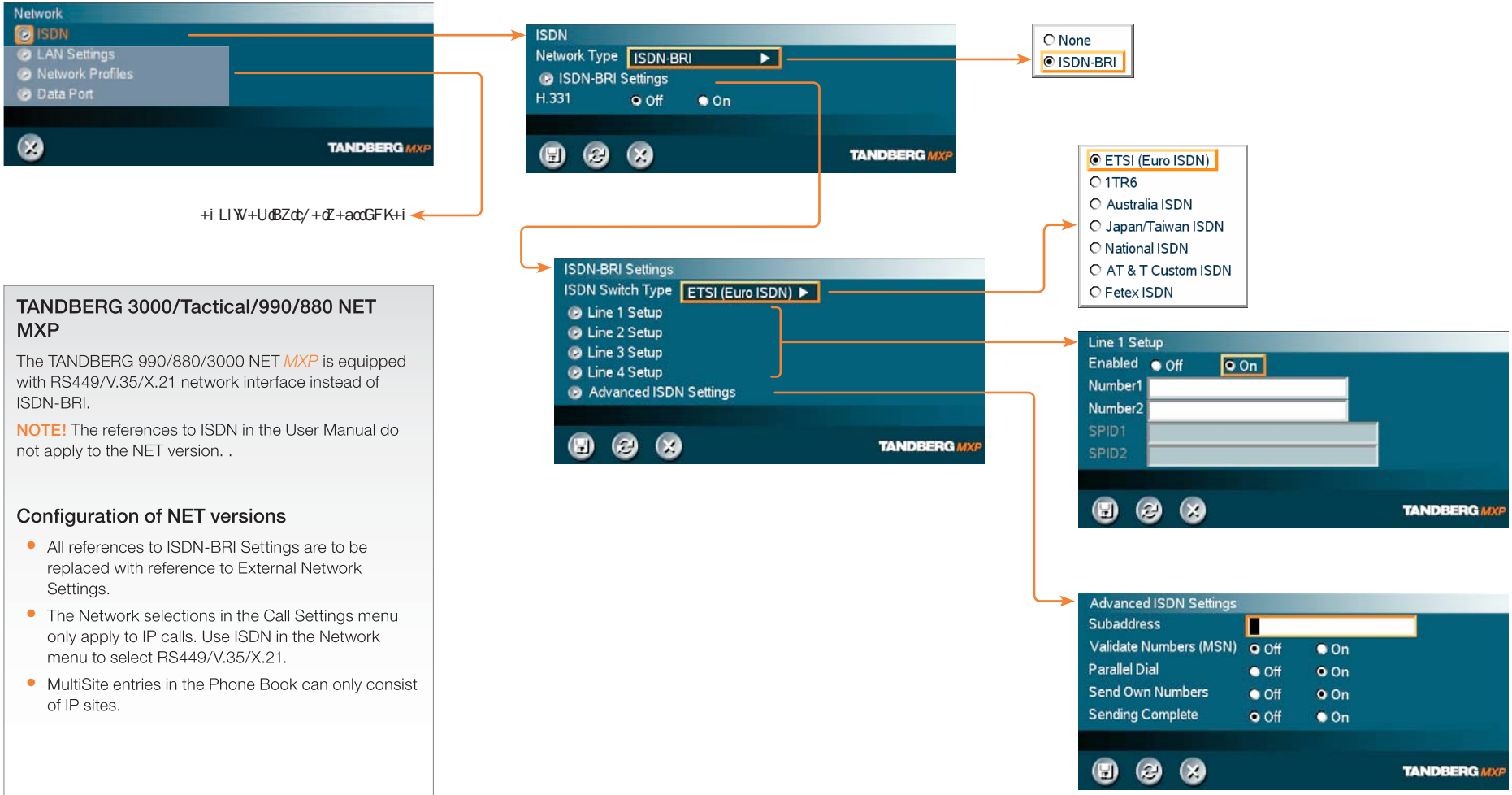
We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system.

Set an Administrator Password to control the access to these settings.

Each menu item is described in The settings library section.

## The Network settings menus - Part 1

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**




### TANDBERG 3000/Tactical/990/880 NET MXP

The TANDBERG 990/880/3000 NET *MXP* is equipped with RS449/V.35/X.21 network interface instead of ISDN-BRI.

**NOTE!** The references to ISDN in the User Manual do not apply to the NET version. .

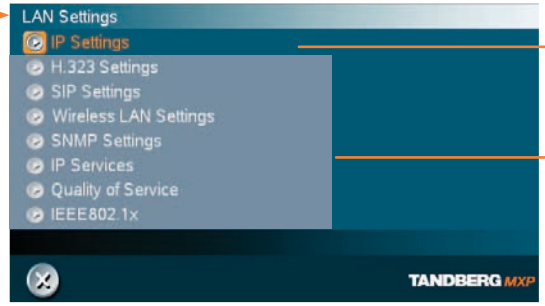
### Configuration of NET versions

- All references to ISDN-BRI Settings are to be replaced with reference to External Network Settings.
- The Network selections in the Call Settings menu only apply to IP calls. Use ISDN in the Network menu to select RS449/V.35/X.21.
- MultiSite entries in the Phone Book can only consist of IP sites.

Each menu item is described in The settings library section.

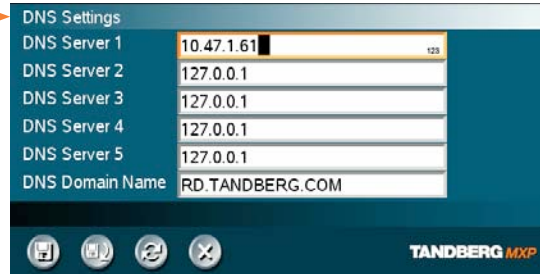
## The Network settings menus - Part 2

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**



Select SAVE AND RESTART after making changes to IP Settings

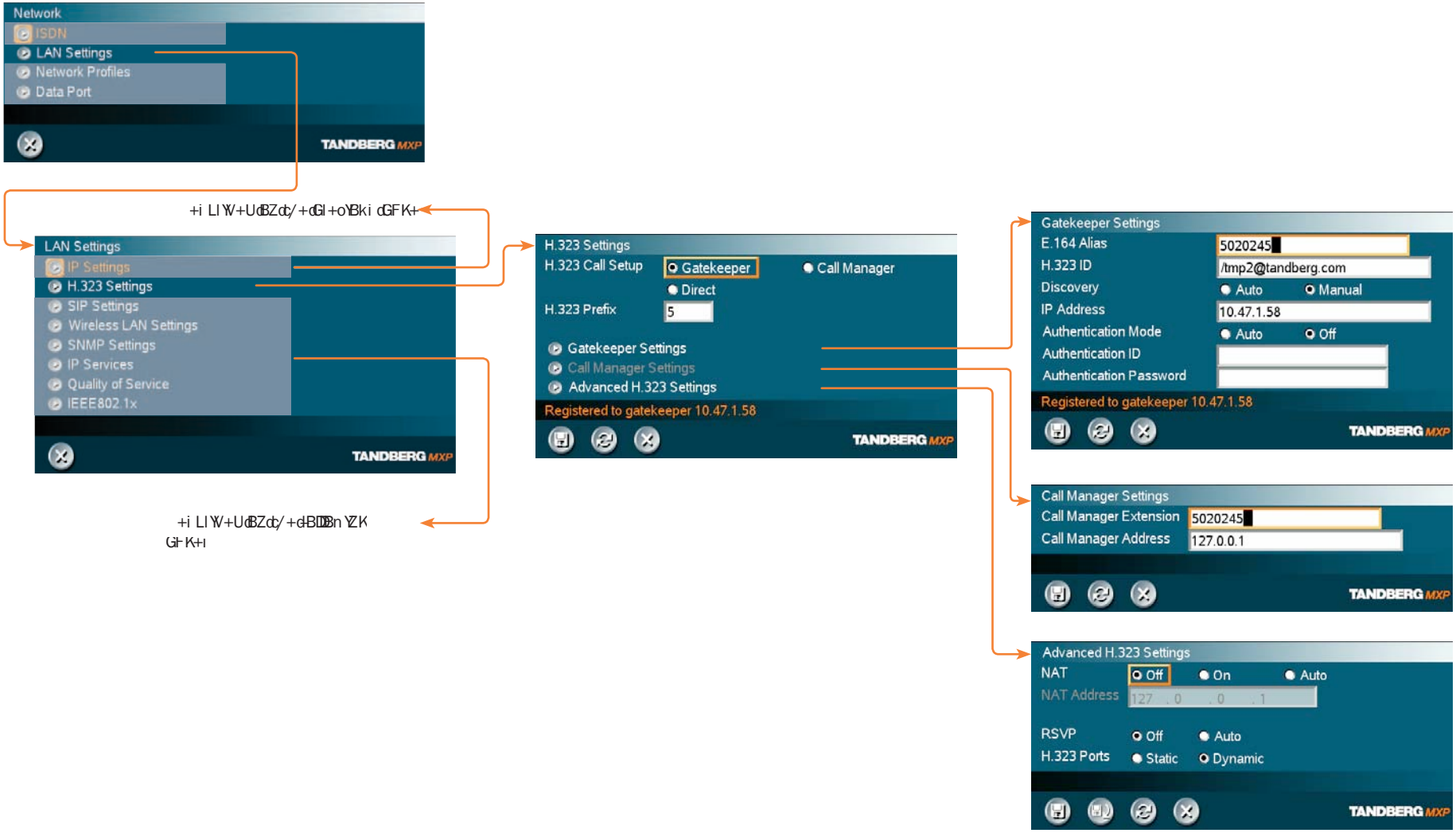



Select SAVE AND RESTART after making changes to DNS Settings

Each menu item is described in The settings library section.

## The Network settings menus - Part 3

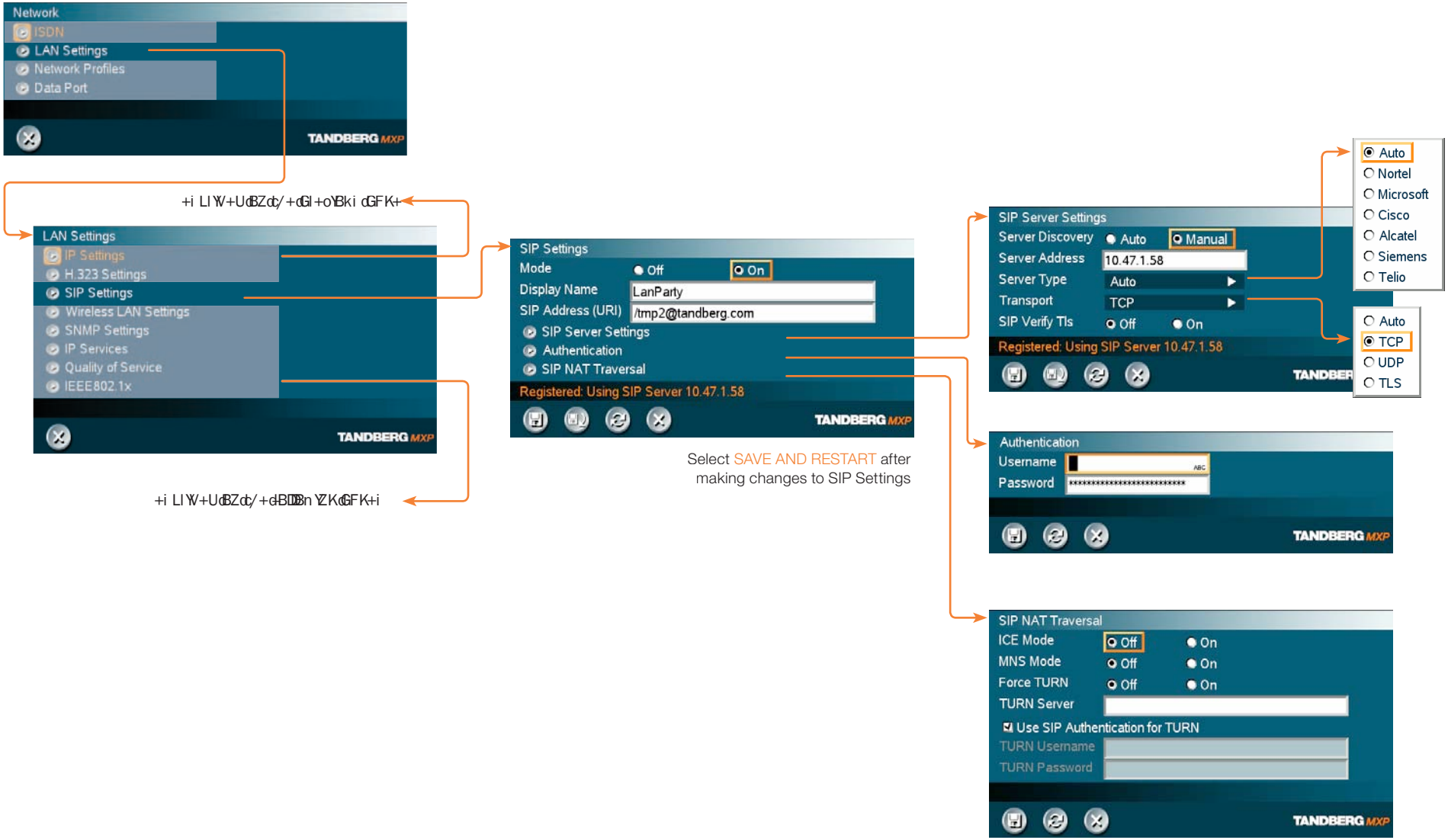
**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**




Each menu item is described in The settings library section.

## The Network settings menus - Part 4

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**

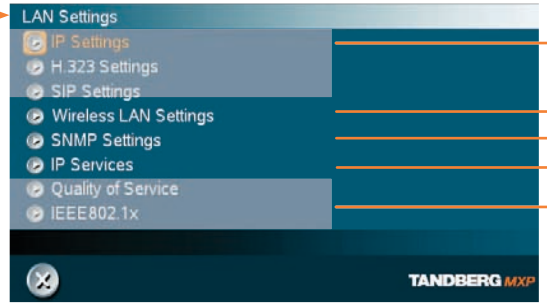


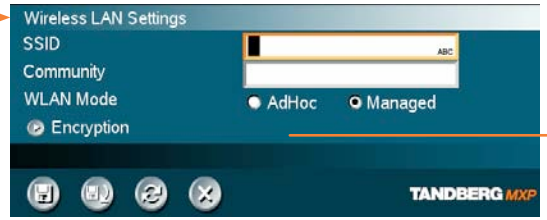

Select SAVE AND RESTART after making changes to SIP Settings

Each menu item is described in The settings library section.

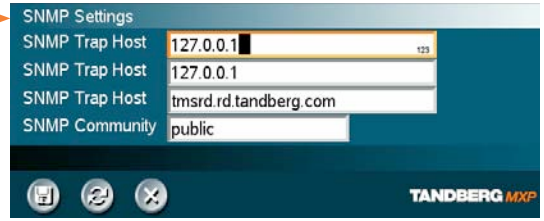
## The Network settings menus - Part 5

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**


Select SAVE AND RESTART after making changes to WLAN Settings



Select SAVE AND RESTART after making changes to IP Services

Each menu item is described in The settings library section.

## The Network settings menus - Part 6

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**


Each menu item is described in The settings library section.

## The Network settings menus - Part 7

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**

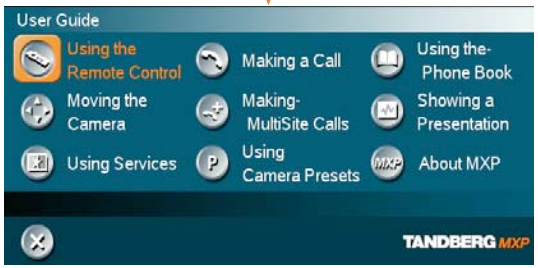

Each menu item is described in The settings library section.

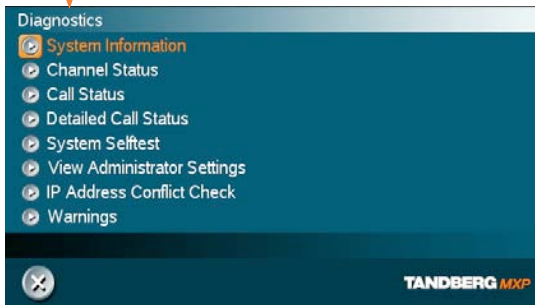
## The other Control Panel menu buttons

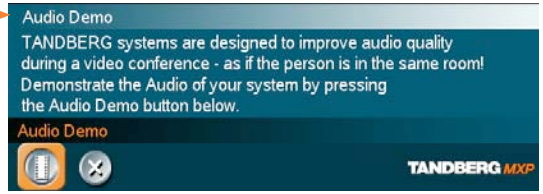
**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**


The Installation menu is described in the Getting started section.





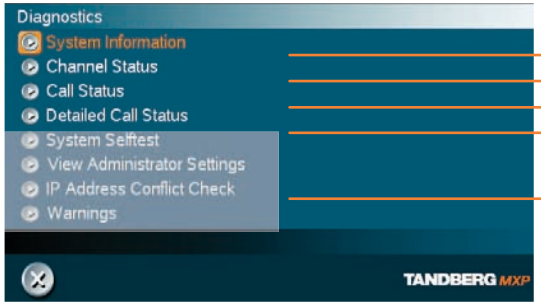




The Diagnostics menu is described overleaf...

Each menu item is described in The settings library section.

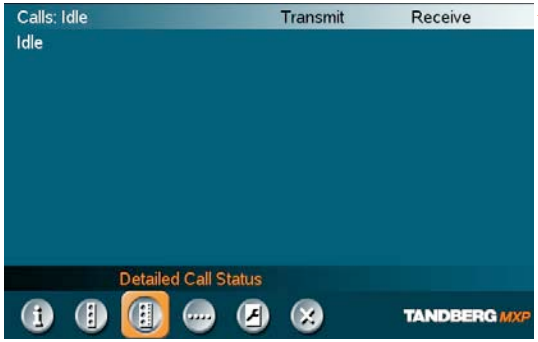
## The Diagnostics menus - Part 1

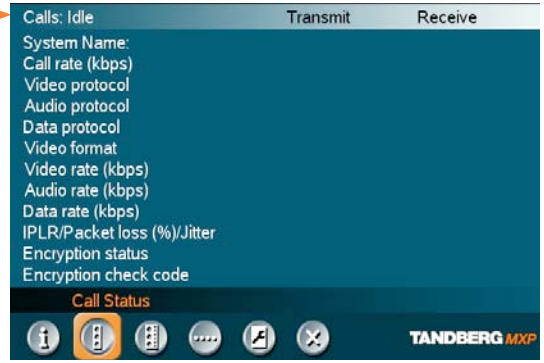
**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**






**NOTE!** The CHANNEL STATUS do not apply to NET versions.



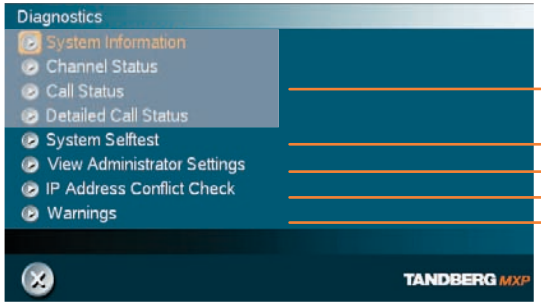



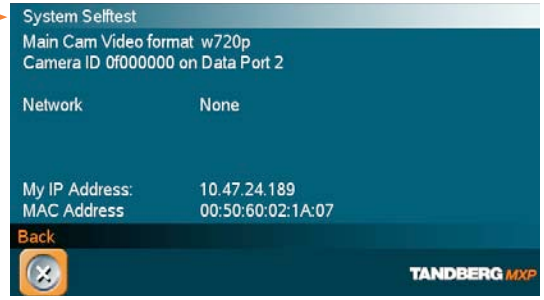

Each menu item is described in The settings library section.

## The Diagnostics menus - Part 2

**Applies to: Edge 95/85/75 MXP, 990/880/770 MXP**

+i LIW+UdBZdc/+dGI+oYBki dGFK+

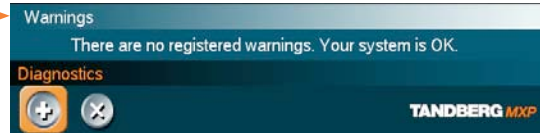



DYLHdBZdFIIBn
UBnZ kGdBdi LIBDZ


DYLHdBZ IP ADDRESS CONFLICT CHECKdBdi ++d/+dLBZ-DYLdi


DYLHdBZ WARNINGSdBdi ++d/+dh FIZYZKi




Each menu item is described in The settings library section.

# Control Panel menu structure for:

This guide describes the menu structure for the systems displayed on this page, with all options installed.

Descriptions of each menu item are found in The settings library section.

TANDBERG 550 MXP

## About the Control Panel

The different parts of the Control Panel are explained on the following pages.

The menu structure section presents all the Control Panel menus by product. This section applies to:

- TANDBERG 550 *MXP*

### Password Protection

Making changes to the Control Panel Settings will change the behavior of the system. We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system. Set an Administrator Password to control the access to these settings.

Read more about password protection in the Using the system section.

### Remote control shortcut keys

RE-DIAL: Double click on the green call button on the remote control to start calling the last number.

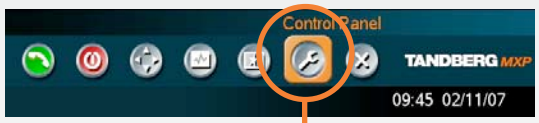
STANDBY: Double click on the red end call button on the remote control to set the system into standby.

SHOW SYSTEM INFORMATION: Open the call menu and press the arrow up key once to show the System information page.

RESET MENU LANGUAGE: Click on the Phone Book button 5 times and then press the number key 1 to reset the menu language to English.

### Open the Control Panel

Press the OK key on the remote control to wake up the system, and to display the Call menu.




In the Call menu, use the arrow keys on the remote control to navigate to the Control Panel button and press the OK key to display the Control Panel.


BACK

RESTART (the system switches itself Off and On again)

AUDIO DEMO (demonstrates the audio of the system)

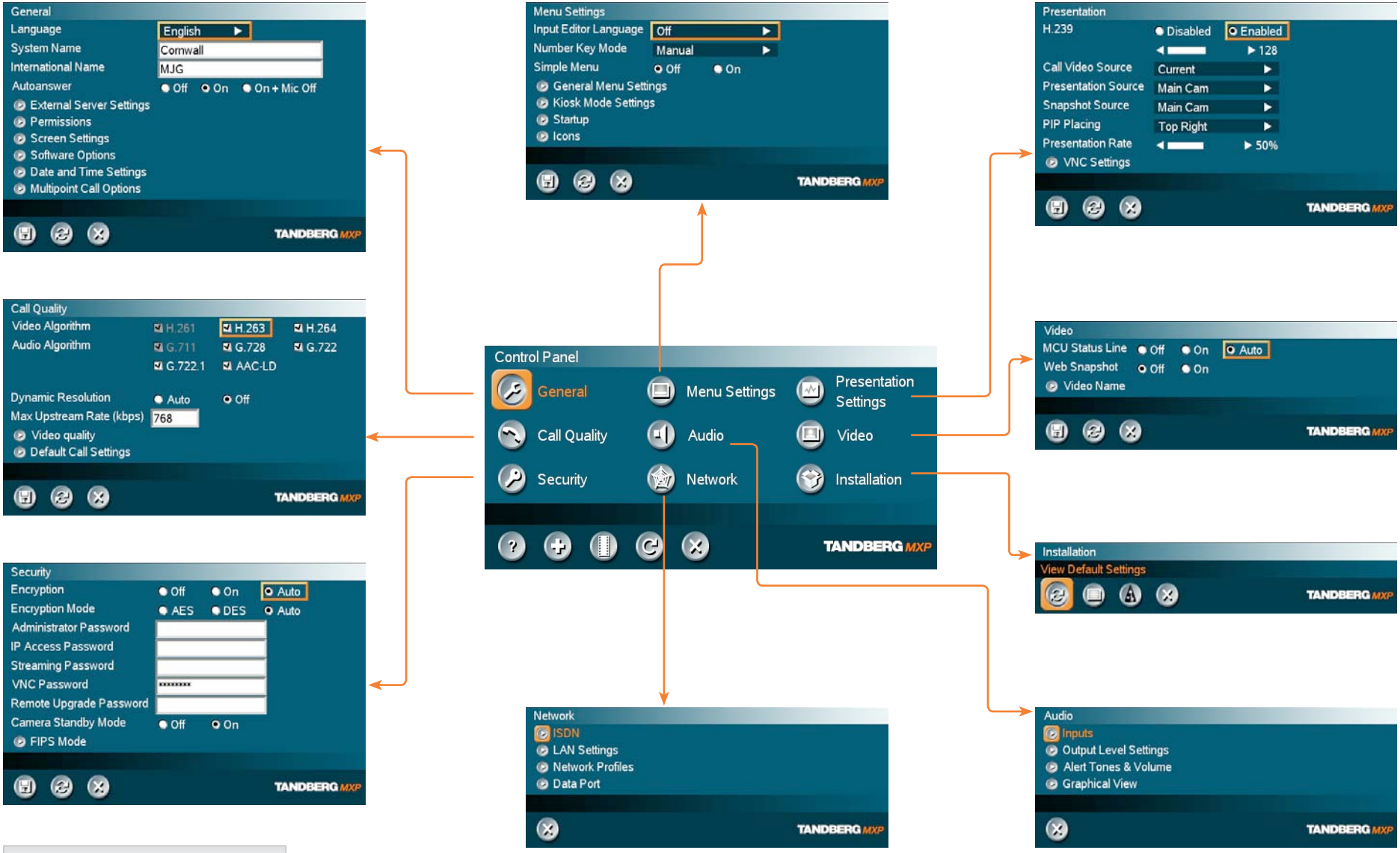
DIAGNOSTICS (see the system status and warnings))

ON-LINE USER GUIDE (open the online user guide).

Each menu item is described in The settings library section.

## The Control Panel overview

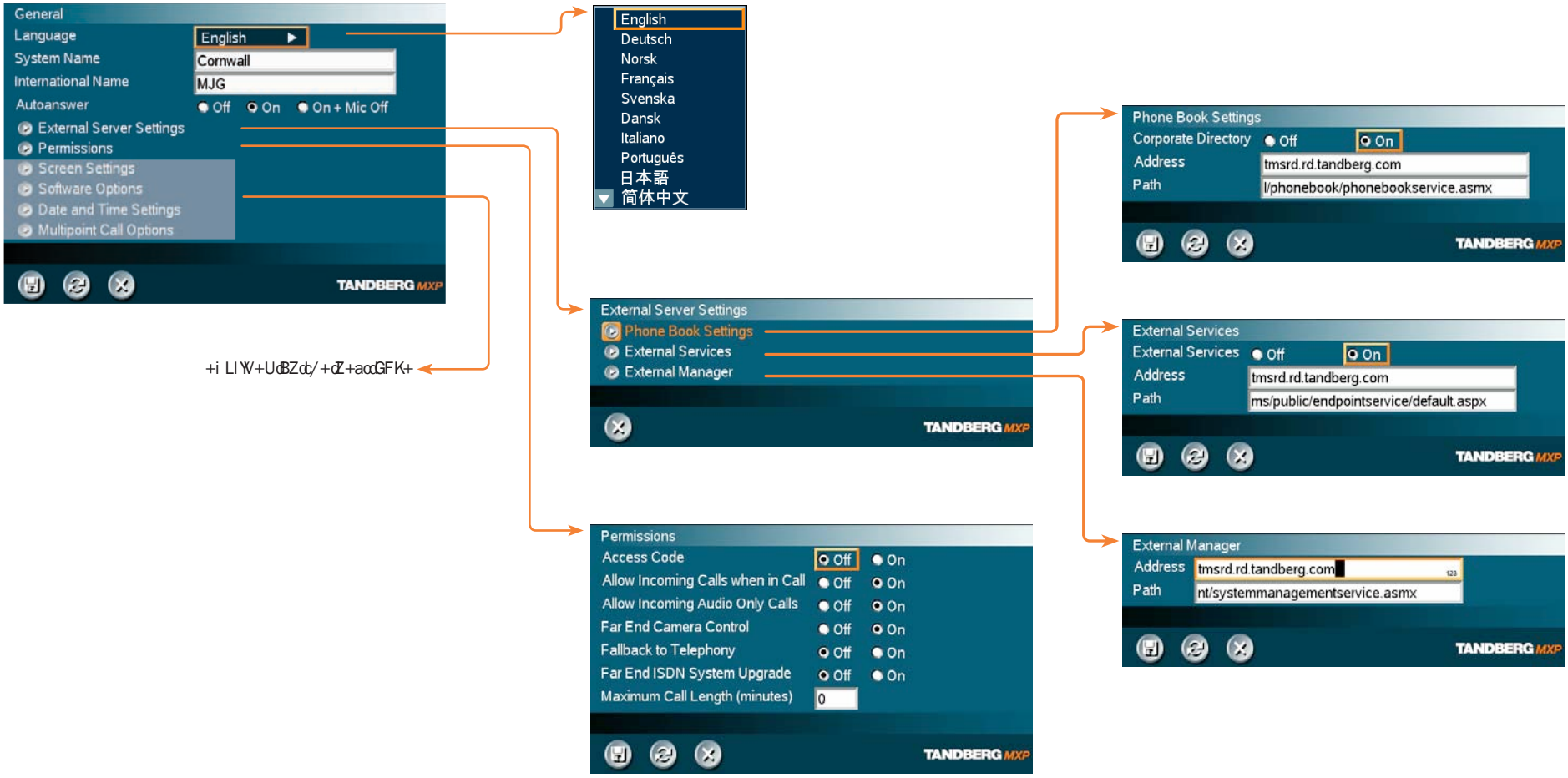
**Applies to: 550 MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 1

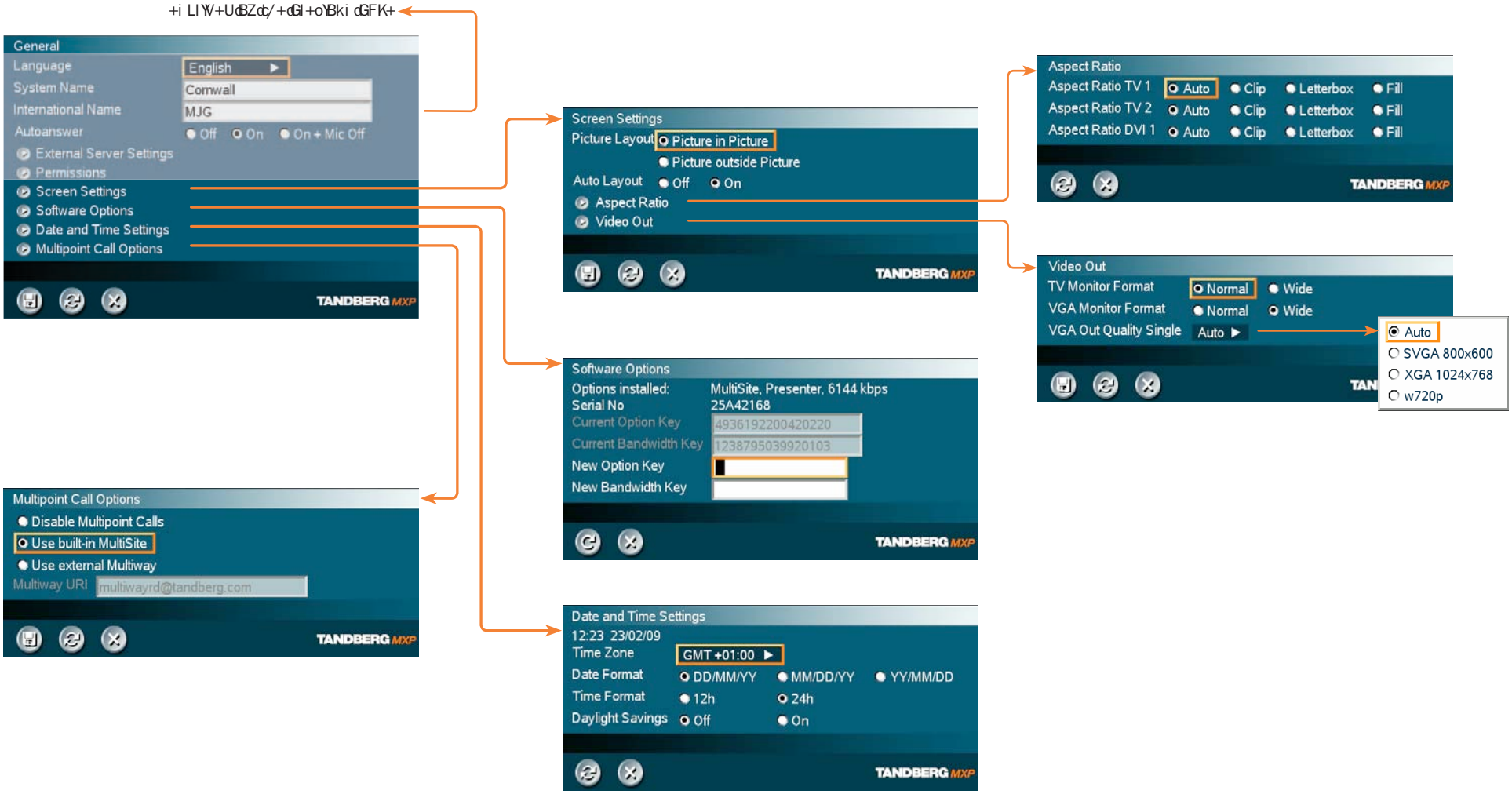
**Applies to: 550 MXP**




Each menu item is described in The settings library section.

## The General settings menus - Part 2

**Applies to: 550 MXP**




Each menu item is described in The settings library section.

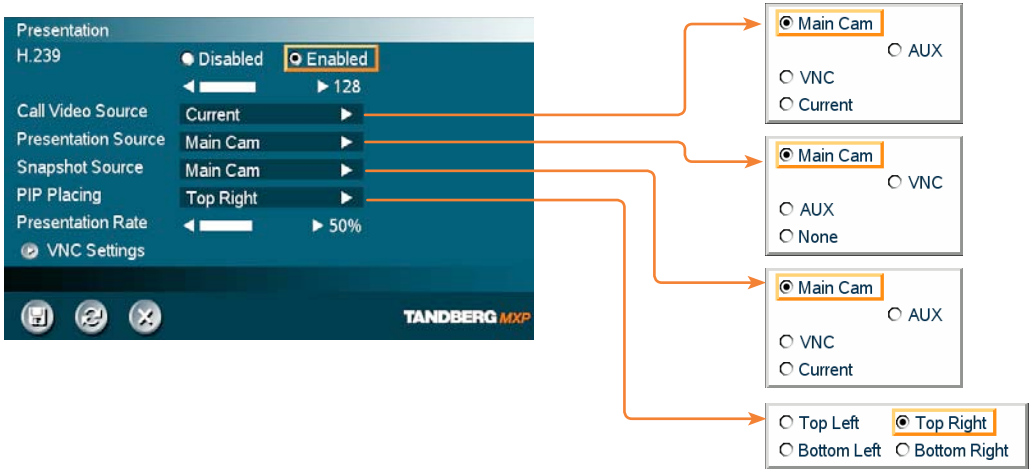
## The Menu settings menus

**Applies to: 550 MXP**


Each menu item is described in The settings library section.

## The Presentation settings menus

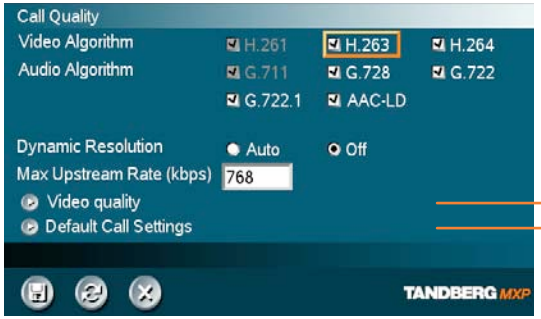
**Applies to: 550 MXP**



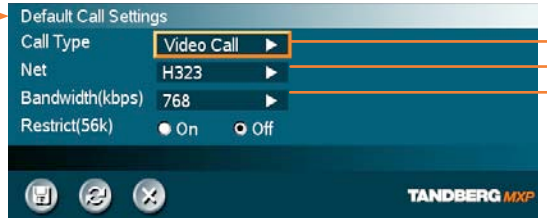

Each menu item is described in The settings library section.

## The Call Quality settings menus

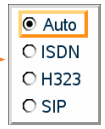
**Applies to: 550 MXP**

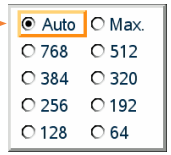










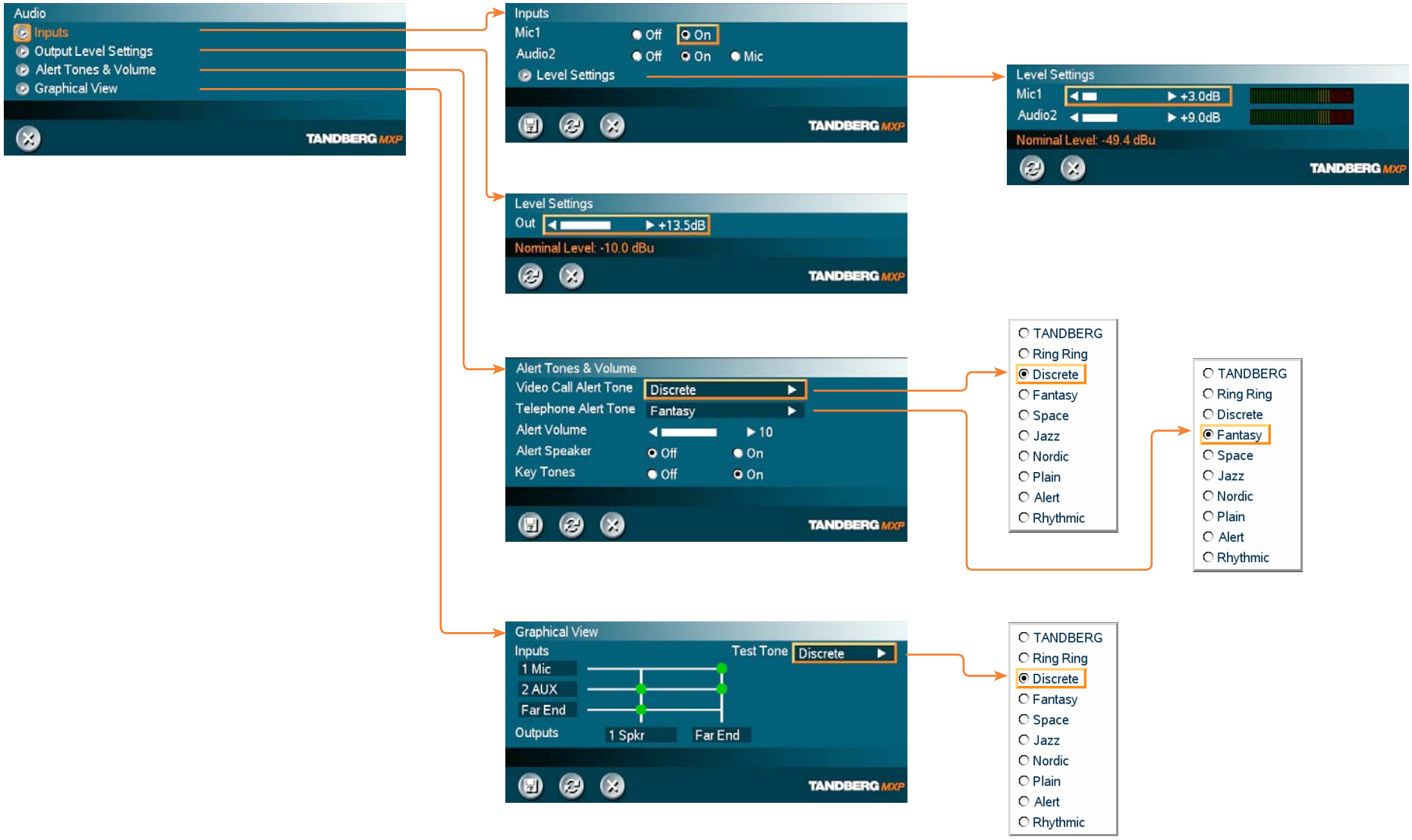

**NOTE!** The Call Settings are also available from the Call Menu. When making a call you can change the Call Settings. Choose SET AS DEFAULT to make the changes the new DEFAULT CALL SETTINGS.



Each menu item is described in The settings library section.

## The Audio settings menus

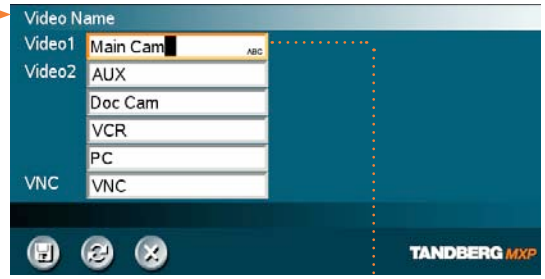
**Applies to: 550 MXP**




Each menu item is described in The settings library section.

## The Video settings menus

**Applies to: 550 MXP**

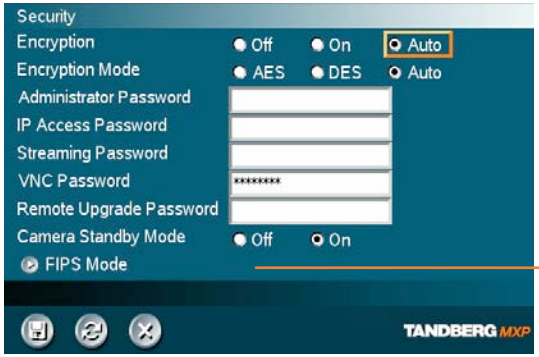


The Video Name typed in will appear in the Presentation menu. To find the Presentation menu, press the OK button on the remote control and select the Presentation button.

Each menu item is described in The settings library section.

## The Security settings menus

**Applies to: 550 MXP**





### Password Protection of the Control Panel

Making changes to the Control Panel Settings will change the behavior of the system.

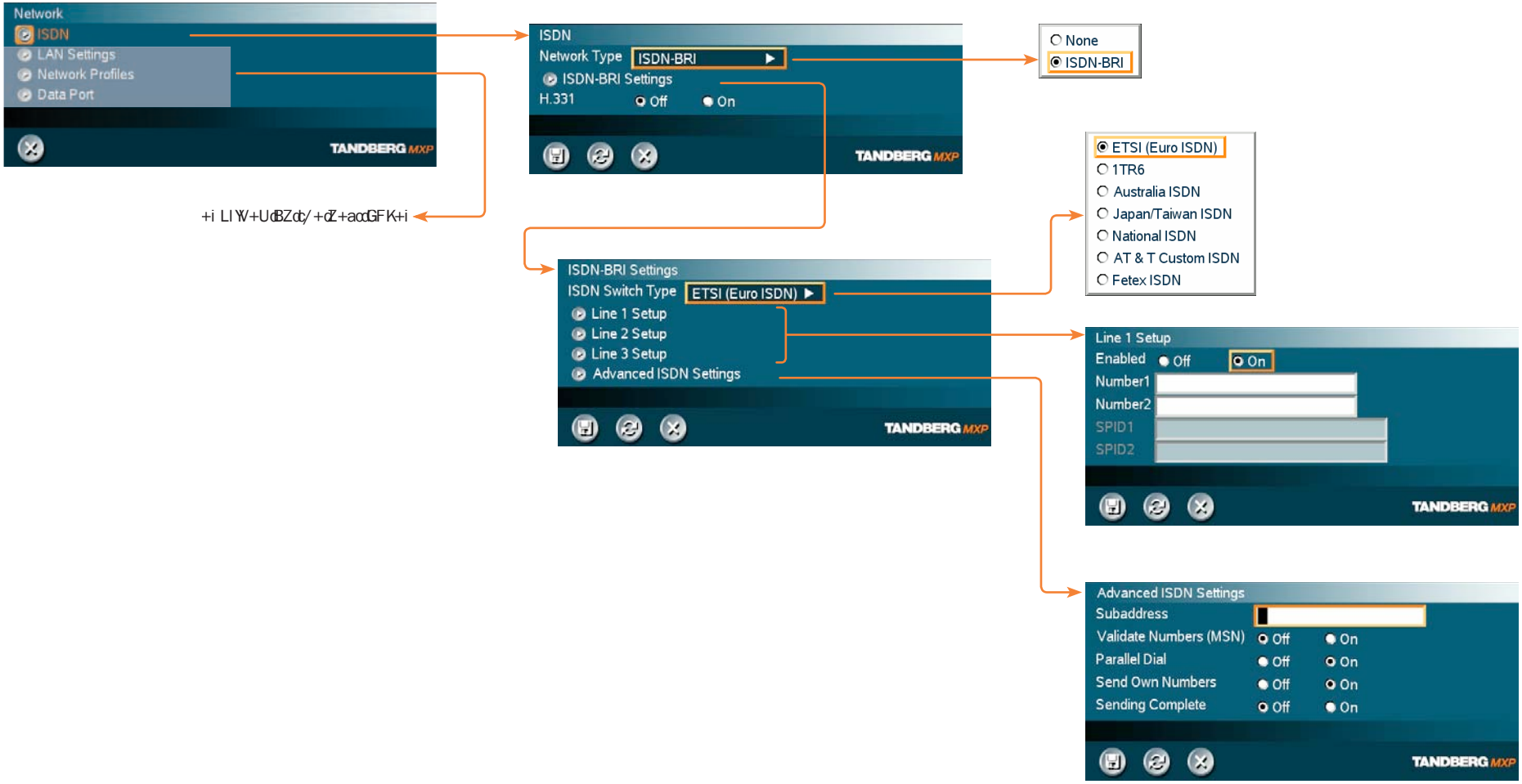
We recommend password protecting the access to the Control Panel Settings to prevent occasional users from making crucial changes to the system.

Set an Administrator Password to control the access to these settings.

Each menu item is described in The settings library section.

## The Network settings menus - Part 1

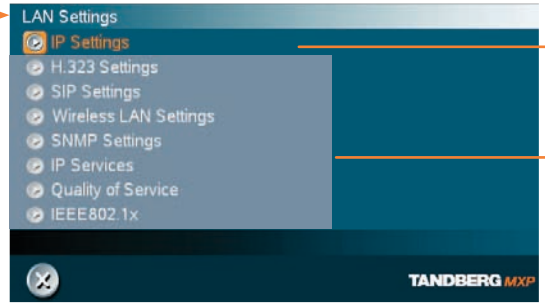
**Applies to: 550 MXP**




Each menu item is described in The settings library section.

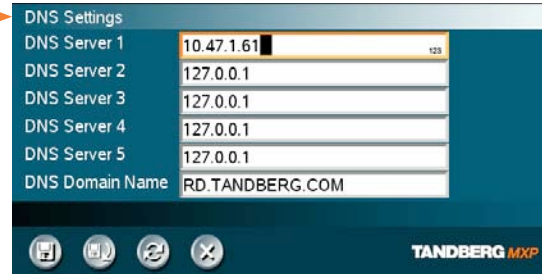
## The Network settings menus - Part 2

**Applies to: 550 MXP**



Select SAVE AND RESTART after making changes to IP Settings

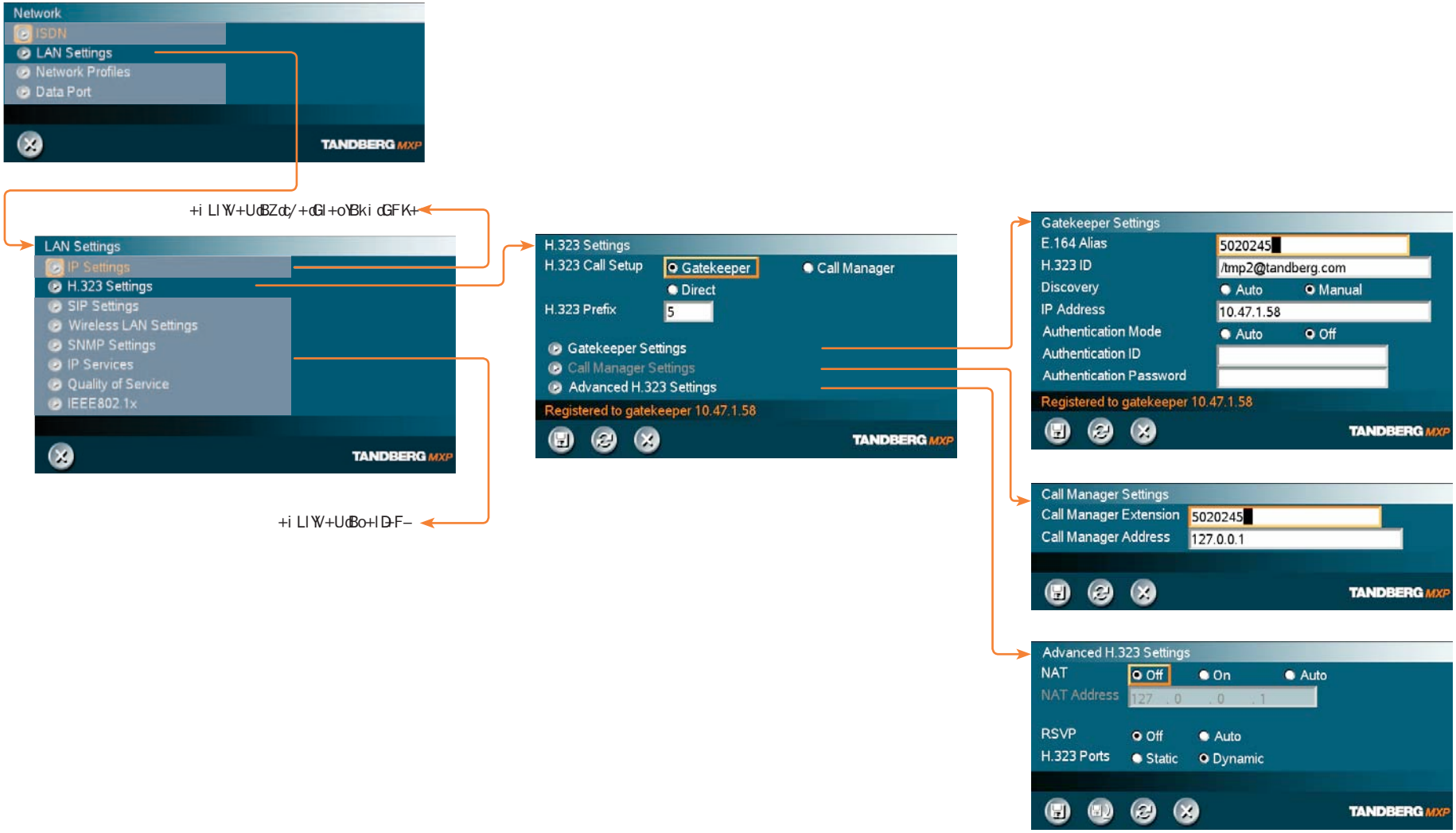



Select SAVE AND RESTART after making changes to DNS Settings

Each menu item is described in The settings library section.

## The Network settings menus - Part 3

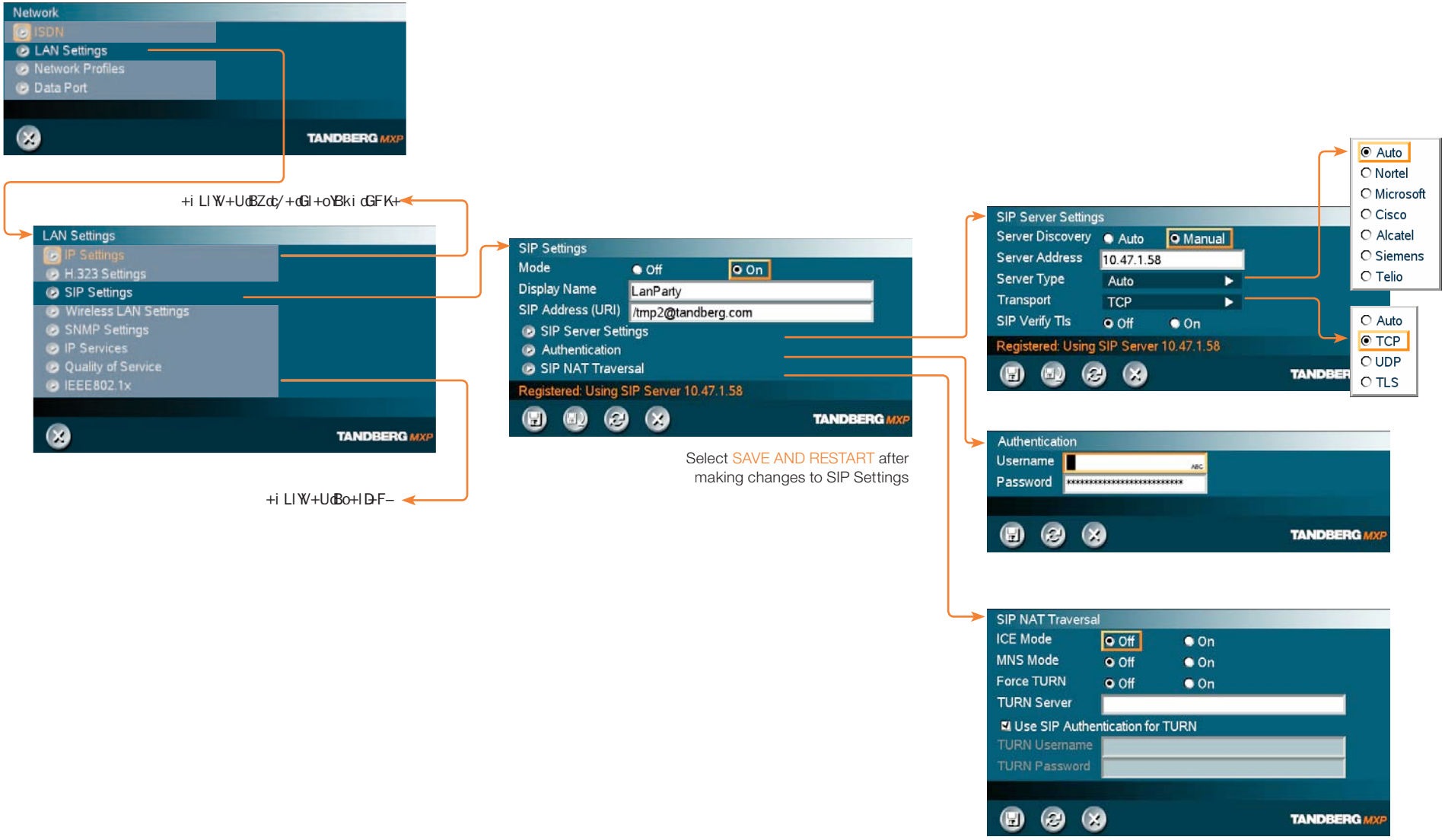
**Applies to: 550 MXP**




Each menu item is described in The settings library section.

## The Network settings menus - Part 4

**Applies to: 550 MXP**

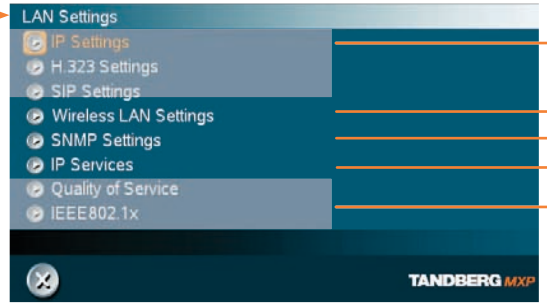


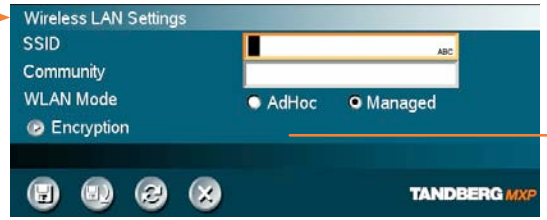

Select SAVE AND RESTART after making changes to SIP Settings

Each menu item is described in The settings library section.

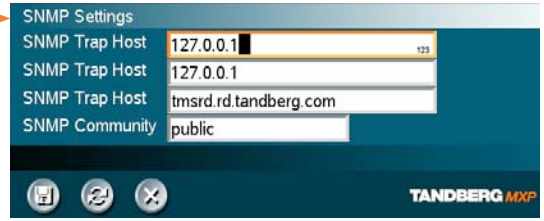
## The Network settings menus - Part 5

**Applies to: 550 MXP**


Select SAVE AND RESTART after making changes to WLAN Settings



Select SAVE AND RESTART after making changes to IP Services

Each menu item is described in The settings library section.

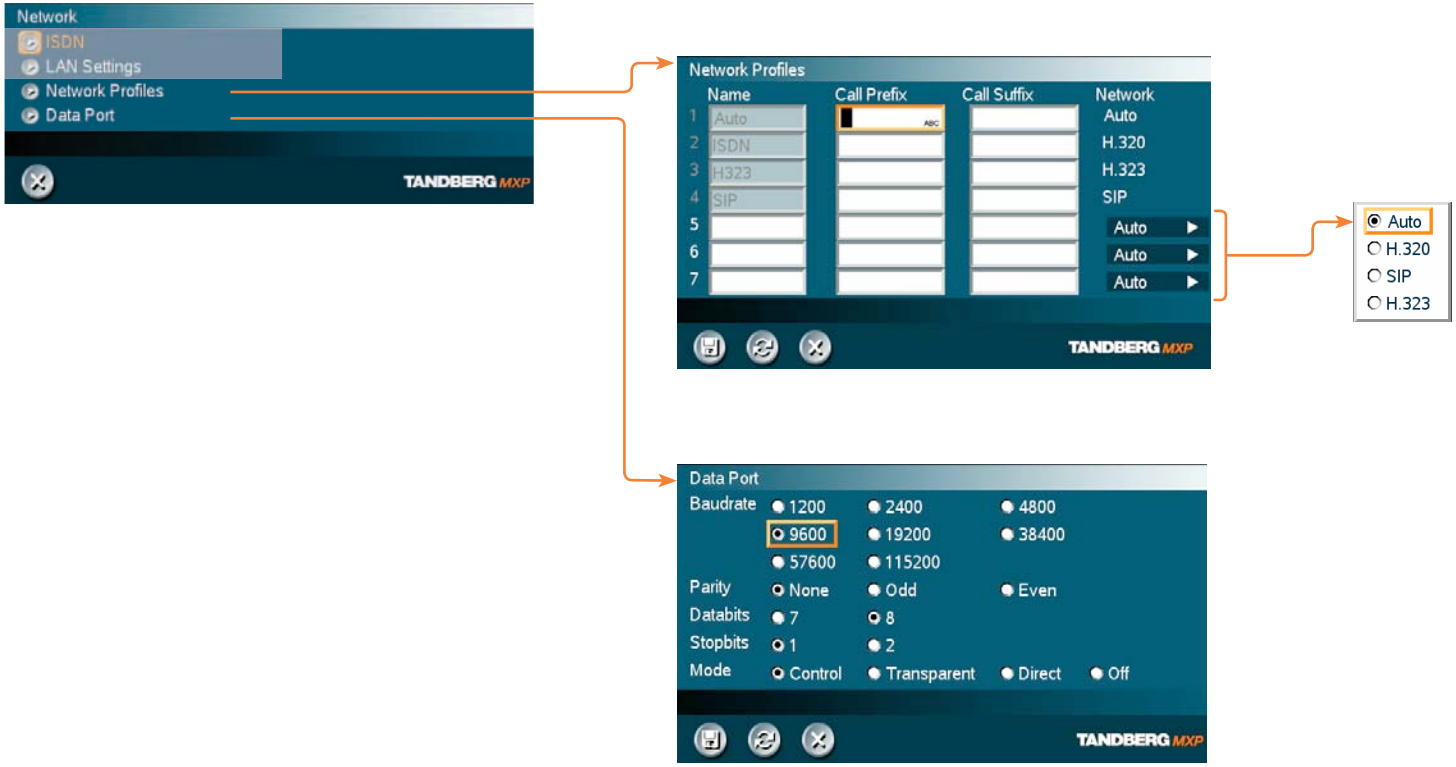
## The Network settings menus - Part 6

**Applies to: 550 MXP**


Each menu item is described in The settings library section.

## The Network settings menus - Part 7

**Applies to: 550 MXP**



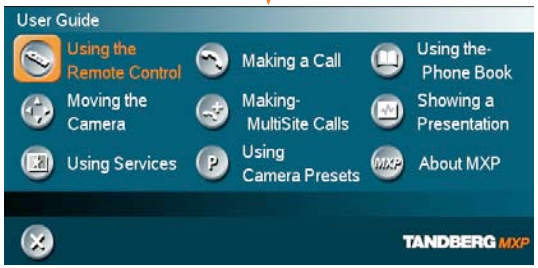

Each menu item is described in The settings library section.

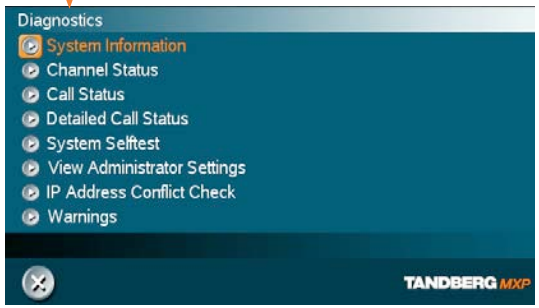
## The other Control Panel menu buttons

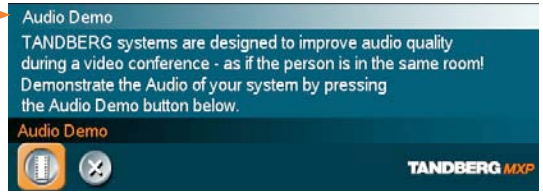
**Applies to: 550 MXP**


The Installation menu is described in the Getting started section.






The Diagnostics menu is described overleaf...

Each menu item is described in The settings library section.

## The Diagnostics menus - Part 1

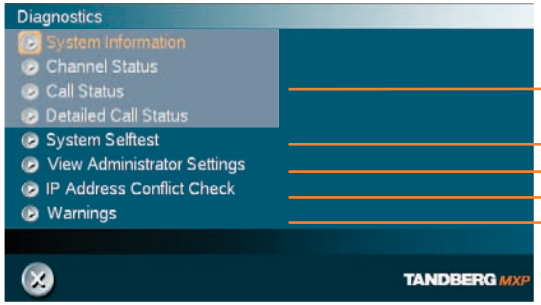
**Applies to: 550 MXP**


Each menu item is described in The settings library section.

## The Diagnostics menus - Part 2

**Applies to: 550 MXP**

+i LIW+UdBZdb/+dGI+oYBki dGFK+

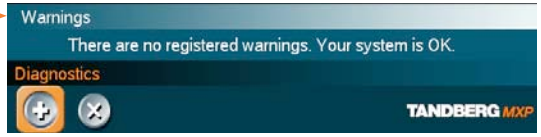




DYLHdBZdFIIBn
UBnZ kGdBdi LIBDZ


DYLHdBZ IP ADDRESS CONFLICT CHECKdBdi ++db/+dLBZ-DYLdi


DYLHdBZ WARNINGSdBdi ++db/+dh FIZYZKi




Each menu item is described in The settings library section.

## Chapter 4

# The Control Panel settings library

The settings library gives an overview of all the Control Panel menu settings for all video systems in the MXP F–series.

The Administrators Guide describes the MXP endpoints (F-series). Be aware that the different video systems can have different settings. Be also aware that some settings requires optional features to be installed and enabled.

The settings are presented in the same order as they appear in the menus. Use the search feature in Adobe Acrobat to look up specific topics or keywords.

### Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: ▶ http://www.tandberg.com/docs

### MXP User Guide

The menus outside the Control Panel are described in the *MXP* User Guide.

Go to: ▶ http://www.tandberg.com/docs

In this chapter...

- Description of each setting, listed as they appear in the menus

# System settings library

The top menu bar and the entries in the Table of Contents are all hyperlinks, just click on them to go to the topic.

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: http://www.tandberg.com/docs

## Table of Contents

General >
- LANGUAGE ..... 163
- SYSTEM NAME ..... 163
- INTERNATIONAL NAME ..... 163
- AUTOANSWER ..... 164

General > External Server Settings > Phone Book Settings
- CORPORATE DIRECTORY ..... 164
- ADDRESS ..... 164
- PATH ..... 164

General > External Server Settings > External Services
- EXTERNAL SERVICES ..... 164
- ADDRESS ..... 165
- PATH ..... 165

General > External Server Settings > External Manager
- ADDRESS ..... 165
- PATH ..... 165

General > Permissions
- ACCESS CODE ..... 165
- ALLOW INCOMING CALLS WHEN IN CALL ..... 165
- ALLOW INCOMING AUDIO CALLS ..... 165
- FAR END CAMERA CONTROL ..... 166
- FALLBACK TO TELEPHONY ..... 166
- FAR END ISDN SYSTEM UPGRADE ..... 166
- MAXIMUM CALL LENGTH ..... 166

General > Screen Settings
- PICTURE LAYOUT ..... 166
- AUTO LAYOUT ..... 166
- USE SCREEN AS LOCAL PC MONITOR ..... 167
- PC PICTURE FORMAT ..... 167
- DUAL MONITOR ..... 167
- MULTISITE 3 PARTY LAYOUT ..... 167

General > Screen Settings > Aspect ratio
- ASPECT RATIO TV 1 ..... 168
- ASPECT RATIO TV 2 ..... 168
- ASPECT RATIO DVI 1 ..... 168
- ASPECT RATIO DVI 2 ..... 168

General > Screen Settings
- MONITOR BRIGHTNESS ..... 168
- MONITOR CONTRAST ..... 168
- MONITOR COLOR ..... 169
- MONITOR COLOR R ..... 169
- MONITOR COLOR G ..... 169
- MONITOR COLOR B ..... 169

General > Screen Settings > Video Out
- TV SINGLE ..... 169
- TV DUAL ..... 169
- VGA DUAL ..... 169
- TV MONITOR FORMAT ..... 170
- VGA MONITOR FORMAT ..... 170
- VGA OUT MODE ..... 170
- VGA OUT QUALITY SINGLE ..... 170
- VGA OUT QUALITY DUAL ..... 171

General > Software Options
- OPTIONS INSTALLED ..... 171
- SERIAL NO ..... 171
- CURRENT OPTION KEY ..... 171
- CURRENT BANDWIDTH KEY ..... 171
- NEW OPTION KEY ..... 171
- NEW BANDWIDTH KEY ..... 172

General > Date & Time Settings
- TIME ZONE ..... 172
- DATE FORMAT ..... 172
- TIME FORMAT ..... 172
- DAYLIGHT SAVINGS ..... 172

General > Multipoint Call Options
MULTIPOINT CALL SETTINGS ..... 173

Menu Settings >
INPUT EDITOR LANGUAGE ..... 173
NUMBER KEY MODE ..... 174
SIMPLE MENU ..... 174

Menu Settings > General menu Settings
MENU TIMEOUT IN CALL ..... 174
SHOW CALL DURATION ..... 174
MENU ON TV ..... 175
MENU ON PC ..... 175
BALLOON HELP ..... 175

Menu Settings > Kiosk Mode Settings
KIOSK MODE ..... 176
LANGUAGE MENU ..... 176
AVAILABLE LANGUAGES ..... 176
AUTO DIAL ..... 176
ALLOW USE OF REMOTE CONTROL ..... 177
ONE CLICK CONNECT ..... 177
PHONE BOOK ..... 177
KIOSK MENU ..... 177

Menu Settings > Startup
WELCOME MENU ..... 177
WELCOME PICTURE ..... 177
LOGO ..... 177
DISPLAY WELCOME TIME ..... 178
DISPLAY WELCOME TEXT ..... 178
WELCOME TEXT ..... 178

Menu Settings > Icons
ICON PLACEMENT ..... 178
MICROPHONE OFF ..... 178
VOLUME OFF ..... 178
ON AIR (HAVING THE FLOOR) ..... 178
ENCRYPTION ..... 179
BAD NETWORK ..... 179
TELEPHONE ..... 179
DUOVIDEO ..... 179
CAMERA TRACKING ..... 180
HEADSET ..... 180
WARNINGS ..... 180

Presentation Settings >
PRESENTATION START ..... 180
H.239 ..... 180
FORCE MAC INPUT ..... 181
HORIZONTAL ADJUST DVI ..... 181
CALL VIDEO SOURCE ..... 181
PRESENTATION SOURCE ..... 182
SNAPSHOT SOURCE ..... 182
AUTO-DISPLAY SNAPSHOT ..... 183
PIP PLACING ..... 183
PRESENTATION RATE ..... 183

Presentation Settings > VNC Settings
ADDRESS ..... 183
DISPLAY NUMBER ..... 183
PASSWORD ..... 183

Call Quality >
VIDEO ALGORITHM ..... 184
AUDIO ALGORITHM ..... 184
AAC-LD 128 ..... 185
DYNAMIC RESOLUTION ..... 185
MAX UPSTREAM RATE ..... 185

Call Quality > Video Quality
SHARPNESS & MOTION ..... 186

Call Quality > Default Call Settings
CALL TYPE ..... 186
NETWORK ..... 187
BANDWIDTH ..... 188
RESTRICT (56KBPS) ..... 188

Audio > Level Settings
LINE IN LEFT, LINE IN RIGHT ..... 189
HEADSET MIC, HEADSET OUT ..... 189

Audio > Audio Inputs
AUDIO INPUTS - MIC 1-3 AND AUDIO INPUTS 4-6 ..... 190
AUDIO INPUTS* - MIC 1-2 AND AUDIO INPUTS 3-4 ..... 190
MIXER MODE ..... 190
VCR DUCKING ..... 191

Audio > Audio Inputs > Level Settings
LEVEL SETTINGS - MIC 1-3 & AUDIO INPUTS 4-6 ..... 191
LEVEL SETTINGS - MIC 1-2 & AUDIO INPUTS 3-4 ..... 191

Audio > Audio Outputs
AUDIO OUT 1-3 ..... 192
AUDIO OUT 1-2* ..... 192
OUT 1 MODE ..... 193
AUDIO MODULE ..... 193

Audio > Audio Outputs > Level Settings
OUTPUT LEVEL SETTINGS - OUT 1-3 ..... 194
OUTPUT LEVEL SETTINGS - OUT 1-2* ..... 194

Audio > Echo Control
MIC 1-3* AND AUDIO 4* ..... 195

Audio > Stereo Settings
STEREO I/O MODE ..... 196
STEREO SPEAKERS ..... 196

Audio > Audio Leveling
AUDIO LEVELING (AGC) ..... 197

Audio > Alert Tones & Volume
VIDEO CALL ALERT TONE ..... 197
TELEPHONE ALERT TONE ..... 197
ALERT VOLUME ..... 197
ALERT SPEAKER ..... 197
KEY TONES ..... 198

Audio > Graphical View
GRAPHICAL VIEW ..... 198
TEST TONE ..... 198

Video >
CAMERA TRACKING MODE ..... 198
MCU STATUS LINE ..... 198
FLOOR TO FULL SCREEN ..... 199
WEB SNAPSHOTS ..... 199
MULTISITE PICTURE MODE ..... 199

Video > Video Name
VIDEO 1-4, VGA, VNC ..... 199

Security Settings >
ENCRYPTION ..... 200
ENCRYPTION MODE ..... 200
ADMINISTRATOR PASSWORD ..... 200
IP ACCESS PASSWORD ..... 200
STREAMING PASSWORD ..... 200
VNC PASSWORD ..... 200
REMOTE UPGRADE PASSWORD ..... 201
CAMERA STANDBY MODE ..... 201
FIPS MODE ..... 201

Network > ISDN, External, Leased E1/T1
NETWORK TYPE ..... 201

Network > ISDN, External, Leased E1/T1 > ISDN-BRI Settings
ISDN SWITCH TYPE ..... 202
AUTO BRI CONFIG ..... 202

Network > ISDN, External, Leased E1/T1 > ISDN-BRI Settings > Line 1-6 Setup
LINE ENABLE ..... 202
NUMBER 1, NUMBER 2 ..... 202
SPID1, SPID2 ..... 202

Network > ISDN, External, Leased E1/T1 > ISDN-BRI Settings > Advanced ISDN Settings
SUB ADDRESS ..... 203
VALIDATE NUMBERS (MSN) ..... 203
PARALLEL DIAL ..... 203
SEND OWN NUMBERS ..... 203
SENDING COMPLETE ..... 203

Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings
ISDN-PRI NUMBER RANGE ..... 204
ISDN-PRI SWITCH TYPE ..... 204

Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings > Channel Hunting
CHANNEL HUNTING ..... 204

Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings > Line Settings
T1 CABLE LENGTH 1 ..... 204
E1 CRC-4 ..... 205

Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings > Advanced ISDN Settings
SUB ADDRESS ..... 205
VALIDATE NUMBERS (MSN) ..... 205
PARALLEL DIAL ..... 205
SEND OWN NUMBERS ..... 205
SENDING COMPLETE ..... 205

Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings > Advanced ISDN-PRI Settings
NSF CODE VIDEO CALL ..... 206
NSF CODE TELEPHONE CALL ..... 206

Network > ISDN, External, Leased E1/T1 > Leased E1/T1 Settings
CALL CONTROL ..... 206
NETWORK INTERFACE ..... 206
MAX CHANNELS ..... 206
START CHANNEL ..... 206
T1 LINE CODING ..... 207

Network > ISDN, External, Leased E1/T1 > Leased E1/T1 Settings > Line Settings
T1 CABLE LENGTH 1 ..... 207
E1 CRC-4 ..... 207

Network > ISDN, External, Leased E1/T1 > External Network Settings
CALL CONTROL ..... 208
NETWORK CLOCKING ..... 208

Network > ISDN, External, Leased E1/T1 > H.331 Settings
H.331 ..... 209

Network > LAN Settings > IP Settings
IP PROTOCOL ..... 209
IP ASSIGNMENT ..... 209
IP ADDRESS ..... 210
IP SUBNET MASK ..... 210
GATEWAY ..... 210
ETHERNET SPEED ..... 210
IP ACCESS PASSWORD ..... 210

Network > LAN Settings > IP Settings > DNS Settings
DNS SERVER 1 - 5 ..... 211
DNS DOMAIN NAME ..... 211

Network > LAN Settings > H.323 Settings
H.323 CALL SETUP ..... 211
H.323 PREFIX ..... 211

Network > LAN Settings > H.323 Settings > Gatekeeper Settings
E.164 ALIAS ..... 211
H.323 ID ..... 212
DISCOVERY ..... 212
IP ADDRESS ..... 212
AUTHENTICATION MODE ..... 212
AUTHENTICATION ID & AUTHENTICATION PASSWORD ..... 212

Network > LAN Settings > H.323 Settings > Call Manager Settings
CALL MANAGER EXTENSION ..... 213
CALL MANAGER IP ..... 213

Network > LAN Settings > H.323 Settings > Advanced H.323 Settings
NAT ..... 213
NAT ADDRESS ..... 213
RSVP ..... 213

H.323 PORTS ..... 214

Network > LAN Settings > SIP Settings
SIP MODE ..... 214
DISPLAY NAME ..... 214
SIP ADDRESS (URI) ..... 214

Network > LAN Settings > SIP Settings > SIP Server Settings
SERVER DISCOVERY ..... 214
SERVER ADDRESS ..... 214
SERVER TYPE ..... 215
TRANSPORT ..... 215
SIP VERIFY TLS ..... 215

Network > LAN Settings > SIP Settings > Authentication
AUTHENTICATION SETTINGS ..... 215

Network > LAN Settings > SIP Settings > SIP NAT Traversal
ICE MODE ..... 216
MNS MODE ..... 216
FORCE TURN ..... 216
TURN SERVER ..... 216
SIP AUTHENTICATION FOR TURN ..... 217

Network > LAN Settings > Wireless LAN Settings
SSID ..... 217
COMMUNITY ..... 217
WLAN MODE ..... 217

Network > LAN Settings > Wireless LAN Settings > Encryption
ENCRYPTION ..... 217
USE KEY ..... 218
KEY 1-4 ..... 218

Network > LAN Settings > SNMP Settings
SNMP TRAP HOST ..... 218
SNMP COMMUNITY ..... 218

Network > LAN Settings > IP Services
HTTP ..... 219
HTTPS ..... 219
DDDP ..... 219
NTP IP ..... 219
IP ADDRESS ..... 219

Network > LAN Settings > Quality Of Service
QOS TYPE ..... 220

Network > LAN Settings > Quality Of Service > IP Precedence Video
AUDIO, VIDEO, DATA, SIGNALING ..... 220
IP TYPE OF SERVICE (TOS) ..... 220

Network > LAN Settings > Quality Of Service > IP Precedence Telephone
AUDIO ..... 220

Network > LAN Settings > Quality Of Service > DiffServ Video
AUDIO, VIDEO, DATA, SIGNALING ..... 221

Network > LAN Settings > Quality Of Service > DiffServ Telephone
AUDIO ..... 221

Network > LAN Settings > IEEE 802.1X Settings
MODE ..... 221
ANONYMOUS IDENTITY ..... 221
IDENTITY ..... 221
PASSWORD ..... 221
EAP-MD5 ..... 222
EAP-TTLS ..... 222
EAP-PEAP ..... 222

Network > Network Profiles
NAME ..... 222
CALL PREFIX ..... 222
CALL SUFFIX ..... 222
NETWORK ..... 223

Network > Data Port
BAUD RATE, PARITY, DATA BITS, STOP BITS ..... 223
DATA PORT MODE ..... 223

Network > Data Port 2
DATA PORT 2 SETTINGS AND MODE ..... 223

Network > Camera Port
CAMERA PORT MODE ..... 224

Installation >
VIEW DEFAULT SETTINGS ..... 224
RESTORE DEFAULT SETTINGS ..... 224
INSTALLATION PROFILES ..... 224
INSTALLATION WIZARD ..... 225

User Guide
USER GUIDE ..... 226

Diagnostics
SYSTEM INFORMATION ..... 227
CHANNEL STATUS ISDN-PRI AND ISDN-PRI ..... 228
CALL STATUS ..... 228
DETAILED CALL STATUS ..... 229
SYSTEM SELFTEST ..... 229
VIEW ADMINISTRATOR SETTINGS ..... 229
IP ADDRESS CONFLICT CHECK ..... 229

Diagnostics > Warnings
IP NETWORK QUALITY WARNINGS ..... 229
H.323 GATEKEEPER WARNINGS ..... 229
ISDN-BRI WARNINGS ..... 230
ISDN-PRI WARNINGS ..... 230
EXTERNAL NETWORK WARNINGS ..... 230
LEASED E1/T1 WARNINGS ..... 230

Audio Demo
AUDIO DEMO ..... 230

Restart
RESTART THE SYSTEM ..... 231

# The Control Panel settings listed in the same order as they appear in the menus

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > General > | **LANGUAGE**<br>Set the preferred Language to be used in the menus. Select a Language:<br>English, German, Norwegian, French, Swedish, Danish, Italian, Portuguese, Simplified Chinese, Traditional Chinese, Korean, Russian, Spanish, Arabic, Suomi, Japanese, Thai and Add Language....<br>**LANGUAGE PACKS**: When you select Add Language... the system takes you to the Services Menu where language packs are downloaded over the Internet from a central server. This requires that the endpoint is connected to IP and can access the public Internet.<br>Download from web: Language packs can also be downloaded from http://www.tandberg.com/support/download_software.jsp. Download the file from web to the PC and uploaded the file from the PC to the endpoint. Open a web browser and enter the IP address of the video system. Go to Endpoint configuration > Language and browse for the file. Press the Upload button to upload the language file. | **TIP!** When the Input Editor Language is set to Chinese, Korean, Japanese or Russian you will be able to use the remote control to enter characters in these languages into an input field like the System Name or Phone Book.<br>Read more: Control panel > Menu settings > Input editor language | All MXP systems |
| Control Panel > General > | **SYSTEM NAME**<br>Enter a System Name to identify the video system. System Name is blank by default. It can be alphanumeric and up to 50 characters long.<br>If the system name contains Asian and non-Latin character text input, the International Name must be specified as well. Whenever alphanumerical entries are expected by the system, a small ABC or abc or 123 appears in the right lower corner of the entry field. In this mode, entries from the Numerical keypad are automatically interpreted as alphanumeric entries in the same way as on a cellular phone.<br><br>Using the remote control:<br>• Press the key that corresponds to the required letter.<br>• Press the key as many times as needed to access the correct letter.<br>• Change to lower or back to upper case letters with the # A/A key<br>• Add space with the 0 _ key.<br>• To write numbers in a text input field, keep pressing the corresponding key until the digit appears. | The System Name identifies the system:<br>• On the welcome screen of your system<br>• During a MCU conference call<br>• When using the Web-interface<br>• When the codec is acting as an SNMP Agent<br>• Towards a DHCP server<br>If a H.323 ID is configured in Gatekeeper Settings then this ID will be displayed instead of the system name.<br>Read more: Control Panel > Network > LAN settings > H.323 settings > Gatekeeper settings | All MXP systems |
| Control Panel > General > | **INTERNATIONAL NAME**<br>If the System Name contains Asian and non-standard ASCII character text input (includes even languages like Norwegian, French, Polish etc.), An International Name using standard ASCII characters only, must be specified as well.<br>The purpose is twofold. One is to ensure systems without Unicode or Asian font support will not display gibberish. The second is to enable future functionality for international conferences, with example Chinese and Western participants, so the Chinese see the names in Chinese, while the international participants see names written with Latin letters. | If you set the Language to an Asian language and enter a System Name in e.g. Korean, a second line will appear and allow you to specify the International Name using standard ASCII character set. | All MXP systems |

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| Control Panel > General > | **AUTOANSWER**<br>The Autoanswer setting determines whether an incoming call is put through automatically or manually. The Autoanswer setting has no effect when the video system is in call (busy).<br>**ON:** The system will automatically answer all incoming calls.<br>**ON + MIC OFF:** The system will automatically answer all incoming calls, but will turn Off the microphone as a security feature. To activate the microphone again, press the Mic Off key on the Remote Control and the Mic Off icon will disappear - indicating that the microphone is turned On.<br>**OFF:** All incoming call must be answered manually by pressing the OK key or the green Call key on the remote control. | | All MXP systems |
| Control Panel > General > External Server Settings > PHONE BOOK SETTINGS | **CORPORATE DIRECTORY**<br>Your system may be connected to a Directory Service or Management System such as the TANDBERG Management Suite (TMS). The Management System may then provide your video system with a phone book containing a corporate directory.<br>This directory is controlled directly from the TANDBERG Management System (TMS) and updates and changes are carried out remotely by the TMS Administrator.<br>**ON:** The Corporate Directory phone book is available in the menu.<br>**OFF:** The Corporate Directory phone book is unavailable for the users. | **NOTE!** Any contacts that you choose to copy to your local phone book (My Contacts), e.g. for use in your own predefined MultiSite Contacts, will not be updated when the Corporate directory is updated by the Management System Administrator. | All MXP systems |
| Control Panel > General > External Server Settings > PHONE BOOK SETTINGS | **ADDRESS**<br>Enter the IP address or the DNS name of the Directory Service that provides the Corporate Directory phone book.<br>Example with IP Address: □□□□□□□□<br>Example with DNS Name:□:CM□x<□lRCS/fK□lRC | | All MXP systems |
| Control Panel > General > External Server Settings > PHONE BOOK SETTINGS | **PATH**<br>Enter the Path to the Corporate Directory phone book of the Directory Service.<br>Example of a path to the phone book at TANDBERG Management Suite (TMS):<br>:CM□S<bgvl□x@:xUf/g□SkRfxbRR2□SkRfxbRR2MxUOvlx□/MC@ | | All MXP systems |
| Control Panel > General > External Server Settings > EXTERNAL SERVICES | **EXTERNAL SERVICES**<br>External Services include any HTTP and HTML based contents your Service Provider may offer. In general this could be stock exchange information, news, weather forecast etc.<br>In this context, External Services may include the ability to display scheduled meetings for the video system. Handy when meetings last longer than scheduled and you need to know if the system is available or booked for another meeting.<br>**ON:** Set this to On when External Services are available.<br>**OFF:** Set this to Off when External Services are unavailable. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > General > External Server Settings > EXTERNAL SERVICES | **ADDRESS**<br>Enter the IP address or DNS name of the Service Provider Host for External Services.<br>Example with IP Address: □□□□□□□□<br>Example with DNS Name: `:CM□x<□lRCS/fK□lRC` | | All MXP systems |
| Control Panel > General > External Server Settings > EXTERNAL SERVICES | **PATH**<br>Enter the Path to the External Services Host.<br>Example of a path to TANDBERG Management Suite (TMS): `:CM□S<bgvl□xfiSRvf:MxUOvlx□/MS@` | | All MXP systems |
| Control Panel > General > External Server Settings > EXTERNAL MANAGER | **ADDRESS**<br>Enter the IP address or DNS name of the External Manager, which can be the address of the TANDBERG Management Suite (TMS), Gatekeeper or the Call Manager.<br>Example with IP Address: □□□□□□□□<br>Example with DNS Name: `:CM□x<□lRCS/fK□lRC` | | All MXP systems |
| Control Panel > General > External Server Settings > EXTERNAL MANAGER | **PATH**<br>Enter the Path to the External Manager.<br>Example of a path to TANDBERG Management Suite (TMS):<br>`:CM□S<bgvl□x@:xUf/g□C/f/hxCxf:□MKM:xCC/f/hxCxf:MxUOvlx□/MS@` | | All MXP systems |
| Control Panel > General > PERMISSIONS | **ACCESS CODE**<br>Using Access Code helps you control the use of the system. To create a list of valid access codes an access code file must be created (`/llxMM□:@:`).<br>**ON:** When making a call, an Access Code dialogue box will be shown. The user must enter a valid access code in order to place a call.<br>**OFF:** No access code is required to place a call. | The use of Access Codes can help you control the use of the system. When set to On, all users must enter a code to identify themselves when making a call.<br>Access Codes are useful for group systems where there are different users or divisions that share the costs of using the system. | All MXP systems |
| Control Panel > General > PERMISSIONS | **ALLOW INCOMING CALLS WHEN IN CALL**<br>**ON:** When set to On and with an ongoing MCU call/conference, the user can accept another incoming call. This will result in the incoming call being added to the MCU conference.<br>**OFF:** The system will not accept incoming calls when you are in a call. | MCU - Multipoint Conference Unit | All MXP systems |
| Control Panel > General > PERMISSIONS | **ALLOW INCOMING AUDIO CALLS**<br>**ON:** The system will accept incoming telephone calls.<br>**OFF:** The system will not accept incoming telephone calls. | This feature may be used to prevent incoming calls from systems other than video conferencing systems. | All MXP systems |

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| Control Panel > General > PERMISSIONS | **FAR END CAMERA CONTROL**<br>**ON:** The far end will be able to select your video sources, control the camera (pan, tilt, zoom) and request snapshots<br>**OFF:** The far end can access none of the features above on your system. You will however still be able to control your camera, select your video sources and request snapshots. | Lets you control if the other side (far end) should be allowed to select your video sources and request snapshots. | All MXP systems with controllable camera |
| Control Panel > General > PERMISSIONS | **FALLBACK TO TELEPHONY**<br>This feature is only available for ISDN Networks.<br>**ON:** Enables fallback from video calls to telephone calls.<br>**OFF:** Disables fallback. | When fallback is enabled, and the system fails to place a video call it will attempt to place a telephone call to the same number instead. | All MXP systems with ISDN |
| Control Panel > General > PERMISSIONS | **FAR END ISDN SYSTEM UPGRADE**<br>**ON:** The system will allow a remote system to upgrade local software.<br>**OFF:** The system will not allow a remote system to upgrade local software.<br><br>The remote software upgrade configuration can also be done via Telnet or the serial port:<br>`@□Rfrvh<U/:vRf□txCR:xm>eShU/ix□1Rix□□□.f□.rr□` | It is possible to upgrade software remotely, i.e. a far end system may upgrade software on a local system via HTTP on ISDN*. The system to be upgraded must be configured to allow remote software upgrade. A Remote Upgrade Password can be set to control the far end system to accomplish the software upgrade.<br>* Applies to systems with ISDN capabilities, e.g. this setting does not apply to TANDBERG 1700 MXP. | All MXP systems with ISDN |
| Control Panel > General > PERMISSIONS | **MAXIMUM CALL LENGTH**<br>Enter Maximum Call Length. Enter a value between 0-999 minutes:<br>Value = 0: Enter the value 0 to disable the Maximum Call Length.<br>Value = 1-999: Enter a value between 1-999 to enable Maximum Call Length. | This feature will automatically end both incoming and outgoing calls when the call time exceeds the specified Maximum Call Length in minutes. | All MXP systems |
| Control Panel > General > SCREEN SETTINGS | **PICTURE LAYOUT**<br>**PICTURE IN PICTURE (PIP):** When you have selected PIP and you press the Layout button on the remote control, this will result in an extra picture in smaller view (Picture in Picture). Press the Layout button to move it around in the corners of the screen and finally hide it.<br>**PICTURE OUTSIDE PICTURE (POP):** When you have selected POP and you press the Layout button on the remote control, you can see the images side-by-side, e.g. 1+1 layout, where the far end and near end are displayed as images of equal size. Press again to see a 1+2 layout and a 1+3 layout and finally back to full screen. | The Picture Layout is related to the Layout button on the remote control and it can be used at any time to change the screen layout. For wide screen systems POP mode is recommended. You will get optimized picture layouts for wide screen by pressing the Layout button on the remote control.<br>**TIP!** Press and hold the Layout key on the remote control for one second to hide the small picture directly from any position. | All MXP systems |
| Control Panel > General > SCREEN SETTINGS | **AUTO LAYOUT**<br>**ON:** When set to On the system will change layouts automatically depending on the number of participants in a call and if you have a dual stream or not.<br>**OFF:** When set to Off there will be no automatic layout changes during a call. All desired layout changes must be done manually with the Layout button on the remote control. | **POTE** When receiving low resolution images (176 × 144 pixels or less) the screen will automatically adjust to a smaller view to give optimum quality experience.<br>The resolution 176 x 144 pixels is also known as QCIF. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > General > SCREEN SETTINGS | **USE SCREEN AS LOCAL PC MONITOR**<br>When the Use Screen as Local PC Monitor is set to On you can use the Selfview button of the remote control to switch from local PC display to standard conference layout.<br>**ON:** When set to On (and the local PC display is turned On) you will be able to have the local PC image displayed on the screen, both outside and within a call, without transmitting the PC image to the other side.<br>**OFF:** When set to Off you will not be able to see the Local PC image. | **TIP!** When Use Screen as Local PC Monitor is set to On you can set the Welcome Menu to Off. This will avoid the Welcome menu to automatically appear on screen. Press the OK button on the remote control to see the Welcome menu. | All MXP systems except 550 |
| Control Panel > General > SCREEN SETTINGS | **PC PICTURE FORMAT**<br>For wide screen monitors only. Takes effect only when VGA Monitor Format or TV Monitor Format is set to Wide.<br>Use this setting to determine if you want your PC presentations to be shown stretched in full screen, or with correct aspect ratio using part of the wide screen display. With the VGA Out Quality set to Auto the presentation will be of the best possible quality supported by the monitor.<br>**NORMAL:** VGA output will have 4:3 aspect ratio on wide screen monitor.<br>**WIDE:** VGA output will utilize the wide screen monitor at full with 16:9 aspect ratio. | How to set VGA Out Quality for Wide XGA<br>1. Set VGA Monitor Format to Wide<br>2. Set PC Picture Format to Normal<br>3. Set VGA Out Quality to Auto<br>4. If the layout on the monitor is either full screen or Picture Outside Picture (POP) and if the input source to the largest window is PC with resolution 1024x768, then the system will use WXGA (1280x768) instead of XGA, when the monitor supports this. | All MXP systems which supports wide screen |
| Control Panel > General > SCREEN SETTINGS | **DUAL MONITOR**<br>TANDBERG systems can be used with 1-2 monitors. If two monitors are used make sure that Dual Monitor is set to On.<br>**ON:** Selfview, snapshots and Dual Stream will be displayed on the second monitor.<br>**OFF:** The second monitor shows selfview only. | Virtual Monitors<br>• The TANDBERG 6000 MXP codec can support 4 (four) monitors through Virtual Monitor.<br>• The TANDBERG 3000 MXP codec can handle 3 (three) monitors through Virtual Monitor.<br>For more information on this see the MXP System Integrators Guide, which can be downloaded from our web site. | All MXP systems wchich supports dual screen |
| Control Panel > General > SCREEN SETTINGS | **MULTISITE 3 PARTY LAYOUT**<br>**NOTE:** Only available when Dual Monitor is set to On.<br>With Multisite 3 Party Layout setting you can, on the endpoint hosting the meeting, display party B and C on one monitor each. This requires that the host endpoint to be configured as a dual monitor system. This layout applies to the Multisite host and to a meeting with 3 participants only. Other layouts can still be used.<br>**ON:** Site B and C is presented on separate monitors on the host, if the endpoint is a dual monitor system.<br>**OFF:** Normal Multisite layout | | |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > General > Screen Settings > ASPECT RATIO | **ASPECT RATIO TV 1**<br>**CLIP:** Adjust the source by clipping it, to match the aspect ratio of the destination window.<br>**LETTERBOX:** Adjust the source by adding black bars, to match the aspect ratio of the destination window.<br>**FILL:** Stretch/shrink the source to fill the destination window. The aspect ratio of the source does not match the destination.<br>**AUTO:** Automatically make the best choice by combining Clip, Fill and Letter box when necessary. | | |
| Control Panel > General > Screen Settings > ASPECT RATIO | **ASPECT RATIO TV 2**<br>**CLIP:** Adjust the source by clipping it, to match the aspect ratio of the destination window.<br>**LETTERBOX:** Adjust the source by adding black bars, to match the aspect ratio of the destination window.<br>**FILL:** Stretch/shrink the source to fill the destination window. The aspect ratio of the source does not match the destination.<br>**AUTO:** Automatically make the best choice by combining Clip, Fill and Letter box when necessary. | | |
| Control Panel > General > Screen Settings > ASPECT RATIO | **ASPECT RATIO DVI 1**<br>**CLIP:** Adjust the source by clipping it, to match the aspect ratio of the destination window.<br>**LETTERBOX:** Adjust the source by adding black bars, to match the aspect ratio of the destination window.<br>**FILL:** Stretch/shrink the source to fill the destination window. The aspect ratio of the source does not match the destination.<br>**AUTO:** Automatically make the best choice by combining Clip, Fill and Letter box when necessary. | | |
| Control Panel > General > Screen Settings > ASPECT RATIO | **ASPECT RATIO DVI 2**<br>**CLIP:** Adjust the source by clipping it, to match the aspect ratio of the destination window.<br>**LETTERBOX:** Adjust the source by adding black bars, to match the aspect ratio of the destination window.<br>**FILL:** Stretch/shrink the source to fill the destination window. The aspect ratio of the source does not match the destination.<br>**AUTO:** Automatically make the best choice by combining Clip, Fill and Letter box when necessary. | | |
| Control Panel > General > SCREEN SETTINGS | **MONITOR BRIGHTNESS**<br>1700 MXP: Use the arrow keys to adjust the Monitor Brightness level (Value: 0 - 7)<br>3000 MXP Profile: Use the arrow keys to adjust the Monitor Brightness level (Value: 0 - 100) | This setting applies to 1700 MXP<br>This setting applies to 3000 MXP Profile shipped without a separate remote control for the monitor. | See comment |
| Control Panel > General > SCREEN SETTINGS | **MONITOR CONTRAST**<br>1700 MXP: Use the arrow keys to adjust the Monitor Contrast level (Value: 0 - 15)<br>3000 MXP Profile: Use the arrow keys to adjust the Monitor Contrast level (Value: 0 - 100) | This setting applies to 1700 MXP<br>This setting applies to 3000 MXP Profile shipped without a separate remote control for the monitor. | See comment |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
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| Control Panel ><br>General ><br>SCREEN SETTINGS | **MONITOR COLOR**<br>[illegible]0 MXP Profile: Use the arrow keys to adjust the Monitor Color level (Value: 0 - 4) | [illegible] 3000 MXP Profile shipped without a separate remote control for the monitor. | See comment |
| Control Panel ><br>General ><br>SCREEN SETTINGS | **MONITOR COLOR R**<br>1700 MXP: Use the arrow keys to adjust the Monitor Color Red (Value: 0 - 255) | This setting applies to 1700 MXP | See comment |
| Control Panel ><br>General ><br>SCREEN SETTINGS | **MONITOR COLOR G**<br>1700 MXP: Use the arrow keys to adjust the Monitor Color Green (Value: 0 - 255) | This setting applies to 1700 MXP | See comment |
| Control Panel ><br>General ><br>SCREEN SETTINGS | **MONITOR COLOR B**<br>1700 MXP: Use the arrow keys to adjust the Monitor Color Blue (Value: 0 - 255) | This setting applies to 1700 MXP | See comment |
| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **TV SINGLE**<br>Applies to Video Out 1 (S-video) and Video Out 3 (composite).<br>**OFF:** The TV Single output is Off.<br>**ON:** The TV Single output is On. | | 8000<br>6000<br>Maestro |
| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **TV DUAL**<br>Applies to Video Out 2 (S-video) and Video Out 4 (composite).<br>**OFF:** The TV Dual output is Off.<br>**ON:** The TV Dual output is On. | | 8000<br>6000<br>Maestro |
| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **VGA DUAL**<br>Applies to the second DVI output.<br>**OFF:** The VGA Dual output is Off.<br>**ON:** The VGA Dual output is On. | 6000 MXP: DVI output is marked DUAL<br>3000 MXP, 990/880/770 MXP: the DVI-I out has no label as the menu setting on these systems allows the DVI-I out to be either single or dual output. | 8000<br>6000<br>Maestro |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
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| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **TV MONITOR FORMAT**<br>For wide screen monitors only.<br>**NORMAL:** Output is optimized for normal TV monitors (4:3)<br>**WIDE:** Output is optimized for wide TV monitors (16:9). To fully leverage your wide screen display, activate the Native 16:9 format by setting the TV Monitor Format to Wide. | **NOTE:** You should only change this setting if your TV monitor is a wide screen (16:9) monitor or projector. All composite- and S-video output formats will then be optimized for Wide Screen TV monitors.<br>**POTE** If both TV Monitor Format and VGA Monitor Format are set to Normal, the system will skip the 1+3 layout, which is not beneficial for 4:3 monitors. | All MXP systems which supports wide screen |
| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **VGA MONITOR FORMAT**<br>For wide screen monitors only.<br>You should only change this setting if your VGA monitor is a wide screen (16:9) monitor or projector. The VGA and DVI output will then be optimized for Wide Screen VGA and High Definition (HD) display.<br>**NORMAL:** Output is optimized for normal VGA monitors (4:3)<br>**WIDE:** Output is optimized for wide VGA monitors (16:9). To fully leverage your wide screen display, set the VGA Monitor Format to Wide. | How to set VGA Out Quality for Wide XGA<br>1. Set VGA Monitor Format to Wide<br>2. Set PC Picture Format to Normal<br>3. Set VGA Out Quality to Auto<br>4. If the layout on the monitor is either full screen or Picture Outside Picture (POP) and if the input source to the largest window is PC with resolution 1024x768, then the system will use WXGA (1280x768) instead of XGA, when the monitor supports this.<br>**NOTE!** If both TV Monitor Format and VGA Monitor Format are set to Normal, the system will skip the 1+3 layout, which is not beneficial for 4:3 monitors. | All MXP systems which supports wide screen |
| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **VGA OUT MODE**<br>VGA Out Mode makes it possible to specify which signal to send to VGA/DVI output.<br>**MAIN:** Select Main when you want to use a VGA monitor as your main monitor.<br>**DUAL:** Select Dual when you want to use a VGA monitor as your dual monitor | | 3000<br>990/880/770<br>95/85/7 |
| Control Panel ><br>General ><br>Screen Settings ><br>VIDEO OUT | **VGA OUT QUALITY SINGLE**<br>VGA Out Quality enables the user to change the preferred format for the DVI/VGA output. It is recommended to keep this setting in Auto unless your screen doesn't support some of the XGA or SVGA formats the system is using.<br>**AUTO:** The VGA output format will be optimized depending on video source format, refresh rate and EDID information available. Supported formats are:<br>**SVGA** (800x600) 75 Hz<br>**XGA** (1024x768) 60Hz /75 Hz<br>**WXGA** (1280x768) 60 Hz<br>**W720P** (if Allow HD720P is set to On)<br>**SVGA 800X600:** The VGA output format is forced to SVGA format (800x600) 75 Hz<br>**XGA 1024X768:** The VGA output format is forced to XGA format (1024x768) 60 Hz<br>**W720P:** The VGA output format is forced to w720p | The VGA Out port supports VESA Power Management.<br>If the system is used together with a non TANDBERG supplied monitor, WXGA will have to be enabled on the dataport as well.<br>If Allow HD720p is set to On the w720p resolution is added as a possible resolution for the VGA Out Auto setting. | 8000<br>6000<br>Maestro<br>3000<br>1700<br>990/880/770, 550<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > General > Screen Settings > VIDEO OUT | **VGA OUT QUALITY DUAL**<br>**AUTO:** The VGA output format will be optimized depending on video source format, refresh rate and EDID information available. Supported formats are:<br>**SVGA** (800x600) 75 Hz<br>**XGA** (1024x768) 60Hz /75 Hz<br>**WXGA** (1280x768) 60 Hz<br>**W720P**<br>**SVGA 800X600:** The VGA output format is forced to SVGA format (800x600) 75 Hz<br>**XGA 1024X768:** The VGA output format is forced to XGA format (1024x768) 60 Hz<br>**W720P:** The VGA output format is forced to w720p | The supported range of VGA formats will be optimized for the VGA display monitor based on the source image.<br>VGA Out Quality Dual enables the user to change the preferred format for the DVI/VGA output. It is recommended to keep this setting in Auto unless your screen doesn't support some of the XGA or SVGA formats the system is using. Note that the VGA Out port supports VESA Power Management. | 8000<br>6000<br>Maestro<br>1700 |
| Control Panel > General > SOFTWARE OPTIONS | **OPTIONS INSTALLED**<br>This section shows you which options are currently installed on your system. To activate a new option, you must have a valid option key. **NOTE:** After entering the new option key you must restart the system to activate the new option.<br>The following options are available:<br>• No option<br>• Presenter<br>• MultiSite + Presenter<br>• Bandwidth options | MultiSite: The TANDBERG MultiSite feature (using an embedded MCU) enables you to setup multipoint calls with three or more participants - by video and/or telephone.<br>Presenter: The TANDBERG Natural Presenter Package (NPP) allows you to bring your presentations to life using PCs, document cameras and video (also mentioned as dual stream). Bandwidth decides the quality of the video call. High bandwidth gives high quality. | All MXP systems |
| Control Panel > General > SOFTWARE OPTIONS | **SERIAL NO**<br>Shows the serial number of the video system.<br>The Serial Number format is xx.xxxxx or xxAxxxxx. | The Serial Number is also found on a sticker on the system. It is essential for identifying the system when it comes to service contracts or other support activities. | All MXP systems |
| Control Panel > General > SOFTWARE OPTIONS | **CURRENT OPTION KEY**<br>Shows the current option key. | | All MXP systems |
| Control Panel > General > SOFTWARE OPTIONS | **CURRENT BANDWIDTH KEY**<br>Shows the current bandwidth key. | | All MXP systems |
| Control Panel > General > SOFTWARE OPTIONS | **NEW OPTION KEY**<br>To activate a new option, enter the new option key and restart the system.<br>If the key is invalid, the original key will be used. | Please contact your TANDBERG representative to order a new option. | All MXP systems |

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|---|---|---|---|
| Control Panel > General > SOFTWARE OPTIONS | **NEW BANDWIDTH KEY**<br>To activate a new bandwidth, enter the new bandwidth key and restart the system.<br>If the key is invalid, the original key will be used. | Please contact your TANDBERG representative to order additional bandwidth. | All MXP systems |
| Control Panel > General > DATE & TIME SETTINGS | **TIME ZONE**<br>Displays the current time and date. Select the correct time zone for the location of your system.<br>• GMT -01:00 to GMT -12:00<br>• GMT Greenwich Mean Time<br>• GMT +01:00 to GMT +14:00 | GMT - Greenwich Mean Time | All MXP systems |
| Control Panel > General > DATE & TIME SETTINGS | **DATE FORMAT**<br>Choose between DD/MM/YY, MM/DD/YY, or YY/MM/DD as the preferred date format. | | All MXP systems |
| Control Panel > General > DATE & TIME SETTINGS | **TIME FORMAT**<br>Select 12h or 24h time format. | | All MXP systems |
| Control Panel > General > DATE & TIME SETTINGS | **DAYLIGHT SAVINGS**<br>**ON:** Moves the time one hour ahead.<br>**OFF:** Moves the time one hour back. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>General ><br>MULTIPOINT CALL OPTIONS | **MULTIPOINT CALL SETTINGS**<br>You can make multipoint calls using the built-in MultiSite* on your system, or by using the external Multiway™** solution.<br>**DISABLE MULTIPOINT CALLS:** When Disable Multipoint Calls is selected, this means you have no MultiSite or MultiWay possibilities. You can still add another call. The ongoing call will be put On Hold and you can Swap between the two calls. Only one call can be put on hold at the time.<br>**USE BUILT-IN MULTISITE**: The TANDBERG MultiSite (using a built-in MCU) enables you to setup a multipoint call - by video and/or telephone. MultiSite is an optional feature.<br>**USE EXTERNAL MULTIWAY**: The TANDBERG Multiway (using an external MCU) enables you to setup a multipoint call - by video and/or telephone. Multiway is available through a Gatekeeper and an external MCU. All participants can invite another participant into the conference. Multiway is not supported when Kiosk Mode is set to On.<br>**MULTIWAY URI**: When Use external Multiway is enabled you must enter the Multiway URI. For calling Multiway on SIP the SIP prefix must be added to the URI for the endpoint who initiates the Multiway call.<br>Example of an URI: `rvUM:f/Cx□g/M:f/Cx□lRCS/fK□lRC`<br>Example of an URI with SIP prefix: sip:`rvUM:f/Cx□g/M:f/Cx□lRCS/fK□lRC` | A is short for Multipoint Conference Unit, a device used to connect multiple audio and video sites in one or more IP, ISDN and mixed IP & ISDN video meetings.<br>P SCET RP There can not be a mix of encrypted and non-encrypted calls in a Multiway call. Either all participants must be encrypted or all must be non-encrypted.<br>* MULTISITE is available on systems with the optional MultiSite feature supported and installed.<br>** MULTIWAY is available on systems with a Gatekeeper and an external MCU configured for using Multiway. | All MXP systems |
| Control Panel ><br>Menu Settings > | **INPUT EDITOR LANGUAGE**<br>**CUSTOM:** When the Input Editor Language is set to Chinese, Korean, Japanese or Russian the user will be able to enter Chinese/Korean/Japanese/Russian characters into an input field like the System Name or Phone Book, using the remote control.<br>**OFF:** When set to Off the user will only be able to enter ASCII characters into an input field like the System Name or Phone Book, using the remote control. | | All MXP systems |

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|---|---|---|---|
| Control Panel > Menu Settings > | **NUMBER KEY MODE**<br>**MANUAL:** This will enable a pop-up menu allowing you to choose what to happen when you press a number key while in a call. Depending of the options installed and whether or not you have any stored camera presets, you might be given up to three choices: Add Another Call, Touch Tones Mode and Use Presets.<br>• If you do not have MultiSite or all of your MultiSite capacity is used, the Add another Call option is not present in the dialog box.<br>• If you have no stored presets the Presets option is not present in the dialog box.<br>• If no Multisite and no stored Presets, then you go directly to Touch Tones mode because no other options are available.<br>If you want the system to act automatically you can configure the system to always:<br>**ADD ANOTHER CALL:** While in a call, the Call menu will automatically appear when a number key is pressed on the remote control. This enables the user to add another call.<br>**TOUCH TONES MODE:** While in a call, the Touch Tones mode (DTMF) will automatically become active when a number key is pressed on the remote control. This enables the user to dial an extension number, password or access code. You can also press the Touch Tones key on the remote control to enter an extension number, password or access code while in a call.<br>**USE PRESETS:** While in a call, the camera Presets Mode will automatically become active when a number key is pressed on the remote control. The camera will move to the position preset for the number key used. Note: This applies to systems with controllable camera only. | When pressing a number key on the remote control, while you are in a call, the system can be configured to act automatically or manually. | All MXP systems |
| Control Panel > Menu Settings > | **SIMPLE MENU**<br>**ON:** Enables Simple Menu mode with some of the buttons hidden. The menus affected and the visible buttons are:<br>• Make a Call - Make a Call (green), Standby (red), Presentation, Control Panel and Back.<br>• Presentation - PC and Back.<br>• Control Panel - Diagnostics, Restart, Administrator Settings and Back.<br>• Control Panel (Administrator Settings) - Diagnostics, Restart and Back<br>**OFF:** Enables normal menu mode. | | All MXP systems |
| Control Panel > Menu Settings > GENERAL MENU SETTINGS | **MENU TIMEOUT IN CALL**<br>**ON:** The menu will disappear automatically after 15 seconds if there is no activity on the remote control. Menu timeout applies when you are in a call only. Outside a call, there is no menu timeout.<br>**OFF:** The menu will not disappear automatically. Press Cancel on the remote control to hide the main menu manually. | The Main menu appears on the bottom line of the screen. | All MXP systems |
| Control Panel > Menu Settings > GENERAL MENU SETTINGS | **SHOW CALL DURATION**<br>**ON:** While in a call, the call duration (hh:mm:ss) is shown in the bottom right corner of the screen.<br>**OFF:** No call duration is shown on screen while in a call. | | All MXP systems |

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|---|---|---|---|
| Control Panel > Menu Settings > GENERAL MENU SETTINGS | **MENU ON TV**<br>This setting allows you to decide whether or not the menu will be displayed on the TV screen (the PAL/NTSC S-video and composite outputs).<br>For optimal layout of the menu, Menu on TV should be Off if Menu on PC is On and vice versa.<br>**ON:** The menu is available on the TV screen.<br>**OFF:** The menu is not available on the TV screen. | WHAT TO DO IF THE MENU HAS DISAPPEARED<br>If the Menu has disappeared from the connected TV screen, and only one of them is connected to the system, you can use the remote control and press the Phone Book key 5 times and then the 2 key once, in order to display the menu on the connected screen. | 8000<br>6000<br>Maestro<br>3000<br>990/880/ 770, 550<br>95/85/75<br>Tactical |
| Control Panel > Menu Settings > GENERAL MENU SETTINGS | **MENU ON PC**<br>This setting allows you to decide whether or not the menu will be displayed on the PC screen (VGA screen with DVI-I outputs).<br>For optimal layout of the menu, Menu on PC should be Off if Menu on TV is On and vice versa.<br>**ON:** The menu is available on the PC screen.<br>**OFF:** The menu is not available on the PC screen. | WHAT TO DO IF THE MENU HAS DISAPPEARED<br>If the Menu has disappeared from the connected PC screen, and only one of them is connected to the system, you can use the remote control and press the Phone Book key 5 times and then the 2 key once, in order to display the menu on the connected screen. | 8000<br>6000<br>Maestro<br>3000<br>990/880/ 770, 550<br>95/85/75<br>Tactical |
| Control Panel > Menu Settings > GENERAL MENU SETTINGS | **BALLOON HELP**<br>Used to enable/disable the balloon help window on screen.<br>**ON:** Enables help text windows to appear.<br>**OFF:** There will be no help text window. | | All MXP systems |

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|---|---|---|---|
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **KIOSK MODE**<br>**TAKE CARE!** Functionality will be heavily restricted in Kiosk Mode!<br>In Kiosk Mode the system is set to a simplified state where it can be controlled just with the four Arrow keys and OK key on the remote control. You will get a simplified on-screen menu with only the basic functionality available:<br>• Make call (predefined contacts in phone book only)<br>• Receive call<br>• End call<br>• Adjust volume<br><br>**ON:** Select On to activate Kiosk Mode.<br>**OFF:** Select Off to not activate Kiosk Mode (default).<br><br>If Kiosk mode is On and you want to deactivate Kiosk mode, the deactivation can take place through:<br>• the system's web interface<br>• telnet<br>• data port<br>• by a short key combination (requires Allow use of Remote Control set to On) | WHEN IN A CALL IN KIOSK MODE<br>When in a call, the system will display Far End video in full screen.<br>If Maximum Call Length is set to a value and the system is in a call, the system will display a warning when there are 5 minutes, 1 minute and 10 seconds left of the call.<br>If pressing OK on the remote control when in a call, the following choices will be displayed: End Call, Volume and Close.<br><br>HOW TO DEACTIVATE KIOSK MODE<br>Using the web interface, telnet or data port with the command:<br>`@□Rfrvh<U/:vRf□□vRM2□1Rix□□□.f□.rr□`<br>Using a short key combination. Please observe that this requires Allow Use of Remote Control set to On. Press the Phone Book button 5 times and the number 3 key once on the remote control.<br>For more information on API commands this see the MXP System Integrators Guide, which can be downloaded from our web site: http://www.tandberg.com/docs. | All MXP systems |
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **LANGUAGE MENU**<br>When used in Kiosk Mode you may set the system to prompt the user to select language before proceeding.<br>**ON:** When set to On the system will display the language menu as the first menu in Kiosk mode.<br>**OFF:** When set to Off the system will display the welcome menu in English (default). | | All MXP systems |
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **AVAILABLE LANGUAGES**<br>In Kiosk Mode the system supports 7 languages for its simplified on-screen menu; English, German, French, Italian, Norwegian, Swedish and Spanish. Select the preferred language(s). | | All MXP systems |
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **AUTO DIAL**<br>Applies to systems with handset only.<br>**ON:** The system will automatically dial to the first contact in the Phone Book when the handset is lifted. If this contact is busy, the system will call the second number in the Phone Book and so on. If the user places the handset in the cradle, the system will switch to Speaker Mode. Only the Far End system can end the call.<br>**OFF:** The system will not make a call automatically when the handset is lifted. | | Compass Utility |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **ALLOW USE OF REMOTE CONTROL**<br>**ON:** All keys on the remote control are enabled.<br>**OFF:** All keys except the arrow keys and OK key are disabled. | | All MXP systems |
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **ONE CLICK CONNECT**<br>**ON:** When turned On, you can make a call with a single click on the green call button on the remote control. The system will call the first entry in “My Contacts” in the Phone Book.<br>**NOTE:** This functionality will only work in Kiosk Mode<br>**OFF:** Does not allow for one click connect. | | |
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **PHONE BOOK**<br>Your system may be connected to a Directory Service or Management System such as the TANDBERG Management Suite (TMS). The Management System may then provide your video system with a phone book containing a corporate directory. This directory is controlled directly from the Management System and updates and changes are carried out remotely by the Management System Administrator.<br>**LOCAL:** Select Local to make only the local Phone Book available for the user in Kiosk Mode.<br>**CORPORATE DIRECTORY:** Select Corporate Directory to make the Corporate phone book available for the user in Kiosk Mode. This opens up for remote updates of the phone book. | | All MXP systems |
| Control Panel > Menu Settings > KIOSK MODE SETTINGS | **KIOSK MENU**<br>**ON:** The Kiosk Mode menus will appear on the screen.<br>**OFF:** No menus or indicators will appear on the screen. | | All MXP systems |
| Control Panel > Menu Settings > STARTUP | **WELCOME MENU**<br>**ON:** The Welcome Menu is shown when the system wakes up from standby mode.<br>**OFF:** The Welcome Menu is not shown when the system wakes up from standby mode. Press the OK button to open the Welcome Menu. | TIP! When Use Screen as Local PC Monitor is set to On you can set the Welcome Menu to Off. This will avoid the Welcome menu to automatically appear on screen. Press the OK button on the remote control to see the Welcome menu. | All MXP systems |
| Control Panel > Menu Settings > STARTUP | **WELCOME PICTURE**<br>**SELFVIEW:** is shown in the background of the welcome menu. In most cases this means that main camera is displayed and you can see the video image of yourself.<br>**OFF:** No picture is shown in the background of the welcome menu. | The WELCOME PICTURE is what you see in the background of the welcome menu. | All MXP systems |
| Control Panel > Menu Settings > STARTUP | **LOGO**<br>**ON:** The company logo will appear in the background of the welcome menu.<br>**OFF:** No logo is displayed.<br>Note! The TANDBERG Logo will be displayed if no other company logo is loaded and Logo is set to On. | It is possible to upload a company logo to the system. For more information about how to upload a logo, see How to Apply Your Own Logo in the USING THE SYSTEM section. | All MXP systems |

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|---|---|---|---|
| Control Panel > Menu Settings > STARTUP | **DISPLAY WELCOME TIME**<br>**ON:** The Welcome date and time is displayed on the welcome menu. Requires the NTP IP settings to be configured to synchronize with the NTP time server.<br>**OFF:** The Welcome date and time is hidden from the welcome menu. | | |
| Control Panel > Menu Settings > STARTUP | **DISPLAY WELCOME TEXT**<br>**ON:** The Welcome text is displayed on the welcome menu.<br>**OFF:** The Welcome text is hidden from the welcome menu. | The default Welcome Text displays your system name and the dial in numbers. | All MXP systems |
| Control Panel > Menu Settings > STARTUP | **WELCOME TEXT**<br>You can change the welcome text to any text you like, instead of the default text. To display the text, this requires Display Welcome Text set to On. | | All MXP systems |
| Control Panel > Menu Settings > ICONS | **ICON PLACEMENT**<br>Applies to the following icon indicators: Microphone Off, Volume Off, On Air, Encryption, Bad Network, Telephone, Duo Video and Camera Tracking.<br>**TOP LEFT:** Place the icon indicators at the top left corner of the screen.<br>**TOP RIGHT:** Place the icon indicators at the top right corner of the screen. | | All MXP systems |
| Control Panel > Menu Settings > ICONS | **MICROPHONE OFF**<br>This indicator is shown when the microphone is turned off. Press the Mic Off button on the remote control again to turn the microphone back on.<br>**ON:** Enables the Microphone Off indicator. When the microphone is turned Off the indicator will be shown<br>**OFF:** Disables the Microphone Off indicator. When the microphone is turned Off no indicator will be shown |  | All MXP systems |
| Control Panel > Menu Settings > ICONS | **VOLUME OFF**<br>This indicator is shown when the volume is turned off. Press Volume + on the remote control to turn the volume back on.<br>**ON:** Enables the Volume Off indicator. When the volume is turned Off the indicator will be shown<br>**OFF:** Disables the Volume Off indicator. When the volume is turned Off no indicator will be shown |  | All MXP systems |
| Control Panel > Menu Settings > ICONS | **ON AIR (HAVING THE FLOOR)**<br>When you are displayed in full screen (having the floor) in a multipoint conference this is indicated by the On Air icon.<br>**ON:** Enables the On Air indicator. When you are displayed in full screen the indicator will be shown<br>**OFF:** Disables the On Air indicator. When you are displayed in full screen no indicator will be shown |  | All MXP systems |

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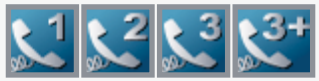
|---|---|---|---|
| Control Panel > Menu Settings > ICONS | **ENCRYPTION**<br>**ON:** Enables the Encryption indicator. When Encryption (Secure Conference) is active one of the indicators will be shown, according to the level of security<br>• Double Padlock The indicator is shown when AES encryption (Secure Conference) is active.<br>• Single Padlock The indicator is shown when DES encryption (Secure Conference) is active.<br>• Open Padlock The indicator is shown during the initialization phase for AES or DES encryption. During this period the call is not secure.<br>**OFF:** Disables the Encryption indicator. When Encryption (Secure Conference) is not active no indicator will be shown |  <br>AES Encryption, DES Encryption, No encryption | All MXP systems |
| Control Panel > Menu Settings > ICONS | **BAD NETWORK**<br>This indicator appears if the system detects network anomalies like packet loss (5%), jitter (200ms) etc., during a call. Open the menu by pressing the OK/Menu button and select the warnings icon to see details.<br>**ON:** Enables the Bad Network indicator. When the system detects network anomalies the indicator will be shown<br>**OFF:** Disables the Bad Network indicator. When the system detects network anomalies no indicator will be shown |  | All MXP systems |
| Control Panel > Menu Settings > ICONS | **TELEPHONE**<br>This indicator is shown when there are telephone participants in a MultiSite conference. Indications are given for 1, 2, 3 or more than 3 participants.<br>**ON:** Enables the Telephone indicator. When there are telephone participants in a MultiSite conference an indicator will be shown<br>**OFF:** Disables the Telephone indicator. When there are telephone participants in a MultiSite conference no indicator will be shown |  | All MXP systems with the MultiSite option |
| Control Panel > Menu Settings > ICONS | **DUOVIDEO**<br>This indicates that a Dual Stream/H.239 is sent from you (near end). The DuoVideo feature allows participants at the far end to simultaneously watch a presenter on one screen and a live presentation on the adjoining screen.<br>**ON:** Enables the DuoVideo indicator. When a Dual Stream is sent from you (near end) the indicator will be shown<br>**OFF:** Disables the DuoVideo indicator. When a Dual Stream is sent from you (near end) no indicator will be shown |  | All MXP systems with the Presenter option |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Menu Settings > ICONS | **CAMERA TRACKING**<br>The Camera Tracking icon indicates that the camera is zooming in on a single person speaking.<br>**ON:** Enables the Camera Tracking indicator. When the camera zoom in on a single person speaking the indicator will be shown<br>**OFF:** Disables the Camera Tracking indicator. When the camera zoom in on a single person speaking no indicator will be shown |  | All MXP systems with controllable camera except 550 |
| Control Panel > Menu Settings > ICONS | **HEADSET**<br>Applies to systems with a headset input.<br>TANDBERG 1000 MXP: Connect the headset and activate the headset by pressing the button in front, located below the TANDBERG logo. Deactivate the headset by pressing the button once more.<br>TANDBERG 1700 MXP: The headset is activated by default when the connectors are connected. The headset can be deactivated by pressing the button placed above the connectors. Press the button once more to activate the headset.<br>**ON:** Enables the Headset indicator. When a headset is connected the Headset indicator will be shown.<br>**OFF:** Disables the Headset indicator. When a headset is connected no Headset indicator will be shown. |  | All MXP systems with a headset |
| Control Panel > Menu Settings > ICONS | **WARNINGS**<br>The Warning indicator will display when there is a warning. The Warning indicator is enabled by the system and cannot be turned Off. |  | All MXP systems |
| Control Panel > Presentation Settings > | **PRESENTATION START**<br>If your system has the optional Dual Stream capabilities, you can show two video streams simultaneously, i.e. both video and a presentation. Dual Stream requires the Presenter Option and H.263 video. To check which options are installed, see the System Information menu from the Diagnostics menu.<br>**AUTO:** When you start a presentation the Dual Stream will start automatically (i.e. when you choose a second video source). If your system or the far end system cannot handle DuoVideo/H.239, you will not be using Dual Stream, but rather send the presentation source as your Main Video.<br>**MANUAL:** When you start a presentation the Dual Stream must be started manually. To do so, select Presentation in the Call Menu and select Start Presentation. Then choose a video source from the list on the screen. | About Dual Stream and Bandwidth<br>Using Dual Stream, the quality automatically downspeeds to the optimal bandwidth. This means that you need higher quality to allocate enough bandwidth for the two video streams. Dual Stream borrows bandwidth from main video stream. When Dual Stream is closed, the bandwidth is returned to the main video. | All MXP systems |
| Control Panel > Presentation Settings > | **H.239**<br>H.239 supports transmission of two video streams. It combines elements of DuoVideo and People+Content. If H.239 is disabled you will still be able to start TANDBERG Dual Stream.<br>**ENABLED:** Enables the H.239 protocol.<br>**DISABLED:** Disables the H.239 protocol. | | All MXP systems |

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|---|---|---|---|
| Control Panel > Presentation Settings > | **FORCE MAC INPUT**<br>Use this setting if the system does not recognize MAC computers as a presentation source, it turns the PC input for Mac computers on and off.<br>**ON:** If set to On, the system will recognize all Mac computers, but may have problems with other presentation sources.<br>**OFF:** If set to Off, the system may have problems recognizing Mac computers as a presentation source. | | All MXP systems |
| Control Panel > Presentation Settings > | **HORIZONTAL ADJUST DVI**<br>Use this setting to adjust the horizontal position on the DVI input. The default value is 128.<br>**VALUE < 128:** Adjusts the position to the right.<br>**VALUE > 128:** Adjusts the position to the left. | | |
| Control Panel > Presentation Settings > | **CALL VIDEO SOURCE**<br>The Call Video Source is the default video source you would prefer to use in a call. The number of choices are dependent of what video sources are available for your system. Select the default Call Video Source to be used in a call:<br>**MAIN CAM:** The Main Camera (the default setting) will be used as the default call video source every time you make a call, regardless of what the previous video source was.<br>**DOC CAM:** The document camera will be used as the default call video source every time you make a call, regardless of what the previous video source was.<br>**PC:** The main PC will be used as the default call video source every time you make a call, regardless of what the previous video source was.<br>**AUX:** The main AUX will be used as the default call video source every time you make a call, regardless of what the previous video source was.<br>**VNC:** The VNC will be used as the default call video source every time you make a call, regardless of what the previous video source was.<br>**VCR:** The VCR will be used as the default call video source every time you make a call, regardless of what the previous video source was.<br>**CURRENT:** If you set Current as the call video source, the system will start with whatever the previous video source was. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Presentation Settings > | **PRESENTATION SOURCE**<br>Select the Presentation Source to be displayed on screen when the blue Presentation key on the remote control is pressed. The number of choices are dependent of what presentation sources are available for your system.<br>**MAIN CAM:** The main camera will be used as presentation source when the Presentation key on the remote control is pressed.<br>**DOC CAM:** The document camera will be used as presentation source when the Presentation key on the remote control is pressed.<br>**PC:** The PC (the default setting) will be used as presentation source when the Presentation key on the remote control is pressed (only for systems with the PC input available).<br>**VNC:** The VNC will be used as presentation source when the Presentation key on the remote control is pressed.<br>**AUX:** The AUX will be used as presentation source when the Presentation key on the remote control is pressed.<br>**VCR:** The VCR will be used as presentation source when the Presentation key on the remote control is pressed.<br>**NONE:** If you set None as the presentation source, the Presentation menu will appear when the blue Presentation key on the remote control is pressed. | | All MXP systems |
| Control Panel > Presentation Settings > | **SNAPSHOT SOURCE**<br>Select the preferred Snapshot Source to be used when the Snapshot key on the remote control is pressed. The number of choices depends on what snapshot sources are available for your system.<br>**MAIN CAM:** The main camera will be used as snapshot source when the Snapshot key on the remote control is pressed, regardless of what video source that is currently active.<br>**DOC CAM:** The document camera will be used as snapshot source when the Snapshot key on the remote control is pressed, regardless of what video source that is currently active.<br>**PC:** The PC will be used as snapshot source when the Snapshot key on the remote control is pressed, regardless of what video source that is currently active.<br>**AUX:** The AUX will be used as snapshot source when the Snapshot key on the remote control is pressed, regardless of what video source that is currently active.<br>**VNC:** The VNC will be used as snapshot source when the Snapshot key on the remote control is pressed, regardless of what video source that is currently active.<br>**VCR:** The VCR will be used as snapshot source when the Snapshot key on the remote control is pressed, regardless of what video source that is currently active.<br>**CURRENT:** If set to Current (the default Snapshot Source) this means you will take a snapshot of the video source that is currently active. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Presentation Settings > | **AUTO-DISPLAY SNAPSHOT**<br>**AUTO:** A sent or received snapshot will automatically be displayed on the screen (the default setting).<br>**MANUAL:** The snapshots will be sent and received, but not displayed. To see the snapshot, choose Display Snapshot in the Presentation menu from the Call Menu. | With Auto-Display Snapshot you can choose to automatically or manually display a sent or received snapshot on screen. | All MXP systems |
| Control Panel > Presentation Settings > | **PIP PLACING**<br>With Picture in Picture (PIP) you can decide where the PIP shall appear. PIP has a connection to the Layout button on the remote control. During a call you can move, show and hide the PIP with the Layout button on the remote control at any time.<br>**TOP RIGHT:** PIP is placed in the Top Right corner.<br>**BOTTOM RIGHT:** PIP is placed in the Bottom Right corner.<br>**BOTTOM LEFT:** PIP is placed in the Bottom Left corner.<br>**TOP LEFT:** PIP is placed in the Top Left corner. | E TAS dPdE TAS dE E d<br>A Picture in Picture (PIP) is a smaller picture placed in one of the corners of the screen. The PIP enables you to see an extra picture in your video conference.<br>A PIP can be useful when you use Dual Stream and you need an extra window to see all the pictures. | All MXP systems |
| Control Panel > Presentation Settings > | **PRESENTATION RATE**<br>The Presentation Rate is expressed as a percentage of of the call rate and reflects the H.323 and SIP Presentation Rate settings of the sender.<br>The settings are 25%, 50% and 75% of the total available video stream. | When setting up a call with H.323, the bandwidth can be controlled by adjusting the Presentation Rate (dual stream rate). | All MXP systems |
| Control Panel > Presentation Settings > VNC SETTINGS | **ADDRESS**<br>Enter the IP Address of the PC with the VNC software installed.<br>To find the IP Address of the PC place the mouse pointer on the VNC program icon placed in the lower right corner of the Windows taskbar.<br>You can also find the IP address using the Command Prompt from your Windows menu: Start > Run, type cmd and press OK button. This will open a command window and from here type ipconfig and press Enter. | I STA dP TORS d R EAT P dI P dN TT P N<br>Virtual Network Computing (VNC) Settings are necessary when using a VNC presentation, e.g. showing a PC presentation from a PC on your network.<br>Read more about PC Soft Presenter and VNC in the Using the system section. | All MXP systems (except 550) |
| Control Panel > Presentation Settings > VNC SETTINGS | **DISPLAY NUMBER**<br>The Display Number for VNC is 0 and upwards.<br>If you are using WinVNC (TightVNC), double-click on the icon on the taskbar to view WinVNC properties. Make sure this number corresponds with Display Number in this menu. | | All MXP systems (except 550) |
| Control Panel > Presentation Settings > VNC SETTINGS | **PASSWORD**<br>Enter the same password as specified in WinVNC (TightVNC) properties. The password will be shown as asterisk signs (*) the next time you enter the menu. | | All MXP systems (except 550) |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Call Quality > | **VIDEO ALGORITHM**<br>Use this menu to disable video algorithms in case you have interoperability issues when calling other systems.<br>**H.261:** Legacy video compression and decompression. The system will always have H.261 enabled and thereby, H.261 cannot be unchecked.<br>**H.263:** Normal video compression and decompression.<br>**H.264:** Bandwidth efficient video compression and decompression | The system will automatically select the best video algorithm based on the video source and the capabilities of the remote system. | All MXP systems |
| Control Panel ><br>Call Quality > | **AUDIO ALGORITHM**<br>Use this menu to disable audio algorithms in case you want to remove “low quality” audio, or if you have interoperability issues when calling other systems. The system will automatically select the best audio algorithm based on the call rate and the capabilities of the remote system.<br>**G.711:** Normal quality audio (telephone quality 3.1kHz at 64kbps). This audio algorithm is mandatory for video conferencing equipment and cannot be unchecked.<br>**G.728:** Compressed normal quality audio (telephone quality, 3.1 kHz at 16kbps)<br>**G.722:** High quality audio (7 kHz at 48kbps, 56kbps or 64kbps)<br>**G.722.1:** Compressed high quality audio (7 kHz at 24kbps, 32kbps or 48kbps).<br>**AAC-LD:** CD-quality audio, MPEG-4 Advanced Audio Coding - Low Delay (20 kHz, stereo at 128kbps and mono at 64kbps). | **Automatically preferred audio algorithms on call rates up to and including 192kbps**<br>1. G.722.1 (24kbps or 32kbps)<br>2. G.728 (16kbps)<br>3. AAC-LD (64kbps or 56kbps)<br>4. G.722 (56kbps, 64kbps or 48kbps)*<br>5. G.711 (64kbps, 56kbps or 48kbps)**<br>6. AAC-LD (48kbps or 128kbps)<br><br>**Automatically preferred audio algorithms on call rates above 192kbps**<br>1. AAC-LD (128kbps)***<br>2. AAC-LD (64kbps or 56kbps)<br>3. G.722 (64kbps, 56kbps or 48kbps)*<br>4. G.722.1 (32kbps or 24kbps)<br>5. G.728 (16kbps)<br>6. G.711 (64kbps, 56kbps or 48kbps)**<br>7. AAC-LD (48kbps or 128kbps)<br><br>* G.722 at 64kbps is used in H.323 and SIP (IP) calls only.<br>** G.711 at 64kbps is used in SIP and H.323 and SIP (IP) calls only.<br>*** Dependent on a call rate above the AAC-LD 128 threshold. Note that this is not available on all TANDBERG systems. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Call Quality > | **AAC-LD 128**<br>Specify a call rate for stereo audio, AAC-LD 128 kbps (**A**dvanced **A**udio **C**oding - **L**ow **D**elay). To enable stereo CD-quality audio you need to specify a call rate for which stereo automatically should be enabled:<br>• From the specified call rate and above the stereo CD quality 128 kbps AAC-LD is available.<br>• For lower call rates, mono CD quality 64kbps AAC-LD is available.<br>• Make your selection from 384 kbps and above up to 1920 kbps and above. | **NOTE!** The call rate selection may differ within the different video systems based on the bandwidth available.<br>**NOTE!** Stereo I/O mode needs to be enabled to get stereo audio. See Stereo Settings for details.<br>Stereo audio requires twice the bandwidth as mono CD-quality audio. We recommend enabling stereo audio on high call rates only.<br>Stereo audio can be received and listened to from e.g. a VCR or DVD, but only when the microphone has been set to Off (press Mic Off on the remote control). | All MXP systems with stereo audio |
| Control Panel > Call Quality > | **DYNAMIC RESOLUTION**<br>With Dynamic Resolution the system will use the optimal video resolution for the chosen bandwidth. This feature is only applicable to HD (high definition) calls.<br>**AUTO:** When set to Auto and in a HD call: the resolution will differ between the bandwidths 720p, 576p and 448p, dependent on how much motion it is in the picture. The call will start with 720p and change to a lower resolution when there is a lot motion. It will go back to 720p with less motion.<br>**OFF:** Select Off to disable the Dynamic Resolution feature (the default setting) | | All MXP systems |
| Control Panel > Call Quality > | **MAX UPSTREAM RATE**<br>The Max Upstream Rate (kbps) defines the desired maximum transmitted call rate over H.323 and SIP networks. In this way you can limit the outgoing (upstream/transmit) bandwidth whilst keeping the maximum incoming (downstream/receive) bandwidth.<br>Enter the max upstream rate in kbps for your system. | This feature is especially useful for home offices with different transmit and receive rates, typically ADSL. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Call Quality ><br>VIDEO QUALITY | **SHARPNESS & MOTION**<br>Video Quality can be set for Main Camera, PC, VNC, VCR, AUX, Document Camera and Split Screen. The choices available are depending on what equipment is connected to the video system.<br>**SHARPNESS*:** When Video Quality is set to Sharpness, the system will transmit HD at all bit rates, if permitted by the far end.<br>When set to Sharpness the video is optimized for sharp video (4CIF/4SIF, SVGA, XGA, w720p).<br>• The Precision HD Camera will prefer w720p.<br>**MOTION*:** When Video Quality is set to Motion and the system has a HD camera connected through LVDS, and the bit rate is equal or above 1152kbps, the system will transmit HD.<br>When set to Motion the video is optimized for smooth motion video:<br>• For low bandwidths: CIF/SIF or w288p<br>• For high bandwidths: 448p/400p, Interlaced CIF (iCIF) / Interlaced SIF (iSIF) or w448p.<br>• The Precision HD Camera will prefer: w288p for low bandwidth, w488p from 512 kbps bandwidth and w720p from 1472 kbps bandwidth.<br>**AUTO:** The Split Screen setting can be set to Auto. When the Split Screen is set to Auto the system will choose the best of Motion or Sharpness depending on picture layout and bandwidth.<br><br>* TANDBERG 550MXP and the TANDBERG 1000MXP do not transmit the following video formats: 448p, 400p, iCIF, iSIF, w288p, w448p, w576p, and w720p. | The default Video Quality settings are:<br>• The Main Camera, VCR, AUX and Split Screen have Motion as default.<br>• The PC, Document Camera and VNC have Sharpness as default.<br><br>About intelligent Video Management (IVM)<br>It is possible to configure the picture sent from the system depending upon specific requirements and applications adding an additional level of flexibility and adaptability.<br>Generally, the IVM will always try to transmit the format closest to the video input format based on the configuration of the motion and sharpness. | All MXP systems |
| Control Panel ><br>Call Quality ><br>DEFAULT CALL SETTINGS | **CALL TYPE**<br>Some network configurations may cause the setup of a video call to fail. The call will then be set up as a telephone call. This setting requires the setting Fallback to Telephony to be enabled.<br>Select the default Call Type to be used when making a call. The default Call Type can be set to:<br>**VIDEO CALL:** The call will be set up as a video call.<br>**TELEPHONE CALL:** If either the Call Type is set to Telephone Call or the Place Telephone Call icon is selected when making a call, the call will be set up as a telephone call. In all other cases the call will be set up as a video call. | For MULTISITE (optional feature) calls, the Call Type enables you to specify both telephone calls and video calls in the same conference. This is done from the Call Menu when you make the calls. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > | **NETWORK** | | All MXP systems |
| Call Quality > | Network alternatives: | | |
| DEFAULT CALL SETTINGS | **AUTO:** The system will select the correct network depending on the entered number:<br>• If an IP-address (e.g. 10.12.34.56 ) is entered, H.323 is selected<br>• If the first digits in the number match those set in H.323 Prefix, H.323 is selected<br>• In other cases ISDN* (H.320) is selected<br>**ISDN*:** Select ISDN to ensure that the call is set up as an ISDN call.<br>• ISDN-BRI<br>• ISDN-PRI<br>• Leased E1/T1<br>• External Networks<br>**H.323:** Select H.323 to ensure that the call is set up as a H.323 call.<br>If a Gatekeeper is present, it is possible to place IP-calls using “telephone style” numbers, e.g. an E.164 alias, according to the numbering plan implemented in the Gatekeeper. The Gatekeeper will translate the dialled number into an IP-address. See H.323 Settings in the Network menu for more information about Gatekeeper settings.<br>**SIP:** Select SIP to ensure that the call is set up as an SIP call.<br>**SYSTEM:** System (the name of a user defined network profile) | * Applies only to systems with ISDN capabilities. | |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Call Quality ><br>DEFAULT CALL SETTINGS | **BANDWIDTH**<br>The system's bandwidth decides the quality of the video picture. The higher the bandwidth the higher the quality.<br>**AUTO:** When set to Auto the system will establish a connection using an appropriate bandwidth for the call, typically:<br>• 384 kbps for ISDN calls*<br>• 768 kbps for IP calls<br>• 512 kbps for SIP calls<br>**MAX:** When set to Max the system will set up the call with maximum bandwidth depending on the selected network. Typically values can be:<br>• 768 kbps on ISDN-BRI*<br>• 1472/1920 kbps (23/30Ch) on ISDN-PRI (T1/E1)*<br>• 4Mbps (4096 kbps, IP and SIP)**<br>**CUSTOM***:** Select a custom value from the list:<br>• 4096 kbps = 4 Mbps, IP only<br>• 3072 kbps = 3 Mbps, IP only<br>• 2560 kbps = 2,5 Mbps, IP only<br>• 1920 kbps = 2 Mbps, 30B****<br>• 1472 kbps = 23B<br>• 1152 kbps = 18B<br>• 768 kbps = 12B<br>• 512 kbps = 8B<br>• 384 kbps = 6B<br>• 320 kbps = 5B<br>• 256 kbps = 4B<br>• 192 kbps = 3B<br>• 128 kbps = 2B, Bonding/H.221<br>• 64 kbps = 1B, H.221<br>• H0 = 1xH0, 384 kbps, PRI only | * 1700 MXP: Do not have ISDN.<br>** 1700 MXP: Maximum bandwidth is 2Mb.<br>*** Note that some software versions and networks do not support all channel selections.<br>**** 30B, 23B, etc => B - Bearer Channel | All MXP systems |
| Control Panel ><br>Call Quality ><br>DEFAULT CALL SETTINGS | **RESTRICT (56KBPS)**<br>A restricted call uses 56 kbps channels rather then the default unrestricted 64 kbps channels.<br>**ON:** Set Restrict (56kbps) to On to force a restricted call using 56 kbps channels<br>**OFF:** The call is not restricted | Some older networks (primarily in the USA) do not support 64kbps channels and require the use of restricted 56kbps calls. By default the system will dial an unrestricted call and downspeed to 56kbps if necessary. | All MXP systems with ISDN |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>LEVEL SETTINGS | **LINE IN LEFT, LINE IN RIGHT**<br>Level Settings lets you set each level independently. Adjust the input level setting to match the output level of the unit you are connecting to the line inputs. The input level should be adjusted so that the average level reaches within the yellow area, preferably in the middle.<br>**LINE IN LEFT:** Set the audio input level for Line in Left.<br>**LINE IN RIGHT:** Set the audio input level for Line in Right.<br><br>Since the TANDBERG 1700 MXP unit has built-in microphones and loudspeakers, the level settings apply to Line Level Inputs and the headset loudspeakers/microphone only. | **NOTE!** When you use the volume control, it may look like you are able set the volume higher than the level specified here (gain, and not just attenuation). However, a limiter is used to ensure that low levels are amplified, while high and potentially damaging levels will be limited so that the maximum level as specified here will not be exceeded. A compression will thus occur at higher levels.<br><br>See Interfaces in the Peripheral Equipment section for more information on this topic for your product. | 1700 |
| Control Panel ><br>Audio ><br>LEVEL SETTINGS | **HEADSET MIC, HEADSET OUT**<br>It is possible to adjust the headset microphone input level according to the sensitivity of the used headset. The on-screen audio level indicator will make it easier to set the correct input level settings. The input level should be adjusted so that the average level reaches within the yellow area, preferably in the middle. The headset microphone input level are adjustable in steps of 1.5 dB from 0 dB to 22.5 dB.<br>It is possible to adjust the audio output level to the headset loudspeakers.<br>**HEADSET MIC:** Set the audio input level for the headset microphone. Default level is 3 dB.<br>**HEADSET OUT:** Set the audio output level for the headset loudspeakers. Default level is 13.5 dB<br><br>TANDBERG 1000 MXP: Activate the headset by pressing the button in front, located below the TANDBERG logo. Deactivate the headset by pressing the button once more.<br>Since the TANDBERG 1700 MXP unit has built-in microphones and loudspeakers, the level settings apply to Line Level Inputs and the headset loudspeakers/microphone only.<br>The TANDBERG 1700/1000/Compass/Utility MXP have separate volume settings for loudspeaker and headset output. The volume keys on the remote control also adjust the level of the headset output when the headset is activated by pressing the push-button, without changing the volume setting you have for the loudspeaker. When changing back to the loudspeaker, you will get the volume settings you had before you activated the headset. | **NOTE!** When you use the volume control, it may look like you are able set the volume higher than the level specified here (gain, and not just attenuation). However, a limiter is used to ensure that low levels are amplified, while high and potentially damaging levels will be limited so that the maximum level as specified here will not be exceeded. A compression will thus occur at higher levels.<br><br>See Interfaces in the Peripheral Equipment section for more information on this topic for your product. | 1700<br>1000<br>Compass<br>Utility |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Audio > AUDIO INPUTS | **AUDIO INPUTS - MIC 1-3 AND AUDIO INPUTS 4-6**<br>Lets you configure the inputs (Mic 1-3, Audio In 4-6) and gives an overview of the signal levels.<br>**MIC 1, 2 AND 3:** are intended for electret type microphones. The microphone inputs are balanced with 24V phantom power. Mic 3 on 6000 based systems can be set for Line level instead of Mic level.<br>**AUDIO 4:** is intended for connection to an external microphone amplifier or an external fixed mixer. It is crucial that the external mixer is a fixed mixer. Automatic, smart and other types of adaptive mixers might cause the echo canceller to malfunction.<br>**AUDIO 5:** is intended for connection to external playback devices or to telephone add-on hybrids. As there is no acoustic echo canceller on this input it should not be connected to any microphones. The audio source connected to this input will be heard from the local speaker as well.<br>**AUDIO 6:** is intended for connection to a VCR or DVD player. It can also be connected to other external playback devices. As there is no acoustic echo canceller on this input it should not be connected to any microphones. The audio entering this input will be heard from the local speaker as well. If AUTO is selected, the audio from the VCR will only be heard when VCR is selected as video source. | By default, all inputs are enabled. Plug in an audio source and it is active. Audio inputs that are On will automatically be mixed. Unconnected inputs will automatically be muted. Select Off to prevent audio/noise from connected but unused inputs. The activated audio sources are stored on camera presets. | 8000<br>6000<br>Maestro |
| Control Panel > Audio > AUDIO INPUTS | **AUDIO INPUTS* - MIC 1-2 AND AUDIO INPUTS 3-4**<br>Lets you configure the audio inputs and gives an overview of the signal levels.<br>**MIC 1 - 2:** are intended for electret type microphones. The microphone inputs are balanced with 24V phantom power.<br>**AUDIO 3**:** is intended for connection to external playback devices, but the input can also be configured as a microphone input by selecting MIC. When set as a microphone input it will turn off and replace the Mic 2 input. The audio will be mixed an set up as for the Mic 2 input and there will be an echo canceller working on the input to prevent unwanted echo to be heard at the far end. When not configured as a microphone and connecting an external playback device to this input there will be no echo cancelling and the audio source connected to Audio input 3 will be heard from the local loudspeaker as well.<br>**AUDIO 4:** is intended for connection to a VCR or DVD player. It can also be connected to other external playback devices. As there is no acoustic echo canceller on this input it should not be connected to any microphones. The audio entering this input will be heard from the local speaker as well. If AUTO is selected, the audio from the VCR will only be heard when VCR is selected as video source. | By default, all inputs are enabled. Plug in an audio source and it is active. Audio inputs that are On will automatically be mixed. Unconnected inputs will automatically be muted. Select Off to prevent audio/noise from connected but unused inputs. The activated audio sources are stored on camera presets.<br>* TANDBERG 550 MXP has Mic 1 (see Mic 1) and Audio 2 (see Audio 3)<br>** This applies to the 3000 Profile MXP and Tactical MXP only. | 3000<br>Tactical<br>990/880/770<br>550<br>95/85/75 |
| Control Panel > Audio > AUDIO INPUTS | **MIXER MODE**<br>**AUTO:** The adjustment of each microphone signal is done automatically to obtain the best possible audio and minimize the background noise.<br>**FIXED:** Select Fixed to maintain a constant weighting of all microphones. | | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>AUDIO INPUTS | **VCR DUCKING**<br>The VCR ducking is only valid for audio input 6.<br>If input 5 and 6 is configured to one stereo input pair (see Stereo Settings) then the VCR ducking will apply to both input 5 and 6.<br>**ON:** If VCR Ducking is activated, the VCR audio level will be attenuated if someone talks into the microphone at your side or at the far end.<br>**OFF:** There is no attenuation of the audio level at near or far end. | | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770<br>95/85/75 |
| Control Panel ><br>Audio ><br>Audio Inputs ><br>LEVEL SETTINGS | **LEVEL SETTINGS - MIC 1-3 & AUDIO INPUTS 4-6**<br>*Applies to: 8000* MXP, *6000* MXP *Profile, Maestro* MXP<br>Audio input levels can be adjusted in accordance to the external audio equipment connected. The on-screen audio level indicator will make it easier to set the correct input level settings. The input level should be adjusted so that the average level reaches the transition between the green and the yellow area.<br>To help adjusting the input levels there is a Peak Performance meter showing the peak audio volume for each of the audio inputs. The audio inputs are adjustable in steps of 1.5 dB from 0 - 22.5 dB.<br>**MIC** 1-3: The default levels for Mic 1, 2 and 3 are set for use with an Audio Technica AT871R or AT841R microphone in an average video meeting room. The gain can be adjusted correctly for a wide range of microphones.<br>**AUDIO** 4-6: Audio inputs 4, 5 and 6 are set to a default level which is adhered to by most manufacturers of audio-visual equipment and is a level at which most audio-visual equipment (CD-players, VCRs or DVDs) will work. | Note! The level should be adjusted so that the Peak Performance meter never reaches the maximum value. This will avoid the Acoustic Echo Canceller to malfunction due to overload of the microphone.<br>Some examples of microphone levels<br>Audio Technica AT871R +3dB (default)<br>Audio Technica AT841R +3dB<br>TANDBERG Audio Science microphone levels:<br>Audio Technica AT-861PZ +3dB<br>Crown PZM-6D +19.5dB<br><br>See the Interfaces in the Peripheral Equipment section for more information on this topic for your product. | 8000<br>6000<br>Maestro |
| Control Panel ><br>Audio ><br>Audio Inputs ><br>LEVEL SETTINGS | **LEVEL SETTINGS - MIC 1-2 & AUDIO INPUTS 3-4**<br>*Applies to: 3000* MXP *Profile, Tactical* MXP, *990/880/770* MXP, *550* MXP, *Edge 95/85/75* MXP<br>Audio input levels can be adjusted in accordance to the external audio equipment connected. The on-screen audio level indicator will make it easier to set the correct input level settings. The input level should be adjusted so that the average level reaches the transition between the green and the yellow area.<br>To help adjusting the input levels there is a Peak Performance meter showing the peak audio volume for each of the audio inputs. The audio inputs are adjustable in steps of 1.5 dB from 0 - 22.5 dB.<br>**MIC** 1-2: The default levels for Mic 1 and 2 are set for use with an Audio Technica AT871R or AT841R microphone in an average video meeting room. The gain can be adjusted correctly for a wide range of microphones.<br>**AUDIO** 3-4: The audio inputs 3 and 4 are set to a default level which is adhered to by most manufacturers of audio-visual equipment and is a level at which most audio-visual equipment (CD-players, VCRs or DVDs) will work. | Note! The level should be adjusted so that the Peak Performance meter never reaches the maximum value. This will avoid the Acoustic Echo Canceller to malfunction due to overload of the microphone.<br>Some examples of microphone levels<br>Audio Technica AT871R +3dB (default)<br>Audio Technica AT841R +3dB<br>TANDBERG Audio Science microphone levels:<br>Audio Technica AT-861PZ +3dB<br>Crown PZM-6D +19.5dB<br><br>See the Interfaces in the Peripheral Equipment section for more information on this topic for your product.<br>* TANDBERG 550 MXP has Audio 2 and Headset Mic | 3000<br>Tactical<br>990/880/770<br>550<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>AUDIO OUTPUTS | **AUDIO OUT 1-3**<br>*Applies to: 8000* MXP, *6000* MXP *Profile, Maestro* MXP<br>**OUT1:** is intended for connection to TANDBERG Digital Natural Audio Module, televisions or audio amplifiers.<br>**OUT2 (AUX):** is intended for connection to audio recording equipment or to a telephone add-on hybrid. The signal is a mix of audio from both the far end and local end (not from Audio in 5).<br>If an output is Off, no audio will be sent to that output.<br>Do not connect Out2 (AUX) to a loudspeaker placed in the same room as the microphones connected to the system. This will cause “howling” and possible damage to the speaker system.<br>**OUT3 (VCR):** is intended for connection to a VCR or other recording equipment. The signal is a mix of audio from far end and local end (not from Audio in 6). If an output is Off, no audio will be sent to that output.<br>Do not connect Out3 (VCR) to a loudspeaker placed in the same room as the microphones connected to the system. This will cause “howling” and possible damage to the speaker system. | **NOTE!** The Audio Out 2 or Audio Out 3 should never be connected to a loudspeaker placed in the same room as the microphones connected to the system. This will cause “howling” and possible damage to the speaker system.<br>The different system can have different numbers of Audio Inputs. See Interfaces in the Peripheral Equipment section for more information on this topic for your product.<br>When no audio module is detected, audio outputs can be:<br>• Out 2 for VCR Left<br>• Out 3 for VCR Right. | 8000<br>6000<br>Maestro |
| Control Panel ><br>Audio ><br>AUDIO OUTPUTS | **AUDIO OUT 1-2***<br>*Applies to: 3000* MXP *Profile, Tactical* MXP, *990/880/770* MXP, *550* MXP, *Edge 95/85/75* MXP<br>**OUT1:** is intended for connection to televisions or audio amplifiers.<br>**OUT2 (AUX):** is intended for connection to a VCR or other recording equipment. The signal is a mix of audio from far end and local end (except VCR in). | **NOTE!** The Audio Out 2 should never be connected to a loudspeaker placed in the same room as the microphones connected to the system. This will cause “howling” and possible damage to the speaker system. If an Output is set to Off, no audio will be sent to that output.<br>When no audio module is detected, audio outputs can be:<br>• Out 1 for VCR Left<br>• Out 2 for VCR Right.<br>* TANDBERG 550 MXP has one Audio Output (see Out1) | 3000<br>Tactical<br>990/880/770<br>550<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>AUDIO OUTPUTS | **OUT 1 MODE**<br>Set the mode for the Audio Out 1. The default mode is Auto.<br>**ANALOG:** Setting the Out 1 Mode to Analog will override the auto-detected mode.<br>**SPDIF (DIGITAL):** Setting the Out 1 Mode to SPDIF (Digital) will override the auto-detected mode.<br>**AUTO:** If Out 1 Mode is set to Auto, the system will select ANALOG or SPDIF (Digital) mode dependent on the detected Audio Module. If a TANDBERG Digital NAM is detected the SPDIF mode will be selected, otherwise analog mode will be selected.<br>See Stereo Settings for additional information.<br>• When Analog Mode is selected and the Stereo Speakers set to On, this will provide a stereo loudspeaker signal on Audio out 1 and 2.<br>• When SPDIF Mode is selected you are can receive stereo through Audio Out 1 independent of the Stereo I/O Mode setting.<br>• If both Stereo I/O Mode and Stereo Speakers are set to Off, the output response will be a mono loudspeaker signal on Audio Out 1, AUX on Audio Out 2 and VCR on Audio Out 3 regardless on the Audio Out 1 Mode setting. | See Interfaces in the PERIPHERAL EQUIPMENT section for more information on this topic for your product.<br>SPDIF - Sony/Philips Digital Interface | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770<br>95/85/75 |
| Control Panel ><br>Audio ><br>AUDIO OUTPUTS | **AUDIO MODULE**<br>This menu item is only available if the audio module is unidentified, otherwise it is hidden.<br>If the system has automatically detected Digital NAM (DNAM - Digital Natural Audio Module), then this menu item will not be available.<br>If the Audio Module is unidentified you will be allowed to select an Audio Module according to the type of Audio Module installed.<br>The audio module options are:<br>• NAMII-T6000<br>• NAMII-T8000<br>• Digital NAM<br>• None | | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770<br>550<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>Audio Outputs ><br>LEVEL SETTINGS | **OUTPUT LEVEL SETTINGS - OUT 1-3**<br>*Applies to: 8000* MXP, *6000* MXP *Profile, Maestro* MXP<br>Adjust the audio output levels according to the parameters of the external audio equipment connected. These levels should only be adjusted when installing new audio equipment. The default settings are correct for the TANDBERG Digital Natural Audio Module (DNAM) and for most consumer electronics devices (televisions, VCRs, etc.). Use the volume keys on the remote control to adjust the level of output 1 (the speaker output). The volume control has no effect on other outputs.<br>**OUT1:** is intended for connection to TANDBERG Digital Natural Audio Module, televisions or audio amplifiers. Set the maximum level. The nominal level is -10,0 dBu.<br>**OUT2 (AUX):** is intended for connection to audio recording equipment or to a telephone add-on hybrid. The signal is a mix of audio from both the far end and local end (not from Audio in 5). Set the maximum level. The nominal level is -10,0 dBu.<br>**OUT3 (VCR):** is intended for connection to a VCR or other recording equipment. The signal is a mix of audio from far end and local end (not from Audio in 6). Set the maximum level. The nominal level is -10,0 dBu. | See the Interfaces in the PERIPHERAL EQUIPMENT section for more information on this topic for your product.<br>When no audio module is detected, audio outputs can be:<br>• Out 2 for VCR Left<br>• Out 3 for VCR Right. | 8000<br>6000<br>Maestro |
| Control Panel ><br>Audio ><br>Audio Outputs ><br>LEVEL SETTINGS | **OUTPUT LEVEL SETTINGS - OUT 1-2***<br>*Applies to: 3000* MXP *Profile, Tactical* MXP, *990/880/770* MXP, *550* MXP, *Edge 95/85/75* MXP<br>Adjust the audio output levels according to the parameters of the external audio equipment connected. These levels should only be adjusted when installing new audio equipment. The default settings are correct for the TANDBERG Digital Natural Audio module and for most consumer electronics devices (televisions, VCRs, etc.). The volume keys on the remote control adjust the level of output 1 (the speaker output). The volume control has no effect on other outputs..<br>**OUT1:** is intended for connection to televisions or audio amplifiers. Set the maximum level. The nominal level is -10,0 dBu.<br>**OUT2 (AUX):** is intended for connection to a VCR or other recording equipment. The signal is a mix of audio from far end and local end (except VCR in). Set the maximum level. The nominal level is -10,0 dBu. | See the Interfaces in the PERIPHERAL EQUIPMENT section for more information on this topic for your product.<br>When no audio module is detected, audio outputs can be:<br>• Out 1 for VCR Left<br>• Out 2 for VCR Right.<br>* TANDBERG 550 MXP has one Audio Output (see Out1). | 3000<br>Tactical<br>990/880/770<br>550<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>ECHO CONTROL | **MIC 1-3* AND AUDIO 4***<br>Lets you control the Echo Canceller and Noice Reduction at your system by configuring the Echo Control settings.<br>Each of the three microphone Inputs and Audio Input 4 has a separate Acoustic Echo Canceller. One Acoustic Echo Canceller per input provides more sophisticated control than having one common canceller for all microphones.<br>The system also has built-in Noise Reduction (NR). NR reduces constant background noise (e.g. noise from air-conditioning systems, cooling fans etc.). In addition, a high pass filter (Humfilter) reduces very low frequency noise.<br>**ON:** Echo Control is normally set to On to prevent the far end from hearing their own audio. Once selected, echo cancellation is active at all times. The echo canceller continuously adjusts itself to the audio characteristics of the room and compensate for any changes it detects in the audio environment. If the changes in the audio conditions are very significant the echo canceller may take a second or two to re-adjust.<br>**OFF:** You can choose to switch off the Echo Canceller for the available audio sources. Echo Control should be switched Off if external echo cancellation or playback equipment is used.<br>**ON+NR:** Activates both Echo Control and Noise Reduction.<br><br>**NOTE!** It is your Acoustic Echo Canceller that improves the audio quality experienced by the other side. When you hear an echo of your own audio it is most likely the far end's Acoustic Echo Canceller that is malfunctioning.<br>**NOTE!** If Stereo Speakers are enabled in the menu without having any stereo speakers connected to the Digital NAM, it may cause the acoustic echo-canceller to malfunction.<br><br>* TANDBERG 3000 MXP Profile, 990/880/770 MXP, 95/85/75 MXP do not have Mic 3 and Audio 4 inputs. | Improving the echo canceller performance:<br>• Place all microphones as far as possible from the loudspeakers. Minimum loudspeaker-microphone distance should be two meters (6.5 ft).<br>• We recommend placing the microphones 1-2 meters away from the persons speaking. By using several microphones, the ratio distance loudspeaker-to-mic/mic-to-speaker can be increased. Increasing this ratio improves the echo canceller performance.<br>• Place the microphones as far as possible from noise sources.<br>• Reduce the volume setting. Ensure that the loudspeakers do not distort the audio.<br>• The echo canceller tries to estimate the echo path from the speaker system to the microphones. Moving objects change this path; therefore try to avoid moving objects. Be especially aware of large objects and objects placed close to either the microphone or the speaker system as these objects will cause severe changes to the echo path.<br>• Avoid putting paper sheets etc. on the microphone.<br>• Avoid moving the microphone or loudspeaker.<br>• In the presence of low frequency noise, enable the noise reduction (NR). | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Audio ><br>STEREO SETTINGS | **STEREO I/O MODE**<br>**ON:** If Stereo I/O Mode is On the Audio Input 5 and 6 and Audio Output 2 and 3 will behave as a stereo input/output pair (VCR-left and right). The VCR Ducking and AGC setting for Audio Input 6 will in this case apply to both Audio Input 5 and 6. The Audio Out 2 (VCR-left stereo channel) will be a mix of the microphones and the far end left channel. Audio Out 3 (VCR-right stereo channel) will be a mix of the microphones and the far end right channel.<br>**NOTE:** If stereo speakers are set to On in analog mode, they will provide a different scheme. See the Interfaces in the Peripheral Equipment section for more information on this topic for your product.<br>**OFF:** If Stereo I/O Mode is Off the Audio Out 2 will be a mix of Audio Input 6, microphones and the far end (the received far end signal is either mono or stereo that is blended into mono in the near end codec). Audio Out 3 will be a mix of Audio Input 5, microphones and the far end. Note that stereo speakers set to On in analog mode will provide a different scheme.<br>• If the Out1 Mode is set to Analog mode and the Stereo Speaker is set to On, this will provide a stereo loudspeaker signal on Audio out 2 and 3.<br>• If the Out1 Mode is set to SPDIF mode you are able to receive stereo through Audio Out 1 independent of the Stereo I/O Mode setting.<br>• When both Stereo I/O Mode and Stereo Speakers is set to Off, the output response will be a mono loudspeaker signal on Audio Out 1, AUX on Audio Out 2 and VCR on Audio Out 3 regardless on the Audio Out 1 Mode setting. | T d P (DIGITAL NATURAL AUDIO MODULE)<br>If the system is connected to a Digital NAM, the stereo sound on the loudspeakers will be present if a stereo input signal is connected to the inputs VCR-Left and VCR-Right, or a stereo signal is received from the Far End.<br>If the system is not connected to a Digital NAM, stereo sound on the loudspeaker outputs will be present in the following situations:<br>• If the system is idle and a stereo input signal is connected to the inputs VCR-Left and VCR-Right.<br>• If the system is in a call with the microphone off and a stereo input signal is connected to the inputs VCR-Left and VCR-Right, or a stereo signal is received from the Far End.<br>Otherwise the Loudspeaker Left signal will be equal to Loudspeaker Right.<br>SPDIF - Sony/Philips Digital Interface | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770<br>95/85/75 |
| Control Panel ><br>Audio ><br>STEREO SETTINGS | **STEREO SPEAKERS**<br>**ON:** Set the Stereo Speakers to On to enable stereo output signal to the loudspeaker.<br>**OFF:** Set the Stereo Speakers to Off to disable stereo output signal to the loudspeaker.<br>When both Stereo I/O Mode and Stereo Speakers is set to Off, the output response will be a mono loudspeaker signal on Audio Out 1, AUX on Audio Out 2 and VCR on Audio Out 3 regardless on the Audio Out 1 Mode setting. | See the Interfaces in the Peripheral Equipment section for more information on this topic for your product. | 8000<br>6000<br>3000<br>Tactical<br>Maestro<br>990/880/770<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Audio > AUDIO LEVELING | **AUDIO LEVELING (AGC)**<br>AGC - Automatic Gain Control of Mics, AUX, VCR and Received Audio.<br>The AGC (Automatic Gain Control) controls the audio level from MICs, AUX, VCR and Received Audio so that strong signals are attenuated and weak signals are amplified. This makes it easier to hear all participants in a conference.<br>**ON:** Set Audio Leveling On to allow automatic adjustments (Automatic Gain Control) of the audio levels from Mics, AUX, VCR and Received Audio.<br>When On, the AGC maintains the audio signal level at a fixed value by attenuating strong signals and amplifying weak signals. Very weak signals, i.e. noise alone, will not be amplified.<br>**OFF:** Audio Leveling is not activated.<br>When applying a weak signal in the presence of strong background noise, the AGC might amplify the background noise as well as the signal. Therefore, in noisy environments, it is advisable to turn the AGC off. | In most conferences, the participants will speak at different levels, and be at different distances from the microphones. As a result, some of the participants will be harder to hear than others.<br>The AGC (Automatic Gain Control) corrects this problem by automatically increasing the microphone levels when “quiet” or “distant” people speak, and by decreasing the microphone levels when “louder” people speak.<br>**TIP!** To ensure correct behavior of the AGC (Automatic Gain Control), it is crucial that the levels on the input connectors are adjusted correctly using the audio input level settings. The AGC will not compensate for severe maladjustment of input levels. | 8000<br>6000<br>3000<br>Tactical<br>Maestro<br>990/880/770<br>95/85/75 |
| Control Panel > Audio > ALERT TONES & VOLUME | **VIDEO CALL ALERT TONE**<br>Lets you choose tone that will sound when you have an incoming video call.<br>Use the vertical Arrow keys on the remote control to move up and down in the Alert tone list. Press OK to listen to the alert tone selected. To stop playing the alert tone, use the vertical Arrow keys to move away from the menu item.<br>Upon leaving the entire menu, you will be prompted to confirm any changes you may have made. | **TIP!** To make it easy to distinguish between incoming video calls and ordinary telephone calls, we recommend the use of different ringing tones for video and telephone calls. | All MXP systems |
| Control Panel > Audio > ALERT TONES & VOLUME | **TELEPHONE ALERT TONE**<br>Lets you choose tone that will sound when you have an incoming audio call..<br>Use the vertical Arrow keys on the remote control to move up and down in the Alert tone list. Press OK to listen to the alert tone selected. To stop playing the alert tone, use the vertical Arrow keys to move away from the menu item.<br>Upon leaving the entire menu, you will be prompted to confirm any changes you may have made. | **TIP!** To make it easy to distinguish between incoming video calls and ordinary telephone calls, we recommend the use of different ringing tones for video and telephone calls. | All MXP systems |
| Control Panel > Audio > ALERT TONES & VOLUME | **ALERT VOLUME**<br>Set the volume (0-15) of the Alert signals. | | All MXP systems |
| Control Panel > Audio > ALERT TONES & VOLUME | **ALERT SPEAKER**<br>For systems with an internal alert speaker the speaker can be turned On/Off.<br>**ON:** The internal speaker will warn you of an incoming call, even though the monitor may not be switched on.<br>**OFF:** The internal speaker is switched off. | | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>990/880/770550<br>95/85/75 |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Audio > ALERT TONES & VOLUME | **KEY TONES**<br>The unit can produce a sound every time a remote control key is pressed.<br>**ON:** There will be a sound indicator when pressing keys on the remote control<br>**OFF:** The remote control Key Tones is switched off. | | All MXP systems |
| Control Panel > Audio > GRAPHICAL VIEW | **GRAPHICAL VIEW**<br>The graphical view is a visual presentation of the connection between the audio inputs and outputs.<br>You can play a test tone that will appear at the outputs selected. To play a test tone, navigate to any of the Inputs or Outputs and click OK. The green dots indicates connection and when you play the test tone the "marching ants" will show you the signal flow. | The Graphical View menu is only available on video systems with audio inputs and audio outputs. | Not: T1000, Compass and Utility |
| Control Panel > Audio > GRAPHICAL VIEW | **TEST TONE**<br>Select a tone from the list. You may use any of the alert signals as Test Tone signal. | The Graphical View menu is only available on video systems with audio inputs and audio outputs. | Not: T1000, Compass and Utility |
| Control Panel > Video > | **CAMERA TRACKING MODE**<br>The Camera Tracking Mode controls how fast the camera should zoom in on a single person speaking.<br>**SLOW:** The system waits a while before zooming in on a single person speaking. Suitable when wide-angle images are preferred over close-up images.<br>**NORMAL:** Should be used in regular meetings.<br>**FAST:** The system quickly zooms in on a single person speaking. Suitable when close-ups are preferred over wide-angle images. | This menu entry is available only if using the TANDBERG PrecisionHD Camera or the WAVE II Camera. | MXP systems with Precision HD camera or WAVE II camera (not 550 nor 1000) |
| Control Panel > Video > | **MCU STATUS LINE**<br>The MultiSite, MCU and DuoVideo status info can be displayed whenever applicable, not displayed at all, or displayed for a short time. The information is displayed on the MCU Status Line, which appear on top of the screen and provides information about the conference.<br>**AUTO:** The MultiSite, MCU and DuoVideo status info will be displayed for a few seconds and then timed out. When the remote control is moved, the indicators will be shown again.<br>**ON:** The MultiSite, MCU and DuoVideo status info will be displayed on the MCU status line to provide information about the conference.<br>**OFF:** The MultiSite, MCU and DuoVideo status info will not be displayed. | MCU is short for Multipoint Conference Unit, a device used to connect multiple audio and video sites in one or more IP, ISDN and mixed IP & ISDN video meetings. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Video > | **FLOOR TO FULL SCREEN**<br>With the Floor to Full Screen setting you can decide where the picture shall be displayd when a participant requests the floor.<br>**ON:** When Floor to Full Screen is set to On, anyone who requests floor will be seen by all participants in full screen, regardless of what MultiSite layout that is used.<br>**OFF:** The participant who has the floor is displayed in the MultiSite layout that is used rather than in full screen. E.g. someone who requests floor in a MultiSite conference using the 5+1 layout will be seen in the large square. | Example: If the Floor to Full Screen is set to Off, then the participant who request the floor will be displayed in the large square. | All MXP systems with MultiSite option |
| Control Panel > Video > | **WEB SNAPSHOTS**<br>The system can generate JPEG snapshots of the picture on screen and provide them when requested via a web interface (as http or via ftp get).<br>**ON:** The generation of Web Snapshots is enabled.<br>**OFF:** The generation of Web Snapshots is disabled (default).<br>**NOTE!** Web snapshots are not generated if the conference is encrypted. | About web snapshot files<br>It is possible to access a file system within the TANDBERG system by means of ftp. The web snapshot files available are:<br>• `Mv:x□□dSh` - Snapshot of current stream if MultiSite.<br>• `C/vf□dSh` - Snapshot of selfview.<br>• `Mv:x□□dSh` - Snapshot of decoded stream if point-to-point.<br>• `i<R□dSh` - Snapshot of either the encoded stream (if transmitting DuoVideo) or the decoded stream (if receiving DuoVideo). | All MXP systems |
| Control Panel > Video > | **MULTISITE PICTURE MODE**<br>MultiSite Picture Mode determines the default layout of a MultiSite call. A meeting with more than two participants will make use of MultiSite.<br>You can change the layout during a call using the Layout option in MultiSite Services.<br>**AUTO SPLIT:** Displays all participants on the screen simultaneously. A MultiSite call with 3 or 4 video participants is displayed with 4 Split. A MultiSite call with 5 or 6 video participants is displayed with 5+1 Split.<br>**VOICE SWITCHED:** Displays the participant that is speaking in full screen.<br>**4 SPLIT:** Displays the four latest speaking Participants.<br>**5+1 SPLIT:** Displays the speaking participant in a big picture and the other participants in small pictures. | | All MXP systems with MultiSite option |
| Control Panel > Video > VIDEO NAME | **VIDEO 1-4, VGA, VNC**<br>The number of video inputs (video 1-4) can vary between the different video systems.<br>As a default, the video inputs are given the names Main Cam, PC, Doc Cam, VCR, AUX and VNC, depending on the video sources available on your system. You may change these names to your liking. Note, however, that the video names cannot exceed eight characters. | **NOTE!** The options available in the Video Name dialog box correspond to the video sources available on your system. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Security Settings > | **ENCRYPTION**<br>Provided that all parties participating have equipment supporting encryption, video meetings may be set up using encrypted communication.<br>**OFF:** The system will not send or receive encrypted data.<br>**ON:** The system will send and receive encrypted data only. The call will not be established unless all participants supports encryption.<br>**AUTO:** The system will try to set up calls using encryption.<br>• Point to point calls: If the far end system supports encryption (AES or DES), the call will be encrypted. If not, the call will proceed without encryption.<br>• MultiSite calls*: In order to have encrypted MultiSite calls, all sites must support encryption. A padlock symbol on screen will indicate the encryption mode (AES or DES). If there is a mix of AES and DES encryption, only the symbol for DES encryption (single padlock) will be displayed. The 'closed padlock' will only be displayed on each site when all links in the MultiSite conference are encrypted.<br>* Only available on systems with MultiSite option supported and installed. | See the Diagnostics > Call Status menu for information about the encryption algorithm and the encryption check code. | All MXP systems |
| Control Panel > Security Settings > | **ENCRYPTION MODE**<br>Let you choose between AES, DES, or have the system itself find the mode that all parties support.<br>**AES (128 BIT):** The system will try to use AES with 128 bits encryption when setting up calls. If AES is not supported by the other site(s), no other type of encryption will be initiated.<br>**DES (56 BIT):** The system will try to set up the call using DES with 56 bits encryption. If none of the other sites support DES, no other type of encryption will be initiated.<br>**AUTO:** The system will try to use the most secure encryption – AES (128 bit) – depending on the capabilities of the other sites. For sites that do not support AES encryption, DES (56 bit) encryption will be tried. | Both AES and DES encryption are supported for mixed ISDN*/ IP calls.<br>Both AES and DES encrypted sites can be connected at the same time.<br>* 1700 MXP does not support ISDN. | All MXP systems |
| Control Panel > Security Settings > | **ADMINISTRATOR PASSWORD**<br>See Administrator Password in Control Panel > Menu Settings. | Using the Security menu gives you a good overview and a quick way to change the security passwords of the system. | All MXP systems |
| Control Panel > Security Settings > | **IP ACCESS PASSWORD**<br>See IP Access Password in Control Panel > Network Settings > LAN Settings. | The IP Access Password is case sensitive. | All MXP systems |
| Control Panel > Security Settings > | **STREAMING PASSWORD**<br>See Streaming Password in Call Menu > Streaming Settings. | | All MXP systems |
| Control Panel > Security Settings > | **VNC PASSWORD**<br>See VNC Password in Control Panel > Presentation Settings. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Security Settings > | **REMOTE UPGRADE PASSWORD**<br>Set the password to be used for remote software upgrade. The default password is blank.<br>In addition to the password, remote software upgrade must be enabled. Go to: Control Panel > General Settings > Permissions > Far End ISDN System Upgrade. | | All MXP systems with ISDN |
| Control Panel > Security Settings > | **CAMERA STANDBY MODE**<br>Camera Standby Mode enables the camera to turn away when the system is inactive, which makes it easy to make a visual check to see if the system is active or in standby mode.<br>**ON:** The camera turns away when standby mode is activated and turns back to normal position when the system is active.<br>**OFF:** The camera will always stay in normal position and will not turn away when standby mode is active. | | All MXP systems with controllable camera |
| Control Panel > Security Settings > | **FIPS MODE**<br>When FIPS mode is enabled, the video system will operate according to NIST FIPS 140-2 Level 1 requirements. This means that only services and cryptographic algorithms that are accepted according to this standard will be used. Options and menu items which is not approved will be grayed out and/or not be selectable in the menus.<br>NIST issues certificates to products that has been verified and tested to comply with this standard, as of this writing TANDBERG is in the process of obtaining such a certificate.<br>**ON:** The codec is operating according to FIPS 140-2 Level 1 requirements. Due to these requirements, some menus are disabled in FIPS mode.<br>**OFF:** The codec is operating with full feature set enabled. | Read about FIPS Mode in the Appendices section to learn about how to activate/deactivate FIPS Mode and how to upload a Certificate and to view a list of the menus disabled in FIPS mode<br>FIPS - Federal Information Processing Standards.<br>NIST - National Institute of Standards and Technology, the issuer of validation certificates.<br>Certificate - Text file which indicates a trusted third party (issuer or CA) verifying the authenticity of the unit (in this context).<br>CA - Certificate authority, issuer of (root) certificates. | All MXP systems |
| Control Panel > Network > ISDN *or* ISDN, EXTERNAL, LEASED E1/T1 | **NETWORK TYPE**<br>Before using the system it is necessary to specify which network to use and define its settings.<br>**NONE:** No network type is selected.<br>**ISDN-BRI:** Select ISDN-BRI if you have an ISDN-BRI connection. Enter the ISDN-BRI Settings menu to set the parameters.<br>**ISDN-PRI:** Select ISDN-PRI* if you have an ISDN-PRI connection. Enter the ISDN-PRI Settings menu to set the parameters.<br>**LEASED E1/T1:** Select Leased E1/T1* if you have a Leased E1/T1 connection. Enter the Leased E1/T1 Settings menu to set the parameters.<br>**EXTERNAL:** Select External if the network is set up by RS449, V.35, X.21 or you connect to ISDN via an external IMUX. Enter the External Network Settings menu to set the parameters.<br>* Note that both Leased E1/T1 and ISDN-PRI uses the same interface on the codec marked E1/T1 | BZ–¥Kkl+cb/+cbYU+Bd ri c+Wd+BldN P S d<br>Enter the ISDN-BRI Settings menu and set the parameters:<br>1. Set ISDN-BRI switch type<br>2. Enter ISDN-BRI line numbers (+ SPIDs if required)<br>3. Disable unused ISDN-BRI lines<br>4. Set the Advanced ISDN Settings<br>BZ–¥Kkl+cb/+cbYU+Bd ri c+Wd+BldN P ES d<br>Enter the ISDN-PRI Settings menu and set the parameters:<br>1. Set ISDN-PRI switch type<br>2. Enter ISDN-PRI line number range<br>3. Enter the ISDN-PRI Channel Hunting settings<br>4. Configure the ISDN-PRI Line Settings<br>5. Set the Advanced ISDN Settings<br>6. Set the Advanced ISDN-PRI Settings | All MXP systems with ISDN |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > ISDN > *or* ISDN, External, Leased E1/T1 > ISDN-BRI SETTINGS | **ISDN SWITCH TYPE**<br>Select the type of ISDN network connected to your unit.<br>Note that 1TR6 should only be used if you are operating the system behind a PABX. | | All MXP systems with ISDN-BRI |
| Control Panel > Network > ISDN > *or* ISDN, External, Leased E1/T1 > ISDN-BRI SETTINGS | **AUTO BRI CONFIG**<br>The Auto-BRI Config setting is only applicable after the ISDN Switch Type is set to National ISDN and the change has been saved.<br>**ON:** When set to On, the system retrieves SPID (Service Profile Identifier) values automatically from the network. Not supported by all National ISDN networks.<br>**OFF:** When set to Off the SPID is to be set manually. | | All MXP systems with ISDN-BRI |
| Control Panel > Network > ISDN > *or* ISDN, External, Leased E1/T1 > ISDN-BRI Settings LINE 1-6 SETUP | **LINE ENABLE**<br>Select Line Setup for the ISDN-BRI Line you want to configure. Enable the active lines and disable the unused lines. Note that Line 1 should always be enabled.<br>**ON:** When set to On the ISDN-BRI line is enabled. Line 1 should always be enabled.<br>**OFF:** When set to Off the ISDN-BRI line is disabled. Unused ISDN-BRI lines must be disabled. | Some software versions do not support 6 ISDN-BRI lines. If so, some of the Line Setup entries may be grayed out. | All MXP systems with ISDN-BRI |
| Control Panel > Network > ISDN > *or* ISDN, External, Leased E1/T1 > ISDN-BRI Settings LINE 1-6 SETUP | **NUMBER 1, NUMBER 2**<br>Select Line # Setup for the ISDN-BRI Line you want to configure. Enable the active lines and disable the unused lines.<br>Enter the numbers associated with your ISDN-BRI lines.<br>Most BRI's with SPID's are area code and number at the end, like so: | | All MXP systems with ISDN-BRI |
| Control Panel > Network > ISDN > *or* ISDN, External, Leased E1/T1 > ISDN-BRI Settings LINE 1-6 SETUP | **SPID1, SPID2**<br>If your ISDN-BRI Switch Type is NATIONAL ISDN or AT&T CUSTOM ISDN, they might require SPID (Service Profile IDentifier) numbers associated with your ISDN-BRI numbers.<br>If you have received two different SPID numbers for each ISDN-BRI line from your network provider, you must enter both numbers. | | All MXP systems with ISDN-BRI |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>ISDN > *or*<br>ISDN, External, Leased E1/T1 ><br>ISDN-BRI Settings ><br>ADVANCED ISDN SETTINGS | **SUB ADDRESS**<br>Using a Sub Address enables you to connect up to eight ISDN terminals to the same ISDN telephone number and line. The terminals are addressed by using different sub addresses.<br>To call a terminal with a sub address, separate the ISDN telephone number and the sub address with a '*'.<br>Example: □□□□□□□□□□ (up to four digit sub addresses are possible) | This service is dependent on your service provider and has limited access on some ISDN networks. | All MXP systems with ISDN-BRI |
| Control Panel ><br>Network ><br>ISDN > *or*<br>ISDN, External, Leased E1/T1 ><br>ISDN-BRI Settings ><br>ADVANCED ISDN SETTINGS | **VALIDATE NUMBERS (MSN)**<br>The use of MSN (Multiple Subscriber Number) enables you to attach different ISDN terminals, with different numbers, to the same physical ISDN telephone line. If available this service can be ordered from your telephone company.<br>**ON:** When set to On only calls to the numbers specified in the Line Setup menus will be answered.<br>**OFF:** When set to Off all calls will be answered. | MSN - Multiple Subscriber Number | All MXP systems with ISDN-BRI |
| Control Panel ><br>Network ><br>ISDN > *or*<br>ISDN, External, Leased E1/T1 ><br>ISDN-BRI Settings ><br>ADVANCED ISDN SETTINGS | **PARALLEL DIAL**<br>Parallel Dial is used when setting up bonded calls.<br>**ON:** Channels will be dialed and connected in parallel when setting up a BONDING call.<br>**OFF:** Channels will be dialed one by one, which may increase the dialing time. | Bonded ISDN calls - The bridging of two or more ISDN channels to achieve higher data rates. | All MXP systems with ISDN-BRI |
| Control Panel ><br>Network ><br>ISDN > *or*<br>ISDN, External, Leased E1/T1 ><br>ISDN-BRI Settings ><br>ADVANCED ISDN SETTINGS | **SEND OWN NUMBERS**<br>**ON:** The system will send its own numbers to the far end.<br>**OFF:** The system will not send its own numbers to the far end, but please note that the network may still send your numbers to the far end. | | All MXP systems with ISDN-BRI |
| Control Panel ><br>Network ><br>ISDN > *or*<br>ISDN, External, Leased E1/T1 ><br>ISDN-BRI Settings ><br>ADVANCED ISDN SETTINGS | **SENDING COMPLETE**<br>Some PBX's and Telco switches need to see the Sending Complete message.<br>**ON:** The system will send the ISDN message information element Sending Complete.<br>**OFF:** The system will not send Sending Complete. Default is "Off" | | All MXP systems with ISDN-BRI |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > ISDN, External, Leased E1/T1 > ISDN-PRI SETTINGS | **ISDN-PRI NUMBER RANGE**<br>Enter the range of numbers for your ISDN-PRI line. If these numbers are programmed and MSN is On, only calls to these numbers will be answered.<br>See also Validate numbers (MSN) in the Advanced ISDN-PRI Settings. | | All MXP systems which has ISDN-PRI |
| Control Panel > Network > ISDN, External, Leased E1/T1 > ISDN-PRI SETTINGS | **ISDN-PRI SWITCH TYPE**<br>Select the type of ISDN-PRI switch to which your system is connected.<br>The ISDN-PRI Switch Type is not changed when Restoring Defaults. | Below is a list of common ISDN-PRI/T1 switches.<br>Type / Manufacturer / ISDN-PRI Switch Type<br>ATT 4ESS / AT&T / AT&T ISDN<br>ATT 5ESS / AT&T, Lucent / AT&T ISDN or National ISDN*<br>DMS 100 / Nortel Networks / National ISDN<br>DMS 250 / Nortel Networks / National ISDN | All MXP systems which has ISDN-PRI |
| Control Panel > Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings > CHANNEL HUNTING | **CHANNEL HUNTING**<br>**MAX CHANNELS:** Set the maximum number of channels the system may use at any given time. Max Channels may be used for PRIs that are provisioned for a lower number of channels.<br>**LOW CHANNEL:** Set the lowest numbered B-channel that may be used by the system when selecting channels for outgoing calls. Low Channel may be used for PRIs provisioned with specific requirements for B-channel usage.<br>**HIGH CHANNEL:** Set the highest numbered B-channel that may be used by the system when selecting channels for outgoing calls. High Channel may be used for PRIs provisioned with specific requirements for B-channel usage<br>**SEARCH:** Specifies where the system will start searching for available B-channels for outgoing calls. Search may be used for PRIs provisioned with specific requirements for B-channel usage.<br>**HIGH:** The system will start searching for available B-channels at the specified High Channel number.<br>**LOW:** The system will start searching for available B-channels at the specified Low Channel number. | The system will start searching for available B-channels at channel 31, since Search is set to High and High Channel is set to 31.<br>The system will search for channels down to channel no 1, since Low Channel is set to 1.<br>Furthermore; if the user tries to make a 31 channel call, the call will be established with 30 channels, since Max Channels is set to 30. | All MXP systems which has ISDN-PRI |
| Control Panel > Network > ISDN, External, Leased E1/T1 > ISDN-PRI Settings > LINE SETTINGS | **T1 CABLE LENGTH 1**<br>Configures the ISDN-PRI Line Settings.<br>Specify the distance (0-133 ft) of the CSU connected to the E1/T1 Port 1 on Codec 1. | CSU - Channel Service Unit | All MXP systems which has ISDN-PRI |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>LINE SETTINGS | **E1 CRC-4**<br>E1 CRC-4 is used for most E1-PRI configurations.<br>**ON:** Select On if E1 CRC-4 is supported by your E1 network equipment.<br>**OFF:** Select Off if E1 CRC-4 is not supported by your E1 network equipment. | CRC - Cyclic Redundancy Check | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN SETTINGS | **SUB ADDRESS**<br>Using a Sub Address enables you to connect up to eight ISDN terminals to the same ISDN telephone number and line. The terminals are addressed by using different sub addresses.<br>To call a terminal with a sub address, separate the ISDN telephone number and the sub address with a '*'.<br>Example: □□□□□□□□□□ (up to four digit sub addresses are possible) | This service is dependent on your service provider and has limited access on some ISDN networks. | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN SETTINGS | **VALIDATE NUMBERS (MSN)**<br>The use of MSN (Multiple Subscriber Number) enables you to attach different ISDN terminals, with different numbers, to the same physical ISDN telephone line. If available this service can be ordered from your telephone company.<br>**ON:** When set to On only calls to the numbers specified in the Line Setup menus will be answered.<br>**OFF:** When set to Off all calls will be answered. | MSN - Multiple Subscriber Number | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN SETTINGS | **PARALLEL DIAL**<br>Parallel Dial is used when setting up bonded calls.<br>**ON:** Channels will be dialed and connected in parallel when setting up a BONDING call.<br>**OFF:** Channels will be dialed one by one, which may increase the dialing time. | Bonded ISDN calls - The bridging of two or more ISDN channels to achieve higher data rates. | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN SETTINGS | **SEND OWN NUMBERS**<br>**ON:** The system will send its own numbers to the far end.<br>**OFF:** The system will not send its own numbers to the far end, but please note that the network may still send your numbers to the far end. | | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN SETTINGS | **SENDING COMPLETE**<br>Some PBX's and Telco switches need to see the Sending Complete message.<br>**ON:** The system will send the ISDN message information element Sending Complete.<br>**OFF:** The system will not send Sending Complete. Default is "Off" | | All MXP systems which has ISDN-PRI |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN-PRI SETTINGS | **NSF CODE VIDEO CALL**<br>Network Service Facility (NSF) is a non-standard facility and your network provider may require a service selection in your ISDN configuration.<br>**ON:** Set Mode to On and enter the NSF Service Code.<br>**OFF:** Set Mode to Off to disable the NSF Service Code. | NSF - Network Service Facility | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>ISDN-PRI Settings ><br>ADVANCED ISDN-PRI SETTINGS | **NSF CODE TELEPHONE CALL**<br>Network Service Facility (NSF) is a non-standard facility and your network provider may require a service selection in your ISDN configuration.<br>**ON:** Set Mode to On and enter the NSF Service Code.<br>**OFF:** Set Mode to Off to disable the NSF Service Code. | NSF - Network Service Facility<br><br>AT&T offers several digital switched services. These include SDN with service code 1 and ACCUNET with service code 6. For more infor see NSF Service Codes in Appendices. | All MXP systems which has ISDN-PRI |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>LEASED E1/T1 SETTINGS | **CALL CONTROL**<br>Set the maximum number of channels the system may use at any Call Control.<br>**AUTO:** When Auto is selected, the system will automatically initiate a connection as soon as it detects that the far end tries to make a call. This mode is also commonly known as “data triggered” mode, because the existence of certain data patterns on the line triggers a connection.<br>**MANUAL:** When manual is selected, the user has to explicitly issue a dial command to make the system connect to the far end system. Receiving an incoming call is not possible. | | Systems with leased line |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>LEASED E1/T1 SETTINGS | **NETWORK INTERFACE**<br>Indicates if the network is of type E1 (30 channels) or T1 (24 channels).<br>**E1:** Default for PAL versions<br>**T1:** Default for NTSC versions. | | Systems with leased line |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>LEASED E1/T1 SETTINGS | **MAX CHANNELS**<br>Indicates the maximum number of channels the codec is allowed to use on the E1/T1 interface.<br>**E1:** Maximum 30 channels when E1 is selected.<br>**T1:** Maximum 24 channels when T1 is selected. | | Systems with leased line |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>LEASED E1/T1 SETTINGS | **START CHANNEL**<br>Indicates the first E1/T1 channel the codec is allowed to use.<br>This setting might be used if the E1/T1 line is shared with other equipment. | | Systems with leased line |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > ISDN, External, Leased E1/T1 > LEASED E1/T1 SETTINGS | **T1 LINE CODING**<br>**B8ZS:** Indicates how the signals on the line should be coded.<br>**B8ZS-RESTRICTED:** If parts of the line between the systems use restricted coding, this should be selected. | B8ZS - Binary 8 Zeros Substitution<br>**NOTE!** All settings must be identical on both sides of the Leased E1/T1 connection. | Systems with leased line |
| Control Panel > Network > ISDN, External, Leased E1/T1 > Leased E1/T1 Settings LINE SETTINGS | **T1 CABLE LENGTH 1**<br>Configures the ISDN-PRI Line Settings.<br>Specify the distance (0-133 ft) of the CSU connected to the E1/T1 Port 1 on Codec 1. | CSU = Channel Services Unit | Systems with leased line |
| Control Panel > Network > ISDN, External, Leased E1/T1 > Leased E1/T1 Settings LINE SETTINGS | **E1 CRC-4**<br>E1 CRC-4 is used for most E1-PRI configurations.<br>**ON:** Select On if E1 CRC-4 is supported by your E1 network equipment.<br>**OFF:** Select Off if E1 CRC-4 is not supported by your E1 network equipment. | CRC - Cyclic Redundancy Check | Systems with leased line |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>EXTERNAL NETWORK SETTINGS | **CALL CONTROL**<br>**RS366:** Dialing is the only dialing protocol supported and would normally be used together with network clocking RS449/V.35 Compatible when the external equipment uses RS366 ports.<br>**RS366 ADTRAN IMUX:** The RS366 ADTRAN offers extra usability when dialing RS366 via an ADTRAN IMUX. This dialing scheme will map the call type and bandwidth selection to ADTRAN specific suffixes to the dialed number. Should only be used when connected to an ADTRAN IMUX.<br>The Adtran ISU 512 uses the following suffixes <Number>#C#R<br>#C = Call Type<br>#2 = audio<br>#3 = 56 kbps<br>#4 = 64 kbps<br>#R = Channel Rate<br>#0 = 2xH221 (2x56/64 kbps)<br>#1 to 8 = the Call Rate.<br>**RS366 CUSTOM IMUX:** uses a custom prefix/suffix table which describes the available bandwidths. The prefixes/suffixes are set from the Web Interface or Command Line interface. The user (administrator) shall be able to specify a IMUX prefix/suffix table for the following bandwidths (kbps): 64, 64 Restrict, 128, 128 Restrict, 192, 192 Restrict, 256, 256 Restrict, 320, 320 Restrict, 384, 384 Restrict, 512, 512 Restrict, 768, 768 Restrict, 1152, 1152 Restrict, 1472, 1472 Restrict, 1920, 1920 Restrict.<br>**LEASED:** Line is a non-dialing protocol and should be used when two codecs are connected in a point-to-point connection. Use Leased Line when the handshaking signals DTR and CD are available. DTR and CD correspond to the X.21 network's C and I signals.<br>**DATA:** Triggered mode uses TxData (transmit data), RxData (receive data) and clock signals only. Use Data Triggered when no handshake signals are available.<br>**MANUAL:** should be used when no handshake signals are available and the external equipment requires a constantly connected line. | Before using the system together with external network equipment, you must specify the network parameters. The system has support for up to 2 Mbps (depending on the Bandwidth key loaded) using the External Network (RS449/V.35/X.21) interface.<br>AZYo+Ii FD AMtNkGGBIc with RS366 Custom IMUX. When placing calls over External Network (V.35) using RS366 callcontrol, the call bandwidth is signaled to the IMUX by adding prefixes and suffixes to the actual dial string (i.e. the number to call). The prefixes/suffixes corresponding to specific bandwidths varies depending on the IMUX manufacturer.<br>Ai YZKdGl+—Ya i k—Ya - The Universal IMUX feature gives the user (administrator) the ability to configure the prefixes/suffixes corresponding to the supported bandwidths for the specific IMUX in use.<br>To do that, choose the RS366 Custom IMUX from the menu and add the prefixes/suffixes table from the Web Interface or a Command Line interface. A prefix/suffix has a maximum length of 12 characters.<br>The added prefixes/suffixes will not be included when the number is transferred to the call log<br>**NOTE:** The physical interface on External Networks is a non-standard 26 pin connector. Special cables are required, see Interfaces in the Peripheral Equipment section for cable pin outs. | 8000<br>6000<br>Maestro<br>3000Net<br>990Net<br>880Net |
| Control Panel ><br>Network ><br>ISDN, External, Leased E1/T1 ><br>EXTERNAL NETWORK SETTINGS | **NETWORK CLOCKING**<br>The Network Clocking setting specifies the number of physical external clock signals.<br>**RS449/V35 COMPATIBLE:** Use this option when the external equipment provides two clock signals, one for transmit and one for receive. The difference between RS449 and V35 is only the cable.<br>**X21 COMPATIBLE:** Use this option when the external equipment provides one common clock signal for both transmits and receive. | | 8000<br>6000<br>Maestro<br>3000Net<br>990Net<br>880Net |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>ISDN > *or*<br>ISDN, External, Leased E1/T1 ><br>H.331 SETTINGS | **H.331**<br>The H.331 Broadcast Mode decides the negotiation quality, dependent on if there is a one-way or two-way communication.<br>**ON:** Used when broadcasting a videoconference from one site to many others, e.g. via satellite, where there is no possibility to negotiate quality between the receivers and the originator due to one-way communication.<br>**OFF:** Standard two-way communication with quality negotiation between both sides. | | Systems with ISDN-BRI or ISDN-PRI |
| Control Panel ><br>Network ><br>LAN Settings ><br>IP SETTINGS | **IP PROTOCOL**<br>The Internet Protocol (IP) settings are used for communicating data across a network.<br>Set which Internet Protocols are supported.<br>**IPV4:** IP version 4 supported.<br>**IPV6:** IP version 6 supported. IP Address, IP Subnet Mask, and Gateway will be disabled.<br>**BOTH:** Both IP version 4 and IP version 6 supported. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>IP SETTINGS | **IP ASSIGNMENT**<br>DHCP (Dynamic Host Configuration Protocol) can be selected when a DHCP server is present.<br>Note that for IPv6, the DHCP server is used for NTP and DNS Server Addresses.<br>**DHCP:** The system's adresses are automatically assigend by the DHCP server. Thereby the IP-address, IP-subnet mask and Gateway are not used and grayed out.<br>**STATIC:** The system's IP-address, IP-subnet mask and Gateway must be specified in the respective address fields.<br><br>Options available via DHCP<br>• IP Address<br>• Subnetmask<br>• Gateway<br>• DNS servers<br>• NTP server<br>• SIP server<br>• MTU size, DHCP Option 26 (from F6)<br>• External Manager<br>1. If the DHCP Option 242 is returned in the DHCP response from the DHCP server the system will interpret this as the External Manager address to use.<br>2. Normally the External Manager Address will be the TMS address. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > IP SETTINGS | **IP ADDRESS**<br>IP Address defines the network address of the codec.<br>This address is only used in Static mode. In DHCP-mode, the address is assigned automatically.<br>The IP Address is displayed on the Welcome Menu and in System Information in the Diagnostics menu. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |
| Control Panel > Network > LAN Settings > IP SETTINGS | **IP SUBNET MASK**<br>IP Subnet Mask defines which subnet the IP address belongs to in the network.<br>This address is only used in static mode.<br>Your LAN administrator will provide the correct value for this field. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |
| Control Panel > Network > LAN Settings > IP SETTINGS | **GATEWAY**<br>When using DHCP, the default gateway address will be set automatically.<br>If the LAN utilizes static IP addresses, the IP address, subnet mask, and default gateway must be specified by the LAN administrator. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |
| Control Panel > Network > LAN Settings > IP SETTINGS | **ETHERNET SPEED**<br>Set the speed of the Ethernet network.<br>**AUTO:** The codec will auto-detect the speed and half/full duplex on the LAN.<br>**10/HALF:** The codec will connect to the LAN using 10 Mbps speed / Half Duplex.<br>**10/FULL:** The codec will connect to the LAN using 10 Mbps speed / Full Duplex.<br>**100/HALF:** The codec will connect to the LAN using 100 Mbps speed / Half Duplex.<br>**100/FULL:** The codec will connect to the LAN using 100 Mbps speed / Full Duplex. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |
| Control Panel > Network > LAN Settings > IP SETTINGS | **IP ACCESS PASSWORD**<br>By setting an IP Access Password on the system, all access to the system using IP (Telnet, FTP and WEB) requires a password.<br>The default IP Access Password is TANDBERG (NOTE: It is case sensitive!). Maximum length is 16 characters.<br>The IP Access Password can also be set from the Control Panel > Security Settings > IP Access Password menu. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>LAN Settings ><br>IP Settings ><br>DNS SETTINGS | **DNS SERVER 1 - 5**<br>Set the DNS - Domain Name Server - Address to define the network addresses for DNSs.<br>Up to 5 addresses may be specified. If the network addresses are unknown, please contact your LAN administrator or the Internet Service Provider.<br>DNS Server Address Format:<br>IP Address: [illegible]<br>DNS Domain Name: x@/CSgx[illegible]lRC | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted.<br>DNS - Domain Name Server | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>IP Settings ><br>DNS SETTINGS | **DNS DOMAIN NAME**<br>DNS Domain Name is the default domain name suffix which is added to unqualified names.<br>Example: If the DNS Domain Name is lRCS/fK[illegible]lRC and the name to lookup is OvixRMKM:xC, this will result in the DNS lookup OvixRMKM:xC[illegible]lRCS/fK[illegible]lRC. | S NT STdNCNT d T Sd P N<br>Changes in IP Settings menu will have no effect until the system is restarted. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>H.323 SETTINGS | **H.323 CALL SETUP**<br>H.323 Call Setup defines whether to use a Gatekeeper, Call Manager or Direct calling.<br>**GATEKEEPER:** The system will use a Gatekeeper to make a H.323 call. When you select this option the Gatekeeper Settings menu is enabled for configuration.<br>**CALL MANAGER**: The system will use a Call Manager to make a H.323 call. When you select this option the Call Manager Settings menu is enabled for configuration.<br>**DIRECT:** An IP-address must be dialled in order to make a H.323 call. The system will not use a Gatekeeper or Call Manager | | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>H.323 SETTINGS | **H.323 PREFIX**<br>When dialing a number prefixed with digits specified by H.323 Prefix, and with Network set to Auto, an H.323 call will be placed.<br>Example: If H.323 Prefix is set to "[illegible]" and Network is set to [illegible]<:R, then dialing "[illegible]" will select H.323. | | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>H.323 Settings ><br>GATEKEEPER SETTINGS | **E.164 ALIAS**<br>When using a Gatekeeper, the system will send a message to the Gatekeeper containing both the E.164 Alias and the H.323 ID of the system.<br>This is the E.164 address of the system, according to the numbering plan implemented in the Gatekeeper. The E.164 Alias is equivalent to a telephone number, sometimes combined with access codes.<br>E.164 Alias can have a maximum of 15 digits and valid characters are 0–9, * and #.<br>Example: [illegible] | E.164 is an ITU-T recommendation which defines the international public telecommunication numbering plan used in the public switched telephone networks and some other data networks. | |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > H.323 Settings > GATEKEEPER SETTINGS | **H.323 ID**<br>When using a Gatekeeper, the system will send a message to the Gatekeeper containing both the E.164 Alias and the H.323 ID of the system.<br>The H.323 ID of the system may be specified here. The System Name is used if no H.323 ID is entered.<br>Example: "□qvlx□cRfixUq/fi", "mKM:xC□□□" | H.323 is an umbrella recommendation from the ITU-T, that defines the protocols to provide audio-visual communication sessions on any packet network. | |
| Control Panel > Network > LAN Settings > H.323 Settings > GATEKEEPER SETTINGS | **DISCOVERY**<br>**AUTO:** The system will automatically try to register to any available Gatekeeper. If a Gatekeeper responds to the request sent from the codec within 30 seconds this specific Gatekeeper will be used. This requires auto discovery on the Gatekeeper as well. If no Gatekeeper responds, the system will not use a Gatekeeper for making H.323 calls and hence an IP-address must be specified manually.<br>**MANUAL:** The system will use a specific Gatekeeper identified by the Gatekeeper's IP-address. | | All MXP systems |
| Control Panel > Network > LAN Settings > H.323 Settings > GATEKEEPER SETTINGS | **IP ADDRESS**<br>Defines the Gatekeeper IP-address.<br>If your system is part of a TANDBERG Expressway™ firewall traversal solution and is placed outside the firewall, you should register the IP address of your Border Controller as the Gatekeeper IP address and set H.323 Call Setup to Gatekeeper.<br>Requires the following configurations on the video system:<br>• H.323 Call Setup: Gatekeeper<br>• Gatekeeper Discovery: Manual | | All MXP systems |
| Control Panel > Network > LAN Settings > H.323 Settings > GATEKEEPER SETTINGS | **AUTHENTICATION MODE**<br>**AUTO:** If Authentication Mode is set to Auto and the Gatekeeper indicates that it requires authentication, the endpoint will automatically try to authenticate itself to the Gatekeeper.<br>**OFF:** If Authentication Mode is set to Off the system will not try to authenticate itself to a Gatekeeper, but will still try a normal registration. | | All MXP systems |
| Control Panel > Network > LAN Settings > H.323 Settings > GATEKEEPER SETTINGS | **AUTHENTICATION ID & AUTHENTICATION PASSWORD**<br>The system sends the Authentication ID and the Authentication Password to a Gatekeeper for authentication. Requires that the Authentication Mode is set to Auto. The authentication is a one way authentication from the endpoint system to a Gatekeeper, i.e. the endpoint is authenticated to the Gatekeeper.<br>If the Gatekeeper indicates that no authentication is required, the endpoint will still try to register. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > H.323 Settings > CALL MANAGER SETTINGS | **CALL MANAGER EXTENSION**<br>If Call Manager was enabled in the H.323 Call Setup, you may enter a call manager extention in this field.<br>Example: □□□□□□ | | |
| Control Panel > Network > LAN Settings > H.323 Settings > CALL MANAGER SETTINGS | **CALL MANAGER IP**<br>If Call Manager was enabled in the H.323 Call Setup, enter the IP Address to the Call Manager in this field.<br>Example: □□□□□□□□□ | | All MXP systems |
| Control Panel > Network > LAN Settings > H.323 Settings > ADVANCED H.323 SETTINGS | **NAT**<br>NAT support in the videoconferencing system enables proper exchange of audio/video data when connected to an external videoconferencing system (when the IP traffic goes through a NAT router).<br>**OFF:** The system will signal the real IP Address.<br>**ON:** The system will signal the configured "NAT Address" in place of its own IP-address within Q.931 and H.245. When NAT is On, the NAT Server Address will be shown in the startup-menu as: 1K□□ □□iiUxMM□ □□□□□□□□<br>**AUTO:** The system will try to determine if the "NAT Address" or the real IP-address should be used within signaling. This is done to make it possible to place calls to endpoints on the LAN as well as endpoints on the WAN. | PRT (The Advanced H.323 Settings only have effect if they are supported by your IP infrastructure. | All MXP systems |
| Control Panel > Network > LAN Settings > H.323 Settings > ADVANCED H.323 SETTINGS | **NAT ADDRESS**<br>This must be the external/global IP-address to the router with NAT support. Packets sent to the router will then be routed to the system. In the router, the following ports must be routed to the system's IP-address:<br>• Port 1720<br>• Port 5555-5574<br>• Port 2326-2485 | PRT (The Advanced H.323 Settings only have effect if they are supported by your IP infrastructure. | All MXP systems |
| Control Panel > Network > LAN Settings > H.323 Settings > ADVANCED H.323 SETTINGS | **RSVP**<br>**AUTO:** Resource Reservation Protocol enables the system to request the optimum amount of bandwidth for the duration of an IP video conference.<br>**OFF:** Resource Reservation Protocol is switched Off. | PRT (The Advanced H.323 Settings only have effect if they are supported by your IP infrastructure. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>LAN Settings ><br>H.323 Settings ><br>ADVANCED H.323 SETTINGS | **H.323 PORTS**<br>**STATIC:** When selecting static H.323 ports for TCP connections the ports 5555 - 5574 will be used for Q.931 and H.245 respectively.<br>**DYNAMIC:** The system will allocate which ports to use when opening a TCP connection. The reason for doing this is to avoid using the same ports for subsequent calls, as some firewalls consider this as a sign of attack. When Dynamic is selected, the H.323 ports used are from 11000 to 65535. Once 65535 is reached they restart again at 11000. | The Advanced H.323 Settings only have effect if they are supported by your IP infrastructure.<br>The system needs to be restarted after changing the H.323 ports. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP SETTINGS | **SIP MODE**<br>SIP - Session Initiation Protocol. SIP is one of the leading signaling protocols for Voice over IP.<br>**ON:** Setting the SIP mode to On will enable the system for incoming and outgoing SIP calls.<br>**OFF:** Setting the SIP mode to Off will disable incoming and outgoing SIP calls from the system. | The system need to be restarted if SIP mode is turned On. Turning SIP Off will make the video system reject outgoing and incoming calls. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP SETTINGS | **DISPLAY NAME**<br>The Display Name of the SIP Address (URI) is usually a full name or system name.<br>Examples: 7□gvlx□cRfixUg/fi3□□7mKM:xC□□□3 | | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP SETTINGS | **SIP ADDRESS (URI)**<br>The SIP URI or number is used to address the video system. This is the same URI that is registered and used by the SIP services to route inbound calls to the video system. An URI is a compact string of characters used to identify or name a resource.<br>Example: 7MvS□/gvlx□x@/CSgx□lRC3□□7□□□□3□□7□□□□□x@/CSgx□lRC3 | URI - Uniform Resource Identifier | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP Settings<br>SIP SERVER SETTINGS | **SERVER DISCOVERY**<br>The SIP Server helps the video system to route calls to the destination. It can also authenticate, authorize services for the video system.<br>**AUTO:** The SIP Server address is retrieved from the DHCP service, if available.<br>**MANUAL:** The manually configured SIP Server address will be used. | DHCP - Dynamic Host Configuration Protocol | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP Settings<br>SIP SERVER SETTINGS | **SERVER ADDRESS**<br>The SIP Address is the manually configured outbound proxy for the signaling. It may also be the registrar, or it will route the registrations to the registrar. It is possible to use a fully qualified domain name, or an IP address. The default port is 5060 for TCP and UDP, but another one can be provided.<br>Examples: "MvSMxUOxU□x@/CSgx□lRC", "MvSMxUOxU□x@/CSgx□lRC□□□□□", "□□□□□□□□", "□□□□□□□□□□□□□□" | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP Settings<br>SIP SERVER SETTINGS | **SERVER TYPE**<br>Select the SIP Server type.<br>**AUTO:** Should be used when registering to standard SIP servers like OpenSer.<br>**NORTEL:** Must be used when registering to a Nortel MCS 5100 or MCS 5200 PBX.<br>**MICROSOFT:** Must be used when registering to a Microsoft LCS or OCS server.<br>**CISCO:** Must be used when registering to a Cisco CallManager version 5 or later.<br>**ALCATEL:** Must be used when registering to a Alcatel-Lucent OmniPCX Enterprise R7 or later.<br>**SIEMENS:** Must be used when registering to a Siemens HiPath 8000.<br>**TELIO:** Must be used in combination with a Telio subscription (www.telio.no).<br>**EXPERIMENTAL:** Can be used if auto is not working **NOTE!** This mode is for testing purposes only. | | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP Settings<br>SIP SERVER SETTINGS | **TRANSPORT**<br>Select the transport protocol to be used over the LAN.<br>**AUTO:** The system will try to connect using transport protocols in the following order: TLS, TCP, UDP.<br>**TCP:** The system will always use TCP as the default transport method.<br>**UDP:** The system will always use UDP as the default transport method.<br>**TLS:** The system will always use TLS as the default transport method. For TLS connections a SIP CA-list can be uploaded using the web interface. If no such CA-list is available on the system then anonymous Diffie Hellman will be used. | TCP - Transmission Control Protocol<br>UDP - User Datagram Protocol<br>TLS - Transport Layer Security<br>SIP CA List - SIP Proxy CA List (PEM format) | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP Settings<br>SIP SERVER SETTINGS | **SIP VERIFY TLS**<br>For TLS connections a CA-list can be uploaded from the web interface.<br>**ON:** Set to On to verify TLS connections. Only TLS connections to servers, whom x.509 certificate is validated against the CA-list, will be allowed.<br>**OFF:** Set to Off to allow TLS connections without verifying them. The TLS connections are allowed to be set up without verifying the x.509 certificate received from the server against the local CA-list. This should typically be selected if no SIP CA-list has been uploaded. | TLS (Transport Layer Security) - is a transport protocol used over LAN.<br>CA - Certificate authority, issuer of (root) certificates. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SIP Settings<br>AUTHENTICATION | **AUTHENTICATION SETTINGS**<br>Currently NTLM authentication is supported for Microsoft LCS server. Standard digest authenication is supported. For Microsoft LCS support NTLM authication is also provided<br>**USER NAME:** This is the user name part of the credentials used to authenticate toward the SIP Server.<br>**PASSWORD:** This is the password part of the credentials used to authenticate toward the SIP Server. | Read about Current RFC's and Drafts Supported in the Appendices section. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > SIP Settings SIP NAT TRAVERSAL | **ICE MODE**<br>The system support ICE (“Interactive Connectivity Establishment”) NAT traversal, and TURN (“Traversal Using Relays around NAT”) media relays.<br>**ON:** The system will choose between the available servers in the following order:<br>1. Local<br>2. STUN / public IP<br>3. TURN / Media redirection<br>**OFF:** Set to Off to disable ICE. | | |
| Control Panel > Network > LAN Settings > SIP Settings SIP NAT TRAVERSAL | **MNS MODE**<br>The MNS (”Media Network Services”) mode operates similarly to the ICE mode, but the system will prioritize use of the TURN server:<br>1. Local<br>2. TURN / Media redirection<br>Media packets will be sent directly only to endpoints determined to be on the local LAN. Media packets to all other destinations will be sent through the TURN server.<br>The MNS mode is typically used to improve the network transport quality. There are commercial services available providing dedicated wide-area video networks, see e.g. ”http://www.medianetworkservices.com”<br>**ON:** Setting the MNS mode to On will enable and prioritize media redirection through the dedicated network identified by the TURN server.<br>**OFF:** Normal operation mode (standard ICE) | **NOTE!** The MNS Mode requires that the ICE Mode is set on. It also requires a valid TURN server address and authentication. | |
| Control Panel > Network > LAN Settings > SIP Settings SIP NAT TRAVERSAL | **FORCE TURN**<br>In this mode media is always sent using the TURN relay. One usage for this mode is media relaying from installations on a public IP network.<br>**ON:** Setting the Force TURN mode to On will force media redirection through the dedicated network identified by the TURN server.<br>**OFF:** Normal operation mode (standard ICE or MNS) | **NOTE!** The Force TURN mode requires that the ICE Mode is set on. It also requires a valid TURN server address and authentication. | |
| Control Panel > Network > LAN Settings > SIP Settings SIP NAT TRAVERSAL | **TURN SERVER**<br>Address of the TURN server for data redirection. A fully qualified domain name or an IP address can be used. Default port 3478 is assumed. Optional port can be provided using ”:nnnnn” notation.<br>Examples: ”□□□□□□□□□□□□□□□□□□□□”, ”:<Uf□CfMbRfx□fx:”. | | |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > SIP Settings SIP NAT TRAVERSAL | **SIP AUTHENTICATION FOR TURN**<br>If your TURN user credentials are the same as for the SIP authentication (Network > LAN Settings > SIP Settings > Authentication), you can check mark this box to use the same user name and password.<br>If your TURN user credentials are different you must enter your TURN user name and TURN password.<br>**USER NAME:** This is the user name part of the credentials used to authenticate toward the TURN Server.<br>**PASSWORD:** This is the password part of the credentials used to authenticate toward the TURN Server. | | |
| Control Panel > Network > LAN Settings > WIRELESS LAN SETTINGS | **SSID**<br>SSID* - Service Set Identification. Defines a local network ID for this wireless region. The SSID must be the same for all endpoints and the access point. An endpoint will find the access point if the SSID is correct, however if the encryption key is faulty it will not transmit any data.<br>Example: "c□□00□sc.t□"<br>**NOTE!** The PC card/PCMCIA-card used must comply with the relevant regulations for such cards in the country where it is used. The unit must be supplied by power supply (AC-DC adaptor) powerbox SPN-270-12, which complies with the requirements for limited power source according to IEC/EN 60950. | Read more about Wireless Network Adapters in the section Using the system.<br>* The wireless card option is not supported in the current version of the Compass/Utility *MXP*. | All MXP systems with WLAN |
| Control Panel > Network > LAN Settings > WIRELESS LAN SETTINGS | **COMMUNITY**<br>Community* (optional) can be used when connecting to an access point where the SSID is the same.<br>The Community name can be up to 32 characters long.<br>Example: "efv:□" | * The wireless card option is not supported in the current version of the Compass/Utility *MXP*. | All MXP systems with WLAN |
| Control Panel > Network > LAN Settings > WIRELESS LAN SETTINGS | **WLAN MODE**<br>Defines the WLAN Mode*. Make sure the corresponding settings are programmed into the access point.<br>**ADHOC:** Used when not communicating with an access point.<br>**MANAGED:** Used when communication is made through an access point. | * The wireless card option is not supported in the current version of the Compass/Utility *MXP*. | All MXP systems with WLAN |
| Control Panel > Network > LAN Settings > Wireless LAN Settings > ENCRYPTION | **ENCRYPTION**<br>Select Encryption if you want to use WEP encryption on your Wireless LAN connection. Increased encryption level will decrease performance.<br>**NOTE**: An endpoint will find the access point if the SSID is correct, however if the encryption key is faulty it will not transmit any data.<br>**OFF:** Select Off to disable WEP encryption on your Wireless LAN connection<br>**64 BIT:** Select 64 bit to enable 64 bit WEP encryption on your Wireless LAN connection<br>**128 BIT:** Select 128 bit to enable 128 bit WEP encryption on your Wireless LAN connection | | All MXP systems with WLAN |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel ><br>Network ><br>LAN Settings ><br>Wireless LAN Settings ><br>ENCRYPTION | **USE KEY**<br>Select which of the keys shown below you want to use.<br>The key you select must have a valid Encryption Key, or no data will be transmitted. Contact your network administrator to get a valid encryption key. | **NOTE**: An endpoint will find the access point if the SSID is correct, however if the encryption key is faulty it will not transmit any data. | All MXP systems with WLAN |
| Control Panel ><br>Network ><br>LAN Settings ><br>Wireless LAN Settings ><br>ENCRYPTION | **KEY 1-4**<br>Enter the WEP encryption keys for your Wireless LAN connection.<br>ZLIrGcYBZdki YZKdL/FIFLc+li<br>The 64-bit keys can consist of a leading star (*) and 5 characters.<br>Example: "□CK2xK"<br>The 128-bit key can consist of a leading star (*) and 13 characters. Start with a * and then the text.<br>Example: "□MxlUx:2xKkRCx"<br>ZLIrGcYBZdki YZKd +aFU+LYWFDPkWV+li d<br>The 64-bit keys can consist of 10 hexadecimal digits.<br>Example: "ix□□/i□ibx"<br>The 128-bit key can consist of 26 hexadecimal digits.<br>Example: "ix□□/i□ibxix□□/i□ibxix□□/i" | **NOTE**: An endpoint will find the access point if the SSID is correct, however if the encryption key is faulty it will not transmit any data. | All MXP systems with WLAN |
| Control Panel ><br>Network ><br>LAN Settings ><br>SNMP SETTINGS | **SNMP TRAP HOST**<br>Identifies the IP-address of the SNMP Manager. SNMP is used to monitor and configure different entities in a network, like routers, servers, switches, projectors, etc.<br>The system's SNMP Agent (in the codec) responds to requests from SNMP Managers (a PC program etc.). SNMP Traps are generated by the SNMP Agent to inform the SNMP Manager about important events.<br>Can be used to send event created messages to the SNMP agent about different events like: system reboot, system dialing, system disconnecting, MCU call, packet loss etc. Traps can be sent to multiple SNMP Trap Hosts. Enter the IP address of up to three SNMP Managers. All traps will then be sent to the hosts listed.<br>To monitor you can use TMS, or other types of SNMP agents like HP OpenView. By using the SNMP agent, you can send SNMP packets to the unit to configure the system. However TANDBERG will only allow a couple of things to be configured like: Contact name, location and system name. | SNMP - Simple Network Management Protocol, SNMP Ver 1. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>SNMP SETTINGS | **SNMP COMMUNITY**<br>SNMP Community names are used to authenticate SNMP requests. SNMP requests must have a 'password' (case sensitive) in order to receive a response from the SNMP Agent in the codec.<br>The default password is "S<bgvl" | If you have the TANDBERG Management Suite (TMS) you must make sure the same SNMP Community is configured there too.<br>**NOTE!** The SNMP Community ('password') is case sensitive. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > IP SERVICES | **HTTP**<br>HTTP (Hypertext Transfer Protocol) is a web-interface for system management, call management such as call transfer, diagnostics and software uploads<br>**ON:** The HTTP protocol is enabled.<br>**OFF:** The HTTP protocol is disabled. | HTTP - Hypertext Transfer Protocol | All MXP systems |
| Control Panel > Network > LAN Settings > IP SERVICES | **HTTPS**<br>HTTPS (Hypertext Transfer Protocol over Secure Socket Layer) is a Web protocol that encrypts and decrypts user page requests as well as the pages that are returned by the Web server<br>**ON:** The HTTPS protocol is enabled.<br>**OFF:** The HTTPS protocol is disabled. | HTTPS - Hypertext Transfer Protocol Secure over Socket Layer | All MXP systems |
| Control Panel > Network > LAN Settings > IP SERVICES | **DDDP**<br>Turns support for AMX's Dynamic Device Discovery Protocol (DDDP) On or Off.<br>**ON:** If set to On the system will transmit a Beacon string identifying the system in random intervals between 30 and 60 seconds. The Beacon is transmitted as a UDP packet to 239.255.250.250 on port 9131.<br>**OFF:** The DDDP is disabled. | DDDP - Dynamic Device Discovery Protocol from AMX | 8000<br>6000<br>Maestro<br>3000<br>Tactical |
| Control Panel > Network > LAN Settings > IP SERVICES | **NTP IP**<br>The NTP (Network Time Protocol) is used to synchronize the time of the system to a reference time server (the NTP time server). This is a requirement for proper operation if the H.235 authentication is implemented. The system will use the time to timestamp messages transmitted to Gatekeepers or Border Controllers that requires H.235 authentication. It is also used for timestamping Placed Calls, Missed Calls and Received Calls.<br>**AUTO:** When set to Auto, the video system will use the NTP address provided by the DHCP server. The server will be queried every 24th hour.<br>**MANUAL:** When set to manual, you will have to enter the IP address of the NTP server manually. The server will be queried every 24th hour. | **NOTE!** The NTP time server synconization is a requirement for proper operation if the H.235 authentication is implemented.<br>NTP - Network Time Protocol<br>H.235 - Provides authentication, privacy and integrity for H.323 based systems. | All MXP systems |
| Control Panel > Network > LAN Settings > IP SERVICES | **IP ADDRESS**<br>If the NTP IP mode is set to Manual; enter the IP Address or DNS name for obtaining the date and time information from the NTP time server. | Example:<br>IP Address: 10.0.0.1<br>DNS Name: time.eu.company.int | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
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| Control Panel ><br>Network ><br>LAN Settings ><br>QUALITY OF SERVICE | **QOS TYPE**<br>Select a method and configure the settings for that method.<br>The QoS settings must be supported by the infrastructure. This is a one time configuration by the network administrator, if the network supports QoS.<br>**OFF:** When set to Off no QoS method is used.<br>**IP PRECEDENCE:** Select IP Precedence and then go to IP Precedence Video and IP Precedence Telephony sub-menus to configure the settings.<br>**DIFFSERV:** Select Diffserv and then go to Diffserv Video and Diffserv Telephony sub-menus to configure the settings. | QoS - Quality of Service - Defines the QoS method which handles the priority of audio, video and data in the network.<br>IP Precedence - With IP Precedence a value (0-7) can be set to allow certain traffic to gain priority over other types of traffic in a network.<br>DiffServ - Differentiated Services is a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying, managing network traffic and providing quality of service (QoS) guarantees on modern IP networks. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>Quality Of Service ><br>IP PRECEDENCE VIDEO | **AUDIO, VIDEO, DATA, SIGNALING**<br>The IP Precedence Video settings are used to define which priority audio, video, data and signaling should have in the network. Select a priority for each type of packet. The higher the number, the higher the priority.<br>**OFF:** No priority is selected.<br>**AUTO:** will provide the following priority:<br>Audio 4<br>Video 4<br>Data 3<br>Signaling 6<br>**CUSTOM:** Select the preferred priority for the Audio, Video, Data and Signaling. Values from 1 - 7. | | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>Quality Of Service ><br>IP PRECEDENCE VIDEO | **IP TYPE OF SERVICE (TOS)**<br>Select the preferred routing path in the network.<br>**DELAY:** The router will select a routing path in the network to minimize the delay.<br>**THROUGHPUT:** The router will select a routing path in the network to maximize the throughput.<br>**RELIABILITY:** The router will select a routing path in the network to maximize the reliability.<br>**COST:** The router will select a routing path in the network to minimize the cost.<br>**OFF:** Routing path not used. | The Quality of Service settings helps a router select a routing path in the network, for the audio, video, data and signaling, when multiple paths are available. | All MXP systems |
| Control Panel ><br>Network ><br>LAN Settings ><br>Quality Of Service ><br>IP PRECEDENCE TELEPHONE | **AUDIO**<br>The IP Precedence Telephone setting is used to define which priority audio should have in the network for telephone calls. Select a priority for each type of packet. The higher the number, the higher the priority.<br>**OFF:** No priority is selected.<br>**AUTO:** will provide the following priority 4 to Audio packets.<br>**CUSTOM:** Select the preferred priority for the Audio, Video, Data and Signaling. Values from 1 - 7. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > Quality Of Service > DIFFSERV VIDEO | **AUDIO, VIDEO, DATA, SIGNALING**<br>Enter a priority, which ranges from 0 to 63 for each type of packets. The higher the number, the higher the priority.<br>**AUDIO:** Recommended value is DiffServ Code Point (DSCP) AF41, which equals the value 34<br>**VIDEO:** Recommended value is DiffServ Code Point (DSCP) AF41, which equals the value 34<br>**DATA:** Recommended value is DiffServ Code Point (DSCP AF23), which equals the value 22<br>**SIGNALING:** Recommended value is DiffServ Code Point (DSCP AF31) which equals the value 26 | The DiffServ Video settings are used to define which priority Audio, Video, Data and Signaling packets should have in an IP network. | All MXP systems |
| Control Panel > Network > LAN Settings > Quality Of Service > DIFFSERV TELEPHONE | **AUDIO**<br>Enter a priority, which ranges from 0 to 63 for each type of packets. The higher the number, the higher the priority.<br>**AUDIO:** Recommended value is DiffServ Code Point (DSCP) EF, which equals the value 46. | The DiffServ Telephone setting is used to define which priority Audio packets should have in an IP network for telephone calls. | All MXP systems |
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **MODE**<br>The system may be connected to an IEEE 802.1X LAN network with a port-based network access control that is used to provide authenticated network access for Ethernet networks.<br>**ON:** The 802.1X authentication is enabled<br>**OFF:** The 802.1X authentication is disabled. Default mode is Off. | The IEEE 802.1X standard defines port-based, network access control that is used to provide authenticated network access for Ethernet networks. | All MXP systems |
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **ANONYMOUS IDENTITY**<br>The 802.1X Anonymous ID string is to be used as unencrypted identity with EAP types that support different tunneled identity, like EAP-PEAP and EAP-TTLS.<br>If set, the anonymous ID will be used for the initial (unencrypted) EAP Identity Request.<br>Example: "`mKM:xC`□□□□" | | All MXP systems |
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **IDENTITY**<br>The 802.1X Identity is the user name needed for 802.1X authentication.<br>Example: "`1K1xx:vfhtRRC`" | | All MXP systems |
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **PASSWORD**<br>The 802.1X Password is the password needed for 802.1X authentication.<br>Example: "MyPassword" | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **EAP-MD5**<br>**ON:** The EAP-MD5 protocol is enabled. Default mode is On.<br>**OFF:** The EAP-MD5 protocol is disabled | EAP - Extensible Authentication Protocol<br>MD5 - Message Digest Algorithm 5 | All MXP systems |
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **EAP-TTLS**<br>**ON:** The EAP-TTLS protocol is enabled. Default mode is On.<br>**OFF:** The EAP-TTLS protocol is disabled | EAP - Extensible Authentication Protocol<br>TTLS - Tunneled Transport Layer Security | All MXP systems |
| Control Panel > Network > LAN Settings > IEEE 802.1X SETTINGS | **EAP-PEAP**<br>**ON:** The EAP-PEAP protocol is enabled. Default mode is On.<br>**OFF:** The EAP-PEAP protocol is disabled | EAP - Extensible Authentication Protocol<br>PEAP - Protected Extensible Authentication Protocol | All MXP systems |
| Control Panel > Network > NETWORK PROFILES | **NAME**<br>There are 7 network profiles. The first 4 are predefined and the next 3 are user defined. If applicable, add a Call Prefix and/or Call Suffix. The prefix or suffix to a profile it will automatically be added to the number being dialled. Enter the Name and Network type for the Network Profiles 5, 6 or 7.<br>Example: "`mKM:xC`" | | All MXP systems |
| Control Panel > Network > NETWORK PROFILES | **CALL PREFIX**<br>A Call Prefix can be added for each profile. Using Call Prefix is convenient if you have a fixed prefix for your service provider. If you add a prefix to a profile, this prefix will automatically be added in front of the number being dialled.<br>Example: Add "□" as a Call Prefix to the 2nd profile, ISDN. If you enter "□□□□□□□□" in the dial menu and select ISDN, the number dialed will be "□□□□□□□□". | Ai YZKd dFi c+lY H dZdc/+dUFDl dYZK<br>When dialing with MXP, a single * is used by the system to indicate the following sub number. In this case the * will not be part of the dial string. It is possible to insert a * in the dial string by using the escape sequence * (backslash asterisk) needed by some switches. A single * will work like before indicating a sub number. The new escape sequence can be used directly in the dial string in the 'Call Prefix' or 'Call Suffix'. The escape sequence will not work for the second number and sub number. | All MXP systems |
| Control Panel > Network > NETWORK PROFILES | **CALL SUFFIX**<br>A Call Suffix can be added for each profile. If you add a suffix to a profile, this suffix will automatically be added in the end of the number being dialled.<br>Example for usage with a Border Controller:<br>You want to dial someone at `lRCS/fK□lRC`, then you can set the suffix: `□lRCS/fK□lRC`. When you dial a person, the actual dial string will be `SxUMRf□lRCS/fK□lRC` | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > NETWORK PROFILES | **NETWORK**<br>When using the Network Profiles 5, 6 and 7 you can make a Network selection for the profile.<br>**AUTO:** When set to Auto the system will parse (analyze) the number to dial and decide what network to use based on this<br>**H.320:** Select H.320 for an ISDN network<br>**H.323:** Select H.323 for an IP network<br>**SIP:** Select SIP for a SIP network | Some systems do not have ISDN (H.320). This applies to the 1700 MXP and NET versions of 3000/990/880 MXP. | All MXP systems |
| Control Panel > Network > DATA PORT | **BAUD RATE, PARITY, DATA BITS, STOP BITS**<br>The system provides 1 - 2 standard RS232 serial ports to allow a computer to be connected for data transfer and control purposes.<br>Note! When connecting to a PC, the connecting cable must be a straight through RS232 cable.<br>Configure the settings as required for your application:<br>Baud Rate (bps): 1200 - 115200<br>Parity: None, Odd, Even<br>Databits: 7, 8<br>Stopbits: 1, 2 | A successfully connection of a PC to Data Port 1 requires that the PC and the system are identically configured.<br>The control interface provided by the Data Port supports a subset of the Hayes command set, as well as a comprehensive set of system specific commands.<br>It maintains communication with the Data Port's command interpreter at all times. All features available from the hand-held remote control can be accessed through the Data Port. | 8000<br>6000<br>Maestro<br>3000<br>Tactical<br>1700<br>990/880/770<br>550<br>95/85/75 |
| Control Panel > Network > DATA PORT | **DATA PORT MODE**<br>**CONTROL:** Gives command access, with the same interface as telnet or ssh. This is the default mode.<br>**TRANSPARENT:** Line based text interface to far end in point to point call. The far end must also have transparent mode enabled.<br>**DIRECT:** Raw data interface to far end in point to point call. The far end must also have direct mode enabled. Any data received on the local serial port is transmitted without change to the far end serial port.<br>**OFF:** Turns the data port Off. | | |
| Control Panel > Network > DATA PORT 2 | **DATA PORT 2 SETTINGS AND MODE**<br>Data port 2 is dedicated to the main camera and will not be available in standard configuration.<br>The system will automatically detect Precision HD Camera and WAVE camera. At least one of the cameras must be connected to the data port 2. All communications settings, except the Mode setting, are automatically configured. Exception: If Mode is Auto and no camera is connected to the Data port 2, the Baud rate, Parity, Data bits and Stop bits settings will be enabled.<br>**VISCA:** Select VISCA mode if the camera support the VISCA protocol.<br>**AUTO:** Select Auto and the system will automatically detect the Precision HD Camera or WAVE cameras. | VISCA™ is a trademark of Sony Corporation | 8000<br>6000<br>Maestro |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Network > CAMERA PORT | **CAMERA PORT MODE**<br>The Camera Port can be used by both Precision HD Camera and Wave II Camera.<br>**VISCA:** Select VISCA mode if the camera support the VISCA protocol.<br>**AUTO:** Select Auto and the system will automatically detect the Precision HD Camera or WAVE cameras. | VISCA™ is a trademark of Sony Corporation | 3000 |
| Control Panel > Installation > | **VIEW DEFAULT SETTINGS**<br>When you press “View Default Settings” you will see an overview of all default system setting values. Use arrow up/down on the remote control to move up/down in the list. | | All MXP systems |
| Control Panel > Installation > VIEW DEFAULT SETTINGS | **RESTORE DEFAULT SETTINGS**<br>In the “View Default Settings” menu you can select “Restore Defaults”.<br>When you select “Restore Defaults” you be prompted to confirm your intentions:<br>**CANCEL:** If you press Cancel you will return to view the default settings.<br>**OK:** If you press OK the system settings will be restored to the default system settings. | When you restore the default settings the following system settings are not affected:<br>• Network settings<br>• Option Keys<br>• Directories<br>• System Name<br>• Call Quality settings<br>• The ISDN-PRI Switch Type | All MXP systems |
| Control Panel > Installation > PROFILES | **INSTALLATION PROFILES**<br>Several user profiles can be saved on the video system. This makes it easy to pre-configure the video system and switch between the different configurations.<br>Save Current Settings to Profile<br>• Open the Installation Profiles menu and press the Save Current Settings to Profile button.<br>• A sub menu will appear. Enter a name for the profile and press the Save button.<br>Activate Selected Profile<br>• Open the Installation Profiles menu and select a profile from the list. Press Arrow key up/down to scroll and OK button to select a profile.<br>• Press the Activate Selected Profile button. You will be prompted to confirm your intentions:<br>  • Cancel Press Cancel to return to the Installation menu.<br>  • OK The video system will automatically be configured according to the profile.<br>Delete Selected Profile<br>• Open the Installation Profiles menu and select a profile from the list. Press Arrow key up/down to scroll and OK button to select a profile.<br>• Press the Delete Selected Profile button. You will be prompted to confirm your intentions:<br>  • Cancel Press Cancel to return to the Installation menu.<br>  • OK The selected profile will be deleted. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Installation > WIZARD | **INSTALLATION WIZARD**<br>The Installation Wizard runs automatically when you install the system and you can start it anytime from the Installation menu in the Control Panel. Using the Installation Wizard is convenient when installing video systems when you have both Border Controller and TMS (TANDBERG Management Suite) available. You only have to register to the TMS Server and the rest is configured by the network.<br><br>The Installation Wizard takes you through the following steps:<br>1. Welcome page<br>2. Select Language<br>3. Enter System Name<br>4. Enter Software Option Keys<br>5. Enter IP Settings<br>• Obtain IP Address Automatically<br>• Static IP Address (address, subnet, gateway)<br>6. Enter SIP Settings<br>7. Enter External Management settings<br>• On: Enter information for your TMS server (address, path)<br>• Off: Select from the list:<br>• Gatekeeper and enter the gatekeeper settings<br>• Call Manager and enter the call manager settings<br>• Direct<br>8. Finish the wizard. The system will automatically restart the system.<br><br>**FINISH:** Press the Finish button to save the changes and restart the system.<br>A message will appear: “□::xf:vRf□□skx□Mx::vfhM□/Ux□fR>□M/Oxi□□□□UxM:/U:□Rr□:kx MKM:xC□vM□Uxw<vUxi□□□R□KR<□>/f:□:R□UxM:/U:□fR>□”<br>Press OK to restart or press CANCEL to return to the Installation menu without restarting.<br><br>**CANCEL:** Press the Cancel button to exit the Installation Wizard without saving any changes.<br>A message will appear: “□::xf:vRf□□skx□Mx::vfhM□/Ux□fR:□M/Oxi□□□R□KR<□>/f:□:R□x@v::kx□vfM:/gg/:vRf□>vj/Ui□>v:kR<:□M/Ovfh□”<br>Press OK to exit or press CANCEL to return to the Installation wizard. | RATdT dO S<br>• Press Next to continue; Cancel to exit; Previous to go back; Finish to finish the wizard.<br>• All the settings in the Installation Wizard are also found in the Control Panel Library.<br>• To make the changes take effect the video system needs to be restarted. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Buttons > USER GUIDE | **USER GUIDE**<br>The on-system User Guide serves to help you when you feel stuck and time is short. It is not an exhaustive presentation of the system's features, but it comes in handy whenever you need to get yourself up and going.<br>The User Guide Menu<br>• Using the Remote Control<br>• Making a Call<br>• Using the Phone Book<br>• Moving the Camera<br>• Making Multisite Calls<br>• Showing a Presentation<br>• Using Services<br>• Using Camera Presets *<br>• About MXP | * Applies to systems with controllable cameras only. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Buttons > DIAGNOSTICS | **SYSTEM INFORMATION**<br>The content of System Information will differ depending on which product you have and which optional features are installed and activated.<br>• System Name<br>• Active IP Address<br>• Ethernet Speed<br>• My IP Number<br>• My ISDN Number<br>• H.323 ID<br>• Gatekeeper<br>• SIP Address (URI)<br>• SIP Server<br>• MultiSite number 2<br>• MultiSite number 3<br>• Software Version<br>• Internal Test Software<br>• Options Installed<br>• Serial Number<br>• MAC Address<br>• Network<br>• Lines Active<br>• Lines not Active<br>Use the remote control and press arrow key up and down to scroll in the System Information list. | The Diagnostics menus allows testing of individual system components and displays the current system settings.<br><br>NOTE: The Serial Number is also found on a sticker on the system. It is essential for identifying the system when it comes to service contracts or other support activities.<br>The Serial Number format is xx.xxxxx or xxAxxxxx. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Buttons > DIAGNOSTICS | **CHANNEL STATUS ISDN-PRI AND ISDN-PRI**<br>Channel Status gives information about the call progress. The information indicates the various stages each ISDN B-channel goes through whilst establishing a connection.<br><br>**BRI STATUS:**<br>Idle - The channel is idle.<br>Calling - When calling, the network has acknowledged the call.<br>Connected - When connection is established.<br>Sync - When the channels are synchronized.<br>Active - When all available channels are connected.<br>Releasing - Waiting for the network to confirm a release of the call.<br>Released - When disconnected - the network has acknowledged the disconnection.<br><br>**PRI ALARMS:**<br>**PRI RED ALARM:** Red alarm or Loss of signal (LOS) means that there is no signal and thus no framing information received (this has the same effect as pulling out the PRI cable).<br>**PRI YELLOW ALARM:** Yellow alarm or Remote Alarm Indicator (RAI) means that the system is receiving framing info, but in this framing info the other side tells the system that it is not reading the system's transmitted framing info. Typically, this may be a broken connector in the TX part of the system PRI cable. This could also indicate weak or noisy signal in the TX part of the system PRI cable.<br>**PRI BLUE ALARM:** Blue alarm means that the network on the far side of the CSU is unavailable.<br>PRI Blue Alarm Example: The system is connected via a CSU (Channel Services Unit) as follows: System–CableA–CSU–CableB–Network. If a CSU loses framing/sync from the network (example: a bad CableB), it will no longer send valid framing out on CableA towards the system. Instead it transmits "Blue Alarm". Seen from the system receiving the blue alarm, this means that the network on the far side of the CSU is unavailable. | The Diagnostics menus allows testing of individual system components and displays the current system settings.<br><br>The most common Cause Codes for ISDN:<br>1 Unallocated (unassigned) number<br>2 No route to specified transit network (WAN)<br>16 Normal clearing<br>17 User busy<br>18 No user responding<br>21 Call rejected<br>28 Invalid number format (incomplete number)<br>29 Facility rejected<br>31 Normal, unspecified<br>34 No circuit/channel available<br>41 Temporary failure<br>58 Bearer capability not presently available<br>65 Bearer service not implemented<br>69 Requested facility not implemented<br>81 Invalid call reference value<br>88 Incompatible destination<br>100 Invalid information element contents<br>102 Recovery on timer expiry<br>127 Internet working, unspecified<br>255 TANDBERG specific undefined cause code | All MXP systems with ISDN-BRI or ISDN-PRI |
| Control Panel > Buttons > DIAGNOSTICS | **CALL STATUS**<br>The Call status page gives information about the on-going calls.<br>The menu has two columns, one for transmitted and one for received audio/video/data information.<br>If Dual Stream or MultiSite is available on your system, and in use, pressing the Up/Down keys on remote control will show one page per connected site.<br>Information will vary depending on whether H.320 (ISDN) calls or H.323 (IP) calls are made. | The Diagnostics menus allows testing of individual system components and displays the current system settings. | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Buttons > DIAGNOSTICS | **DETAILED CALL STATUS**<br>The Detailed Call Status menu provides detailed information on Audio, Video and DuoVideo in regards to Packet Loss, Jitter and Packets dropped.<br>The menu has two columns, one for transmitted and one for received audio/video/data information. | The Diagnostics menus allows testing of individual system components and displays the current system settings. | All MXP systems |
| Control Panel > Buttons > DIAGNOSTICS | **SYSTEM SELFTEST**<br>The system performs a check to determine internal hardware integrity.<br>System Selftest is useful when you want to check if your network connection is active. | The Diagnostics menus allows testing of individual system components and displays the current system settings. | All MXP systems |
| Control Panel > Buttons > DIAGNOSTICS | **VIEW ADMINISTRATOR SETTINGS**<br>This window displays all the system settings. The system settings available will vary depending on what software options are installed.<br>Use the Arrow keys on the remote control to scroll through the list. | The Diagnostics menus allows testing of individual system components and displays the current system settings. | All MXP systems |
| Control Panel > Buttons > DIAGNOSTICS | **IP ADDRESS CONFLICT CHECK**<br>The system will give a warning if there is an IP conflict.<br>To initiate the check you select IP ADDRESS CONFLICT CHECK from the Diagnostics menu. | The Diagnostics menus allows testing of individual system components and displays the current system settings. | All MXP systems |
| Control Panel > Buttons > Diagnostics > WARNINGS | **IP NETWORK QUALITY WARNINGS**<br>• The system is experiencing 5% or higher, packet loss in the IP network. This will affect the quality of the call.<br>• The system is experiencing high jitter (i.e. 200 ms or higher) in the IP network. This may affect the quality of the call.<br>• The system is dropping IP packets due to latency in the network. This may affect the quality of the call. | Any warnings registered by the system will be displayed in the Warnings menu in the bottom of the screen. Go to the Diagnostics menu and open a warning in the list to get more information about the warning. | All MXP systems |
| Control Panel > Buttons > Diagnostics > WARNINGS | **H.323 GATEKEEPER WARNINGS**<br>• Could not register to the Gatekeeper.<br>• The Gatekeeper rejected the registration attempt. Another system is already registered with the same alias or H.323 ID.<br>• The max capacity on the Gatekeeper is reached. Registration failed.<br>• Tried to register to the Gatekeeper without a valid alias. Registration failed.<br>• The system is not allowed to register with this Gatekeeper.<br>• Can not find the Gatekeeper. Check the Gatekeeper configurations on the system. | Any warnings registered by the system will be displayed in the Warnings menu in the bottom of the screen. Go to the Diagnostics menu and open a warning in the list to get more information about the warning. | All MXP systems using a Gatekeeper |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Buttons > Diagnostics > WARNINGS | **ISDN-BRI WARNINGS**<br>• ISDN is enabled on BRI line x, but the line is not connected. Please check your network connection or disable the line. (101)<br>• There is something wrong with ISDN-BRI line x. Please check your network connection. (102) | Any warnings registered by the system will be displayed in the Warnings menu in the bottom of the screen. Go to the Diagnostics menu and open a warning in the list to get more information about the warning. | All MXP systems with ISDN-BRI |
| Control Panel > Buttons > Diagnostics > WARNINGS | **ISDN-PRI WARNINGS**<br>• ISDN-PRI is configured for this system, but the line is not connected. Please check your network connection or disable the network. (131)<br>• There is something wrong with the ISDN-PRI line (Blue alarm). Please check your network connection. (132)<br>• There is something wrong with the ISDN-PRI line (Yellow alarm). Please check your network connection. (133)<br>• There is something wrong with the ISDN-PRI line (D-Channel not active). Please check your network connection. (134) | Any warnings registered by the system will be displayed in the Warnings menu in the bottom of the screen. Go to the Diagnostics menu and open a warning in the list to get more information about the warning. | All MXP systems with ISDN-PRI |
| Control Panel > Buttons > Diagnostics > WARNINGS | **EXTERNAL NETWORK WARNINGS**<br>• External Network is configured for this system, but the line is not connected. Please check your network connection or disable the network. (161) | Any warnings registered by the system will be displayed in the Warnings menu in the bottom of the screen. Go to the Diagnostics menu and open a warning in the list to get more information about the warning. | All MXP systems with External Network |
| Control Panel > Buttons > Diagnostics > WARNINGS | **LEASED E1/T1 WARNINGS**<br>• Leased E1/T1 is configured for this system, but the line is not connected. Please check your network connection or disable the network. (191)<br>• There is something wrong with the Leased E1/T1 line (Blue alarm). Please check your network connection. (192)<br>• There is something wrong with the Leased E1/T1 line (Yellow alarm). Please check your network connection. (193) | Any warnings registered by the system will be displayed in the Warnings menu in the bottom of the screen. Go to the Diagnostics menu and open a warning in the list to get more information about the warning. | All MXP systems with Leased E1/T1 |
| Control Panel > Buttons > AUDIO DEMO | **AUDIO DEMO**<br>TANDBERG systems are designed to improve audio quality during a video conference – as if the person is in the same room!<br>Demonstrate the high quality Audio of your system by pressing the Audio Demo button at the Control Panel Menu. | | All MXP systems |

| MENU ADDRESS | SETTINGS DESCRIPTION | INFORMATION | PRODUCT |
|---|---|---|---|
| Control Panel > Buttons > RESTART | **RESTART THE SYSTEM**<br>You will find the Restart button at the bottom of the Control Panel menu. Select the Restart button and press OK on the remote control.<br>You are prompted with a dialog box saying: Do you want to restart?<br>**OK:** Press OK to restart the system.<br>**CANCEL:** Press Cancel (X) to abort the restart. | Some Control Panel Settings require a restart of the system to put changes into effect. In these cases you will find a SAVE & RESTART button in the respective menus.<br><br>Example: Both IP Settings and SIP settings in the Network menu requires restart of the system to put changes into effect. | All MXP systems |

## Chapter 5

# Using the system

Learn about room guidelines, how to apply your own logo, ISDN connections and how to set up your video system for different areas of utilization.

### Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: ▶ http://www.tandberg.com/docs

In this chapter...


- Password protection
- General room guidelines
- Guidelines for meeting room setup
- About PC Presenter
- PC Soft Presenter and VNC
- Dual video stream
- Wireless network adapters
- Services for multipoint calls
- Call control with access codes
- About Kiosk mode
- Intelligent video management
- Dialling from outside the enterprise
- Connect to NT1 network adapter
- Connect to PRI/T1
- Connect to switched 56k network
- Setting up bonded ISDN calls
- About Sub and extension address
- About MCU password
- Using the file system
- Apply your own logo
- Dual monitor, XGA monitor and projectors

# Password Protection of the Control Panel Settings

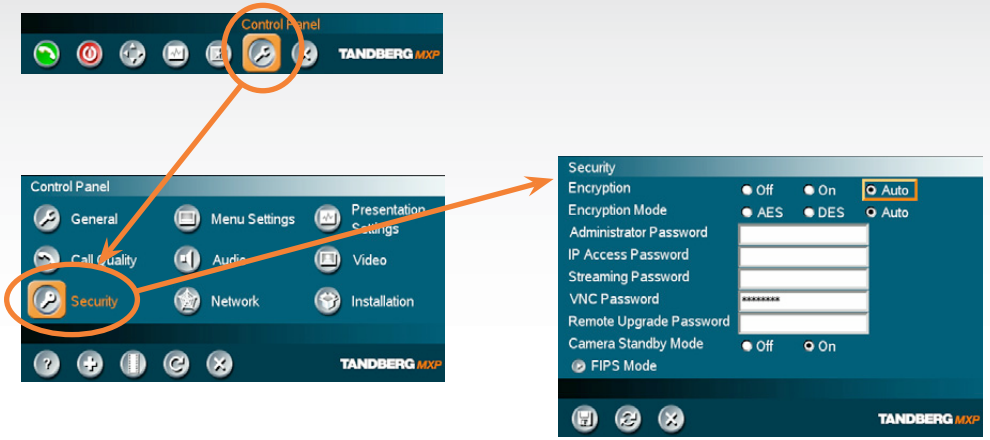
## About administrator password

All settings of the Control Panel may be password protected by entering a pin code consisting of up to five digits in the ADMINISTRATOR PASSWORD field.

Whenever you click the SETTINGS icon in the Control Panel, you will prompted to key in this pin code in order to gain access to the Control Panel Settings.

## Setting the administrator password

- Use the ARROW keys of the remote control to navigate to the CONTROL PANEL icon and press OK
- Navigate to the SECURITY icon and press OK
- Navigate to the ADMINISTRATOR PASSWORD and key in a password (pin code)
- Navigate to the SAVE icon and press Ok to leave menu, putting changes into effect

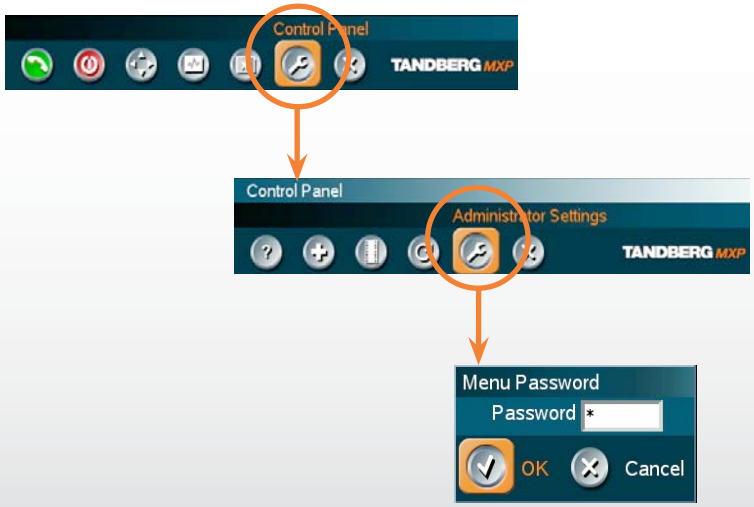



## Gain Access to a Password Protected Control Panel Menu

- Use the ARROW keys of the remote control to navigate to the CONTROL PANEL icon and press OK
- In the CONTROL PANEL navigate to the ADMINISTRATOR SETTINGS and press OK
- You will now be prompted for a menu password
- Key in the Administrator Password and press OK.
- If the wrong pin code is entered, the message:

  **Attention**
  **Wrong menu password**

  - will appear on the screen.




## Clear the administrator password

Log in the same way as when gaining access to a password protected Control Panel Settings menu.

- Navigate to the SECURITY SETTINGS menu, in the same way as setting the Administrator Password.
- In the ADMINISTRATOR PASSWORD parameter field, use the CANCEL key to clear the password and navigate down to the SAVE icon to leave menu putting changes into e

# General room guidelines

## The physical conditions

When building a video meeting room, or using an existing room for video meetings there are a few guidelines to consider.

### Lighting

- The illumination should be distributed evenly in the room to obtain low contrast
- The ideal light intensity is a little higher than in an ordinary meeting room. Typically, the luminous intensity should be 800–1400Lux, measured at the table with an incident light meter

### Seating area and table

- The seating area and table should be non-shiny and non-patterned
- The seating area should allow all participants to see the monitor

### Walls

- The color of the wall should be in good contrast to skin tonality Light blue is a complementary color to skin tonality, it gives a good contrast and is commonly used
- Acoustically reflective surfaces (such as glass or concrete) should be covered with curtains or sound treatment

### Audio

- The Noise Floor (the sum of all the noise sources) should be less than max 35dBA
- The reverberation time should be 0,3 to 0,5 seconds

### Ventilation

- The requirements for ventilation may be a little higher than in an ordinary meeting room.
- Keep in mind the Noise Floor (see Audio)
- Velocity creates noise, therefore keep velocity of air low

## The room equipment

When placing and using the room equipment there are a few recommendations and guidelines to consider.

### The microphone

- The microphones should be evenly distributed on the table. Avoid positions where they can be hidden behind obstacles like laptop, projector or other equipment placed on the table
- Do not place a microphone close to noisy equipment like computer and projector fans, power outlets or similar arrangements on the table. The microphone will pick up noise from these arrangements quite strongly.

### The camera

- The camera should be able to “see” all participants in the room. Use the pan, tilt and zoom features to adjust the picture.

### The PC

- PC’s placed on the table should not cover the microphones as this will reduce the audio quality at the far end

### Position of the system

- Position the video system in such a way that all participants attending the meeting are visible to the far end.
- If appropriate, the far end should be able to see people entering or leaving the room

### The document camera

- The document camera should be close to the chair person or a designated controller of the document camera for ease of use
- Make sure this person is visible on screen while carry out the task

### Other peripherals

- Arrange all the peripherals so that the chair person can reach each of them to point, change the display, DVD, and still be fully visible on screen while carry out the task

## Environmental considerations

This section explains how to carry out basic adjustments and simple tests to ensure that you send and receive the best possible image and audio quality when using your system.

### Iris control and lighting

By default the system camera will use an automatic iris to compensate for changes in lighting. In addition to this feature, you may further assist the system to maintain the best possible image quality by paying special attention to environmental lighting and background colors as described below.

Remember the system will send live images of both yourself and your immediate surroundings.

- Avoid direct sunlight on the subject matter i.e. yourself, the background or onto the camera lens as this will create harsh contrasts
- Avoid placing the seatings in front of a window with natural daylight, as this will make the faces of people very dark
- If light levels are too low you may need to consider using artificial lighting. As described above, direct illumination of the subject matter and camera lens should be avoided
- When using artificial lighting, daylight type lamps will produce the most effective results. Avoid colored lighting
- Indirect light from shaded sources or reflected light from pale walls often produces excellent results
- Avoid harsh side lighting or strong light from above. Strong sunlight from a window or skylight may put part or all of the subject matter in shadow or cause silhouetting

### Loudspeaker volume

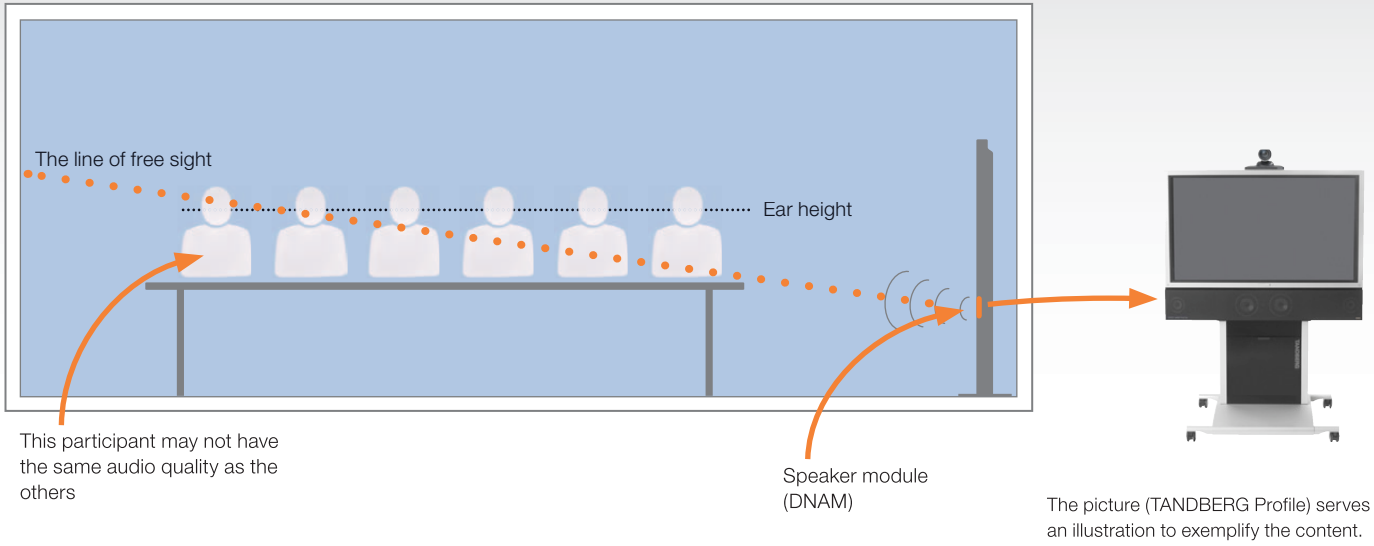
The audio system will use the Digital Natural Audio Module (DNAM) which is integrated in the system. The volume of the audio is controlled by the Volume key on the remote control.

## The audio quality

To keep the high quality audio, make sure there is free sight to the speaker module

- There should be free sight between the ears of the participants and the system speaker module
- Participant sitting too far away from the video system may not have the same audio quality as the others.

### The best audio quality to all participants



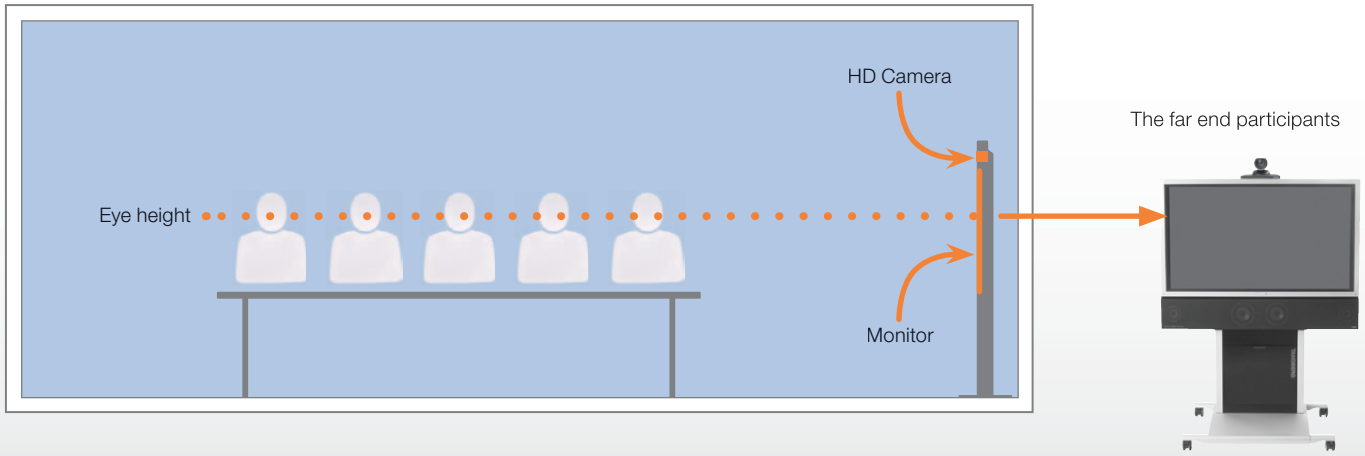

The picture (TANDBERG Profile) serves as an illustration to exemplify the content.

## Natural communication

Making eye contact with the far end participants will improve the natural communication between the people

- Adjust the camera view (using zoom in/out) to allow the participants to be shown in full size on screen, and to keep eye contact with each other at the same eye level
- If the participants are sitting too close to the monitor the camera will “look down” at the participants. This may not give a good presentation of the participants at the far end.

### Making eye contact




The picture (TANDBERG Profile) serves as an illustration to exemplify the content.

# Guidelines for meeting room setup

For team collaboration rooms, team meeting rooms and showroom floor.

## General recommendations for the room layout

To fully utilize the experience there are some guidelines you should consider.

### The distance between the table and the video system

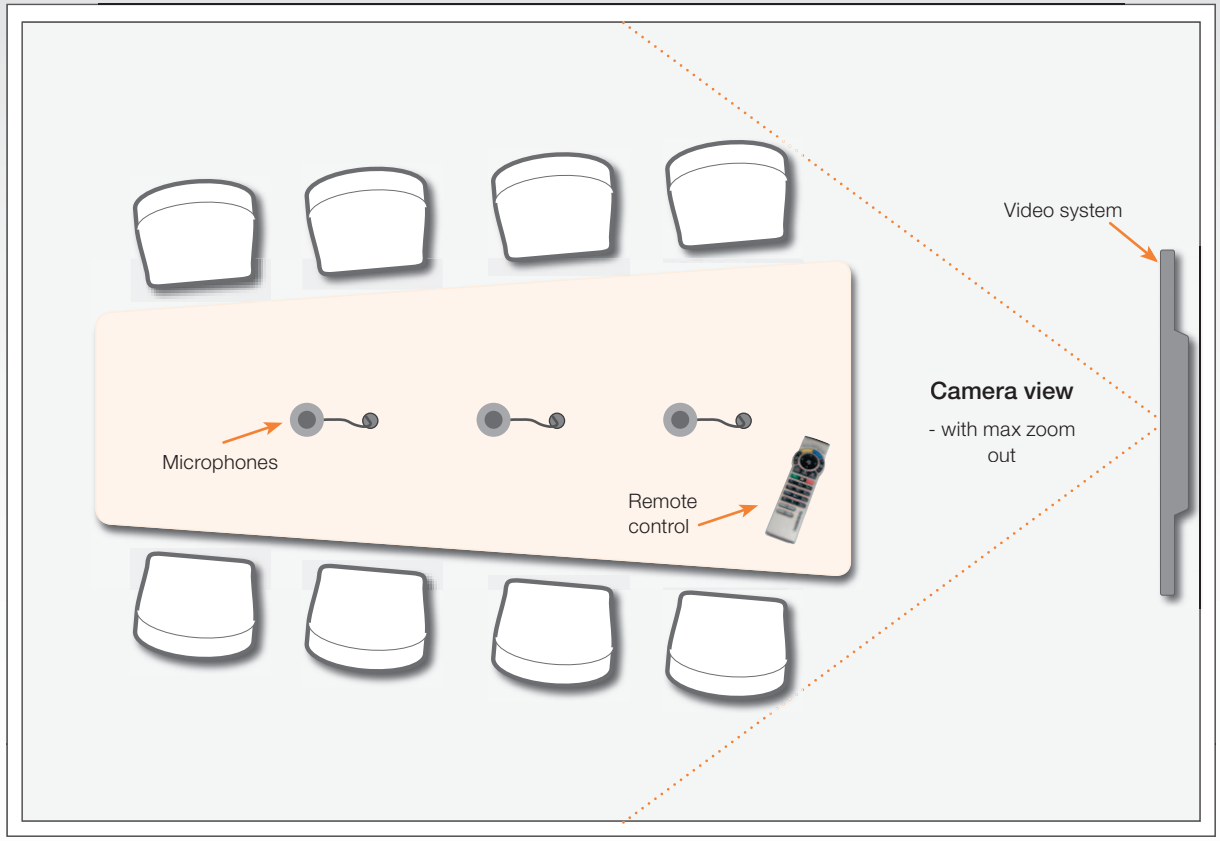
- Consult the user documentation for the monitor to find the distance to the table to allow all participants to see a clear picture on screen.
- Make sure all participants are covered within the camera angle. Example: The maximum zoom out for TANDBERG PrecisionHD 1080p camera is 72°.
- Adjust the camera view (using zoom in/out) to allow the participants to be shown in full size on screen, and to keep eye contact with each other at the same eye level
- The camera should capture all participants in the room
- If the participants are sitting too close to the monitor the camera will “look down” at the participants. This may not give a good presentation of the participants at the far end.

### The speaker module

- There should be free sight between the system speaker module and the ear of the participants.

### The microphones

- The microphones should be evenly distributed on the table
- Avoid positions where they can be hidden behind obstacles like laptop or other equipment placed on the table
- Do not place a microphone close to power outlets or similar arrangements on the table. The microphone may pick up noise from these arrangements quite strongly.




### Adjust the camera view

Press the Zoom +/– button on the remote control to adjust the picture on screen.

Adjust the camera view to allow the participants to have eye contact with each other at the same eye level.

## Sharing a PC presentation

General recommendations are described on the previous page.

### Dual video stream

With dual video stream you can view two different live video streams simultaneously, the main video and one additional source. This could for example be both a PC presentation and the person who gives the presentation.

If one of the video systems does not support Dual Video Stream, no second video stream will be established and the PC presentation will be shown as the main video.

### Sharing the presentation

1. Make sure the PC do not cover any of the microphones as this will reduce the audio quality at the far end
2. Locate the DVI cable and connect the PC to the video system
3. When pressing the Presentation button on the remote control the default presentation source is activated.

The DVI/VGA input is compliant with VESA Extended Display Identification Data (EDID) and will be able to notify the PC of the supported output formats.

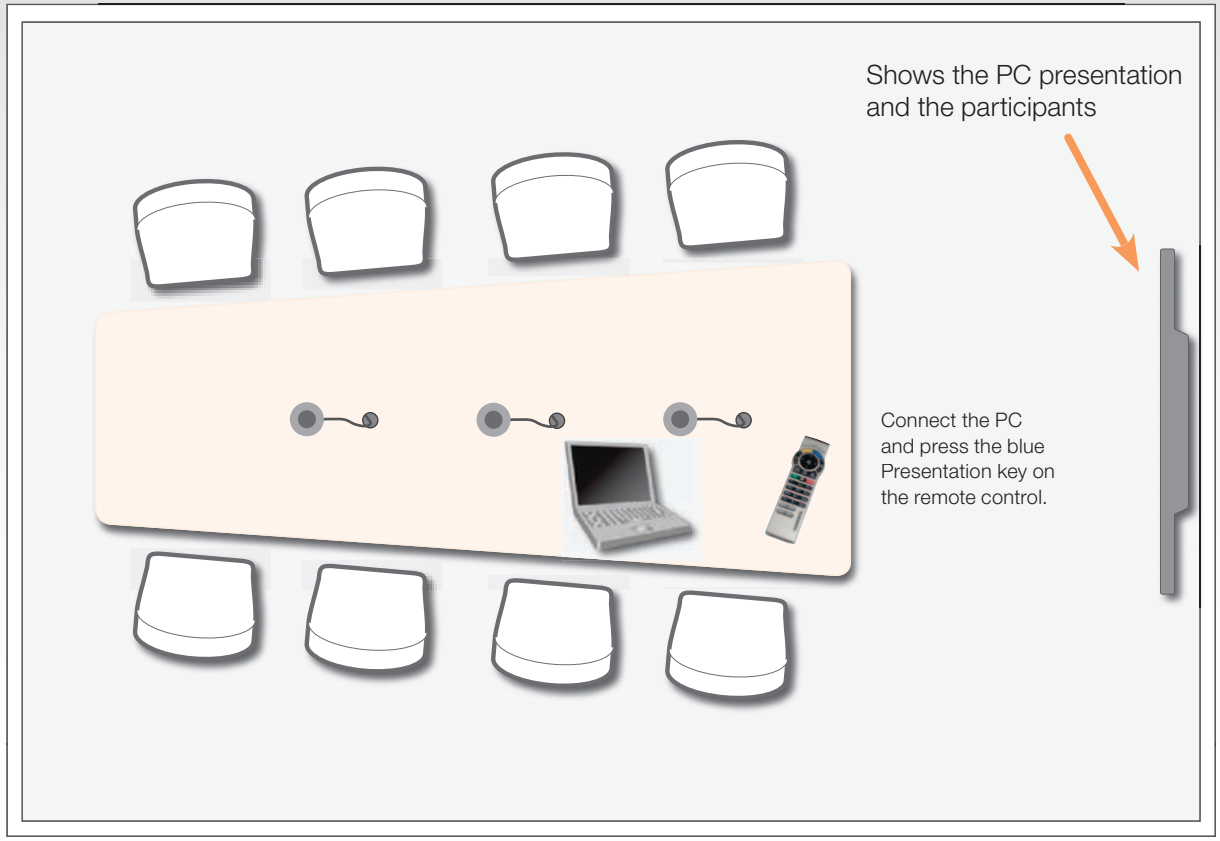
### Troubleshooting if the presentation does not show

- On most PC's you must press a special key combination to switch the PC image from the PC screen to the video screen
- Make sure your PC is set to activate your VGA output

## Other presentation sources

You can also connect other presentation sources like:

- DVD
- Document camera




### The screen layout

Press the Layout button on the remote control to select a suitable layout on screen.

The default layout when showing a PC presentation is designed to allow the participants to keep eye contact with each other during the presentation.

# PC Presenter

PC Presenter is used for displaying PC images on your video system using a VGA-DVI cable between the PC and video system.

Plugging a PC into the system is made extremely simple through the PC Presenter, avoiding the need for any additional hardware such as a projector, PC/Video converter or extra cables.

## Using PC Presenter

Users can have their presentations on a laptop that is brought into the meeting room.

- Remember to connect the PC to the codec before pressing the Presentation button.
- Note that the image will appear smoother on the system if the presentation is already displaying in full screen on the PC prior to connecting the PC to the video system.
- If no PC image is displayed on your monitor, make sure that your PC is set to activate your VGA output. On most laptop PCs you must press a special key combination to switch the PC image from the PC screen to the video screen
- Note that the DVI/VGA input is compliant with VESA Extended Display Identification Data (EDID) and will be able to reconfigure the PC's screen settings if it is currently configured to a VGA format that the system doesn't support.
- Also note that you can use the DVI input to transmit high resolution images from document cameras or other sources supporting the HD format 720p.

For details on formats supported on DVI-I in, please refer to Interfaces.

### Configuration

Connect a PC to the codec with the DVI/VGA cable:

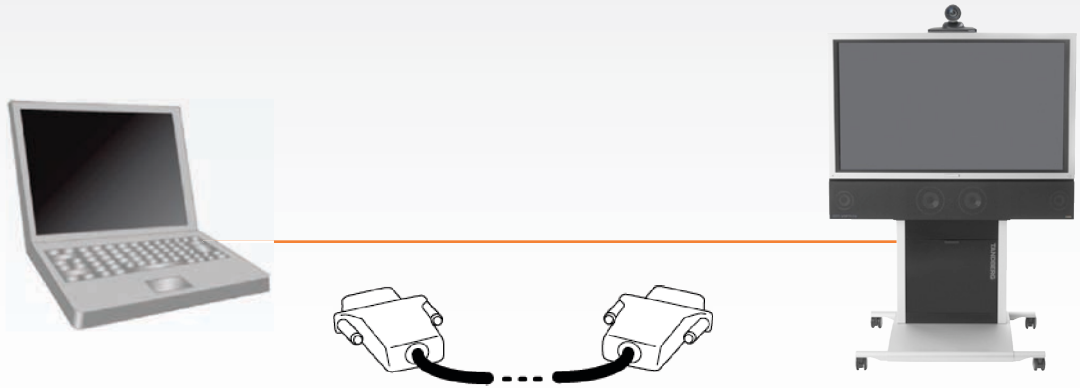
- Connect the VGA-DVI cable to the PC Presenter (PC DVI-I in) connector on the codec.
- Connect the VGA-DVI cable to your PC.

If you would like to use audio as part of the presentation, connect the headset jack on your PC to the audio input on the PC presenter VGA cable.

* The PC Presenter is a part of the optional feature NPP (Natural Presenter Package) and PP (Presenter Package) – Please contact your TANDBERG Representative for details.

INFO: On most laptop PCs you must press a special key combination to switch the PC image from the PC screen to the video screen.

When the PC is connected to the codec, press the Presentation key on the remote control to display the PC image on the video system.



VGA-DVI Cable

# PC SoftPresenter and VNC

PC SoftPresenter is used when you want to display PC images on your video system using a common network.

## Using PC SoftPresenter

- The video system and your PC must be connected to the same LAN.
- The VNC (Virtual Network Computing) server software must be running on the PC.
- The PC SoftPresenter is an optional feature – Please contact your TANDBERG Representative for details.

### VNC Server Software

There is more than one supplier of VNC server software. The one explained in this guide is from TightVNC.

The VNC (Virtual Network Computing) server software must be installed on the PC. Free software can be downloaded from http://www.tightvnc.com. Install the software by running the downloaded file.

### VNC Server Software Configuration

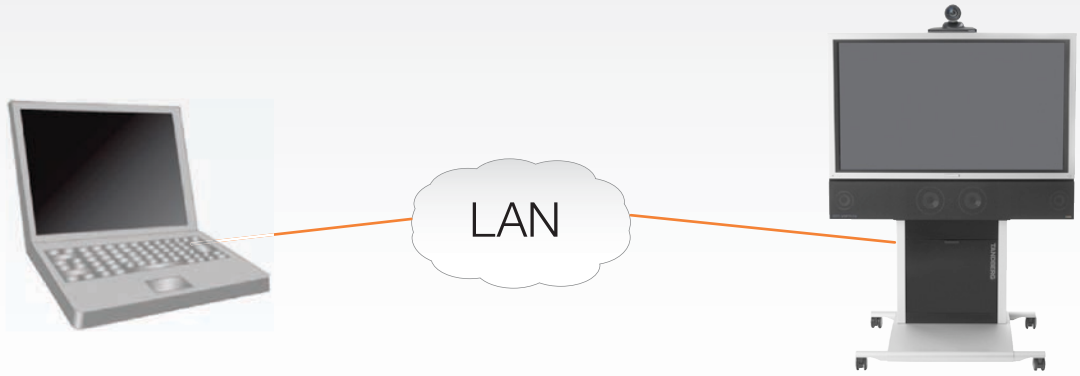
1. Install the VNC server software
2. On your PC, select the following to setup VNC: Start > All Programs > TightVNC > Show User Settings
3. Select Accept Socket Connections.
4. Select Auto for Display Number. Display Number in the video system must then have the value 0.
5. Enter a password in the Password-field. This must correspond with the VNC password on your video system. The VNC Settings are found in the Control Panel > Presentation Settings > VNC Settings.
6. Save and close.

### Showing PC contents on the video system

- Start the VNC software on your PC.
- Make sure the VNC Settings are configured on your video system.
- Select VNC as Presentation Source, in the Presentation menu on your video system, to make your PC use VNC.

**INFO:** On most laptop PCs you must press a special key combination to switch the PC image from the PC screen to the video screen.

When the PC is connected to the codec, press the Presentation key on the remote control to display the PC image on the video system.




The VNC Software must be running on the PC and be configured to correspond to the VNC Settings on the Video System.

PC and video system must be connected to a common network.

The optional feature PC SoftPresenter must be enabled and VNC Settings must be configured.

**NOTE:** The VNC settings will reset to default when the system goes into standby. To prevent the system from going into Standby Mode see Camera Standby Mode settings in the settings library.

# Dual Video Stream (DuoVideoTF/H.239/BFCP)

With Dual Video Stream you have the opportunity to show two different live video streams simultaneously, main video and one additional source.

This is handy when showing a presentation. You see the live presentation and the live video of the presenter simultaneously.

When you start a presentation, Dual Video Stream starts automatically if both local and remote system supports Dual Video Stream.

If one of the systems does not support Dual Video Stream, no second video stream will be established and your presentation will be shown as your main video.

Dual Video Stream is available on all systems with Natural Presenter Package installed.

In Presentation Settings, you can set Presentation Start to Manual. That means that Dual Video Stream will not start automatically.

## Dual Video Stream and Bandwidth

Using Dual Video Stream, the quality automatically downspeeds to the optimal bandwidth.

This means that you need higher quality to allocate enough bandwidth for the two video streams.

Dual Video Stream borrows bandwidth from main video stream.

When Dual Video Stream is closed, the bandwidth is returned to the main video.

DUOVIDEOTF allows participants at the far end to simultaneously watch a presenter on one screen and a live presentation on the adjoining screen.

H.239 is an ITU standard defining how to send two video sources simultaneously.

BFCP (Binary Floor Control Protocol) is a protocol to coordinate access to shared resources in a conference.

## Presentation Settings and Dual Video Stream

The Presentation Settings are found in Control Panel > Presentation Settings.

- Set Presentation Start to Auto or Manual.

The Presentation Sources are found in the Call Menu > Presentation.

- Select Presentation Source to: Main Video, DuoVideo, Snapshot and Far End Video
- Within the categories above you can select between the video sources available for your video system: MainCam, PC, DocCam, VCR, AUX and VNC.

### Example with Presentation Start set to Auto

With Presentation Start set to Auto the Dual Video Stream will start automatically.

1. Start a meeting with main camera as video source.
2. Press the Presentation key on the remote control to start a PC presentation.
3. PC will appear as a Dual Video Stream in addition to main camera.
4. End the Dual Video Stream presentation by pressing the Presentation key again

### Example with Presentation Start set to Manual

With Presentation Start set to Manual the Dual Video Stream must be started manually. Set to Manual when you do not always want to use Dual Video Stream.

1. Start a meeting with main camera as video source.
2. Press the Presentation key on the remote control to start a PC presentation.
3. A dialog box appears where you can choose to show PC as Dual Video Stream or not.
4. End the Dual Video Stream presentation by pressing the Presentation key again.

## Call Rate with DuoVideoTF/H.239/BFCP

### When network is H.323

The system will use the available call rate for audio, data, main video, and DuoVideoTF/H.239 if opened. When the network is H.323 the DuoVideoTF/H.239 rate will approximately be the same as the main video rate.

### When network is SIP

The system will use the available call rate for audio, data, main video, and DuoVideoTF/BFCP if opened. When the network is SIP the DuoVideoTF/BFCP rate will approximately be the same as the main video rate.

### When network is ISDN

When the network is ISDN/H.320 the following table applies for DuoVideo Bandwidths*:

**Call Rate with DuoVideo over ISDN**

| *Call Rate (kbps)* | *DuoVideo Rate (kbps)* |
|---|---|
| 128 | 64 |
| 192 | 64 |
| 256 | 64 |
| 320 | 128 |
| 384 | 128 |
| 512 | 128 |
| 768 | 384 |
| 1152 | 384 |
| 1472 | 320 |
| 1536 | 384 |
| 1920 | 384 |

* If Restrict (56k) is set to On, use 56k multiples: E.g. 112 -> 56, 168 -> 56, etc

# Wireless Network Adapters

Many of TANDBERGs endpoints comes with a PCMCIA port where a wireless card can be plugged in to make the system interface with a few selected 802.11b wireless network cards.

The major drawback by using the PCMCIA interface to get a system onto a wireless network is that the choice of usable cards is very limited, this because of the inconvenience of having a wide specter of software drivers installed or available for installation.

It has been a challenge to get support for the newer wireless cards on the market because many of the chipset manufacturers for the cards do not make their development code available in a format we can use. Most offer Windows based development code and as many of you are aware, we do not run Windows on our products.

An easy work-around for this limitation is to use a wireless network adapter which makes the system believe it is connected by wire, as normal.

## Recommended cards

- Compaq WL110 11 Mbps Wireless LAN
- Lucent Orinoco 11 Mbit/s SILVER
- Lucent Orinoco 11 Mbit/s GOLD
- Cisco Aironet 350 series (AIR-PCM 350 series)
- Enterasys Networks RoamAbout 802.11 DS High Rate
- Melco Buffalo WLI-PCM-L11G

## Recommended access points

- Compaq WL410 base station
- ASUS WL-330g Pocket Wireless Access Point
- Macsense AeroPad Mini WUA-800 Network Adapter
- D-Link DWL-G810

## Recommended Wireless Network Adapters

TANDBERG has tested some wireless network adapters.

A wireless network adapter is typically a small box connected to the endpoint (in this case) by a regular network cable, and powered either from a USB connector or from the net by an AC/DC-adapter.

An option is using an ASUS Pocket Wireless Access Point WL-330g, which has been tested by TANDBERG. This device will work as an Ethernet bridge by plugging the RJ45 from the codec into the device. You can then power it from the USB port of the TANDBERG codec or from a separate power brick.

### ASUS WL-330g Pocket Wireless Access Point

- Dimensions: 3.3in x 2.45in x 0.67in
- Supports both 802.11b and 802.11g.

### Models tested by TANDBERG includes

- Aeropad Mini WUA-800
- D-link DWL-G810

The adapters have basically exactly the same characteristics and functions. The main difference is the size. The D-Link adapter is about twice the size of the other two adapters which are more or less identical. The D-Link adapter also comes only with a net-adapter for power, whereas the other two have USB-adapters. The D-Link adapter provides better coverage.

### Configuration

The adapter has to be configured from a PC to match the settings of the wireless network it is supposed to connect to.

The wireless network adapters can usually be set as either an adapter or as an access point.

The adapter is configured via a conventional html user interface from a PC.

The PC NIC has to be set to a static IP-address in accordance to the settings of the adapter.

Below you will find some typical settings for configuring a wireless network adapter (the ones marked with '*' are mandatory):

- AP Name: Unit Name
- SSID*: Name on wireless network
- Channel: Is provided automatically in adapter mode
- Wireless Mode: (is usually infrastructure)
- Authenthication*: Type of encryption
- WEP Key*: WEP encryption On/Off for open systems
- Mode*: Type of key (hex/ASCII)
- Key(s)*: 1 - 4 keys

# Services for Multipoint Calls

A Multipoint Control Unit (MCU) enables several sites to  articipate in the same conference. During an MCU conference, the status line will provide information about the conference.

## Embedded or external MCU

The MCU can be embedded or external (MPS), but when making a call the user will not see any difference. The system administrator may want to configure the Multipoint Call Options. See the Control Panel > General > Multipoint Call Options.

## External services from TMS

The External Services lets you obtain information from the TANDBERG Management Suite (TMS)

## About the External Services Menu

The External Services menu lets you see information obtained from the TANDBERG Management Suite (TMS)

- Today's Bookings
- System Contact Information

### How to Enable the External Services Menu

The External Services menu is available only when the External Services settings are configured (enter the Address and Path to the TMS and set the External Services to On). Go to Control Panel > General > External Server > External Services.

### External services features

- External Services (from TMS)
- Request Floor and Release Floor
- Conference Layout
- Terminal Names
- Chair Control
- Assign Floor and Release Floor from Participant
- View Site and End View
- Disconnect Participant
- Terminate Meeting
- More about Multisite (embedded MCU)
- More about MultiWay™
- Text Chat

The MultiSite and Multiway features are explained in the The setting library section.

All other issues from the list above are explained in the *MXP* User Guide, see the http://www.tandberg.com/docs

# Call Control with Access Codes

Your TANDBERG system may, or may not, be set up to require Access Codes to be typed in before a call can be made. Access Codes are used for two things; call restrictions and billing opportunities.

CALL RESTRICTIONS may be applied by installing a file of valid access codes that must be entered to permit calls to be made. This installation is typically made from TMS (TANDBERG Management Suite – available separately).

BILLING OPPORTUNITIES. Assume that an access code is needed whenever you make a call. Your company may have different access codes for the different clients of your company. Then, the access code used may be picked up by TMS to generate statistics on who is calling whom, when, and for how long time.

This information may later form the basis for billing clients or departments. Observe that in this case there will be no strict need for installing an Access Code file on your system – TMS will still have access to the codes you have assigned to the calls. In this case any code entered will be considered valid.

Of course, the two may be combined to form a This will then become a system that acts as forced billing.

Access Codes can be up to 16 characters long.

## How to activate access codes

The Access Codes feature is activated from the Security settings menu of the Control Panel. The activation/deactivation of the feature may be password protected by your System Administrator. If in doubt, consult your System Administrator.

In addition an ACCESS CODE FILE can be used to restrict the valid code to a set of predefined codes. If no such file exists in your local video system and ACCESS CODE still is set to ON, the system will prompt you to key in a code, but any code will do.

To skip the use of Access Codes, set ACCESS CODE to OFF and no prompt for code will be produced by the video system.

## How to create an access code file and upload the file

On your PC create the file to be used as a list of valid Access Codes and save it as `/llxMM□:@:□` The `/llxMM□:@:` file is a plain text file with one line per Access Code. As an example of an `/llxMM□:@:` file, consider the following:

□□□□
□□□□
□□
□□
□□□

Maximum length of each Access Code is 16 characters, and you can have as many Access Codes as you want. You may use any combination of the alphanumeric characters available by means of your TANDBERG Remote Control, including the space character.

### Uploading access codes to the system

The Access Code text file must uploaded to your local video system.

Make sure your PC and your video system can communicate via IP

Open a DOS-window and go to the folder where the `/llxMM□:@:` file is located

Type `r:S` <IP-address of your local video system>. To locate the IP ADDRESS of your system, go to SYSTEM INFORMATION in the DIAGNOSTICS menu. Use Arrow down key on remote control to scroll down.

When system prompts for `eMxU□` press Enter or key in the IP ACCESS PASSWORD of your video system

Type `bvf` and press Enter

Go to the user folder: type `li□<MxU`

Upload the `/llxMM□:@:` file: type `S<:□/llxMM□:@:`

Exit from ftp: type `bKx`

Your video system will check if the entered Access Code is valid by comparing the code with the allowed codes listed in the `/llxMM□:@:` file located on the ftp-server in your local video system.

If no `/llxMM□:@:` file has been uploaded to the Codec of your local video system, the code entered will be registered, but no validation will take place. Therefore you can enter whatever code you want and still have access to the system.

### Access codes activated

Whenever the ACCESS CODE feature has been set to ON, in the Control Panel > Security Settings, you will be prompted to enter a code when starting a call.

The following dialogue box appears on the screen:


The remote control keypad will be in ABC mode.

Key in the code and press OK. Then dial your number.

### TANDBERG Management Suite

Access Codes can also be controlled from the TANDBERG Management Suite (TMS). If you run a TMS, you can set and maintain Access Codes from within the TMS.

#### Statistics and billing

Your system may have been configured to work in a setup involving a TANDBERG Management Suite (TMS) system. If so, as default your system will transmit call information to TMS. This information also includes the Access Codes applied to the calls. Hence, the TMS system may always utilize any Access Code information available, for statistics and for billing.

# Kiosk Mode

The Compass *MXP* and Utility *MXP* are intended for use in Kiosk Mode.

Compass *MXP*

Utility *MXP*

The Utility MXP is delivered with a remote control. In Kiosk Mode the system is set to a simplified state where it can be controlled with the four Arrow keys and OK key on the remote control.

The Utility MXP is shipped with Kiosk Mode set to Off and will display the Main Call Menu. Read more about Kiosk Mode Settings in the Control Panel Library. After having configured the settings of the Utility MXP, you must activate Kiosk Mode by setting Kiosk menu to On.

The Compass MXP is shipped with Kiosk Mode set to On, and will display the Kiosk Menu.

If Max Call Length (minutes) is set, this will make the video system display a warning when it is 5 minutes, 1 minute and 10 seconds left of the call. Go to: Control Panel > General > Permissions > Maximum Call Length

## How to activate Kiosk Mode

Activation of Kiosk Mode is done from the menu system or through the web interface, telnet, or data port.

## How to deactivate Kiosk Mode

Deactivation of Kiosk Mode is done through the web interface, telnet, data port or quick key.


If the LANGUAGE MENU is enabled you will see the Language selections menu.

Select a language and the Welcome Menu will be displayed with your desired language.

The Language Menu is configured in the Kiosk Mode Settings. See Control Panel > Menu Settings > Kiosk Mode Settings.

## Waking up the system

When the system is not in use, it is in standby mode and the screen is black. Wake up the system by picking up the handset.

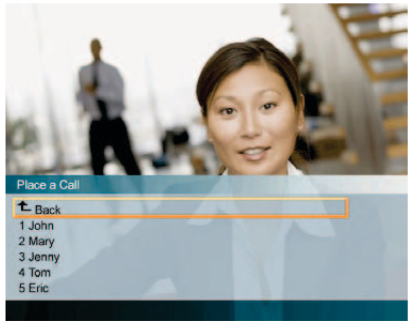
An incoming call or pressing any key on the Compass MXP will also wake up the system.

If pressing the OK button when the system is in a call, the menu will display:

- END CALL
- VOLUME
- CLOSE

Outside a call the Welcome Menu will be displayed. In this menu you can:

- PLACE A CALL
- VOLUME
- CLOSE




When you press the Place a Call button the Phone Book is displayed.

1. Use ARROW UP/DOWN to select an item from the list
2. Press the OK button to start the call.

When in a call, the system will display the Far End video in full screen.

T/+dU+–FkDd +ccYZKid+BIdc/+dAcYDcrd ME

- Language menu: Off
- Available languages: Select language(s)
- Auto Dial (dataport setting): On
- Auto Dial Duration (data port setting): 10
- Allow use of Remote Control: Yes
- Phone Book: Local
- Kiosk menu: Off

T/+dU+–FkDd +ccYZKid+BIdc/+d BWGFi i d ME

- Language menu: Off
- Available languages: Select language(s)
- Auto Dial (dataport setting): On
- Auto Dial Duration (data port setting): 10
- Allow use of Remote Control: No
- Phone Book: Local
- Kiosk menu: On

## Quick Key for IP Address

If the IP address of the system has been mislaid or forgotten it can be shown temporarily on the screen by pressing the central button on the Compass MXP for at least 5 seconds, until the address appears on the screen. On the Utility MXP the remote control can be removed from the cabinet and the OK button pressed in the same manner.

## Quick Key to Deactivate Kiosk Mode

If it is required to deactivate the Kiosk Mode without using the telnet or web interface the following must be performed using the remote control stored inside the cabinet. This is only possible if the setting Allow Use of Remote Control is set to On. Please refer to later chapters on where the remote control should be directed to enable IR reception.

Press 5 times on the Phone Book symbol then once on the number 3 on the Remote Control.

# Intelligent Video Management (IVM)

You may configure the picture sent from your TANDBERG system to reflect your specific requirements and the applications being used adding an additional level of flexibility and adaptability to your system.

Generally, the IVM will always try to transmit the format closest to the video input format. Each video input can be configured to either motion or sharpness:

## Video input configured to Motion

Motion* is used when there is a need for higher frame rates, typically when a large number of participants are present or when there is a lot of motion in the picture.

### At low bit rate:

- CIF will be used from a PAL video input
- SIF will be used from a NTSC video input
- w288p from wide format (HD720p) input
- VGA/SVGA/XGA from PC, Digital Clarity
- WXGA /1280x768), Digital Clarity

### At high bit rate:

- 448p will be used from a PAL video input if Natural Video is OFF or AUTO or if Natural Video is X KBPS and the bit rate is lower than X KBPS
- 400p will be used from a NTSC video input if Natural Video is OFF or AUTO or if Natural Video is X KBPS and the bit rate is lower than X KBPS
- iCIF will be used from a PAL video input, if Natural Video is X KBPS and the bit rate is higher than or equal to X KBPS
- iSIF will be used from a NTSC video input, if Natural Video is X KBPS and the bit rate is higher than or equal to X KBPS
- w720p or w448p will be used from a wide format (HD720p) input
- VGA/SVGA/XGA from PC, Digital Clarity

## Video input configured to Sharpness

Sharpness* gives improved quality of detailed images and graphics and lower frame rate. Sharpness is ideal for enhancing quality at lower bandwidths.

- 4CIF will be used from a PAL video input, Digital Clarity
- 4SIF will be used from a NTSC video input, Digital Clarity
- w720p will be used from a wide format (HD720p) input
- VGA/SVGA/XGA from PC, Digital ClarityIVM Resolution

The table below shows the relationship between the video input and the Transmission modes selected by the system when either Motion or Sharpness is selected in the Call Quality menu. IVM will work in accordance with this table to optimize the Video quality, according to the capabilities of the remote system(s):

| Basic Video Quality | Video Input | Transmission Mode Selection Rules* |
|---|---|---|
| MOTION | PAL | 448p -> iCIF@50 -> CIF -> QCIF |
| MOTION | NTSC | 400p -> 448p -> iSIF@60 -> iCIF@60 -> SIF -> CIF -> QCIF |
| MOTION | VGA | 448p -> CIF -> QCIF |
| MOTION | SVGA | 448p -> CIF -> QCIF |
| MOTION | XGA | 448p -> CIF -> QCIF |
| MOTION | Wide | w720p -> w448p -> w288p -> CIF -> QCIF |
| SHARPNESS | PAL | 4CIF -> VGA -> CIF -> QCIF |
| SHARPNESS | NTSC | 4SIF -> 4CIF -> VGA -> SIF -> CIF -> QCIF |
| SHARPNESS | VGA | VGA -> 4CIF -> CIF -> QCIF |
| SHARPNESS | SVGA | SVGA -> XGA -> 4CIF -> VGA -> CIF -> QCIF |
| SHARPNESS | XGA | XGA -> SVGA -> 4CIF -> VGA -> CIF -> QCIF |
| SHARPNESS | Wide | w720p -> w576p -> w448p -> w288p -> CIF -> QCIF |

### P T I d S NR AT RPN

The following live video resolutions are supported on the system*:

NATIVE NTSC:

- 4SIF (704 × 480 pixels), Digital Clarity
- 400p (528 × 400 pixels)
- iSIF (352 × 480 pixels), Natural Video
- SIF (352 × 240 pixels)

NATIVE PAL:

- 4CIF (704 × 576 pixels), Digital Clarity
- 448p (576 × 448)
- iCIF (352 × 576 pixels), Natural Video
- CIF (352 × 288 pixels)
- QCIF (176 × 144 pixels)
- SQCIF (128 × 96 pixels)

NATIVE PC RESOLUTIONS:

- XGA (1024 × 768 pixels), Digital Clarity
- SVGA (800 × 600 pixels), Digital Clarity
- VGA (640 × 480 pixels), Digital Clarity

WIDE (16:9) RESOLUTIONS:

- w720p (1280 × 720 pixels)
- w576p (1024 × 576 pixels)
- w448p (768 × 448 pixels)
- w288p (512 × 288 pixels)

* Note that the TANDBERG 550*MXP* and the TANDBERG 1000*MXP* do not transmit the following video formats: 448p, 400p, iCIF, iSIF, w288p, w448p, w576p and w720p.

# Dialing in From Outside the Enterprise

## Dialing in without being registered to a TANDBERG Gatekeeper

The feature enables dialing through a TANDBERG Gatekeeper without being registered to it. This makes it easy to call in from a video system outside the enterprise.

It's done by dialing:

`fi Rvf: gv/M /:x2xxSxU iiUxMMa RU:y`

where:

- `fi Rvf: qv/M`: is the alias of the endpoint you want to call, the endpoint you call must be registered with this alias on the gatekeeper
- `/:x2xxSxU iiUxMM`: is either the IP-address of the gatekeeper in the form a.b.c.d (or IPv6 a:b:c:d:a:b:c:d) or the DNS name (A/AAAA or SRV record) of the gatekeeper.
- `RU:`: is optional and gives the Q.931 port to initiate the call. The port default is 1720 and can in most cases be left out.

If using an IP-address, or if not specifying the port, the default is using the normal Q.931 with port 1720.

**NOTE!** To be able to make such a call, this feature must be enabled in your gatekeeper or border controller, and the *called* endpoint must be registered with the enterprise gatekeeper or border controller.

# Connecting the System to ISDN using NT1 Network Adapter

## Placing the NT1 Adapter

For convenience the NT1 adapters could be placed inside the video systems cabinet.

### Connecting Cables

- Connect the first ISDN cable from ISDN1 on the video system (codec) to the S-interface on your first NT1 network adapter.
- Connect the other ISDN cables to the appropriate NT1 network adapters.
- Connect the U-interface of your NT1 adapter to the line provided from your network provider.

ISDN Cables

- Connect the shorter ISDN cable (RJ45 connectors) delivered with the NT1 between the video system (codec) and the NT1 adapter.
- Connect the longer ISDN cable between the NT1 and the connector (RJ45) at the wall socket.

### Configure the Video System

To configure the video system go to Control Panel > Network > ISDN/External/Leased E1/T1 and:

- Set Network Type to ISDN-BRI
- Go to ISDN-BRI Settings and select ISDN SWITCH TYPE
- Go to LINE 1 SETUP:
  - Enable Line 1
  - Enter ISDN Line Numbers (+ SPIDs if required).
- Configure the other lines to be used.
  Some software versions do not support 6 ISDN lines, therefore some of the Line # Setup entries may be grayed out.
- Disable unused lines.
- Check if you need to configure the ADVANCED ISDN SETTINGS.

### Setting up a call

- Go to the CALL MENU and select MAKE A CALL
- In the Call Menu, open DEFAULT CALL SETTINGS
- Set NET to ISDN
- To use these settings for this call only, select the OK button.
  To save the settings as your new Default Call Settings select SET AS DEFAULT before pressing the OK button.
- Go on with your call and enter the number to be dialed.

# Connecting the System to PRI/T1

(ISDN-PRI is not available on all TANDBERG systems)

## Using a CSU (Channel Service Unit) adapter

Connecting the system to the ISDN network via the E1/T1-interface using an Adtran T1 ESF CSU ACE or equivalent CSU, will allow up to 1.54 Mbps connection.

The E1/T1-interface must be connected to a CSU approved according to IEC 60950, UL 1950 or equivalent standard.

The PRI-line will run the AT&T 4ESS, 5ESS and National ISDN protocols in addition to Euro ISDN (E1).

### Connecting to Adtran T1 ESF CSU ACE

Connect the PRI cable from the video system (codec) to the input marked CPE (Customer Provided Equipment) on the Adtran CSU (a straight through category 5 cable is recommended).

Connect to the network via the NET connector on the Adtran CSU.

### Configure the Video system

To configure the video system go to Control Panel > Network > ISDN/External/Leased E1/T1 and:

- Set Network Type to ISDN-PRI

Then go to ISDN-PRI Settings:

- Specify NUMBER RANGE
- Specify ISDN-PRI SWITCH TYPE
- Configure the CHANNEL HUNTING settings.
- Configure the LINE SETTINGS. (should correspond to the Cable Length setting on the Adtran system).
- Configure the ADVANCED ISDN SETTINGS
- Configure the ADVANCED ISDN-PRI SETTINGS

### Configure the Adtran T1 ESF CSU ACE

From the display on the unit:

- Enter 2)CONFIG menu using SCROLL and ENTER buttons.
- Enter 3)TERMINAL menu and check 1)FORMAT:ESF, 2)CODE: B8ZS , 3)SET LBO: 0-133 (should correspond to the Cable Length setting on the video system).

Go to Menu and enter 1)NETWORK menu. Set 7)SET LBO: 0.0 (according to information from Telco).

Also, other network parameters should be set, according to information from your Telco.

### Setting up a call

Go to the CALL MENU and select MAKE A CALL

- In the Call Menu, open DEFAULT CALL SETTINGS
- Set NET to ISDN
- To use these settings for this call only, select the OK button.
  To save the settings as your new Default Call Settings select SET AS DEFAULT before pressing the OK button.
- Go on with your call and enter the number to be dialed.

# Connecting the System to Switched 56k Network

## Using Telesync TS-256 SW56/ISDN adapter

This page describes how to connect the system to a SW56 network using a Telesync Adapter.

There are different Telesync Adapters for different configurations of SW56 networks.

The network types tested with the system are SW56 2Wire and 4Wire.

### Connecting Cables

Connect the video system ISDN1 cable to the BRI S/T interface on the Telesync Adapter.

Connect the two SW56 cables from the Telesync adapter Line 1 and Line 2 to the SW56 network.

### Configure the Video system

To configure the video system go to Control Panel > Network > ISDN/ External/Leased E1/T1 and:

- Set Network Type to ISDN-BRI
- Set the ISDN Switch Type to NATIONAL ISDN

Go to LINE 1 SETUP:

- Enable Line 1, set to On
- NUMBER1: enter the number from the first SW56 line
- NUMBER2: enter the number from the second SW56 line
- SPID1: enter the number from the first SW56 line
- SPID2: Leave blank
- Disable unused lines.

Check if you need to configure the ADVANCED ISDN SETTINGS.

### Setting up a call

Go to the CALL MENU and select MAKE A CALL

- In the Call Menu, open DEFAULT CALL SETTINGS
- Set NET to ISDN
- Set BANDWIDTH to 128 KBPS
- A field for the 2nd ISDN number will pop up in CALL SETTINGS. Enter the second ISDN number in the NUMBER2 field.
- Set RESTRICT (56K) to ON.
- To use these settings for this call only, select the OK button. To save the settings as your new Default Call Settings select SET AS DEFAULT before pressing the OK button.
- Go on with your call and enter the number to be dialed.

# Setting up Bonded ISDN Calls using H.221 or 2x64k (2x56k)

Bonded ISDN calls are used when bridging of two or more ISDN channels to achieve higher data rates.

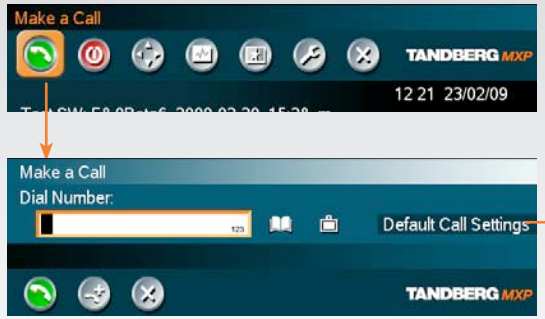
## H.221 or 2x64 (2x56) Calling

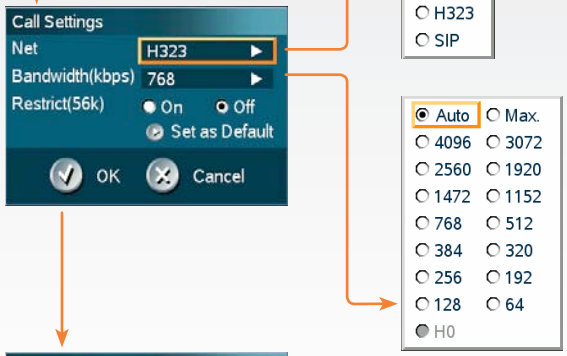
Some older or low end video systems do not have the ability to make bonded ISDN calls. In these cases it is necessary to dial both ISDN numbers separately to call those systems.

These types of calls are often referred to as

- H.221 calls
- 2 x 64 calls
- 2 x 56 calls

- as making 2 x 64 kbps or 2 x 56 kbps calls to the same system.






### Setting up a call

1. Go to the CALL MENU and select MAKE A CALL.
1. In the Call Menu, open DEFAULT CALL SETTINGS.
1. Set NET to H.320 (ISDN).
1. Set BANDWIDTH to 128 KBPS.
1. A field for the 2nd ISDN number will pop up in CALL SETTINGS. Enter the second ISDN number in the NUMBER2 field. For 128 kbps calls that uses bonding, just ignore the second number field.
1. Save
   - To save the settings as your new Default Call Settings select SET AS DEFAULT before pressing the OK button.
   - To use these settings for this call only, select the OK button.
7. In the MAKE A CALL menu, enter the number to be dialed.

# About Sub-address

A Sub-address is used to differentiate between systems on the same ISDN line and is primarily used in European Countries.

## How to Specify a Sub-address

To specify an ISDN sub-address or its LAN equivalent extension address (TCS-4), add a star (*) after the number and then enter the sub-address/extension address.

```
@/CSgxM
/bli

mKf:/@
f<CbxU m<b/iiUxMM x@:xfMvRf/iiUxMM 1 e
S/MM>RUi
```

**NOTE:** When dialing IP via a gateway, the number behind the star (*) on IP might be interpreted as an extension address.

# About Extension Address

When dialing via a gateway, a LAN equivalent extension address (or TCS-4) is used to differentiate between systems on the LAN.

# About MCU Password

When calling an external MCU (Multipoint Conference Unit) which requires a password (TSC-1), the password can be added after the star (*). If no password is specified at the time of dialing, the user will be asked to enter the password after connecting to the MCU.

# Using the file system

It is possible to access a file directory within the TANDBERG video system by means of ftp or http:

USING A DOS WINDOW: `r:S□□□ □/iiUxMM□Rr□MKM:xC□`

USING A WEB BROWSER: `r:S□□□□□ □/iiUxMM□Rr□MKM:xC□` or `k::S□□□□□ □/iiUxMM□Rr□MKM:xC>`

## Description of files

`/gg□SUC` - Includes all settings in the system (including directory)

`ivU□SUC` - Directory entries (up to 200 entries)

`xOxf:□gRh` - An event log that logs fault situations etc.

`M>□S2h` - An overview of the system software

`hgRbivU□SUC` - Contains up to 400 global directory entries. These entries can not be edited from the system, but can be edited as a text-file.

## Snapshot files

Web Snapshot files are accessible by ftp or http. Web snapshots are not generated if the conference is encrypted.

`Mv:x□□dSh` - Snapshot of current stream if MultiSite.

`C/vf□dSh` - Snapshot of selfview.

`Mv:x□□dSh` - Snapshot of decoded stream if point-to-point.

`i<R□dSh` - Snapshot of the encoded stream if transmitting DuoVideo and the decoded stream if receiving DuoVideo.

## Configure the video system for snapshots

To enable the system to generate JPEG snapshots and provide them when requested via a web interface (as http or via ftp get), go to Control Panel > Video and set the Web snapshot to On.

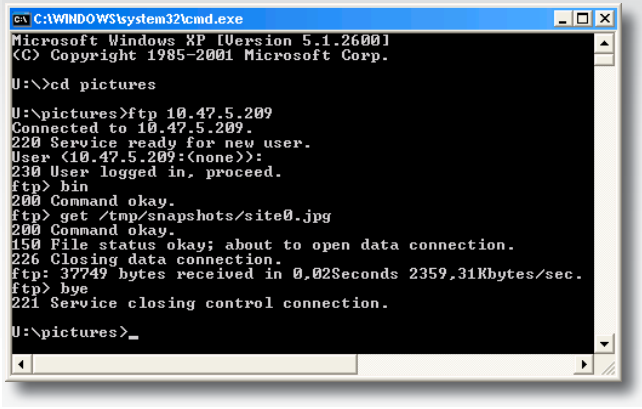
NOTE: The IP addresses used in the examples to the right are for educational purpose. To find the IP Address of your system check the System Information in the Diagnostics menu.

## Using a DOS window to access a JPG-file

Open a DOS window and go to the folder where the file is saved. For example type:

```
li□Svl:<UxM
r:S□□□ □/iiUxMM□Rr□MKM:xC□
bvf
hx:□□:CS□Mf/SMkR:M□@@@□dSh
```

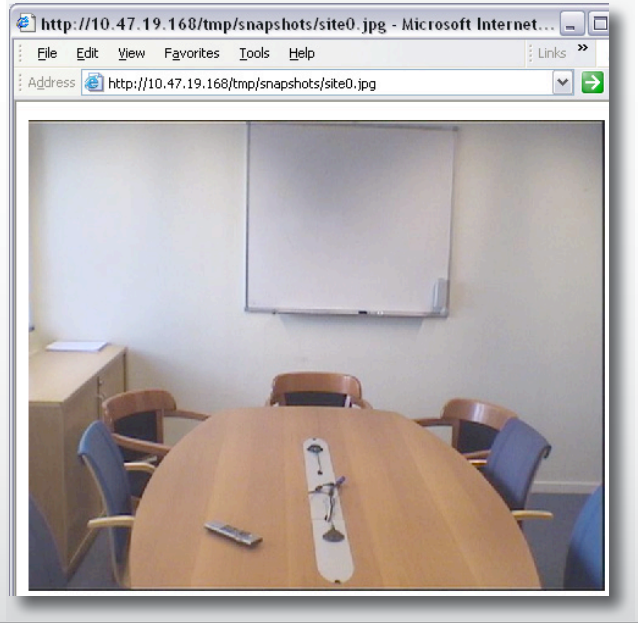
INFO: Before issuing the `hx:` command the `bvf` command must be executed to enable binary transmission of jpg-files. If not, the jpg-files will be corrupted.




## Using a Web browser to access a JPG-file

`k::S□□□□□ □/iiUxMM□Rr□MKM:xC□□:CS□Mf/SMkR:M□Mv:x□□dSh`

Enter the address, as described above to generate a snapshot, and the picture `□Mv:x□□dSh□` will appear in your browser.



# Apply your own logo

You can apply your own logo to be displayed on the video system. The new logo will be displayed the next time you restart your system.

Recommended maximum size is: 704 × 576 pixels and the file format is JPG.

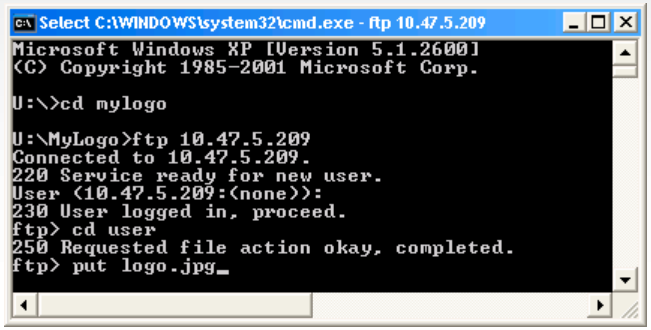
**NOTE!** If the file is too large, the logo will not be displayed.

**NOTE:** The IP addresses used in the examples are for educational purpose. To find the IP Address of your system check the System Information in the Diagnostics menu.

## Apply your own logo using a DOS window

Open a DOS window and go to the folder where your logo is located.

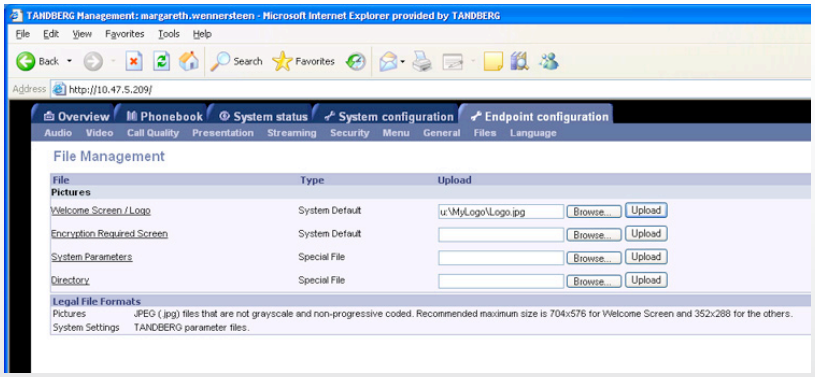
- Type: `r:S□□□ □/iiUxMM□Rr□KR<U□gRl/g MKM:xC□`
- Go to the user folder: type `li□<MxU`
- Upload your logo: type `S<:□□gRhR□dSh□`.
- Restart the system




## Apply your own logo using a web browser

Open a Web Browser and type `k::S□□□□□ □/iiUxMM□Rr□KR<U□gRl/g□MKM:xC□`

- Select Endpoint Configuration □□□vqxM
- Locate your <logo.jpg> file and press Upload
- Restart the system



# Dual Monitor, XGA Monitors and Projectors

Systems with dual monitor video outputs can be used with dual monitors:

- TANDBERG 8000 *MXP*
- TANDBERG 6000 *MXP* Profile
- TANDBERG 3000 *MXP* Profile
- TANDBERG 770/880/990 *MXP*

## Dual monitor

The dual monitor configuration requires a system with dual monitor video output.

### Control Panel Settings

The Dual Monitor setting must be set to On. Go to: General > Screen Settings > Dual Monitor.

The set-top systems (770/880/990 MXP) comes with dual monitor capability.

## XGA Monitors and Projectors

Some TANDBERG systems can be delivered with optional single or dual TV/XGA monitors.

It can also be connected to any DVI/VGA/PAL or NTSC display.

**NOTE!** This requires a system with minimum one DVI-I output.

### Control Panel Settings

To enable dual TV/XGA monitors, see the Video Out Settings. Go to: Control Panel > General Settings > Screen Settings > Video Out.

# Chapter 6

# Physical interfaces

This section describes the DVI interface and the physical interface of the codecs and video systems. You will also find an overview of the external network cables.

## Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: ▶ http://www.tandberg.com/docs

## In this chapter...


- The DVI interface
- VGA to DVI cable
- VGA to DVI-A cable
- Interfaces and sockets for Codec 6000 MXP
- Interfaces and sockets for Codec 3000 MXP and 3000 MXP Net
- Interfaces and sockets for 1700 MXP
- Interfaces and sockets for 1000 MXP
- Interfaces and sockets for Compass MXP
- Interfaces and sockets for Utility MXP
- Interfaces and sockets for Edge 95/85/75 MXP
- Interfaces and sockets for 990/880/880 MXP
- Interfaces and sockets for 550 MXP
- Cable specifications for
  - External network pinout
  - External network V.35/RS-366
  - External network RS-449
  - External network RS-449/RS-366
  - External network RS-530
  - External network RS-530/RS-366
  - External network RS-449 cable to KIV-7

# The Digital Visual Interface (DVI)

The Digital Visual Interface (DVI) is a video interface standard designed to maximize the visual quality of digital display devices such as flat panel LCD monitors, digital projectors and high-end video graphics cards.

The TANDBERG codec contains a DVI-I plug that can transmit either digital DVI signals or standard analog VGA signals, depending on what type of monitor is connected.

## DVI Specifications

TANDBERG DVI-I follows the VESA Monitor Timing Standard v1.08, also knows as Display Monitor Timing (DMT).

### VGA formats supported on DVI-I in

- SVGA (800x600) 60Hz, 72Hz, 75Hz, 85Hz
- XGA (1024x768) 60Hz, 70Hz, 75Hz
- SXGA (1280x1024) 60Hz
- HD720p (1280x720) 50Hz, 60Hz
- WXGA (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

### Supported DVI Cables

TANDBERG supports the DVI-D (digital only), DVI-A (analog only) and DVI-I (digital & analog) cables:

- DVI-D Single-Link - Transmits digital TMDS signals
- DVI-A - Transmits analog VGA signals
- DVI-I Single-Link - Transmits either digital or analog signals.

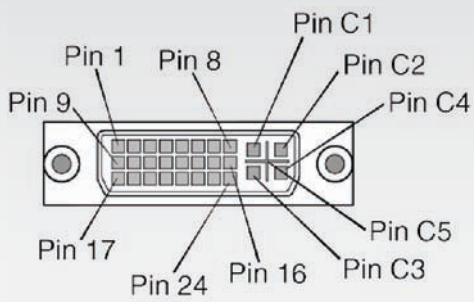
TMDS - Transition Minimized Differential Signaling is a technology for transmitting high-speed serial data and is used by the DVI and HDMI video interfaces.

### DVI Cable Length

It is possible to extend existing DVI cables by the use of extension cables. The maximum cable length however is 5 meters. Going beyond that may result in quality loss.

### The DVI-I Connector

The illustration shows a female DVI socket from the front.




### The DVI-I Pin-Out table

The table shows the DVI-I combined analog and digital connector pin assignments

| DVI-I Combined Analog and Digital Connector Pin Assignments | | | |
|---|---|---|---|
| PIN | Signal Assignment | PIN | Signal Assignment |
| 1 | TMDS Data2- | 16 | Hot Plug Detect |
| 2 | TMDS Data2+ | 17 | TMDS Data0- |
| 3 | TMDS Data2/4 Shield | 18 | TMDS Data0+ |
| 4 | TMDS Data4- | 19 | TMDS Data0/5 Shield |
| 5 | TMDS Data4+ | 20 | TMDS Data5- |
| 6 | DDC Clock | 21 | TMDS Data5+ |
| 7 | DDC Data | 22 | TMDS Clock Shield |
| 8 | Analog Vertical Sync | 23 | TMDS Clock+ |
| 9 | TMDS Data1- | 24 | TMDS Clock- |
| 10 | TMDS Data1+ | C1 | Analog Red |
| 11 | TMDS Data1/3 Shield | C2 | Analog Green |
| 12 | TMDS Data3- | C3 | Analog Blue |
| 13 | TMDS Data3+ | C4 | Analog Horizontal Sync |
| 14 | +5V Power | C5 | Analog Ground (return for R, G and B signals) |
| 15 | Ground (return for +5V, HSync and VSync) | | |

# The VGA to DVI Cable

The following systems are shipped with the VGA to DVI PC cable with integrated audio:

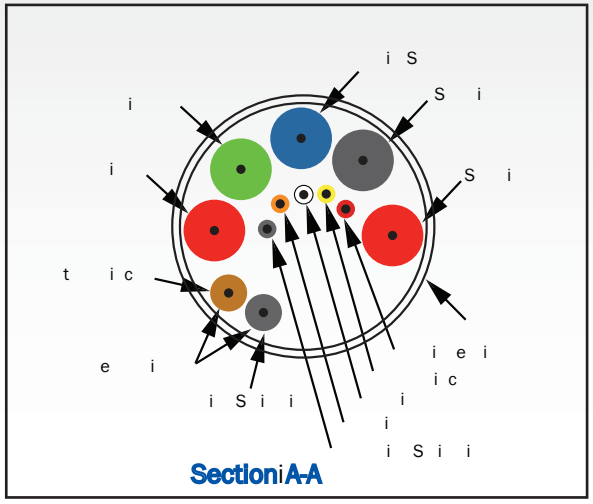
- TANDBERG 6000 *MXP* Profile
- TANDBERG 3000 *MXP* Profile
- TANDBERG Edge 75/85/95 *MXP*

## VGA - DVI Connector with audio

Cable: 5 coax*30#1P*28#*5C*28#

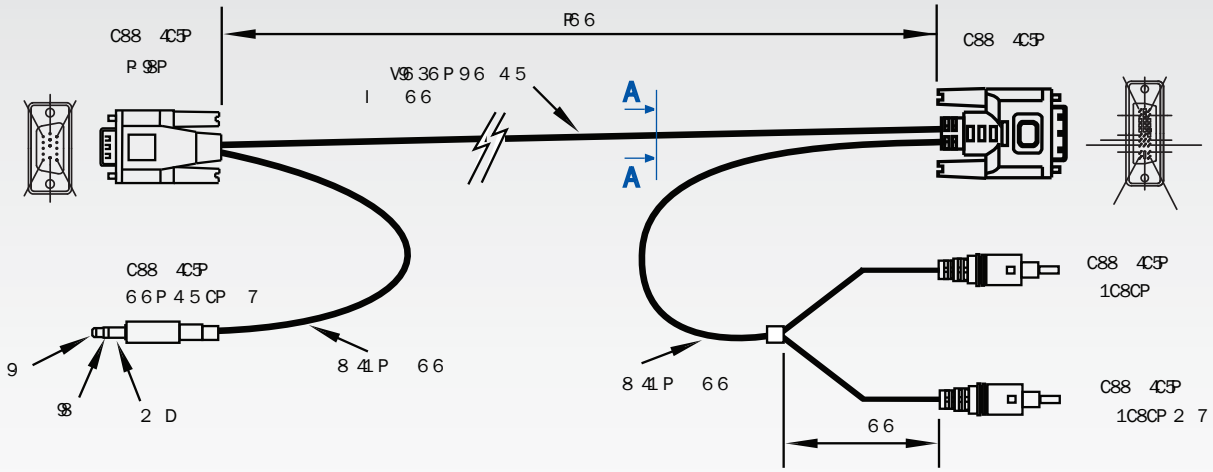
UL Style: UL 20276

75 Ohm, Coax




## PC cable, VGA - DVI with integrated audio

DVI-A Plug + 2xRCA Plug to VGA Plug + 3.5mm Stereo Plug, length 6m.



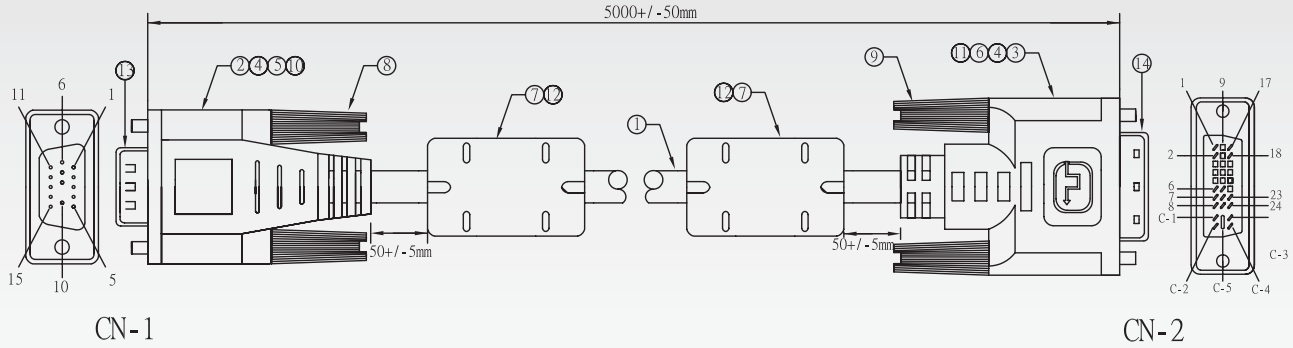

| PC Cable, VGA - DVI with Integrated Audio | | | | | | |
|---|---|---|---|---|---|---|
| Signal Name | CON1 Pin | CON2 Pin | CON3 Pin | CON4 Pin | CON5 Pin | Cable Color |
| DDC Clock | 15 | | 6 | | | Orange |
| DDC Data | 12 | | 7 | | | White |
| Vertical Sync | 14 | | 8 | | | Yellow |
| DDC Power (+5V) | 9 | | 14, 16 | | | Red |
| Digital Return | 5, 10 | | 15 | | | Black |
| RGB Red | 1 | | C1 | | | Red Coax |
| RGB Green | 2 | | C2 | | | Green Coax |
| RGB Blue | 3 | | C3 | | | Blue Coax |
| Horisontal Sync | 13 | | C4 | | | Brown |
| RGB Return | 6, 7, 8 | | C5 | | | RGB Coax Shield |
| Outer Shield Ground | Shell | | Shell | | | Outer Shield |
| Audio Left | | Tip | | | Centre | Audio Black |
| Audio Right | | Ring | | Centre | | Audio Red |
| Audio GND | | Sleeve | | GND | GND | Audio Shield |

# The VGA to DVI-A Cable

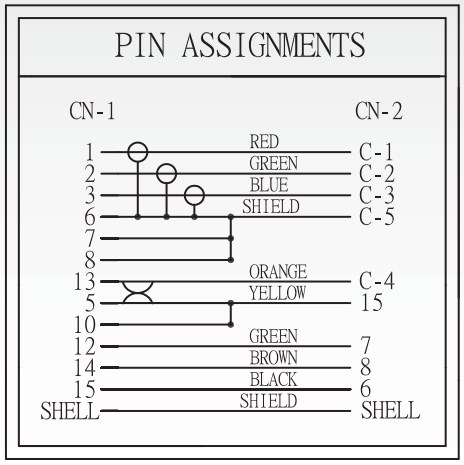
** The TANDBERG 550MXP and TANDBERG 770 MXP do not support VGA in, but the endpoint can be setup to support VGA out for a monitor.

## VGA to DVI-A Cable Pinouts

VGA to DVI-A cable** male-male 5m black, maximum length 5m.




## VGA to DVI-A Cable Pin Assignments




| PC Cable, VGA - DVI with Integrated Audio | | |
|---|---|---|
| No | Item | Description |
| 1 | Cable | UL20276 3Coax*30#+IP*28#+5C*28#+AEB Black OD:7.0mm L-5000mm |
| 2 | Connector | HDD 15P Male Black |
| 3 | Connector | HDD 17P Male Black |
| 4 | Tube | PE Tube Black OD:1.5*10 / 1.0*15 / 1.5*8 / 2.5*10 / 1.5*15 / 5.0*10 mm |
| 5 | Metal Can | HDD 15P Male OD:8.5mm |
| 6 | Metal Can | HDD 17P Male OD:8.5mm |
| 7 | Ferrite | RH 16*28.5*8.0mm |
| 8 | Screw | 4-40UNC 4*47mm Molded PVC 30P Black |
| 9 | Screw | 4-40UNC 4*47mm Molded PVC 30P Black |
| 10 | Molded | PVC Over mold 45P Black [A991826] |
| 11 | Molded | PVC Over mold 45P Black [A2K1188] |
| 12 | Molded | PVC Over mold 45P Black [A2K1017] |
| 13 | Dust Cover | HDD 15P Dust Cover PE Mold [A2T0225] |
| 14 | Dust Cover | DVI Dust Cover PE Mold [A2E1544] |

# Codec 6000 MXP Interfaces and sockets

## Audio Sockets

Use Audio Input No. 4 to connect to an external microphone amplifier or to an external mixer.

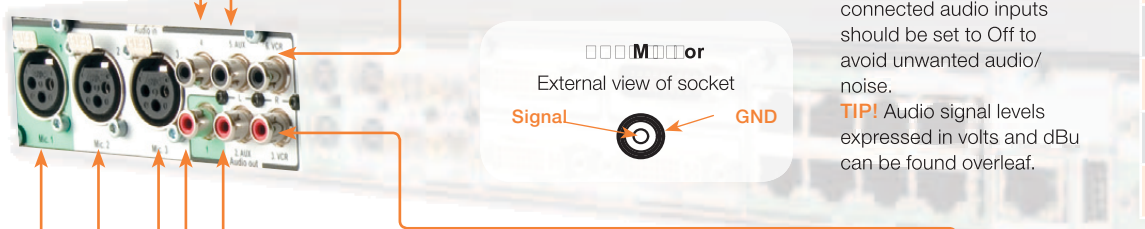
**NOTE!**
Audio inputs 4–6 are referred to as [illegible] **Mor[illegible]n** [illegible] in the API.

Use [illegible] **Mor[illegible]** [illegible] to connect to external playback devices or to telephone add-on hybrids. For systems configured with stereo I/O, connect the VCR/DVD left channel to this input.

Use [illegible] **Mor[illegible]** [illegible] to connect a VCR or DVD player to the system. For systems configured with stereo I/O, connect the VCR/DVD right channel to this input.

**TIP!** Audio inputs Nos. 5 & 6 are not equipped with acoustic echo canceller. Connecting microphones to these inputs can therefore not be recommended.

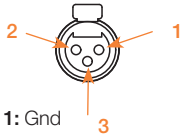
**TIP!** Unused, but connected audio inputs should be set to Off to avoid unwanted audio/noise.
**TIP!** Audio signal levels expressed in volts and dBu can be found overleaf.




[illegible] **i** [illegible] **M[illegible]Morc** [illegible] **c[illegible]n**.
Three balanced microphone inputs for electret microphones balanced, 24V phantom powered via XLR connectors.

The phantom powering of XLR socket No. 3 can be switched off. The Mic. input No. 3 will then be a balanced line level input.

[illegible] **M[illegible]or**
External view of socket




**Pin 1:** Gnd
**Pin 2:** Hot
**Pin 3:** Cold/neutral

Use [illegible] **orMor** [illegible] to provide a mixed signal of audio from far end and local external devices connected to input 5 & 6, in addition to dial tones.

This output should be connected to the local loudspeaker system, which may, or may not, include the TANDBERG Digital Natural Audio Module.

For systems configured with stereo speakers and SPDIF† active, the left and right channel of the loudspeaker signal will both be provided on this output.

For systems configured with stereo speakers and SPDIF† not active, the left channel of the loudspeaker signal will be present on this output. The right loudspeaker channel will be provided on Audio Output No. 2.

† SPDIF (Sony/Philips Digital Interface) is used by the Digital Natural Audio module.

Use [illegible] **orMor** [illegible] (the AUX output) to provide a mixed signal consisting of audio from the local side (AUX input not included) and audio from the far end.

This output should be used when connecting a telephone add-on system.

For system configured with stereo I/O and with SPDIF† active on Audio Output No. 1, this output will provide the VCR left channel stereo information.

For systems configured with stereo I/O, stereo speakers and SPDIF† not active, this output will provide the right channel of the loudspeaker signal (the left channel will be provided on the Audio Output No. 1).

Use [illegible] **orMor** [illegible] (the VCR output) to provide a mixed signal consisting of audio from the local side (VCR input not included) and audio from the far end.

This output should be used when connecting a VCR to the system.

For system configured with stereo I/O and with SPDIF† active on Audio Output No. 1, this output will provide the VCR right channel stereo information.

For systems configured with stereo I/O, stereo speakers and SPDIF† not active, this output will provide the mix of left and right channel of the VCR out signal.

### Stereo Settings

| Settings | | | Output Response | | |
|---|---|---|---|---|---|
| Out 1 mode | Stereo I/O mode | Stereo speakers | Audio Out 1 | Audio Out 2 | Audio Out 3 |
| Analogue | Off | Off | Loudspeaker mono | Aux | VCR |
| Analogue | Off | On | Loudspeaker L | Loudspeaker R | VCR |
| Analogue | On | Off | Loudspeaker mono | VCR L | VCR R |
| Analogue | On | On | Loudspeaker L | Loudspeaker R | VCR |
| SPDIF | Off | Off | Loudspeaker mono | Aux | VCR |
| SPDIF | Off | On | Loudspeaker L&R | Aux | VCR |
| SPDIF | On | Off | Loudspeaker mono | VCR L | VCR R |
| SPDIF | On | On | Loudspeaker L&R | VCR L | VCR R |

### Hardware Information

| | Microphone(s) | Audio Input(s) | Audio Outputs |
|---|---|---|---|
| Signal type | Balanced | Unbalanced | |
| Socket | XLR-F | RCA/phono | |
| Input impedance | 2400W (pin 2–3) | 10kW | |
| Output impedance | | | 680W |
| Max input level when set to min. input level | 83mVpp | 15.5Vpp | |
| Max output level when set to max. output level | | | 15.5Vpp |
| Max input level when set to max. input level | 6.2mVpp | 1.2Vpp | |
| Max output level when set to min. output level | | | 1.2Vpp |
| Gain range | 22.5dB (16 steps of 1.5dB) | | |
| Phantom power | 24V±5% | | |
| Phantom power resistor pin 2 | 1200W | | |
| Phantom power resistor pin 3 | 1200W | | |
| Max phantom power current | 12mA | | |

## Codec 6000 MXP Interfaces and sockets, *cont...*

### Audio Signal Levels in Vpp and dBu

**Microphone Inputs 1, 2 & 3 Signal levels**

| Signal levels Input menu level setting [dB] | Clipping levels [mVpp] | Clipping levels [dBu] | Nominal level [dBu] |
|---|---|---|---|
| 0.0 | 83.0 | –28.4 | –46.4 |
| 1.5 | 69.8 | –29.9 | –47.9 |
| 3.0 | 58.8 | –31.4 | –49.4 |
| 4.5 | 49.4 | –32.9 | –50.9 |
| 6.0 | 41.6 | –34.4 | –52.4 |
| 7.5 | 35.0 | –35.9 | –53.9 |
| 9.0 | 29.4 | –37.4 | –55.4 |
| 10.5 | 24.8 | –38.9 | –56.9 |
| 12.0 | 20.8 | –40.4 | –58.4 |
| 13.5 | 17.5 | –41.9 | –59.9 |
| 15.0 | 14.8 | –43.4 | –61.4 |
| 16.5 | 12.4 | –44.9 | –62.9 |
| 18.0 | 10.4 | –46.4 | –64.4 |
| 19.5 | 8.8 | –47.9 | –65.9 |
| 21.0 | 7.4 | –49.4 | –67.4 |
| 22.5 | 6.2 | –50.9 | –68.9 |

This specification is always valid for mic 1 and 2, and for mic 3 if mic level setting is selected.

**Microphone Input 3 Line level mode signal levels**

| Signal levels Input menu level setting [dB] | Clipping levels [Vpp] | Clipping levels [dBu] | Nominal level [dBu] |
|---|---|---|---|
| 0.0 | 15.5 | 17.0 | –1.0 |
| 1.5 | 13.0 | 15.5 | –2.5 |
| 3.0 | 11.0 | 14.0 | –4.0 |
| 4.5 | 9.2 | 12.5 | –5.5 |
| 6.0 | 7.8 | 11.0 | –7.0 |
| 7.5 | 6.5 | 9.5 | –8.5 |
| 9.0 | 5.5 | 8.0 | –10.0 |
| 10.5 | 4.6 | 6.5 | –11.5 |
| 12.0 | 3.9 | 5.0 | –13.0 |
| 13.5 | 3.3 | 3.5 | –14.5 |
| 15.0 | 2.8 | 2.0 | –16.0 |
| 16.5 | 2.3 | 0.5 | –17.5 |
| 18.0 | 2.0 | –1.0 | –19.0 |
| 19.5 | 1.6 | –2.5 | –20.5 |
| 21.0 | 1.4 | –4.0 | –22.0 |
| 22.5 | 1.2 | –5.5 | –23.5 |

This specification is valid for mic 3 if line level setting is selected.

**Audio Inputs 4, 5 & 6 Signal levels**

| Signal levels Input menu level setting [dB] | Clipping levels [Vpp] | Clipping levels [dBu] | Nominal level [dBu] |
|---|---|---|---|
| 0.0 | 15.5 | 17.0 | –1.0 |
| 1.5 | 13.0 | 15.5 | –2.5 |
| 3.0 | 11.0 | 14.0 | –4.0 |
| 4.5 | 9.2 | 12.5 | –5.5 |
| 6.0 | 7.8 | 11.0 | –7.0 |
| 7.5 | 6.5 | 9.5 | –8.5 |
| 9.0 | 5.5 | 8.0 | –10.0 |
| 10.5 | 4.6 | 6.5 | –11.5 |
| 12.0 | 3.9 | 5.0 | –13.0 |
| 13.5 | 3.3 | 3.5 | –14.5 |
| 15.0 | 2.8 | 2.0 | –16.0 |
| 16.5 | 2.3 | 0.5 | –17.5 |
| 18.0 | 2.0 | -1.0 | –19.0 |
| 19.5 | 1.6 | -2.5 | –20.5 |
| 21.0 | 1.4 | -4.0 | –22.0 |
| 22.5 | 1.2 | -5.5 | –23.5 |

Default levels are denoted as follows: **–31.4**

**Audio Outputs 1, 2 & 3 Signal levels**

| Signal levels Input menu level setting [dB] | Absolute max output level [Vpp] | Absolute max output level [dBu] | Nominal level [dBu] |
|---|---|---|---|
| 0.0 | 1.2 | –5.5 | –23.5 |
| 1.5 | 1.4 | –4.0 | –22.0 |
| 3.0 | 1.6 | –2.5 | –20.5 |
| 4.5 | 1.9 | –1.0 | –19.0 |
| 6.0 | 2.3 | 0.5 | –17.5 |
| 7.5 | 2.8 | 2.0 | –16.0 |
| 9.0 | 3.3 | 3.5 | –14.5 |
| 10.5 | 3.9 | 5.0 | –13.0 |
| 12.0 | 4.6 | 6.5 | –11.5 |
| 13.5 | 5.5 | 8.0 | –10.0 |
| 15.0 | 6.5 | 9.5 | –8.5 |
| 16.5 | 7.8 | 11.0 | –7.0 |
| 18.0 | 9.2 | 12.5 | –5.5 |
| 19.5 | 11.0 | 14.0 | –4.0 |
| 21.0 | 13.0 | 15.5 | –2.5 |
| 22.5 | 15.5 | 17.0 | –1.0 |

This specification is always valid for output 2 and 3, and for output 1 at volume setting 15.


**NOTE:** Audio inputs 4–6 are referred to as Line input 1–3 in the API.

**TIP:** To convert dBu values to dBV, subtract 2.2 dB from the dBu value.

**EXAMPLE:** –10 dBu = –12.2 dBV

**NOTE:** The input clipping levels and the absolute max output levels all assume sinusoidal signals for the dBu values.

## Codec 6000 MXP Interfaces and sockets, *cont...*

### Video sockets

Mini-DIN sockets

Main camera | Aux. camera

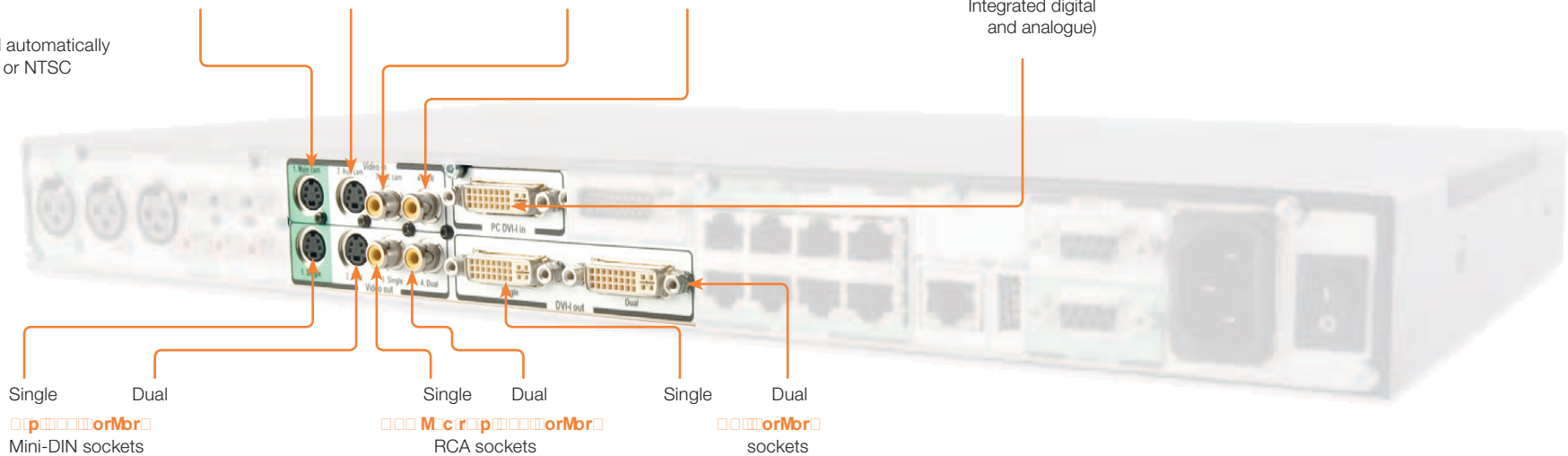
RCA sockets

Doc. camera | VCR

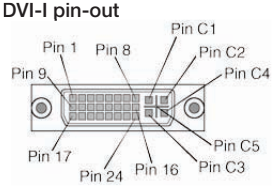
sockets (Digital Visual Interface, Integrated digital and analogue)

Note that the S-Video/Composite outputs on the Codec 6000 *MXP* are by default turned off from factory.

The system will automatically adapt to a PAL or NTSC input.




**DVI-I pin-out**




**Note:** TANDBERG supports DVI-D Single-Link, DVI-A and DVI-I Single-Link format cables.

DVI-D cables transmit digital T.M.D.S. signals, DVI-A cables transmit analogue VGA signals and DVI-I cables can transmit either digital or analogue signals.

If your DVI cable is not long enough, use extension cables. Observe, however, that the maximum cable length should not exceed 5m to avoid quality loss.

**DVI-I Pin-out**

| Pin | Assignment | Pin | Assignment | Pin | Assignment |
|---|---|---|---|---|---|
| 1 | T.M.D.S. Data 2– | 9 | T.M.D.S. Data 1– | 17 | T.M.D.S. Data 0– |
| 2 | T.M.D.S. Data 2+ | 10 | T.M.D.S. Data 1+ | 18 | T.M.D.S. Data 0+ |
| 3 | T.M.D.S. Data 2/4 Shield | 11 | T.M.D.S. Data 1/3 Shield | 19 | T.M.D.S. Data 0/5 Shield |
| 4 | T.M.D.S. Data 4– | 12 | T.M.D.S. Data 3– | 20 | T.M.D.S. Data 5– |
| 5 | T.M.D.S. Data 4+ | 13 | T.M.D.S. Data 3+ | 21 | T.M.D.S. Data 5+ |
| 6 | DDC Clock | 14 | +5V power | 22 | T.M.D.S. Clock Shield |
| 7 | DDC Data | 15 | GND (return for +5V, HSync and Vsync) | 23 | T.M.D.S. Clock+ |
| 8 | Analogue Vertical Sync | 16 | Hot plug detect | 24 | T.M.D.S. Clock– |
| C1 | Analogue Red | C2 | Analogue Green | C3 | Analogue Blue |
| C4 | Analogue Horizontal Sync | C5 | Analogue GND (analogue R, G & B return) | | |

**Formats supported on DVI-I out:**
**SVGA** (800×600) 75Hz
**XGA** (1024×768) 60Hz
**SXGA** (1280×1024) 60Hz
**HD720p** (1280×720) 50Hz, 60Hz
**WXGA** (1280×768) 60Hz

**Formats supported on DVI-I in:**

**SVGA** (800×600) 60Hz, 72Hz, 75Hz, 85Hz
**XGA** (1024×768) 60Hz, 70Hz, 75Hz
**SXGA** (1280×1024) 60Hz
**HD720p** (1280×720) 50Hz, 60Hz
**WXGA** (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

**Do as follows to get WXGA:**

- **VGA Out Quality** must be set to **Auto**.
- **VGA Monitor Format** must be set to **Wide**.
- **PC Picture Format** must be set to **Normal**.

If you are using TANDBERG supplied monitors this will give WXGA out when displaying graphics.

If non-TANDBERG provided displays are used, you must in addition execute the command:

```
@Rfrvh<U/:vRfuvixR.<:S<:MggR>co.f
```

**Levels**

**Composite:** 1Vpp, 75

**S-Video (Y/C):**

**Y:** 1Vpp, 75
**C (PAL):** 0.3Vpp, 75
**C (NTSC):** 0.28Vpp, 75

**S-video Mini-DIN pin-out**
External view of socket


**Pin 1:** Ground (Luminance)
**Pin 2:** Ground (Chrominance)
**Pin 3:** Luminance (Y)
**Pin 4:** Chrominance (C)

**RCA pin-out**
External view of socket

# Codec 6000 MXP Interfaces and sockets, *cont...*

## Camera sockets

**TIP!** Wherever applicable, the use of Category 5 cabling or better is strongly recommended! For HD camera applications, however, Category 7.5 is required.


**S-video Mini-DIN pin-out**
External view of socket


**Pin 1:** Ground (Luminance)
**Pin 2:** Ground (Chrominance)
**Pin 3:** Luminance (Y)
**Pin 4:** Chrominance (C)

**TANDBERG WAVE II Camera cable pin-out**

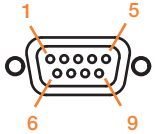
| SIGNAL NAME | RJ-45 | DSUB |
|---|---|---|
| +12V DC | 8 | 4 |
| GND | 7 | 5 |
| +12V DC | 3 | 4 |
| TXD | 4 | 3 |
| RXD | 5 | 2 |
| GND | 6 | 5 |
| GND | 2 | 5 |
| +12V DC | 1 | 4 |

**TANDBERG HD 6000 Camera cable pin-out**

| SIGNAL NAME | RJ-45 | | DSUB |
|---|---|---|---|
| +12V DC | 1 | Twisted pair | 4 |
| GND | 2 | | 5 |
| Rx | 3 | Twisted pair | 2 |
| TX | 6 | | 3 |
| LVDS+ | 4 | Twisted pair | 1 |
| LVDS– | 5 | | 6 |
| GND | 7 | Twisted pair | 5 |
| +12V DC | 8 | | 4 |

Cable is Category 7.5/ Class F AWG24. Extreme care should be taken if you choose to make your own version of this cable!

**9-pin D-SUB pin-out**
External view of socket




**RJ-45 Connector pin-out**

# Codec 6000 MXP Interfaces and sockets, *cont...*

## Data ports

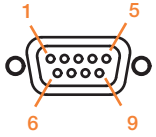
ES N RPd d Sd N

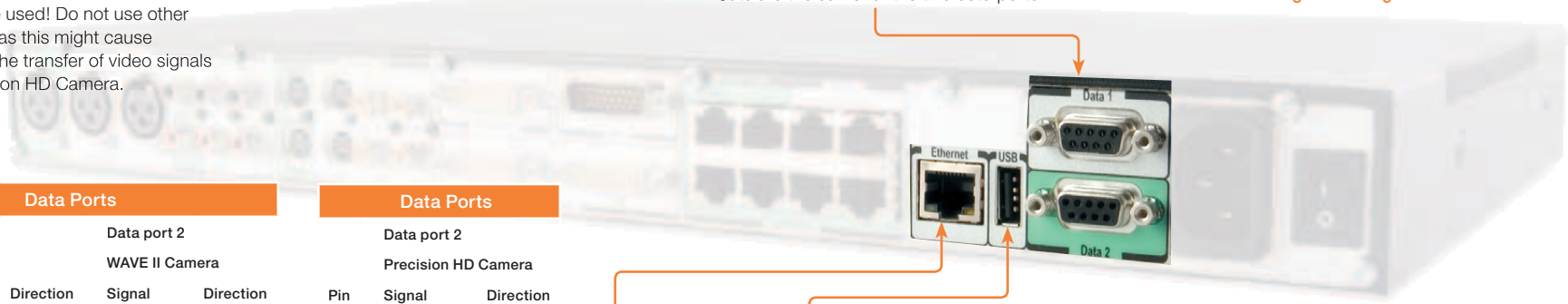
**NOTE!** The enclosed TANDBERG Camera Cables must be used! Do not use other camera cables as this might cause problems with the transfer of video signals from the Precision HD Camera.

**Data port 1 (upper) and Data port 2 (lower).**
The Data ports are implemented as Digital Circuit Terminating Equipment (DCE).

**NOTE!** The TANDBERG main camera is normally connected to data port 2 and pin No. 4 provides 12 VDC / 1 A to the main camera. Otherwise the pin-outs are the same for the two data ports.

**9-pin D-SUB pin-out**
External view of socket




**Ethernet interface.** For future use.

**USB interface.** For future use.

**Data Ports**

| Pin | Data port 1 Signal name | Data port 1 Direction | Data port 2 WAVE II Camera Signal name | Data port 2 WAVE II Camera Direction |
|---|---|---|---|---|
| 1 | Carrier detect, CD | From DCE | Carrier detect, CD | From DCE |
| 2 | Receive data, RXD | From DCE | Receive data, RXD | From DCE |
| 3 | Transmit data, TXD | To DCE | Transmit data, TXD | To DCE |
| 4 | Data terminal ready, DTR | From DCE | 12 V / 1 A | |
| 5 | Signal GND | | Signal GND | |
| 6 | Data set ready, DSR | From DCE | Data set ready, DSR | From DCE |
| 7 | Ready to send, RTS | To DCE | Ready to send, RTS | To DCE |
| 8 | Clear to send, CTS | From DCE | Clear to send, CTS | From DCE |
| 9 | Ring indicator, RI | From DCE | Ring indicator, RI | From DCE |

1) The TANDBERG main camera is normally connected to data port 2 and pin No. 4 provides 12 VDC / 1 A to the main camera. Otherwise the pin-outs are the same for the two data ports.

**Data Ports**

| Pin | Data port 2 Precision HD Camera Signal name | Data port 2 Precision HD Camera Direction |
|---|---|---|
| 1 | Video LVDS+ | To DCE |
| 2 | Receive data, RXD | From DCE |
| 3 | Transmit data, TXD | To DCE |
| 4 | Power, +12 V | |
| 5 | Signal GND | |
| 6 | Video LVDS- | To DCE |

**E1/T1 Interface**

| PRI | Pin-out | Crossover PRI cable |
|---|---|---|
| Pin 1 | RX+ | 4 |
| Pin 2 | RX– | 5 |
| Pin 4 | TX+ | 1 |
| Pin 5 | TX– | 2 |

**RJ-45 Connector pin-out**


**Precision HD Camera Pin-Out on 8 pin RJ (shielded modular jack)**

| Signal Name | Pin Number |
|---|---|
| +12V (presence 2.8mA current source when connected in daisy chain) | 8 |
| GND | 7 |
| TXD (out) | 6 |
| Video LVDS - | 5 |
| Video LVDS + | 4 |
| RXD (in) | 3 |
| GND | 2 |
| +12 V | 1 |

This connector is used for the power, video and control signals to the main camera.

**Precision HD Camera Pin-Out on 6 pin RJ (modular jack)**

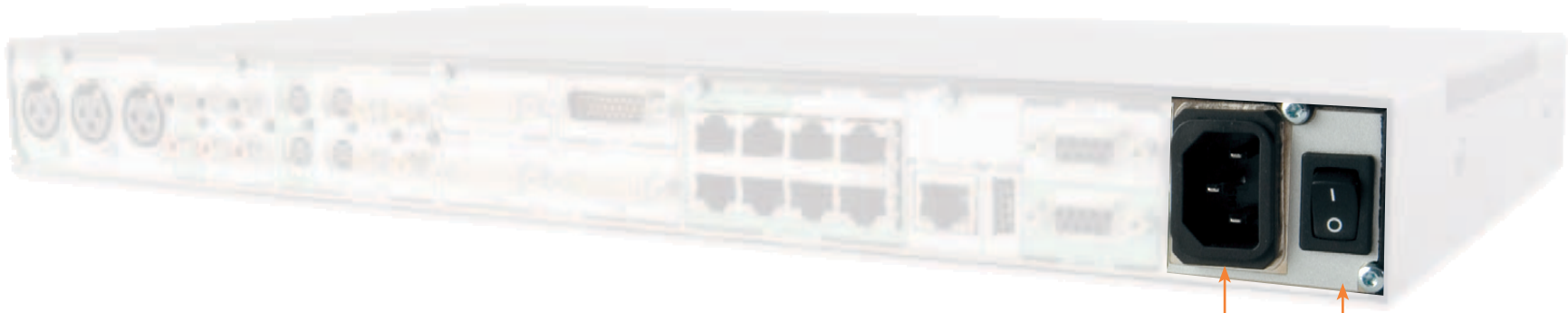
| Signal Name | Pin Number |
|---|---|
| GND | 6 |
| GND | 5 |
| RXD (in) | 4 |
| TXD (out) | 3 |
| Presence (12 V in daisy chain) | 2 |
| GND | 1 |

This connector is used when cascading cameras: Control (out) signal and external camera detection. **NOTE**: It does not provide power for cascaded camera.

## Codec 6000 MXP Interfaces and sockets, *cont...*

### Power Socket & On/Off Switch

**CAUTION!** This equipment must be grounded!



**Mains power connector**
Accepts 100–240 V 50–60 Hz
1 A max.

**Mains switch**

# Codec 3000 MXP and 3000 MXP Net Interfaces and sockets

Rear panel sockets and interface groups

Codec 3000 *MXP*


The Codec 3000 *MXP* comes in two flavours – with ISDN BRI sockets (upper) or with Net socket (lower).

Codec 3000 *MXP* Net

# Codec 3000 MXP Interfaces and sockets, *cont...*

## Audio Sockets

**TIP!** Audio signal levels expressed in volts and dBu can be found overleaf.

**NOTE!** Audio inputs 3 & 4 are referred to as YZ+d YZGkcd dd in the API.

**TIP!** Unused, but connected audio inputs should be set to Off to avoid unwanted audio/ noise.

Use kUYBdZGkcPBd to connect to external playback devices. This input can also be configured as a microphone input. It will then function *in lieu* of the Mic. 2 input and be connected to Mic. 2's echo canceller (which can be turned on/off).

Use kUYBdZGkcPBd to connect a VCR or DVD player to the system. For systems configured with stereo I/O, connect the VCR/DVD right channel to this input. This input should be used when connecting a telephone add-on system.

**TIP!** Audio Input No. 4 is not equipped with an acoustic echo canceller. Connecting a microphone to this input can therefore not be recommended.


Use kUYBdRkcGkcPBd to provide a mixed signal of audio from far end and local external devices connected to input 3 & 4 in addition to dial tones.

This output should be connected to the local loudspeaker system, which may, or may not, include the TANDBERG Digital Natural Audio Module.

For systems configured with stereo speakers and SPDIF† active, the left and right channel of the loudspeaker signal will both be provided on this output.

For systems configured with stereo speakers and SPDIF† not active, the left channel of the loudspeaker signal will be present on this output. The right loudspeaker channel will be provided on Audio Output No. 2.

Use kUYBdRkcGkcPBd (the VCR output) to provide a mixed signal consisting of audio from the local side (VCR not included) and audio from the far end.

This output should be used when connecting a telephone add-on system.

For system configured with stereo I/O and with SPDIF† active on Audio Output No. 1, this output will provide the VCR left channel stereo information.

For systems configured with stereo I/O, stereo speakers and SPDIF† not active, this output will provide the right channel of the loudspeaker signal (the left channel will be provided on the Audio Output No. 1).

† SPDIF (Sony/Philips Digital Interface) is used by the Digital Natural Audio module.

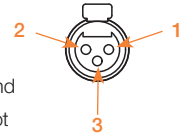
YLIBG/BZ+dZGkcdPBi d w . Two balanced microphone inputs for electret microphones balanced, 24V phantom powered via XLR connectors.

**RCA pin-out**

External view of socket


**XLR pin-out**

External view of socket




E Pd Gnd
E Pd Hot
E Pd Cold/neutral

### Stereo Settings

| Settings | | | Output Response | |
|---|---|---|---|---|
| Out 1 mode | Stereo I/O mode | Stereo speakers | Audio Out 1 | Audio Out 2 |
| Analogue | Off | Off | Loudspeaker mono | VCR |
| Analogue | Off | On | Loudspeaker L | Loudspeaker R |
| Analogue | On | Off | Loudspeaker mono | VCR |
| Analogue | On | On | Loudspeaker L | Loudspeaker R |
| SPDIF | Off | Off | Loudspeaker mono | VCR |
| SPDIF | Off | On | Loudspeaker L&R | VCR |
| SPDIF | On | Off | Loudspeaker mono | VCR |
| SPDIF | On | On | Loudspeaker L&R | VCR |

### Hardware Information

| | Microphone(s) | Audio Input(s) | Audio Outputs |
|---|---|---|---|
| Signal type | Balanced | Unbalanced | |
| Socket | XLR-F | RCA/phono | |
| Input impedance | 2400□ (pin 2–3) | 10k□ | |
| Output impedance | | | 680□ |
| Max input level when set to min. input level | 83 mVpp | 15.5 Vpp | |
| Max output level when set to max. output level | | | 15.5 Vpp |
| Max input level when set to max. input level | 6.2 mVpp | 1.2 Vpp | |
| Max output level when set to min. output level | | | 1.2 Vpp |
| Gain range | 22.5 dB (16 steps of 1.5 dB) | | |
| Phantom power | 24 V ± 5 % | | |
| Phantom power resistor pin 2 | 1200□ | | |
| Phantom power resistor pin 3 | 1200□ | | |
| Max phantom power current | 12 mA | | |

## Codec 3000 MXP Interfaces and sockets, *cont...*

### Audio Signal levels in Vpp and dBu

| Microphone Inputs 1 & 2 Signal levels | | | |
|---|---|---|---|
| Signal levels | Clipping levels | | Nominal level |
| Input menu level setting [dB] | [mVpp] | [dBu] | [dBu] |
| 0.0 | 83.0 | –28.4 | –46.4 |
| 1.5 | 69.8 | –29.9 | –47.9 |
| 3.0 | 58.8 | –31.4 | –49.4 |
| 4.5 | 49.4 | –32.9 | –50.9 |
| 6.0 | 41.6 | –34.4 | –52.4 |
| 7.5 | 35.0 | –35.9 | –53.9 |
| 9.0 | 29.4 | –37.4 | –55.4 |
| 10.5 | 24.8 | –38.9 | –56.9 |
| 12.0 | 20.8 | –40.4 | –58.4 |
| 13.5 | 17.5 | –41.9 | –59.9 |
| 15.0 | 14.8 | –43.4 | –61.4 |
| 16.5 | 12.4 | –44.9 | –62.9 |
| 18.0 | 10.4 | –46.4 | –64.4 |
| 19.5 | 8.8 | –47.9 | –65.9 |
| 21.0 | 7.4 | –49.4 | –67.4 |
| 22.5 | 6.2 | –50.9 | –68.9 |

| Audio Inputs 3 & 4 Signal levels | | | |
|---|---|---|---|
| Signal levels | Clipping levels | | Nominal level |
| Input menu level setting [dB] | [Vpp] | [dBu] | [dBu] |
| 0.0 | 15.5 | 17.0 | –1.0 |
| 1.5 | 13.0 | 15.5 | –2.5 |
| 3.0 | 11.0 | 14.0 | –4.0 |
| 4.5 | 9.2 | 12.5 | –5.5 |
| 6.0 | 7.8 | 11.0 | –7.0 |
| 7.5 | 6.5 | 9.5 | –8.5 |
| 9.0 | 5.5 | 8.0 | –10.0 |
| 10.5 | 4.6 | 6.5 | –11.5 |
| 12.0 | 3.9 | 5.0 | –13.0 |
| 13.5 | 3.3 | 3.5 | –14.5 |
| 15.0 | 2.8 | 2.0 | –16.0 |
| 16.5 | 2.3 | 0.5 | –17.5 |
| 18.0 | 2.0 | -1.0 | –19.0 |
| 19.5 | 1.6 | -2.5 | –20.5 |
| 21.0 | 1.4 | -4.0 | –22.0 |
| 22.5 | 1.2 | -5.5 | –23.5 |

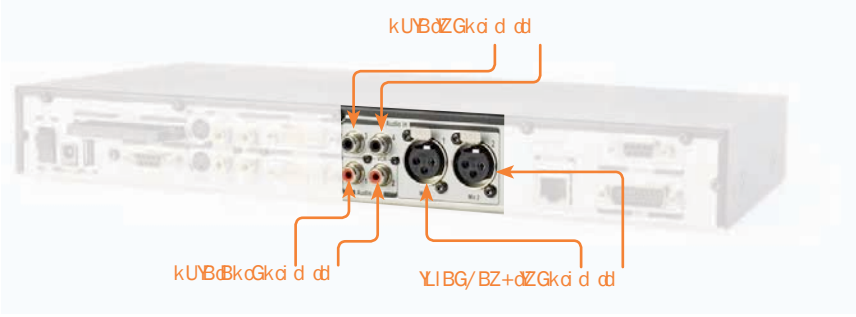
| Audio Outputs 1 & 2 Signal levels | | | |
|---|---|---|---|
| Signal levels | Absolute max output level | | Nominal level |
| Input menu level setting [dB] | [Vpp] | [dBu] | [dBu] |
| 0.0 | 1.2 | –5.5 | –23.5 |
| 1.5 | 1.4 | –4.0 | –22.0 |
| 3.0 | 1.6 | –2.5 | –20.5 |
| 4.5 | 1.9 | –1.0 | –19.0 |
| 6.0 | 2.3 | 0.5 | –17.5 |
| 7.5 | 2.8 | 2.0 | –16.0 |
| 9.0 | 3.3 | 3.5 | –14.5 |
| 10.5 | 3.9 | 5.0 | –13.0 |
| 12.0 | 4.6 | 6.5 | –11.5 |
| 13.5 | 5.5 | 8.0 | –10.0 |
| 15.0 | 6.5 | 9.5 | –8.5 |
| 16.5 | 7.8 | 11.0 | –7.0 |
| 18.0 | 9.2 | 12.5 | –5.5 |
| 19.5 | 11.0 | 14.0 | –4.0 |
| 21.0 | 13.0 | 15.5 | –2.5 |
| 22.5 | 15.5 | 17.0 | –1.0 |

**NOTE!** Audio inputs 3 & 4 are referred to as Line input 1 & 2 in the API.

**TIP!** To convert dBu values to dBV, subtract 2.2 dB from the dBu value.

**EXAMPLE:** –10 dBu = –12.2 dBV

**NOTE!** The input clipping levels and the absolute max output levels all assume sinusoidal signals for the dBu values.

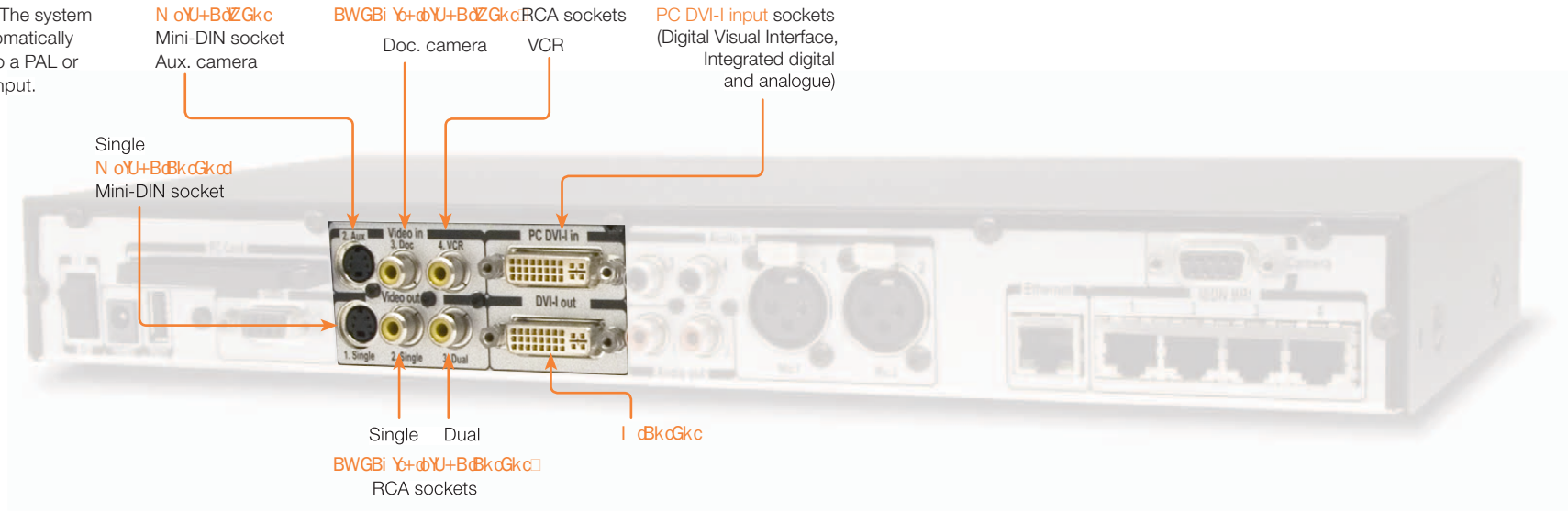


Default levels are denoted as follows:

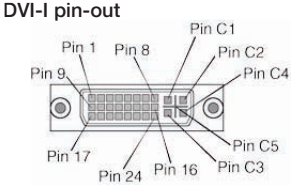
**–31.4**

# Codec 3000 MXP Interfaces and sockets, *cont...*

## Video Sockets




### DVI-I pin-out




**Note:** TANDBERG supports DVI-D Single-Link, DVI-A and DVI-I Single-Link format cables.

DVI-D cables transmit digital T.M.D.S. signals, DVI-A cables transmit analogue VGA signals and DVI-I cables can transmit either digital or analogue signals.

If your DVI cable is not long enough, use extension cables. Observe, however, that the maximum cable length should not exceed 5 m to avoid quality loss.

**DVI-I Pin-out**

| Pin | Assignment | Pin | Assignment | Pin | Assignment |
|---|---|---|---|---|---|
| 1 | T.M.D.S. Data 2– | 9 | T.M.D.S. Data 1– | 17 | T.M.D.S. Data 0– |
| 2 | T.M.D.S. Data 2+ | 10 | T.M.D.S. Data 1+ | 18 | T.M.D.S. Data 0+ |
| 3 | T.M.D.S. Data 2/4 Shield | 11 | T.M.D.S. Data 1/3 Shield | 19 | T.M.D.S. Data 0/5 Shield |
| 4 | T.M.D.S. Data 4– | 12 | T.M.D.S. Data 3– | 20 | T.M.D.S. Data 5– |
| 5 | T.M.D.S. Data 4+ | 13 | T.M.D.S. Data 3+ | 21 | T.M.D.S. Data 5+ |
| 6 | DDC Clock | 14 | +5 V power | 22 | T.M.D.S. Clock Shield |
| 7 | DDC Data | 15 | GND (return for +5V, HSync and Vsync) | 23 | T.M.D.S. Clock+ |
| 8 | Analogue Vertical Sync | 16 | Hot plug detect | 24 | T.M.D.S. Clock– |
| C1 | Analogue Red | C2 | Analogue Green | C3 | Analogue Blue |
| C4 | Analogue Horizontal Sync | C5 | Analogue GND (analogue R, G & B return) | | |

**Formats supported on DVI-I out:**
**SVGA** (800 × 600) 75 Hz
**XGA** (1024 × 768) 60 Hz
**SXGA** (1280 × 1024) 60 Hz
**HD720p** (1280 × 720) 50 Hz, 60 Hz
**WXGA** (1280×768) 60 Hz

**Formats supported on DVI-I in:**

**SVGA** (800 × 600) 60 Hz, 72 Hz, 75 Hz, 85 Hz
**XGA** (1024 × 768) 60 Hz, 70 Hz, 75 Hz
**SXGA** (1280 × 1024) 60 Hz
**HD720p** (1280 × 720) 50 Hz, 60 Hz
WXGA (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

**Do as follows to get WXGA:**

- **VGA Out Quality** must be set to **Auto**.
- **VGA Monitor Format** must be set to **Wide**.
- **PC Picture Format** must be set to **Normal**.

If you are using TANDBERG supplied monitors this will give WXGA out when displaying graphics.

If non-TANDBERG provided displays are used, you must in addition execute the command:

```
@Rfrvh<U/:vRfuvixR.<:S<:MggR>co.f
```

**Levels**

**Composite:** 1 Vpp, 75

**S-Video (Y/C):**

**Y:** 1 Vpp, 75
**C (PAL):** 0.3 Vpp, 75
**C (NTSC):** 0.28 Vpp, 75

### S-video Mini-DIN pin-out

External view of socket


**Pin 1:** Ground (Luminance)
**Pin 2:** Ground (Chrominance)
**Pin 3:** Luminance (Y)
**Pin 4:** Chrominance (C)

### RCA pin-out

External view of socket

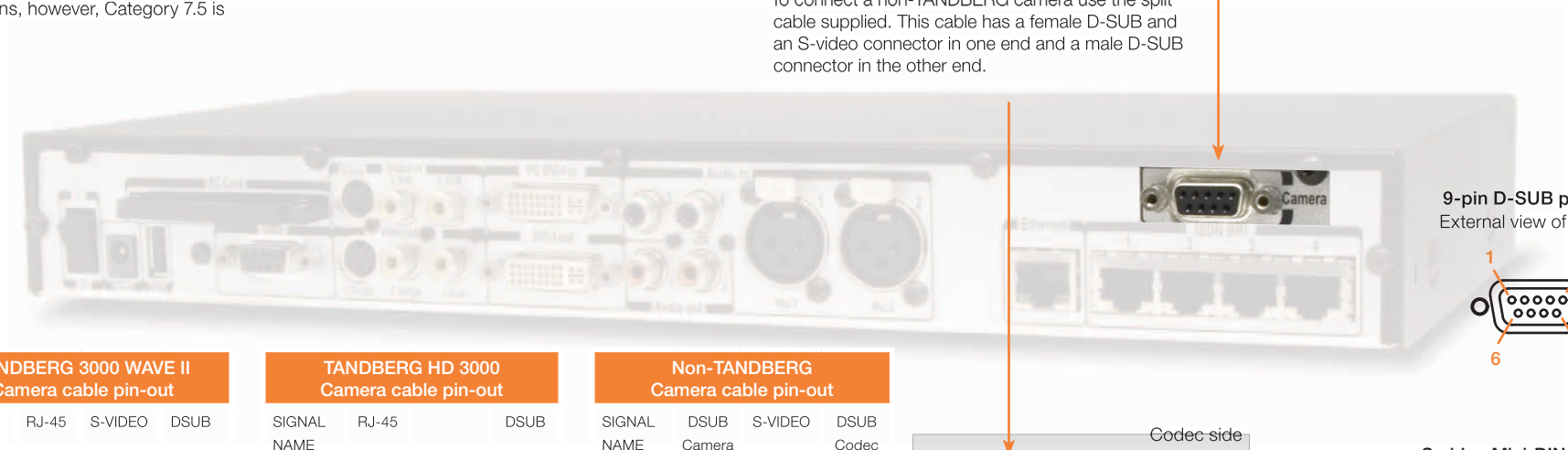
# Codec 3000 MXP Interfaces and sockets, *cont...*

## Camera Sockets

**TIP!** Wherever applicable, the use of Category 5 cabling or better is strongly recommended! For HD camera applications, however, Category 7.5 is required.

Camera Connect the camera here. Use a TANDBERG 3000 WAVE II Camera cable or similar.

To connect a non-TANDBERG camera use the split cable supplied. This cable has a female D-SUB and an S-video connector in one end and a male D-SUB connector in the other end.



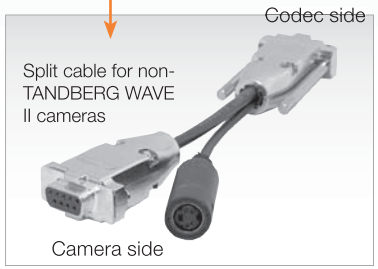

**9-pin D-SUB pin-out**
External view of socket


| TANDBERG 3000 WAVE II Camera cable pin-out | | | |
|---|---|---|---|
| SIGNAL NAME | RJ-45 | S-VIDEO | DSUB |
| +12V DC | 8 | — | 4 |
| GND | 7 | — | 5 |
| +12V DC | 3 | — | 4 |
| TXD | 4 | — | 3 |
| RXD | 5 | — | 2 |
| GND | 6 | — | 5 |
| GND | 2 | — | 5 |
| +12V DC | 1 | — | 4 |
| Y-GND | — | 1 | 8 |
| C_GND | — | 2 | 1 |
| Y | — | 3 | 9 |
| C | — | 4 | 6 |
| NC | — | — | 7 |

| TANDBERG HD 3000 Camera cable pin-out | | | |
|---|---|---|---|
| SIGNAL NAME | RJ-45 | | DSUB |
| +12V DC | 1 | Twisted pair | 4 |
| GND | 2 | | 1 |
| Rx | 3 | Twisted pair | 2 |
| TX | 4 | | 6 |
| LVDS+ | 5 | Twisted pair | 9 |
| LVDS– | 6 | | 3 |
| GND | 7 | Twisted pair | 5 |
| +12V DC | 8 | | 4 |

Cable is Category 7.5/ Class F AWG24. Extreme care should be taken if you choose to make your own version of this cable!

| Non-TANDBERG Camera cable pin-out | | | |
|---|---|---|---|
| SIGNAL NAME | DSUB Camera | S-VIDEO | DSUB Codec |
| +12V DC | 1 | — | 4 |
| GND | 2 | — | 5 |
| +12V DC | 3 | — | 4 |
| TXD | 4 | — | 3 |
| RXD | 5 | — | 2 |
| GND | 6 | — | 5 |
| GND | 7 | — | 5 |
| +12V DC | 8 | — | 4 |
| Y-GND | — | 1 | 8 |
| C_GND | — | 2 | 1 |
| Y | — | 3 | 9 |
| C | — | 4 | 6 |
| NC | — | — | 7 |




**S-video Mini-DIN pin-out**
External view of socket


**Pin 1:** Ground (Luminance)
**Pin 2:** Ground (Chrominance)
**Pin 3:** Luminance (Y)
**Pin 4:** Chrominance (C)

**RJ-45 Connector pin-out**

## Codec 3000 MXP Interfaces and sockets, *cont...*

**NOTE!** The ISDN BRI Sockets are not applicable to Codec 3000 *MXP* Net

### ISDN BRI Sockets

**TIP!** Wherever applicable, the use of Category 5 cabling or better is strongly recommended! For HD camera applications, however, Category 7.5 is required.


| S/T Interface | |
|---|---|
| **BRI** | **Pin out** |
| Pin 3 | TX+ |
| Pin 4 | RX+ |
| Pin 5 | RX– |
| Pin 6 | TX– |

S d BZZ+LcBl pin-out


N Pd S dZc+l-FL+ ISDN I.420 (RJ-45 Jack) Basic Rate Interface S/T (2B+D), 128 kbps per ISDN I/F. Use any standard BRI cable to connect the Codec to BRI.

# Codec 3000 MXP Net Interfaces and sockets, *cont...*

**NOTE!** The Net Socket applies to Codec 3000 *MXP* Net only

## Net Socket

| RS366 DTE DCE | | | |
|---|---|---|---|
| **Pin** | **Signal name** | **Direction** | **Description** |
| 1 | FGND | | Frame GND |
| 2 | DPR | | Digit Present |
| 3 | ACR | | Abandon Call & Retry |
| 4 | CRQ | | Call Request |
| 5 | PND | | Present Next Digit |
| 6 | DLO | | Data Line Occupied |
| 7 | NB1 | | Digit Bit 1 |
| 8 | NB2 | | Digit Bit 2 |
| 9 | NB4 | | Digit Bit 4 |
| 10 | NB8 | | Digit Bit 8 |


| V35 DTE DCE | | | |
|---|---|---|---|
| **Pin** | **Signal name** | **Direction** | **Description** |
| 1 | FGND | | Frame GND on equipment |
| 11 | SD(A) | | Send Data / Transmit |
| 12 | SD(B) | | Send Data / Transmit |
| 13 | RD(A) | | Receive Data |
| 14 | RD(B) | | Receive Data |
| 15 | SCR(A) | | Signal Clock Receive |
| 16 | SCR(B) | | Signal Clock Receive |
| 17 | SCT(A) | | Signal Clock Transmit |
| 18 | SCT(B) | | Signal Clock Transmit |
| 19 | GND[1] | | Signal GND |
| 22 | RLSD(CD) | | Received Line Signal Detector / Carrier Detect |
| 23 | RLSD(GND)[1] | | Signal GND |
| 24 | RI | | Ring Indicator |
| 25 | LOS | | Loss of Signal (KG194) |
| 26 | DTR | | Data Terminal Ready |

1) This pin is connected to ground for correct operations

| RS449 DTE DCE | | | |
|---|---|---|---|
| **Pin** | **Signal name** | **Direction** | **Description** |
| 1 | FGND | | Frame GND |
| 11 | SD(A) | | Send Data |
| 12 | SD(B) | | Send Data |
| 13 | RD(A) | | Receive Data |
| 14 | RD(B) | | Receive Data |
| 15 | RT(A) | | Receive Timing |
| 16 | RT(B) | | Send Timing |
| 17 | ST(A) | | Send Timing |
| 18 | ST(B) | | Send Timing |
| 19 | GND[1] | | GND |
| 20 | TR(A) | | Terminal Ready |
| 21 | TR(B) | | Terminal Ready |
| 22 | RR(A) | | Carrier Detect / Receiver Ready |
| 23 | RR(B) | | Carrier Detect / Receiver Ready |
| 24 | IC | | Incoming Call |
| 25 | LOS | | Loss of Signal (KG194) |

Frame GND is connected to pin 1 on DTE
1) This pin is connected to ground for correct operations

### Note the following:

**V.10 (RS423).** For balanced signals a 0=low voltage, is defined as terminal A positive with respect to terminal B. For unbalanced signals a 0=low voltage, is defined as terminal positive with respect to GND. Cable length ford +Fi +Ud YZ+d BZd BZ should not exceed 20m.

**RS366.** All balanced inputs and outputs (A and B) use balanced line signals according to V.11 (RS422), while single ended signals are in accordance with V.10 (RS423). The 0=low voltage definitions are the same as for V.10 above. Max cable length, as for V.10 above.

**X.21.** Signals are as for RS366 above. Cable length should not exceed 50m.

| X.21 DTE DCE | | | |
|---|---|---|---|
| **Pin** | **Signal name** | **Direction** | **Description** |
| 1 | FGND | | Frame GND |
| 11 | T(A) | | Send Data / Transmit |
| 12 | T(B) | | Send Data / Transmit |
| 13 | R(A) | | Received Data / Receive |
| 14 | R(B) | | Received Data / Receive |
| 15 | S(A) | | Signal Element Timing |
| 16 | S(B) | | Signal Element Timing |
| 20 | C(A) | | Terminal Ready / Control |
| 21 | C(B) | | Terminal Ready / Control |
| 22 | I(A) | | Carrier Detect |
| 23 | I(B) | | Carrier Detect |

## Codec 3000 MXP Interfaces and sockets, *cont...*

### Network interface sockets

**TIP!** Wherever applicable, the use of Category 5 cabling or better is strongly recommended! For HD camera applications, however, Category 7.5 is required.

E dLFIU dWireless LAN PC card may be inserted here.


ANd YZc+I-FL+ For future use.

FcFdGBI c The Data port is implemented as a Digital Circuit Terminating Equipment (DCE).

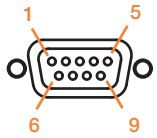
c/+IZ+cd P (RJ-45 Jack) **interface** (10/100 Mb). Up to 4 or 6 Mbps, depending on the bandwidth option installed. Use any standard Ethernet cable to connect the Codec to a LAN.

If no LAN is available and the Codec is connected directly to a computer, use a crossover cable.

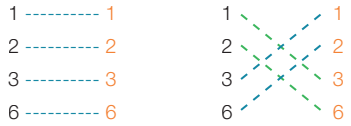
**Data port**

| Pin | Signal name | Direction |
|---|---|---|
| 1 | Carrier detect, CD | From DCE |
| 2 | Receive data, RXD | From DCE |
| 3 | Transmit data, TXD | To DCE |
| 4 | Data terminal ready, DTR | From DCE |
| 5 | Signal GND | |
| 6 | Data set ready, DSR | From DCE |
| 7 | Ready to send, RTS | To DCE |
| 8 | Clear to send, CTS | From DCE |
| 9 | Ring indicator, RI | From DCE |

**9-pin D-SUB pin-out**
External view of socket




**Ethernet cable**




Wiring diagram standard cable | Wiring diagram crossover cable

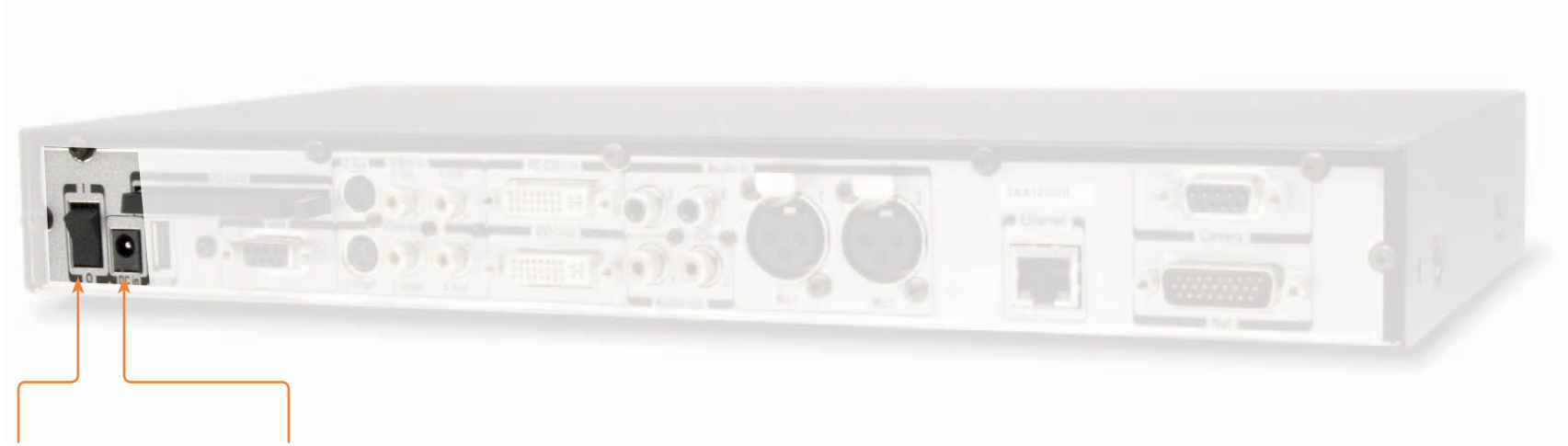
**RJ-45 Connector pin-out**


**TIP!** If you connect your Codec directly to a PC, make sure you set up the system to use static TCP/IP settings. There will be no DHCP server controlling the LAN created by the computer and the Codec. When configuring a back-to-back connection between the PC and the Codec, make sure both static IP addresses exist on the same subnet.

## Codec 3000 MXP Interfaces and sockets, *cont...*

### Power Socket & On/Off Switch

**CAUTION!** This equipment must be grounded!

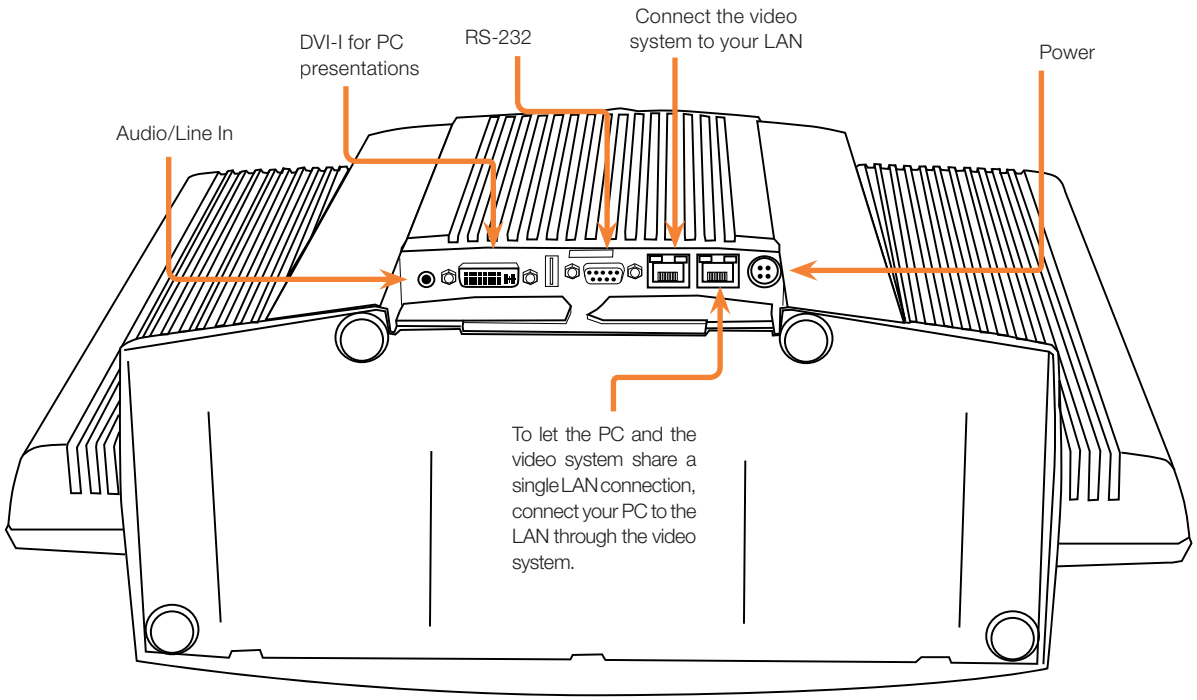


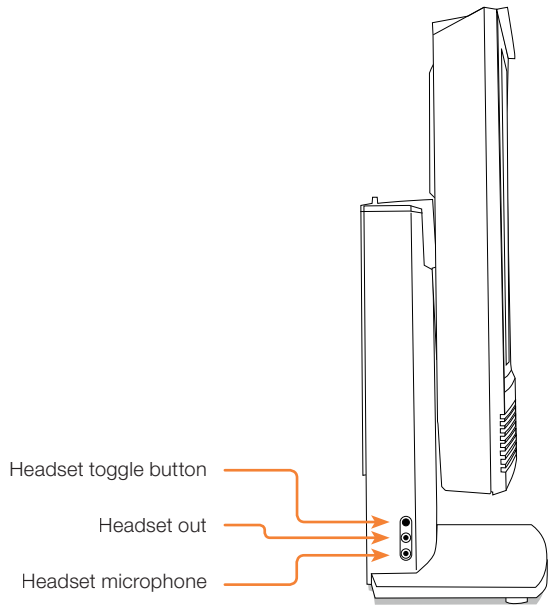
EBn +Id n YdL/

EBn +IdLBI Udl BLH+c d
Accepts 12 V DC / 4.3 A

# TANDBERG 1700 MXP interfaces and sockets

Rear Panel Sockets



# TANDBERG 1700 MXP Interfaces and sockets, *cont...*

## Video, Audio and Network

### I RdPEAT

- 1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) input, analog or digital.

### I d RS TNdNAEERST dRPd I dP

SVGA (800x600) 60Hz, 72Hz, 75Hz, 85Hz

XGA (1024x768) 60 Hz, 70Hz, 75Hz

SXGA (1280x1024) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

WXGA (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### N T

- 1 Headset Toggle button
- 1 Headset Input
- 1 Headset Output
- 1 Audio/Line In connector

### A Rd Pd Pd RPP TRS

- Signal type: Unbalanced
- Connector (codec): 3.5mm stereo jack, sleeve-gnd, tip-left, ring-right
- Input impedance: 56K ohms
- Signal levels: See table overleaf

Go to the next page to see all audio level settings tables for the TANDBERG 1700 *MXP*.

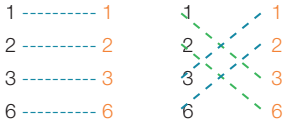
All audio inputs are active by default. For further information, refer to chapter Audio.

### T SP T

- 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 768kbps. To connect the video system to your LAN.
- 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 768kbps. To let the PC and the video system share a single LAN connection, connect your PC to the LAN through the video system.

To connect the system to a LAN, use the Ethernet cable provided by TANDBERG (or a standard Ethernet cable). If no LAN is available and the codec is connected directly to a computer, use a crossover cable.

**Ethernet cable**




Wiring diagram standard cable | Wiring diagram crossover cable

**RJ-45 Connector pin-out**


If no DHCP server is controlling the small LAN, which has been created between the computer and the video system, then static TCP/IP settings must be used. When configuring a back-to-back connection between the PC and the video system, make sure both static IP addresses exist on the same subnet.

# TANDBERG 1700 MXP Interfaces and sockets, *cont...*

## Audio level settings table

The level settings can be adjusted independently for Line in Left, Line in Right, Headset Mic and Headset Out.

Go to the Control Panel Library to see a full description of the Audio Level Settings for the TANDBERG 1700 *MXP*.

**TIP!** Since the unit has built-in microphones and loudspeakers, the level settings apply to Line Inputs level and the headset loudspeakers/ microphone only.

| | Headset input | Headset Output |
|---|---|---|
| Signal type | Unbalanced | Unbalanced |
| Connector (codec) | 3.5mm jack, sleeve-gnd, tip-microphone | 3.5mm stereo jack, sleeve-gnd, tip-left, ring-right |
| Impedance | 2200 ohms | Low |

Input is System Input (from Headset), Output is System Output (to Headset)

| Audio Line In Connector Specification | | | |
|---|---|---|---|
| Signal Levels | Clipping Level | | Nominal Level |
| Input menu level setting | Vpp | dBu | dBu |
| 0,0 dB | 15,5 Vpp | 17,0 dBu | –1,0 dBu |
| 1,5 dB | 13,0 Vpp | 15,5 dBu | –2,5 dBu |
| 3,0 dB | 11,0 Vpp | 14,0 dBu | –4,0 dBu |
| 4,5 dB | 9,2 Vpp | 12,5 dBu | –5,5 dBu |
| 6,0 dB | 7,8 Vpp | 11,0 dBu | –7,0 dBu |
| 7,5 dB | 6,5 Vpp | 9,5 dBu | –8,5dBu |
| 9,0 dB | 5,5 Vpp | 8,0 dBu | –10,0 dBu |
| 10,5 dB | 4,6 Vpp | 6,5 dBu | –11,5 dBu |
| 12,0 dB | 3,9 Vpp | 5,0 dBu | –13,0 dBu |
| 13,5 dB | 3,3 Vpp | 3,5 dBu | –14,5 dBu |
| 15,0 dB | 2,8 Vpp | 2,0 dBu | –16,0 dBu |
| 16,5 dB | 2,3 Vpp | 0,5 dBu | –17,5 dBu |
| 18,0 dB | 2,0 Vpp | –1,0 dBu | –19,0 dBu |
| 19,5 dB | 1,6 Vpp | –2,5 dBu | –20,5 dBu |
| 21,0 dB | 1,4 Vpp | –4,0 dBu | –22,0 dBu |
| 22,5 dB | 1,2 Vpp | –5,5 dBu | –23,5 dBu |

Figures shown INVERTED denote default values.

| Headset Output Levels (from System) | | | |
|---|---|---|---|
| Signal levels | Abs. max output level | | Nominal level |
| Output menu level setting | Vpp | dBu | dBu |
| 0,0 dB | 0,2 Vpp | –20,4 dBu | –38,4 dBu |
| 1,5 dB | 0,2 Vpp | –18,9 dBu | –36,9 dBu |
| 3,0 dB | 0,3 Vpp | –17,4 dBu | –35,4 dBu |
| 4,5 dB | 0,4 Vpp | –15,9 dBu | –33,9 dBu |
| 6,0 dB | 0,4 Vpp | –14,4 dBu | –32,4 dBu |
| 7,5 dB | 0,5 Vpp | –12,9 dBu | –30,9 dBu |
| 9,0 dB | 0,6 Vpp | –11,4 dBu | –29,4 dBu |
| 10,5 dB | 0,7 Vpp | –9,9 dBu | –27,9 dBu |
| 12,0 dB | 0,8 Vpp | –8,4 dBu | –26,4 dBu |
| 13,5 dB | 1,0 Vpp | –6,9 dBu | –24,9 dBu |
| 15,0 dB | 1,2 Vpp | –5,4 dBu | –23,4 dBu |
| 16,5 dB | 1,4 Vpp | –3,9 dBu | –21,9 dBu |
| 18,0 dB | 1,7 Vpp | –2,4 dBu | –20,4 dBu |
| 19,5 dB | 2,0 Vpp | –0,9 dBu | –18,9 dBu |
| 21,0 dB | 2,4 Vpp | 0,6 dBu | –17,4 dBu |
| 22,5 dB | 2,8 Vpp | 2,1 dBu | –15,9 dBu |

| Headset Input Levels (to System) | | | |
|---|---|---|---|
| Signal Levels | Clipping Level | | Nominal Level |
| Input menu level setting | mVpp | dBu | dBu |
| 0,0 dB | 80 mVpp | –28,8 dBu | –46,8 dBu |
| 1,5 dB | 67 mVpp | –30,3 dBu | –48,3 dBu |
| 3,0 dB | 57 mVpp | –31,8 dBu | –49,8 dBu |
| 4,5 dB | 48 mVpp | –33,3 dBu | –51,3 dBu |
| 6,0 dB | 40 mVpp | –34,8 dBu | –52,8 dBu |
| 7,5 dB | 34 mVpp | –36,3 dBu | –54,3 dBu |
| 9,0 dB | 28 mVpp | –37,8 dBu | –55,8 dBu |
| 10,5 dB | 24 mVpp | –39,3 dBu | –57,3 dBu |
| 12,0 dB | 20 mVpp | –40,8 dBu | –58,8 dBu |
| 13,5 dB | 17 mVpp | –42,3 dBu | –60,3 dBu |
| 15,0 dB | 14 mVpp | –43,8 dBu | –61,8 dBu |
| 16,5 dB | 12 mVpp | –45,3 dBu | –63,3 dBu |
| 18,0 dB | 10 mVpp | –46,8 dBu | –64,8 dBu |
| 19,5 dB | 8 mVpp | –48,3 dBu | –66,3 dBu |
| 21,0 dB | 7 mVpp | –49,8 dBu | –67,8 dBu |
| 22,5 dB | 6 mVpp | –51,3 dBu | –69,3 dBu |

Figures shown INVERTED denote default values.

# TANDBERG 1700 MXP Interfaces and sockets, *cont...*

## Td ERST

The data port(s) are implemented as Data Communications Equipment (DCE). The connectors used are female 9-pin D-subs.

| Data Port - Pin Specification | | |
|---|---|---|
| **Signal Name** | **Direction** | **Pin Number** |
| Carrier detect, CD | From DCE | 1 |
| Receive data, RXD | From DCE | 2 |
| Transmit data, TXD | To DCE | 3 |
| Data terminal ready, DTR | From DCE | 4 |
| Signal ground, GND | - | 5 |
| Data set ready, DSR | From DCE | 6 |
| Ready to send, RTS | To DCE | 7 |
| Clear to send, CTS | From DCE | 8 |
| Ring indicator, RI | From DCE | 9 |

# TANDBERG 1000 MXP, Compass/Utility MXP interfaces and sockets

## Rear Panel Sockets

The TANDBERG Compass *MXP* is built for use in public areas.

Compass *MXP* has a 1000 *MXP* inside the box and is intended for use in Kiosk Mode.

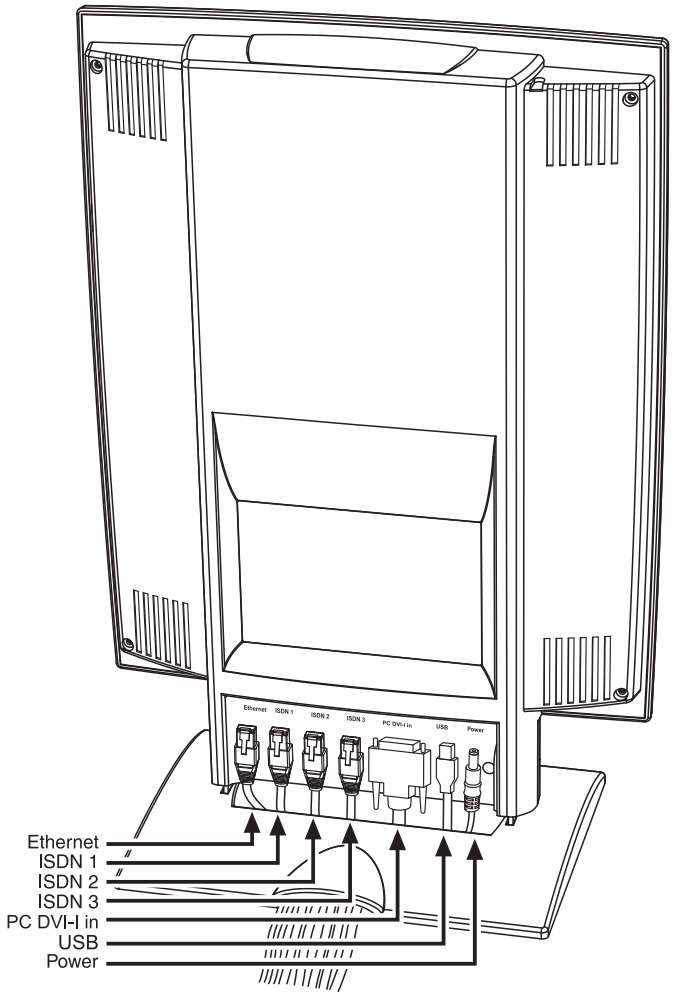
The physical interfaces is identical to 1000 *MXP* but some features may not be in use. Example: WLAN is not in use by Compass *MXP*.

The TANDBERG Utility *MXP* is built for use in rugged environments.

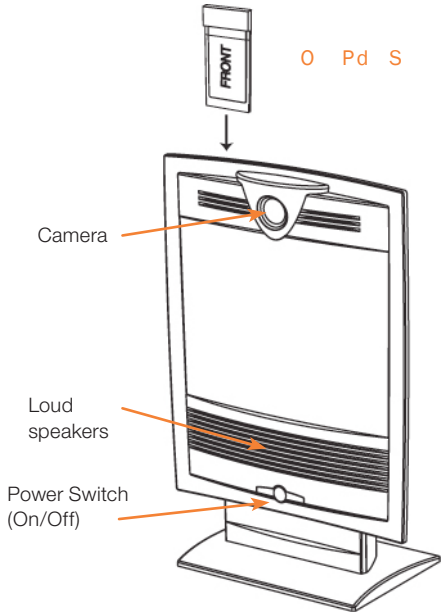
Utility *MXP* has a 1000 *MXP* inside the box and is intended for use in Kiosk Mode.

The physical interfaces is identical to 1000 *MXP* but some features may not be in use. Example: WLAN is not in use by Utility *MXP*.

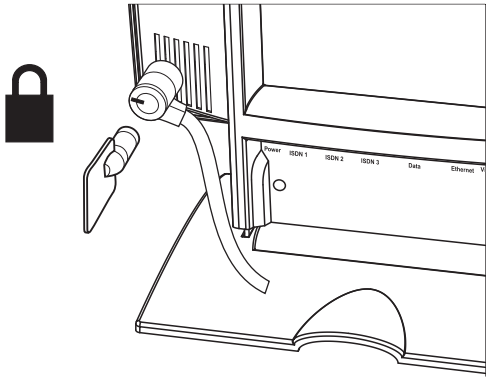
S SœE P d NR TN




O Pd S




PN P TRPd R



# TANDBERG 1000 MXP, Compass/Utility MXP Interfaces and sockets, *cont...*

## Video, Audio and Network

### I RdPEAT

The TANDBERG 1000 *MXP*, Compass *MXP*, Utility *MXP* have:

- 1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) input, analog or digital.

### I d RS TNdNAEERST dRPd I dP

SVGA (800x600) 60Hz, 72Hz, 75Hz, 85Hz

XGA (1024x768) 60 Hz, 70Hz, 75Hz

SXGA (1280x1024) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### N T

The TANDBERG 1000 *MXP* is delivered with:

- 1 headset connector, 2.5mm 3-pole mini-jack.

The headset plug must have the following configuration:

- Tip: microphone output
- Ring: earphone (receiver input)
- Sleeve: common/ground

All audio inputs are active by default. For further information, refer to chapter Audio.

**INFO:** Headsets with the microphone positioned in front of the user's mouth, connected to the earphone through a rod, tend to give more echo than earbud headsets with the microphone attached to the cord. TANDBERG recommends the Plantronics MX100 headset (http://www.plantronics.com, products mobile).

TANDBERG 1000 *MXP*: Activate the headset by pressing the button in front, located below of the TANDBERG logo. Deactivate the headset by pressing the button once more.

### T P S d R E NNd*MXP*d P dAT TCd*MXP*d

The Compass *MXP* and Utility *MXP* are built in solid boxes with integrated microphone and handset.

### SRE RP

The microphone is integrated and located at the edge on the left hand side of the unit.

### P N T

For privacy, both Utility *MXP* and Compass *MXP* are delivered with a handset located on the right hand side of the unit.

Lifting the handset from the cradle automatically toggles between internal microphone/loudspeaker and the handset.

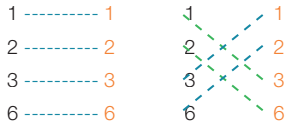
### T SP T

The TANDBERG 1000 *MXP*, Compass *MXP*, Utility *MXP* have:

- 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 768kbps

To connect the system to a LAN, use the Ethernet cable provided by TANDBERG (or a standard Ethernet cable). If no LAN is available and the codec is connected directly to a computer, use a crossover cable.

**Ethernet cable**




Wiring diagram standard cable

Wiring diagram crossover cable

**RJ-45 Connector pin-out**


If no DHCP server is controlling the small LAN, which has been created between the computer and the video system, then static TCP/IP settings must be used. When configuring a back-to-back connection between the PC and the video system, make sure both static IP addresses exist on the same subnet.

### N Pd S dPT S

The TANDBERG 1000 *MXP*, Compass *MXP*, Utility *MXP* have:

- 3 x ISDN I.420 (RJ-45 Jack) Basic Rate Interface S/T (2B+D), 128 kbps per ISDN I/F

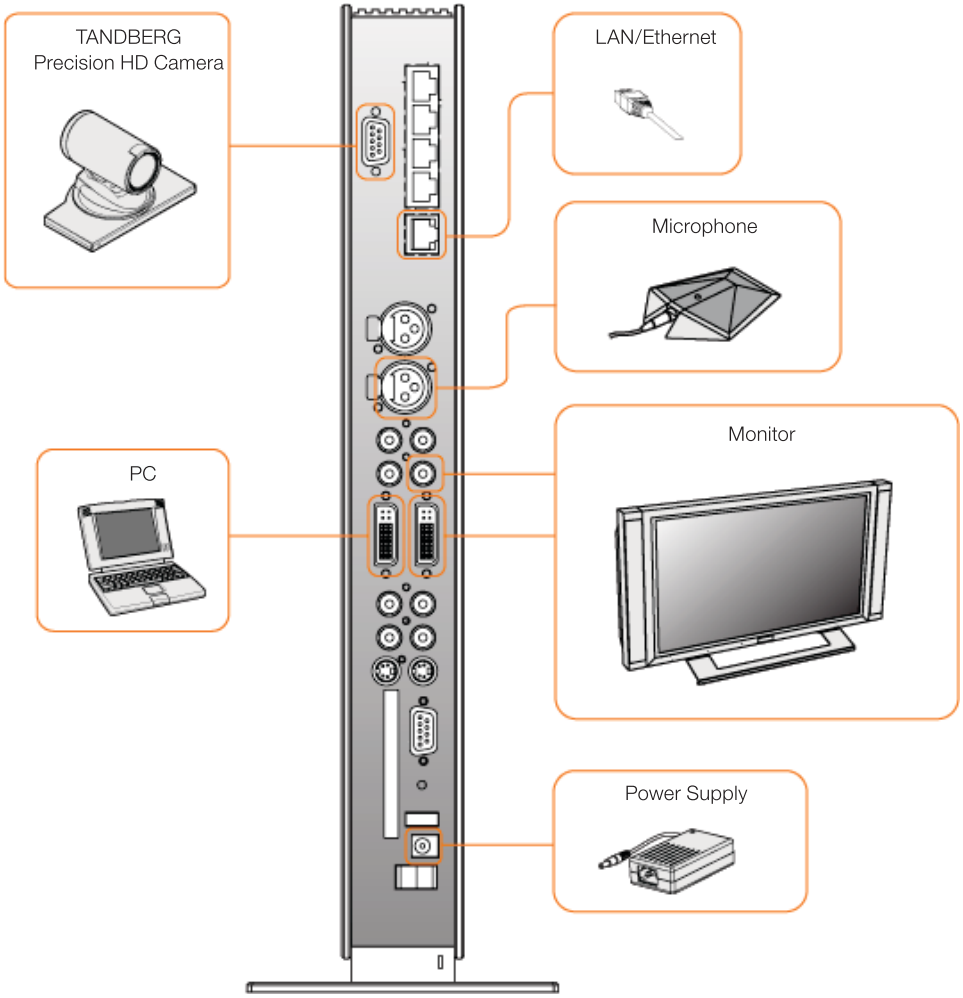
To connect the system to BRI, use the ISDN cable provided by TANDBERG (or a standard BRI cable). The pinout of the S/T interface is:

| S/T Interface | |
|---|---|
| **BRI** | **Pin out** |
| Pin 3 | TX+ |
| Pin 4 | RX+ |
| Pin 5 | RX– |
| Pin 6 | TX– |

**RJ-45 Connector pin-out**

# TANDBERG Edge 95/85/75 MXP interfaces and sockets

Rear Panel Sockets



# TANDBERG Edge 95/85/75 MXP Interfaces and sockets, *cont...*

## Video input/output and Audio input

### d RdPEATN

- 1 (one) 9 Pin DSUB is used for connecting the TANDBERG Precision HD Camera.
- 1 video inputs supporting S-Video through Mini-DIN connectors.
- 2 video inputs supporting composite signals through RCA connectors.
- 1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) input, analog or digital.

### I N

Composite: 1 Vpp, 75 ohm

S-Video (Y/C):

Y: 1 Vpp, 75 ohm

C (PAL): 0.3 Vpp, 75 ohm

C (NTSC): 0.28 Vpp, 75 ohm

The system will automatically adapt to a PAL or NTSC input.

### I d RS TNdNAEERST dRPd I dP

SVGA (800x600) 60Hz, 72Hz, 75Hz, 85Hz

XGA (1024x768) 60 Hz, 70Hz, 75Hz

SXGA (1280x1024) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

WXGA (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### d RdRATEATN

- 1 S-Video output, Mini-DIN connector.
- 2 composite video outputs, RCA connectors.
- 1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) output, analog or digital.

The first Mini-DIN connector and the first RCA connector provide main video (incoming/outgoing video and menus). The other connector provides selfview/still image/DuoVideo. The outputs are always active. The format of the output will be either PAL or NTSC depending on your country's standard video format. The VGA/DVI output provides either main monitor video or second monitor video depending on menu configuration.

### I N

Composite: 1 Vpp, 75 ohm

S-Video (Y/C):

Y: 1 Vpp, 75 ohm

C (PAL): 0.3 Vpp, 75 ohm

C (NTSC): 0.28 Vpp, 75 ohm

### I d RS TNdNAEERST dRPd I dRAT

SVGA (800x600) 75Hz

XGA (1024x768) 60Hz

WXGA (1280x768) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### d A RdPEATN

- 2 microphone inputs (balanced, 24V phantom powered) via XLR connectors.
- 2 audio inputs (line level) via RCA connectors.

All audio inputs are active by default. For further information, refer to the description of Audio in the Control Panel Library.

**Audio Input Connector Specification**

| Connector Label | Microphone(s) | Audio Input(s) |
|---|---|---|
| Signal type | Balanced | Unbalanced |
| Copnnector (codec) | XLR-F, pin 1-gnd, pin 2 hot, pin 3-cold/neutral | Female RCA/ phono, sleeve-ground, centre-signal |
| Input Impedance | 2400 ohms (pin 2-3) | 10K ohms |
| Max input level when set to minimum input level | 83 mVpp | 15.5 Vpp |
| Max input level when set to maximum input level | 6.2 mVpp | 1.2 Vpp |
| Range, menu adjustable input gain | 22.5 dB (16 steps of 1.5 dB) | 22.5 dB (16 steps of 1.5 dB) |
| Phantom power voltage | 24 V +/- 5% | - |
| Phantom power resistor, pin 2 | 1200 ohms | - |
| Phantom power resistor, pin 2 | 1200 ohms | - |
| Max phantom power current pr mic | 12 mA | - |

# TANDBERG Edge 95/85/75 MXP Interfaces and sockets, *cont...*

## Audio output, Network and ISDN BRI

### d A RdRATEATN

- 1 output (line level) via RCA connector providing audio from far end in addition to dial tones. This output is used by the monitor. This output also supports S/PDIF.
- 1 VCR output (line level) via RCA connector providing a mixed signal between audio from the local side (except from the VCR input) and audio from the far end. This output is intended for connection to a VCR.

SPDIF - Sony/Philips Digital Interface

| Audio Output Connector Specification | |
|---|---|
| **Connector Label** | **Audio Output(s)** |
| Signal type | Unbalanced |
| Copnnector (codec) | Female RCA/phono, sleeve-ground, centre-signal |
| Output Impedance | 680 ohms |
| Max output level when set to maximum output level and volume control set to max | 15.5 Vpp |
| Max output level when set to minimum output level and volume control set to max | 1.2 Vpp |
| Range, menu adjustable output gain | 22.5 dB (16 steps of 1.5 dB)* |
| Volume control attenuation (audio out 1) | 0 to 21 dB + mute (steps of 1.5 dB) |

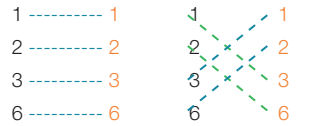
* Additional attenuation is possible on room/loudspeaker audio output using the volume control setting

### T SP T

- Edge 75 MXP: 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 768kbps
- Edge 85 MXP: 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 1.1 Mbps
- Edge 95 MXP: 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 2.3 Mbps, depending on the bandwidth option installed.

To connect the system to a LAN, use the Ethernet cable provided by TANDBERG (or a standard Ethernet cable). If no LAN is available and the codec is connected directly to a computer, use a crossover cable.

**Ethernet cable**




Wiring diagram standard cable

Wiring diagram crossover cable

**RJ-45 Connector pin-out**


If no DHCP server is controlling the small LAN, which has been created between the computer and the video system, then static TCP/IP settings must be used.

When configuring a back-to-back connection between the PC and the video system, make sure both static IP addresses exist on the same subnet.

### N P S dPT S

- 4 x ISDN I.420 (RJ-45 Jack) Basic Rate Interface S/T (2B+D), 128 kbps per ISDN I/F

To connect the system to BRI, use the ISDN cable provided by TANDBERG (or a standard BRI cable). The pinout of the S/T interface is:

| S/T Interface | |
|---|---|
| **BRI** | **Pin out** |
| Pin 3 | TX+ |
| Pin 4 | RX+ |
| Pin 5 | RX– |
| Pin 6 | TX– |

**RJ-45 Connector pin-out**

# TANDBERG Edge 95/85/75 MXP Interfaces and sockets, *cont...*

## Data port and Camera port

### Td ERST

The data port(s) are implemented as Data Communications Equipment (DCE). The connectors used are female 9-pin D-subs.

| Data Port - Pin Specification | | |
|---|---|---|
| **Signal Name** | **Direction** | **Pin Number** |
| Carrier detect, CD | From DCE | 1 |
| Receive data, RXD | From DCE | 2 |
| Transmit data, TXD | To DCE | 3 |
| Data terminal ready, DTR | From DCE | 4 |
| Signal ground, GND | - | 5 |
| Data set ready, DSR | From DCE | 6 |
| Ready to send, RTS | To DCE | 7 |
| Clear to send, CTS | From DCE | 8 |
| Ring indicator, RI | From DCE | 9 |

### Sd ERST

Pin-outs for the camera port when using the TANDBERG Precision HD Camera.

| Pinouts when using Precision HD Camera | |
|---|---|
| **PRI** | **Pinout** |
| Pin 8 | + 12 V (presence 2.8 mA current source when connected in daisy chain) |
| Pin 7 | GND |
| Pin 6 | TXD (out) |
| Pin 5 | Video LVDS- |
| Pin 4 | Video LVDS+ |
| Pin 3 | RXD (in) |
| Pin 2 | GND |
| Pin 1 | + 12 V |

### Sd

The TANDBERG Edge 75/85/95 *MXP* system is shipped with a PC cable with integrated audio.

The enclosed TANDBERG Camera Cables must be used! Do not use other camera cables as this might cause problems with the transfer of video signals from the Precision HD Camera.

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

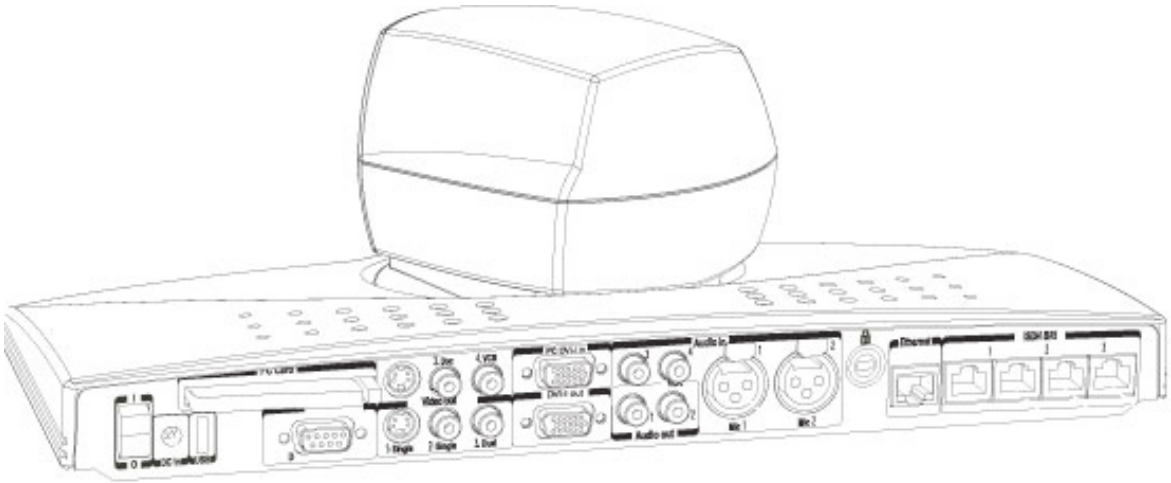
Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

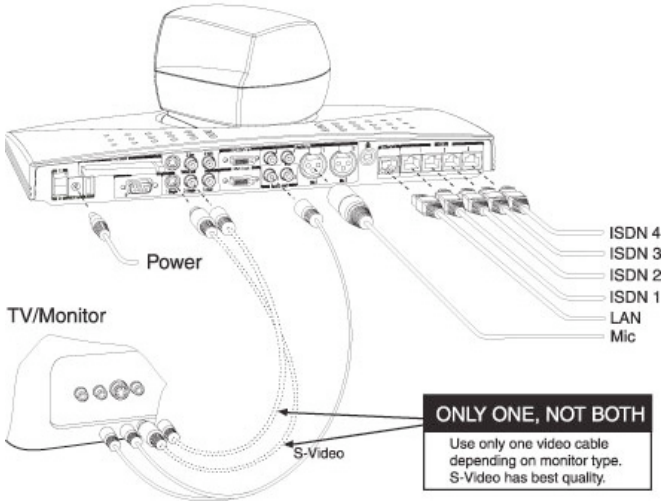
Go to DVI Cables - The VGA to DVI-A

# TANDBERG 990/880/770 MXP interfaces and sockets

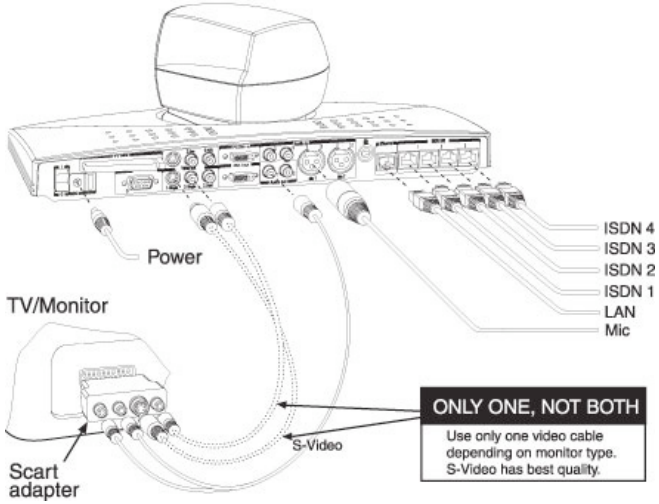
Rear Panel Sockets



RPP TP dO T RATdN STd ET S




RPP TP dO T dN STd ET S



## TANDBERG 990/880/770 MXP Interfaces and sockets, *cont...*

### Rear panel and sockets with V.35 interface

**T P S d dP Td ME**

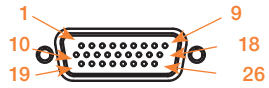
The TANDBERG 990/880/3000 NET *MXP* is equipped with RS449/V.35/X.21 network interface instead of ISDN-BRI.

**NOTE!** The references to ISDN in the User Manual do not apply to the NET version.

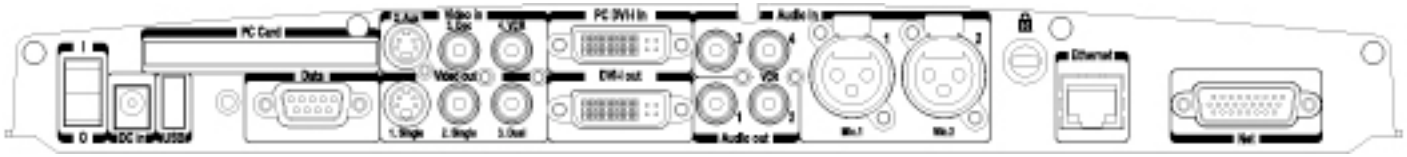
**RP AS T RPdRd P Td SN RPN**

- All references to ISDN-BRI Settings are to be replaced with reference to External Network Settings.
- The Network selections in the Call Settings menu only apply to IP calls. Use ISDN in the Network menu to select RS449/V.35/X.21.
- MultiSite entries in the Phone Book can only consist of IP sites.

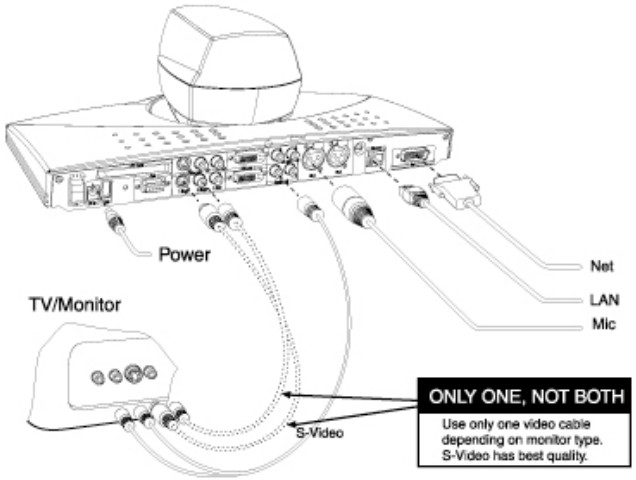
**HD D-SUB 26 pin-out**
External view of socket



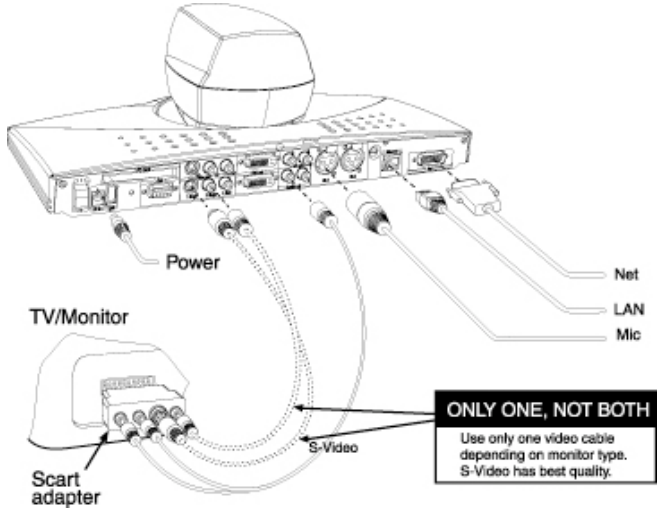

**dP Td MEdS SdE P**



**RPP T P dD T RATdN STd ET S**




**RPP T P dD T dN STd ET S**



# TANDBERG 990/880/770 MXP Interfaces and sockets, *cont...*

## Video inputs/outputs and Audio inputs

### d RdPEATN

1 video input used by the built-in camera.

1 video input supporting S-Video through a Mini-DIN connector.

2 video inputs supporting composite signals through RCA connectors.

1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) input, analog or digital.

### I N

Composite: 1 Vpp, 75 ohm

S-Video (Y/C):

Y: 1 Vpp, 75 ohm

C (PAL): 0.3 Vpp, 75 ohm

C (NTSC): 0.28 Vpp, 75 ohm

The system will automatically adapt to a PAL or NTSC input.

### I d RS TNdNAEERST dRPd I dP

SVGA (800x600) 60Hz, 72Hz, 75Hz, 85Hz

XGA (1024x768) 60 Hz, 70Hz, 75Hz

SXGA (1280x1024) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

WXGA (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### d RdRATEATN

1 S-Video output, Mini-DIN connector.

2 composite video outputs, RCA connectors.

1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) output, analog or digital.

The Mini-DIN connector and the first RCA connector provide main video (incoming/outgoing video and menus). The other connector provides selfview/still image/DuoVideo. The outputs are always active. The format of the output will be either PAL or NTSC depending on your country's standard video format. The VGA/DVI output provides either main monitor video or second monitor video depending on menu configuration..

### I N

Composite: 1 Vpp, 75 ohm

S-Video (Y/C):

Y: 1 Vpp, 75 ohm

C (PAL): 0.3 Vpp, 75 ohm

C (NTSC): 0.28 Vpp, 75 ohm

### I d RS TNdNAEERST dRPd I dRAT

SVGA (800x600) 75Hz

XGA (1024x768) 60Hz

WXGA (1280x768) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### d A RdPEATN

2 microphone inputs (balanced, 24V phantom powered) via XLR connectors.

2 audio inputs (line level) via RCA connectors.

All audio inputs are active by default. For further information, refer to the description of Audio in the Control Panel Library.

**Audio Input Connector Specification**

| Connector Label | Microphone(s) | Audio Input(s) |
|---|---|---|
| Signal type | Balanced | Unbalanced |
| Copnnector (codec) | XLR-F, pin 1-gnd, pin 2 hot, pin 3-cold/neutral | Female RCA/ phono, sleeve-ground, centre-signal |
| Input Impedance | 2400 ohms (pin 2-3) | 10K ohms |
| Max input level when set to minimum input level | 83 mVpp | 15.5 Vpp |
| Max input level when set to maximum input level | 6.2 mVpp | 1.2 Vpp |
| Range, menu adjustable input gain | 22.5 dB (16 steps of 1.5 dB) | 22.5 dB (16 steps of 1.5 dB) |
| Phantom power voltage | 24 V +/- 5% | - |
| Phantom power resistor, pin 2 | 1200 ohms | - |
| Phantom power resistor, pin 2 | 1200 ohms | - |
| Max phantom power current pr mic | 12 mA | - |

# TANDBERG 990/880/770 MXP Interfaces and sockets, *cont...*

## Audio outputs, Network and ISDN BRI interface

### d A RcRATEATN

- 1 output (line level) via RCA connector providing audio from far end in addition to dial tones. This output is used by the monitor. This output also supports S/PDIF.
- 1 VCR output (line level) via RCA connector providing a mixed signal between audio from the local side (except from the VCR input) and audio from the far end. This output is intended for connection to a VCR.

SPDIF - Sony/Philips Digital Interface

| Audio Output Connector Specification | |
|---|---|
| **Connector Label** | **Audio Output(s)** |
| Signal type | Unbalanced |
| Copnnector (codec) | Female RCA/phono, sleeve-ground, centre-signal |
| Output Impedance | 680 ohms |
| Max output level when set to maximum output level and volume control set to max | 15.5 Vpp |
| Max output level when set to minimum output level and volume control set to max | 1.2 Vpp |
| Range, menu adjustable output gain | 22.5 dB (16 steps of 1.5 dB)* |
| Volume control attenuation (audio out 1) | 0 to 21 dB + mute (steps of 1.5 dB) |

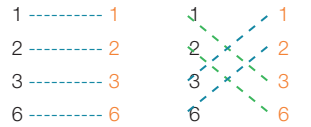
* Additional attenuation is possible on room/loudspeaker audio output using the volume control setting

### T SP T

- 770MXP: 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 768kbps
- 880MXP: 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 1.1 Mbps, depending on the bandwidth option installed.
- 990MXP: 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 2 Mbps or 2.3 Mbps, depending on the bandwidth option installed.

To connect the system to a LAN, use the Ethernet cable provided by TANDBERG (or a standard Ethernet cable). If no LAN is available and the codec is connected directly to a computer, use a crossover cable.

**Ethernet cable**




Wiring diagram standard cable

Wiring diagram crossover cable

**RJ-45 Connector pin-out**


If no DHCP server is controlling the small LAN, which has been created between the computer and the video system, then static TCP/IP settings must be used.

When configuring a back-to-back connection between the PC and the video system, make sure both static IP addresses exist on the same subnet.

### N P S dPT S

- 4 x ISDN I.420 (RJ-45 Jack) Basic Rate Interface S/T (2B+D), 128 kbps per ISDN I/F

To connect the system to BRI, use the ISDN cable provided by TANDBERG (or a standard BRI cable). The pinout of the S/T interface is:

| S/T Interface | |
|---|---|
| **BRI** | **Pin out** |
| Pin 3 | TX+ |
| Pin 4 | RX+ |
| Pin 5 | RX– |
| Pin 6 | TX– |

**RJ-45 Connector pin-out**

# TANDBERG 990/880/770 MXP Interfaces and sockets, *cont...*

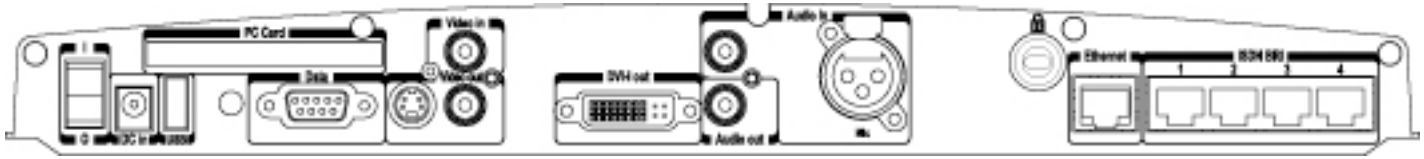
## Td ERST

The data port(s) are implemented as Data Communications Equipment (DCE). The connectors used are female 9-pin D-subs.

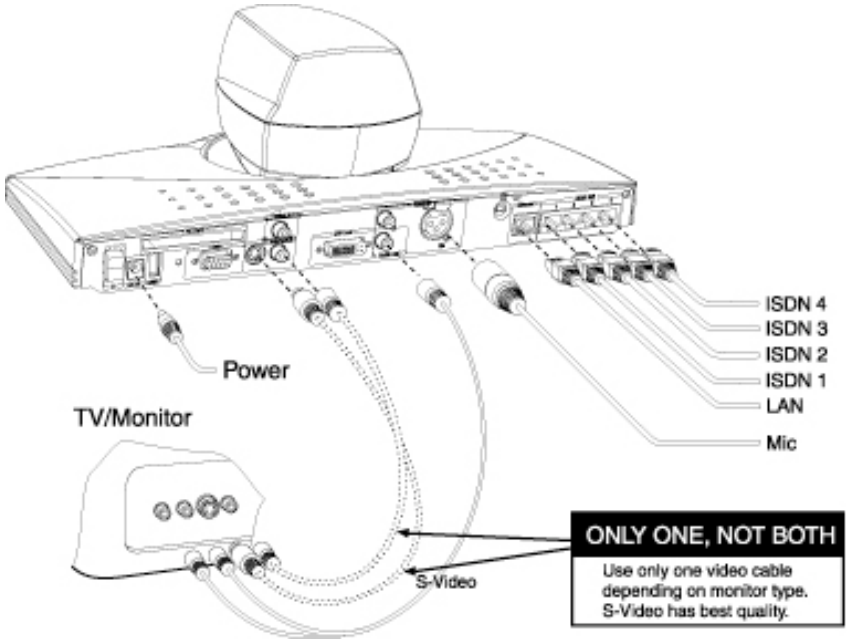
| Data Port - Pin Specification | | |
|---|---|---|
| **Signal Name** | **Direction** | **Pin Number** |
| Carrier detect, CD | From DCE | 1 |
| Receive data, RXD | From DCE | 2 |
| Transmit data, TXD | To DCE | 3 |
| Data terminal ready, DTR | From DCE | 4 |
| Signal ground, GND | - | 5 |
| Data set ready, DSR | From DCE | 6 |
| Ready to send, RTS | To DCE | 7 |
| Clear to send, CTS | From DCE | 8 |
| Ring indicator, RI | From DCE | 9 |

# TANDBERG 550 MXP interfaces and sockets

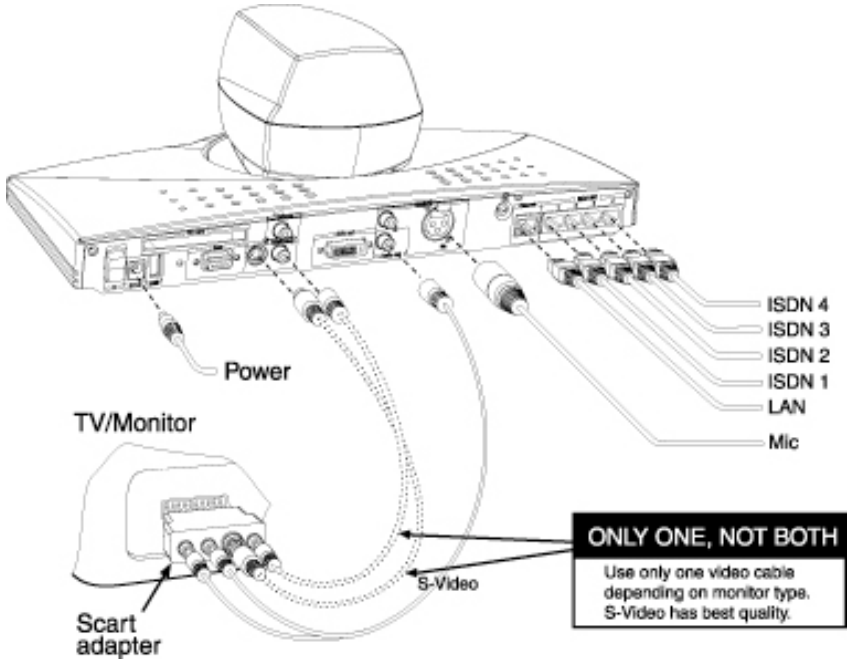
## Rear Panel Sockets




RPP TP dD T RATdN STd ET S




RPP TP dD T dN STd ET S



# TANDBERG 550 MXP Interfaces and sockets, *cont...*

## Video inputs/outputs and Audio inputs

### d RdPEATN

- 1 video input used by the built-in camera.
- 2 video inputs supporting composite signals through RCA connectors.

### I N

Composite: 1 Vpp, 75 ohm

S-Video (Y/C):

Y: 1 Vpp, 75 ohm

C (PAL): 0.3 Vpp, 75 ohm

C (NTSC): 0.28 Vpp, 75 ohm

The system will automatically adapt to a PAL or NTSC input.

### I d RS TNdNAEERST dRPd I dP

SVGA (800x600) 60Hz, 72Hz, 75Hz, 85Hz

XGA (1024x768) 60 Hz, 70Hz, 75Hz

SXGA (1280x1024) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

WXGA (1280x768, 1280x800, 1360x768, 1366x768 (@60 Hz))

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### d RdRATEATN

- 1 S-Video output, Mini-DIN connector.
- 1 composite video outputs, RCA connectors.
- 1 VGA/DVI-I (DVI = Digital Visual Interface, I = Integrated Digital & Analog) output, analog or digital.

The Mini-DIN connector and the RCA connector provide main video (incoming/outgoing video and menus). The format of the output will be either PAL or NTSC depending on your country's standard video format. The VGA/DVI output provides either main monitor video or second monitor video depending on menu configuration.

### I N

Composite: 1 Vpp, 75 ohm

S-Video (Y/C):

Y: 1 Vpp, 75 ohm

C (PAL): 0.3 Vpp, 75 ohm

C (NTSC): 0.28 Vpp, 75 ohm

### I d RS TNdNAEERST dRPd I dRAT

SVGA (800x600) 75Hz

XGA (1024x768) 60Hz

WXGA (1280x768) 60Hz

HD720p (1280x720) 50 Hz, 60 Hz

### RSd P RS T RP

Read more about the DVI (Digital Visual Interface) and DVI Cables in the beginning of the Peripheral Equipment section.

Go to The Digital Visual Interface (DVI)

Go to DVI Cables - The VGA to DVI

Go to DVI Cables - The VGA to DVI-A

### d A RdPEATN

- 1 microphone inputs (balanced, 24V phantom powered) via XLR connectors.
- 1 audio inputs (line level) via RCA connectors.

All audio inputs are active by default. For further information, refer to the description of Audio in the Control Panel Library.

**Audio Input Connector Specification**

| Connector Label | Microphone(s) | Audio Input(s) |
|---|---|---|
| Signal type | Balanced | Unbalanced |
| Copnnector (codec) | XLR-F, pin 1-gnd, pin 2 hot, pin 3-cold/neutral | Female RCA/ phono, sleeve-ground, centre-signal |
| Input Impedance | 2400 ohms (pin 2-3) | 10K ohms |
| Max input level when set to minimum input level | 83 mVpp | 15.5 Vpp |
| Max input level when set to maximum input level | 6.2 mVpp | 1.2 Vpp |
| Range, menu adjustable input gain | 22.5 dB (16 steps of 1.5 dB) | 22.5 dB (16 steps of 1.5 dB) |
| Phantom power voltage | 24 V +/- 5% | - |
| Phantom power resistor, pin 2 | 1200 ohms | - |
| Phantom power resistor, pin 2 | 1200 ohms | - |
| Max phantom power current pr mic | 12 mA | - |

# TANDBERG 550 MXP Interfaces and sockets, *cont...*

## Audio output, Network and Data port

### d A RcRATEAT

- 1 output (line level) via RCA connector providing audio from far end in addition to dial tones. This output is used by the monitor.

| Audio Output Connector Specification | |
|---|---|
| **Connector Label** | **Audio Output(s)** |
| Signal type | Unbalanced |
| Copnnector (codec) | Female RCA/phono, sleeve-ground, centre-signal |
| Output Impedance | 680 ohms |
| Max output level when set to maximum output level and volume control set to max | 15.5 Vpp |
| Max output level when set to minimum output level and volume control set to max | 1.2 Vpp |
| Range, menu adjustable output gain | 22.5 dB (16 steps of 1.5 dB)* |
| Volume control attenuation (audio out 1) | 0 to 21 dB + mute (steps of 1.5 dB) |

* Additional attenuation is possible on room/loudspeaker audio output using the volume control setting

### T SP T

- 1 x Ethernet (RJ-45 Jack) LAN interface (10/100 Mb) up to 768kbps

To connect the system to a LAN, use the Ethernet cable provided by TANDBERG (or a standard Ethernet cable). If no LAN is available and the codec is connected directly to a computer, use a crossover cable.

**Ethernet cable**


Wiring diagram standard cable | Wiring diagram crossover cable

**RJ-45 Connector pin-out**


If no DHCP server is controlling the small LAN, which has been created between the computer and the video system, then static TCP/IP settings must be used.

When configuring a back-to-back connection between the PC and the video system, make sure both static IP addresses exist on the same subnet.

### N P S dPT S

- 3 x ISDN I.420 (RJ-45 Jack) Basic Rate Interface S/T (2B+D), 128 kbps per ISDN I/F

To connect the system to BRI, use the ISDN cable provided by TANDBERG (or a standard BRI cable). The pinout of the S/T interface is:

| S/T Interface | |
|---|---|
| **BRI** | **Pin out** |
| Pin 3 | TX+ |
| Pin 4 | RX+ |
| Pin 5 | RX– |
| Pin 6 | TX– |

**RJ-45 Connector pin-out**


### Td ERST

The data port(s) are implemented as Data Communications Equipment (DCE). The connectors used are female 9-pin D-subs.

| Data Port - Pin Specification | | |
|---|---|---|
| **Signal Name** | **Direction** | **Pin Number** |
| Carrier detect, CD | From DCE | 1 |
| Receive data, RXD | From DCE | 2 |
| Transmit data, TXD | To DCE | 3 |
| Data terminal ready, DTR | From DCE | 4 |
| Signal ground, GND | - | 5 |
| Data set ready, DSR | From DCE | 6 |
| Ready to send, RTS | To DCE | 7 |
| Clear to send, CTS | From DCE | 8 |
| Ring indicator, RI | From DCE | 9 |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network Pinout

With respect to signals on the NET port:

- For balanced signals a “0”=low voltage is defined as terminal A positive with respect to terminal B.
- For unbalanced signals a “0”= low voltage is defined as terminal positive with respect to GND.

**Pin-Out on 26-pin HD Connector J5**

| Pin No | Standard | | | | Signal Dir. | Call Control (menu settings) | | | Mnemonics |
|---|---|---|---|---|---|---|---|---|---|
| | V35 | RS449 | RS366 | X21 | | RS366 | Leased Line | Data Trig. Manual | |
| 1 | GND | GND | GND | GND | | | | | Frame Ground (connected to GND) |
| 2 | | | DPR | | Output | x | | | Digit present |
| 3 | | | ACR | | Input | x | | | Abandon Call & Retry |
| 4 | | | CRQ | | Output | x | | | Call Request |
| 5 | | | PND | | Input | x | | | Present Next Digit |
| 6 | | | DLO | | Input | x | | | Data Line Occupied |
| 7 | | | NB1 | | Output | x | | | Digit bit 1 |
| 8 | | | NB2 | | Output | x | | | Digit bit 2 |
| 9 | | | NB4 | | Output | x | | | Digit bit 3 |
| 10 | | | NB8 | | Output | x | | | Digit bit 4 |
| 11 | SD (A) | SD (A) | | T (A) | Output | x | x | x | Send Data / Transmit |
| 12 | SD (B) | SD (B) | | T (B) | Output | x | x | x | Send Data / Transmit |
| 13 | RD (A) | RD (A) | | R (A) | Input | x | x | x | Receive Data |
| 14 | RD (B) | RD (B) | | R (B) | Input | x | x | x | Receive Data |
| 15 | SCR (A) | SCR (A) | | S (A) | Input | x | x | x | Signal Clock Receive / Receive Timing |
| 16 | SCR (B) | SCR (B) | | S (B) | Input | x | x | x | Signal Clock Receive / Receive Timing |
| 17 | SCT (A) | SCT (A) | | | Input | x | x | x | Signal Clock Transmit / Send Timing |
| 18 | SCT (B) | SCT (B) | | | Input | x | x | x | Signal Clock Transmit / Send Timing |
| 19 | GND | GND | | | | | | | GND |
| 20 | | TR (A) | | C (A) | Output | x | x | | Terminal Ready / Control |
| 21 | | TR (B) | | C (B) | Output | x | x | | Terminal Ready / Control |
| 22 | RLSD (CD) | RR (A) | | I (A) | Input | x | x | | Received Line Signal Detector / Carrier Detect / Receiver Ready / Indication |
| 23 | GND (RLSD) | RR (B) | | I (B) | Input | x | x | | Received Line Signal Detector / Carrier Detect / Receiver Ready / Indication |
| 24 | RI | IC | | | Input | x | | | Ring Indicator / Incoming Call |
| 25 | LOS | LOS | | | Output | x | x | | Loss Of Signal |
| 26 | DTR | | | | Output | x | x | | (Data) Terminal Ready |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External network V.35 cable

Connector on cable at the Codec end:

- Female 26 pin high-density DSUB with thumbscrews.

Connectors on cable at V.35-adapter end:

- Male 34 pin Winchester (AMP part number 201357-1 or equivalent).

Cable length:

- Maximum 20 meters (65 feet) for cables using DTR, RI, or RLSD.
- Maximum 50 meters (170 feet) for cables not using DTR, RI or RLSD (data-triggered applications).

Cable type:

- Shielded.

Connector housing:

- Metal, with cable shield connected to metal housing at 26 pin connector end.

NOTE: For “Data-Triggered” leased-line applications, signals DTR, RI and RLSD are not used.

**Pin-Out on V.35 Cable**

| Signal Name | Female 26 pin DSUB Pin Number | Male 34 pin Wincester Pin Number | Comments |
|---|---|---|---|
| Frame Ground | 1 | A | |
| Signal Ground | 19, 23 | B | |
| TX (A), Transmit data | 11 | P | Twisted pair |
| TX (B) | 12 | S | |
| RX (A), Receive data | 13 | R | Twisted pair |
| RX (B) | 14 | T | |
| RCLK (A), Receive clock | 15 | V | Twisted pair |
| RCLK (B) | 16 | X | |
| TCLK (A), Transmit clock | 17 | Y | Twisted pair |
| TCLK (B) | 18 | AA | |
| DTR | 26 | H, C | |
| RI | 24 | L, J | |
| RLSD | 22 | F | |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network V.35/RS-366 Cable

Connector on cable at the Codec end:

- Female 26 pin high-density DSUB with thumbscrews.

Connectors on cable at V.35-adapter end:

- Male 34 pin Winchester (AMP part number 201357-1 or equivalent) and
- Male 25 pin DSUB with thumbscrews.

Cable length:

- Maximum 20 meters (60 feet).

Cable type:

- Shielded.

Connector housing:

- Metal, with cable shield connected to metal housing at 26 pin connector end.

**Pin-Out on V.35 Cable and RS-366 Cable**

| Signal Name | Female 26 pin DSUB Pin Number | Male 34 pin Wincester Pin Number | Male 25 pin DSUB Pin Number | Comments |
|---|---|---|---|---|
| Frame Ground | 1 | A | | |
| Signal Ground | 19, 23 | B | | |
| TX (A), Transmit data | 11 | P | | Twisted pair |
| TX (B) | 12 | S | | |
| RX (A), Receive data | 13 | R | | Twisted pair |
| RX (B) | 14 | T | | |
| RCLK (A), Receive clock | 15 | V | | Twisted pair |
| RCLK (B) | 16 | X | | |
| TCLK (A), Transmit clock | 17 | Y | | Twisted pair |
| TCLK (B) | 18 | AA | | |
| DTR | 26 | H, C | | |
| RI | 24 | L, J | | |
| RLSD | 22 | F | | |
| RS366 DPR | 2 | | 2 | |
| RS366 ACR | 3 | | 3 | |
| RS366 CRQ | 4 | | 4 | |
| RS366 PND | 5 | | 5 | |
| RS366 DLO | 6 | | 22 | |
| RS366 NB1 | 7 | | 14 | |
| RS366 NB2 | 8 | | 15 | |
| RS366 NB4 | 9 | | 16 | |
| RS366 NB8 | 10 | | 17 | |
| RS366 GND | 19 | | 7 | |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network RS-449 Cable

Connector at the Tandberg end:

- Female 26pin High Density DSUB Newark P/N 50F2055 or Equivalent

Connector on RS-449:

- DSUB 37 pin Male

| Pin-Out on RS-449 Cable | | | |
|---|---|---|---|
| Signal Name | Female 26 pin DSUB (Tandberg End) Pin Number | Male 37 pin DSUB (DCE End) Pin Number | Comments |
| Frame Ground | 1 | 1 | |
| Signal Ground | 19, 23 | 19, 30 | |
| Send Data (A)<br>Send Data (B) | 11<br>12 | 4<br>22 | Twisted pair |
| Send Timing (A)<br>Send Timing (B) | 17<br>18 | 5<br>23 | Twisted pair |
| Receive Data (A)<br>Receive Data (B) | 13<br>14 | 6<br>24 | Twisted pair |
| Receive Timing (A)<br>Receive Timing (B) | 15<br>16 | 8<br>26 | Twisted pair |
| Terminal Ready (A) | 26 | 12 | |
| Receiver Ready (A)<br>Receiver Ready (B) | 22<br>23 | 13<br>31 | Twisted pair |
| Incoming Call (A) | 24 | 15 | |
| LOS KG Resync | 25 | 36 | |
| Cable Labels | NET 1 | RS449 | |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network RS-449/RS-366 Cable

Connector at the Tandberg end:

- Female 26pin High Density DSUB Newark P/N 50F2055 or Equivalent

Connector on RS-449:

- DSUB 37 pin Male

Connector on RS-366:

- DSUB 25 pin Male

**Pin-Out on RS-449 Cable and RS-366 Cable**

| Signal Name | Female 26 pin DSUB (Tandberg End) Pin Number | Male 37 pin DSUB (DCE End) Pin Number | Male 25 pin DSUB RS-366 Pin Number | Comments |
|---|---|---|---|---|
| Frame Ground | 1 | 1 | | Do not connect shield to FGND |
| Signal Ground | 19 | 19, 30 | | |
| Send Data (A) | 11 | 4 | | Twisted pair |
| Send Data (B) | 12 | 22 | | |
| Send Timing (A) | 17 | 5 | | Twisted pair |
| Send Timing (B) | 18 | 23 | | |
| Receive Data (A) | 13 | 6 | | Twisted pair |
| Receive Data (B) | 14 | 24 | | |
| Receive Timing (A) | 15 | 8 | | Twisted pair |
| Receive Timing (B) | 16 | 26 | | |
| Terminal Ready (A) | 26 | 12 | | |
| Receiver Ready (A) | 22 | 13 | | Twisted pair |
| Receiver Ready (B) | 23 | 31 | | |
| Incoming Call (A) | 24 | 15 | | |
| LOS A | 25 | 36 | | LOS A Unbalanced |
| RS366 DPR | 2 | | 2 | |
| RS366 ACR | 3 | | 3 | |
| RS366 CRQ | 4 | | 4 | |
| RS366 PND | 5 | | 5 | |
| RS366 DLO | 6 | | 22 | |
| RS366 NB1 | 7 | | 14 | |
| RS366 NB2 | 8 | | 15 | |
| RS366 NB4 | 9 | | 16 | |
| RS366 NB8 | 10 | | 17 | |
| RS366 DSC | 20 | | 13 | |
| RS366 PWI | 20 | | 6 | |
| RS366 GND | 1 | | 7 | |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network RS-530 Cable

Connector at the Tandberg end:

- Female 26pin High Density DSUB Newark P/N 50F2055 or Equivalent

Connector on RS-530:

- DSUB 25 pin Male

Cable length:

- 1 meter

**Pin-Out on RS-530 Cable**

| Signal Name | Female 26 pin DSUB (Tandberg End) Pin Number | Male 25 pin DSUB RS-530 (DCE End) Pin Number | Comments |
|---|---|---|---|
| Frame Ground | 1 | 1 | Do not connect shield to FGND |
| Signal Ground | 19 | 7 | |
| Send Data (A) | 11 | 2 | Twisted pair |
| Send Data (B) | 12 | 14 | |
| Send Timing (A) | 17 | 15 | Twisted pair |
| Send Timing (B) | 18 | 12 | |
| Receive Data (A) | 13 | 3 | Twisted pair |
| Receive Data (B) | 14 | 16 | |
| Receive Timing (A) | 15 | 17 | Twisted pair |
| Receive Timing (B) | 16 | 9 | |
| Terminal Ready (A) | 20 | 20 | |
| Terminal Ready (B) | 21 | 23 | |
| Receiver Ready (A) | 22 | 8 | Twisted pair |
| Receiver Ready (B) | 23 | 10 | |
| LOS A | 25 | 18 | LOS A Unbalanced |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network RS-530/RS-366 Cable

Connector at the Tandberg end:

- Female 26pin High Density DSUB Newark P/N 50F2055 or Equivalent

Connector on RS-530:

- DSUB 25 pin Male

Connector on RS-366:

- DSUB 25 pin Male

Cable length:

- 1 meter

**Pin-Out on RS-530 Cable and RS-366 Cable**

| Signal Name | Female 26 pin DSUB (Tandberg End) Pin Number | Male 25 pin DSUB RS530 (DCE End) Pin Number | Male 25 pin DSUB RS-366 Pin Number | Comments |
|---|---|---|---|---|
| Frame Ground | 1 | 1 | | Do not connect shield to FGND |
| Signal Ground | 19 | 7 | | |
| Send Data (A) | 11 | 2 | | Twisted pair |
| Send Data (B) | 12 | 14 | | |
| Send Timing (A) | 17 | 15 | | Twisted pair |
| Send Timing (B) | 18 | 12 | | |
| Receive Data (A) | 13 | 3 | | Twisted pair |
| Receive Data (B) | 14 | 16 | | |
| Receive Timing (A) | 15 | 17 | | Twisted pair |
| Receive Timing (B) | 16 | 9 | | |
| Terminal Ready (A) | 20 | 20 | | |
| Terminal Ready (B) | 21 | 23 | | |
| Receiver Ready (A) | 22 | 8 | | Twisted pair |
| Receiver Ready (B) | 23 | 10 | | |
| Incoming Call (A) | 24 | 18 | | |
| LOS A | 25 | | | LOS A Unbalanced |
| RS366 DPR | 2 | | 2 | |
| RS366 ACR | 3 | | 3 | |
| RS366 CRQ | 4 | | 4 | |
| RS366 PND | 5 | | 5 | |
| RS366 DLO | 6 | | 22 | |
| RS366 NB1 | 7 | | 14 | |
| RS366 NB2 | 8 | | 15 | |
| RS366 NB4 | 9 | | 16 | |
| RS366 NB8 | 20 | | 17 | |
| RS366 GND | 1 | | 7 | |

# Cable specification

Applies to TANDBERG MXP and Classic Endpoints that supports External Network

## External Network RS-449 Cable to KIV-7

Connector at the Tandberg end:

- Female 26pin High Density DSUB Newark P/N 50F2055 or Equivalent

Connector on RS-449:

- DSUB 37 pin Male

**Pin-Out on RS-449 Cable to KIV-7**

| Signal Name | Female 26 pin DSUB (Tandberg End) Pin Number | Male 37 pin DSUB (DCE End) Pin Number | Comments |
|---|---|---|---|
| Frame Ground | 1 | 1 | Do not connect shield to FGND |
| Send Data (A) | 11 | 4 | Twisted pair |
| Send Data (B) | 12 | 14 | |
| Send Timing (A) | 17 | 15 | Twisted pair |
| Send Timing (B) | 18 | 12 | |
| Receive Data (A) | 13 | 3 | Twisted pair |
| Receive Data (B) | 14 | 16 | |
| Receive Timing (A) | 15 | 17 | Twisted pair |
| Receive Timing (B) | 16 | 9 | |
| LOS | 25 | 31 | |
| Signal Ground | 19 | 1 | |
| | | 4, 20, 28 | Jumpers |
| | | 19, 23, 27 | Jumpers |

## Chapter 7

# Peripheral equipment

Learn about peripheral equipment which are connected or can be connected to one or more of the video system described in this guide.

This section gives a description of cameras, remote controls, document camera, audio equipment, and more.

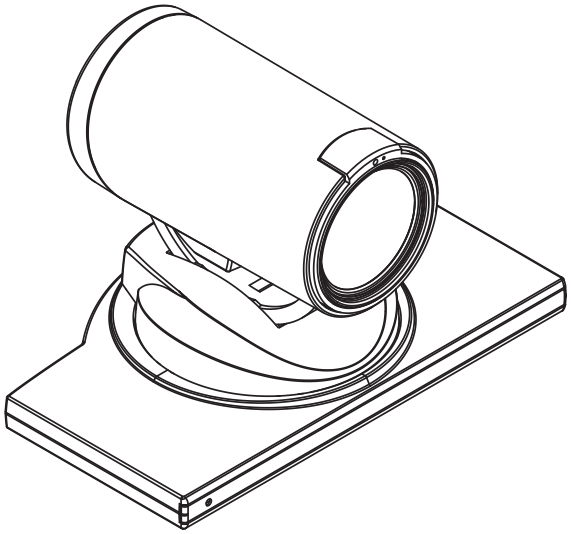
### Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: ▶ http://www.tandberg.com/docs

In this chapter...


- The PrecisionHD camera
- The WAVE II camera
- Cameras in daisy chain
- Document camera
- Remote controls key map
- The camera tracker
- DVD/VCR recording and playback
- Additional microphones
- The TANDBERG DNAM
- Stereo speaker kit
- Telephone add-on

# TANDBERG PrecisionHD camera



The TANDBERG Precision HD Camera is available to:

- TANDBERG 8000 *MXP*
- TANDBERG 6000 *MXP* Profile
- TANDBERG 3000 *MXP* Profile*
- TANDBERG Maestro *MXP*
- TANDBERG Edge 75/85/95 *MXP*

* Applies to T3000 MXP Profile with new hardware.

**ANd T d P RN d Sd N**

Please note that the enclosed TANDBERG Camera Cables must be used!

Do not use other camera cables as this might cause problems with the transfer of video signals from the Precision HD Camera.

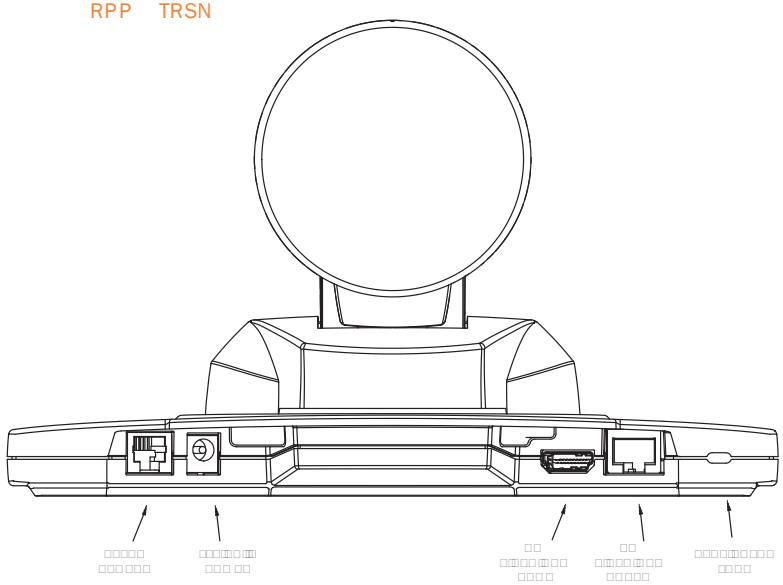
**A T E d Sd NAEERST**

The system is able to control a total of 4 cameras. See the Multiple Cameras section overleaf.

**d RdRAT d d RPP TRS**

The HD Video Out, HDMI, connector is disabled when connected to a TANDBERG system using the TANDBERG Camera Cable. This output does not support HDCP (High Bandwidth Digital Content Protection).

**T P S dES N RPd d Sd dO T dE PRATd P d RPP TRSN**



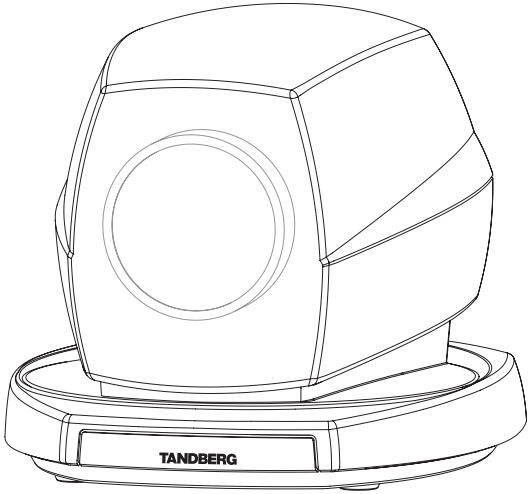
| Extra Camera Pin-Out on 6 pin RJ (modular jack) | |
|---|---|
| **Signal Name** | **Pin Number** |
| GND | 6 |
| GND | 5 |
| RXD (in) | 4 |
| TXD (out) | 3 |
| Presence (12 V in daisy chain) | 2 |
| GND | 1 |

This connector is used when cascading cameras: Control (out) signal and external camera detection. **NOTE**: It does not provide power for cascaded camera.

| HD Video Out Codec Pin-Out on 8 pin RJ (shielded modular jack) | |
|---|---|
| **Signal Name** | **Pin Number** |
| +12V (presence 2.8mA current source when connected in daisy chain) | 8 |
| GND | 7 |
| TXD (out) | 6 |
| Video LVDS - | 5 |
| Video LVDS + | 4 |
| RXD (in) | 3 |
| GND | 2 |
| +12 V | 1 |

This connector is used for the power, video and control signals to the main camera.

# TANDBERG WAVE II camera




The TANDBERG WAVE II Camera is available to:

- TANDBERG 8000 *MXP*
- TANDBERG 6000 *MXP* Profile
- TANDBERG 3000 *MXP* Profile
- TANDBERG Maestro *MXP*

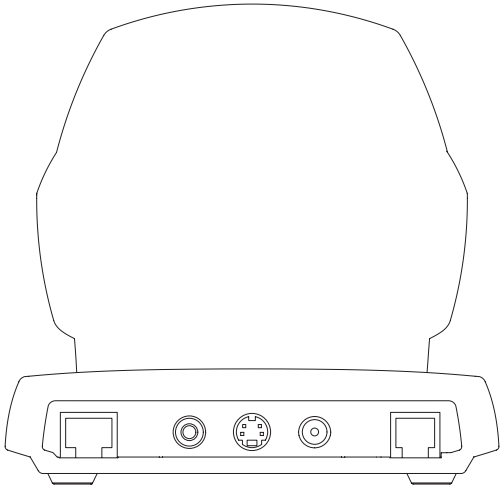
## A T E d Sd NAEERST

The system is able to control a total of 4 cameras. See the Multiple Cameras section overleaf.

## RPP TRSN

- Standard Phono: Used for composite video signal
- Power: 2.0 mm DC power jack (+12V, 1A required)
- Standard Mini Din: Used for S-Video signal

## T P S dD I d d Sd dE P RATd P d RPP TRSN




| Pin-Out on 8 pin RJ (shielded modular jack) | |
|---|---|
| **Signal Name** | **Pin Number** |
| +12V (presence when connected in daisy chain) | 8 |
| GND | 7 |
| GND | 6 |
| RXD (in) | 5 |
| TXD (out) | 4 |
| +12 V | 3 |
| GND | 2 |
| +12 V | 1 |

This connector is used for the power and control signals to the main camera.

| Pin-Out on 6 pin RJ (modular jack) | |
|---|---|
| **Signal Name** | **Pin Number** |
| GND | 6 |
| GND | 5 |
| RXD (in) | 4 |
| TXD (out) | 3 |
| Presence (12 V in daisy chain) | 2 |
| GND | 1 |

This connector is used when cascading cameras: Control (out) signal and external camera detection. **NOTE**: It does not provide power for cascaded camera.

# Multiple cameras

## MTSd M d S N

You can connect extra fixed cameras to your system, for example, a whiteboard camera. Connect the video output of the additional camera to one of the available Video inputs on the system.

**NOTE!** Additional controllable cameras are only available for some roll-about systems.

Set-tops and personal systems may be able to connect additional cameras.

## A T E d RPTSR d S N

Attaching multiple cameras to one system expands visibility and is useful in large group applications.

You can connect both Precision HD Cameras and WAVE II cameras to the system. Camera number one must be connected to video input 1 or to the HD input (data 2). Camera two must be connected to video input 2. Camera number three must be connected to video input 3, and so forth.

The system is able to control a total of 4 cameras. Either 1 Precision HD Cameras plus up to 3 WAVE II Cameras, or up to 4 WAVE II -cameras.

Optional the Precision HD Cameras and the WAVE II cameras are supplied with the necessary cabling. In addition, an external power supply for the camera is included.

## T P S d RdNO T

Rack-mountable hardware option for TANDBERG 6000 MXP and 3000 MXP codecs that delivers the ability to daisy chain multiple HD cameras and provides support for third party HD cameras. Supports up to six HD camera inputs. Allows the DVI input on the codec to be reserved for PC presentations. Read more on http://www.tandberg.com/products/peripherals.jsp

## RPP TRSN

PRECISION HD CAMERA: The 6 pin RJ connector is used when cascading cameras, Extra Camera signal and external camera detection.

WAVE II CAMERA: The 6 pin RJ connector is used when cascading cameras, Control (out) signal and external camera detection.

**NOTE**: It does not provide power for cascaded camera.

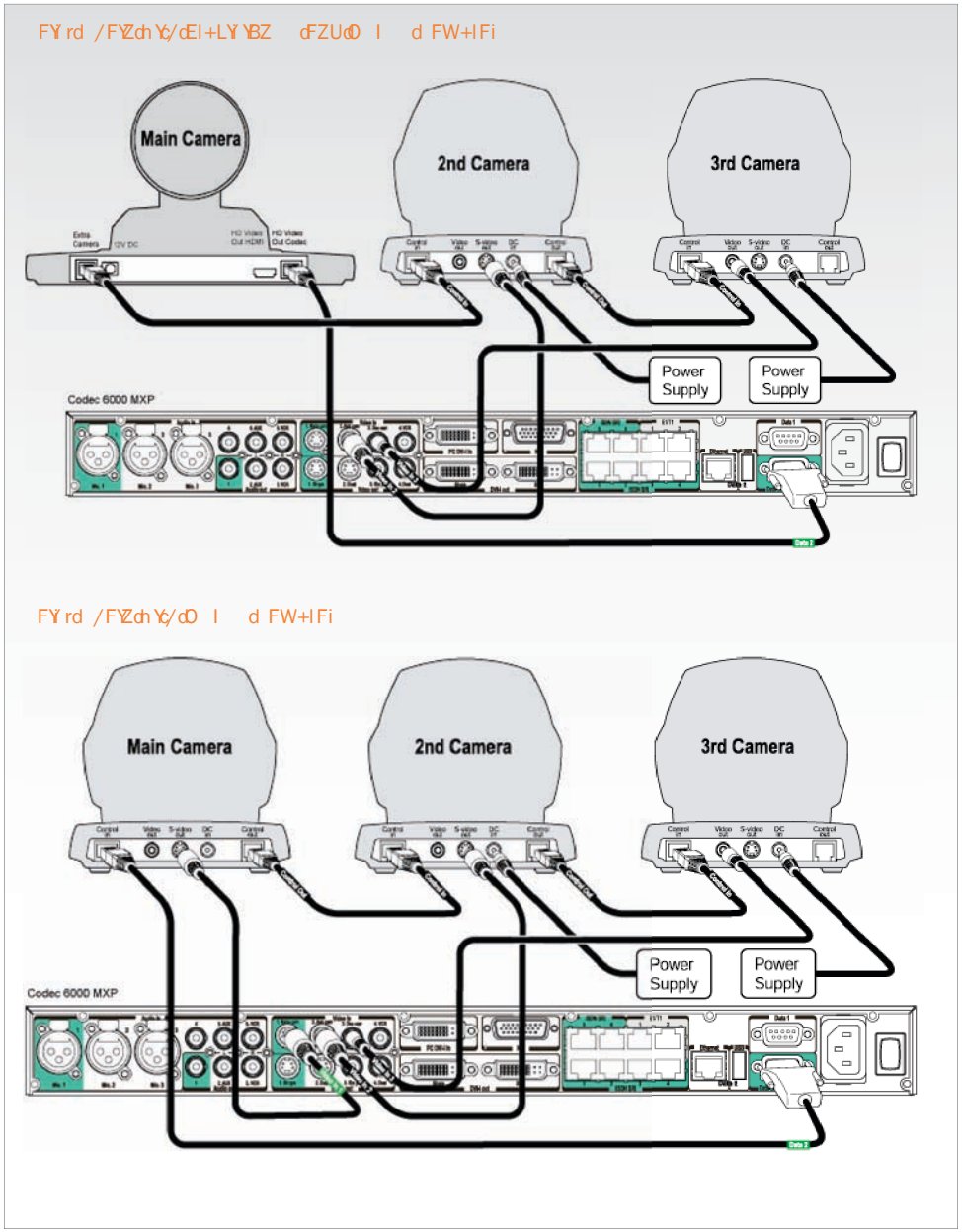
## d P T

The maximum length of the camera cable for multiple cameras supported by TANDBERG is 20 m (65 ft).

## ERST PT

When using the PRECISION HD CAMERA, please note that the enclosed TANDBERG Camera Cables must be used!

Do not use other camera cables as this might cause problems with the transfer of video signals from the Precision HD Camera.



# Document camera

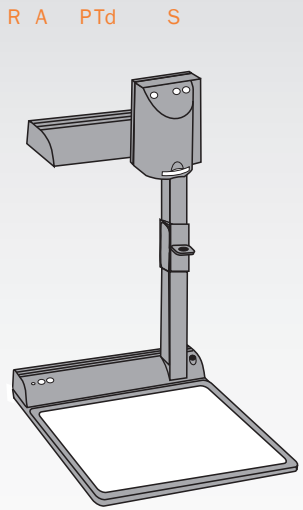
A document camera can be used for showing text, diagrams and a variety of graphical material as well as small three-dimensional objects.

How to use a document camera with your system:

1. Connect the document camera to the Doc Cam video input, if available, on the system. This requires a system with an additional video input.
2. Open the Presentation menu from the Menu and choose Doc Cam.
3. You can also program the Presentation key on the remote to activate the document camera.

If you want to use S-Video from the document camera, you can connect the document camera to the AUX input on the system.

**NOTE!** This requires a system with an additional video input.



# TANDBERG Remote Controls Key Map

The TANDBERG remote controls (TRC3, TRC4 and Tracker) transmit IR-signals using the following parameters:

| IR Signal Parametres | |
|---|---|
| **Name** | **Description** |
| Protocol | Siemens SDA2208 |
| Reference frequency | 485 kHz |
| Address | 4 & 7 |
| IR wavelength | 940 nm |
| IR carrier frequency | 30 kHz |

TANDBERG Remote Control TRC3:


TANDBERG Remote Control TRC4:


TANDBERG Tracker:


| Button Codes | | Remote Control TRC3 | | Remote Control TRC4 | |
|---|---|---|---|---|---|
| **Dec** | **Hex** | **Address** | **Button Name** | **Address** | **Button Name** |
| 0 | 0 | | | | |
| 1 | 1 | 0 | Number 1 | 0 | Number 1 |
| 2 | 2 | 0 | Number 2 | 0 | Number 2 |
| 3 | 3 | 0 | Number 3 | 0 | Number 3 |
| 4 | 4 | 0 | Number 4 | 0 | Number 4 |
| 5 | 5 | 0 | Number 5 | 0 | Number 5 |
| 6 | 6 | 0 | Number 6 | 0 | Number 6 |
| 7 | 7 | 0 | Number 7 | 0 | Number 7 |
| 8 | 8 | 0 | Number 8 | 0 | Number 8 |
| 9 | 9 | 0 | Number 9 | 0 | Number 9 |
| 10 | 0A | 0 | Number 0 | 0 | Number 0 |
| 11 | 0B | 0 | * | 0 | * |
| 12 | 0C | 0 | # | 0 | # |
| 13 | 0D | | | | |
| 14 | 0E | | | | |
| 15 | 0F | | | | |
| 16 | 10 | | | | |
| 17 | 11 | | PRESENTER | | PRESENTER |
| 18 | 12 | 0 | | 0 | |
| 19 | 13 | | | | |
| 20 | 14 | | | | |
| 21 | 15 | | | | |
| 22 | 16 | 0 | ZOOM OUT | 0 | ZOOM OUT |
| 23 | 17 | 0 | ZOOM IN | 0 | ZOOM IN |
| 24 | 18 | | | | |
| 25 | 19 | 0 | VOLUME DWN | 0 | VOLUME DWN |
| 26 | 1A | 0 | VOLUME UP | 0 | VOLUME UP |
| 27 | 1B | 0 | MIC OFF | 0 | MIC OFF |
| 28 | 1C | | | | |
| 29 | 1D | 0 | UP | 0 | UP |
| 30 | 1E | 0 | DOWN | 0 | DOWN |
| 31 | 1F | 0 | LEFT | 0 | LEFT |
| 32 | 20 | 0 | RIGHT | 0 | RIGHT |

| Button Codes | | Remote Control TRC3 | | Remote Control TRC4 | | TANDBERG Tracker | |
|---|---|---|---|---|---|---|---|
| **Dec** | **Hex** | **Address** | **Button Name** | **Address** | **Button Name** | **Address** | **Button Name** |
| 33 | 21 | 0 | OK | 0 | OK | | |
| 34 | 22 | 0 | CALL | 0 | CALL | | |
| 35 | 23 | 0 | END CALL | 0 | END CALL | | |
| 36 | 24 | 0 | PHONE BOOK | 0 | PHONE BOOK | | |
| 37 | 25 | 0 | MENU | 0 | MENU | | |
| 38 | 26 | 0 | CANCEL | 0 | CANCEL | | |
| 39 | 27 | | | | | | |
| 40 | 28 | 0 | LAYOUT | 0 | LAUOUT | | |
| 41 | 29 | | | | | | |
| 42 | 2A | | | 0 | MAIN CAM | | |
| 43 | 2B | | | 0 | PC | | |
| 44 | 2C | | | 0 | DOC CAM | | |
| 45 | 2D | | | 0 | DVD | | |
| 46 | 2E | | | 0 | AUX | | |
| 47 | 2F | | | 0 | HELP | 4 | P0 |
| 48 | 30 | | | 0 | FAR END | 4 | P1 |
| 49 | 31 | | | 0 | PRESETS | 4 | P2 |
| 50 | 32 | | | 0 | SERVICES | 4 | P3 |
| 51 | 33 | | | | | 4 | P4 |
| 52 | 34 | | | | | 4 | P5 |
| 53 | 35 | | | | | 4 | P6 |
| 54 | 36 | | | | | 4 | P7 |
| 55 | 37 | | | | | 4 | P8 |
| 56 | 38 | | | | | 4 | P9 |
| 57 | 39 | | | | | 4 | P10 |
| 58 | 3A | | | | | 4 | P11 |
| 59 | 3B | | | | | 4 | P12 |
| 60 | 3C | | | | | 4 | P13 |
| 61 | 3D | | | | | 4 | P14 |
| 62 | 3E | | | | | | |
| 63 | 3F | 0 | WAKE UP | 0 | WAKE UP | | |
| 25 | 19 | 3 | LOW BATTERY | 3 | LOW BATTERY | | |
| XX | | 3 | PROG VER | 3 | PROG VER | | |

# TANDBERG Camera Tracker

## Remote Control for Camera

The Tracker is a small infrared remote control device made to steer the camera to any desired location within the room. Typically, several Trackers would be used with each system.

The Tracker has two buttons:

- The SINGLE PERSON button to point the camera at a specific person or location.
- The GROUP button to point the camera at all participants.

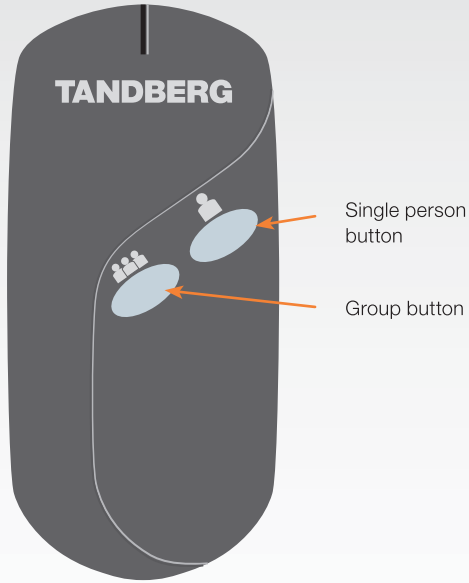
Camera Preset Number Switch:

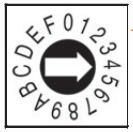
- Beneath the battery in the tracker, there is a switch, which can be set to 16 different positions between 0 and F. For camera preset 10 to 15, the numbers A to F should be selected.

## Using Camera Tracking

- Enable Camera Tracking from the Camera Control menu on screen. Set Camera Tracking to On. An indicator will appear on the screen.
- Disable Camera Tracking from the Camera Control menu on screen. Or press MIC OFF, this will temporarily disable camera tracking until you turn on the microphone again.
- The camera tracking speed may be altered in the Video Settings menu in Control Panel
- For the camera to automatically position itself on the current speaker there must be to two or three microphones in use to pick up the audio from all participants. The camera must have the pan, tilt and zoom functionality.
- A Voice Detector makes the system more tolerant of noise and ensures the camera not to move by noise such as paper shuffling, etc.
- When activating another video source (for instance document camera), camera tracking will be temporarily disabled until you re-select Main Camera or a Main Camera preset.
- The camera tracking will not work properly if using a ceiling mounted Audio Science Microphone.

For more information, see separate instructions included with the TANDBERG Tracker or contact your local TANDBERG representative.




AN P dT d TS S

- Press the SINGLE PERSON button on the Tracker to make the camera move to the desired position.
- Press the GROUP button on the Tracker to see all participants.

## Preparations

Before using camera tracking, the camera positions must be stored at Preset 7 (Mic1), Preset 8 (Mic2) and/or Preset 9 (Mic3).

- Position the microphones on the table to pickup the audio from all participants
- Locate the area which is covered by Mic1 (and later Mic2 and/or Mic3 accordingly) and position the camera to cover that area.
- Press number key 7 (and later key 8 and/or 9 accordingly) on the remote control for 1 second to save the camera preset.

## Using Camera Tracking

Select the Camera Control icon in the menu.

- Enable Camera Tracking by choosing Camera Tracking. An indicator will appear on the screen.
- End Camera Tracking by deselecting the Camera Tracking button. Camera Tracking will also end if you activate a camera preset or move the camera manually with the arrow keys.

### Moving the Camera - Using the remote control

When the menu is hidden, the arrow keys will work on the camera. If the menu is not hidden, press the Cancel button on the remote control to hide the menu.

- Use the left and right arrow keys to pan the camera
- Use the up and down arrow keys to tilt the camera.
- Use zoom + and – to zoom in and out.

### Moving the Camera - Using the menu

Select the Camera Control icon from the menu.

- Select the Move Camera button in the Camera Control menu.
- Use the arrow keys on the remote control to pan and tilt the camera.
- Press OK when done.

If you have more than one TANDBERG Tracker, repeat these actions to set the other presets.

# DVD/VCR Recording and Playback

## DVD/VCR Recording

When recording a conference in stereo, the VCR will record the video as it appears on the main monitor, the local audio and the remote audio.

The VCR will record the conference in stereo if stereo audio is used in the conference.

### Recording a video conference

- Connect a cable between Video Out 2 on the video system and Video In on the VCR.
- Connect a cable between Audio Out 2 on the video system and Audio In on the VCR.

### Stereo recording

- Connect a video cable between Video Out 2 on the video system to Video In on the VCR
- Connect an audio cable between Audio Out 2 (VCR L) on the video system to VCR/DVD Audio In (L)
- Connect an audio cable between Audio Out 3 (VCR R) on the video system to VCR/DVD Audio In (R)

### Configurations

Make sure the following configurations are done:

- STEREO I/O MODE is set to On
- 128 AAC-LD is enabled
- AAC-LD is enabled
- To enable VCR/DVD ducking (reduce volume when speaking), check that VCR DUCKING under Audio Settings is set to On.

When recording the VCR will record the video as it appears on the main monitor, the local audio and the audio from the far end.

A system with one video output and one mixed (local and far end) audio output is required for recording.

## DVD/VCR Playback, Mono

For playback

- Connect a cable between Video Out on the VCR and Video In (VCR) on the video system.
- Connect a cable between Audio Out on the VCR and the Audio In (VCR) on the system.
- Choose VCR from the Presentation menu in the Menu to activate the VCR input.

### Configurations

- Make sure that AUDIO IN (VCR) is On. See the Control Panel > Audio menu.
- If audio from VCR is too low, this level can be adjusted in Audio Settings, Inputs and Level Settings. See the Control Panel > Audio menu.
- To enable VCR/DVD ducking (reduce volume when speaking), check that VCR DUCKING is set to On. See the Control Panel > Audio menu.

The audio from the VCR will be audible in the local speaker system.

The audio from the VCR and your microphone(s) will be mixed and sent to the far end.

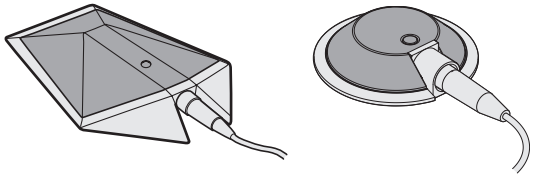
When a person talks on either local or far end, the VCR audio level can be reduced to make it easier to comment on a video recording.

For playback, a system with one video input and one audio input without integrated echo cancellation is required.

# Additional Microphones

If your environment is such that you require more than one microphone for your room, e.g. you have a whiteboard at a distance from your table microphone, it is possible to connect additional microphones to your system.

**NOTE!** Additional microphones require a system with more than one XLR input.



## Voice Activated Camera Tracking

When more than one microphone is connected, you have the option to use the Voice Activated Camera Positioning feature.

Through Camera Tracking and the use of two or three microphones, the camera can automatically position itself on the current speaker.

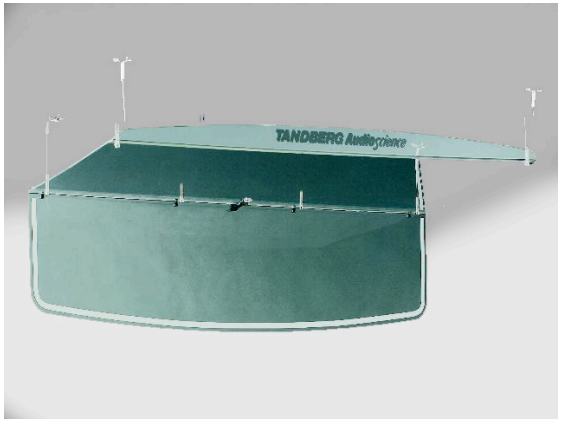
Before using camera tracking, the camera positions used must be stored at Preset 7 (Mic1), Preset 8 (Mic2) and/or Preset 9 (Mic3).

## Audio Science Microphone

TANDBERG's award-winning Audio Science microphone is a ceiling-mounted, wide coverage, boundary microphone, which can eliminate the need for table microphones.

It is designed to pick up the audio from all conference participants seated within in its pick-up area, defined by a quarter-sphere of approximately 14-foot (4.25m) radius extended in front of, and to the sides of the microphone.

Please contact your TANDBERG representative for further information.




Audio Crown
PZM-6D

Audio Technica
AT-861PZ

# DNAM for Profile 52” with Codec 6000 MXP

The TANDBERG DNAM – Digital Natural Audio Module – is built on two specially designed and separate modules, the amplifier and the loudspeaker cabinet.

## The DNAM Loudspeaker Cabinet

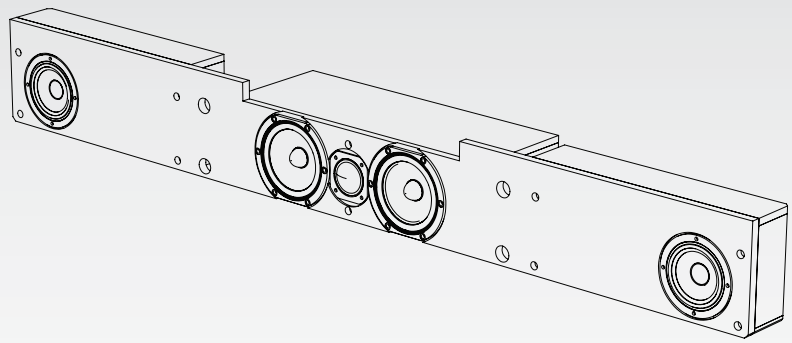
- 3-way Center Loudspeaker system
- Frequency range 50Hz - 20kHz
- 2 x 100 mm low- and midrange loudspeaker 8 Ohms nominal, excellent quality (SEAS Prestige series)
- 1 x 25mm dome tweeter, 6 ohms nominal, excellent quality
- Active crossover filtered audio signals received from DNAM amplifier
- Long time max power 70 Watt on all loudspeakers
- Enclosed MDF loudspeaker cabinet

**Integrated Left / Right Stereo Loudspeaker**

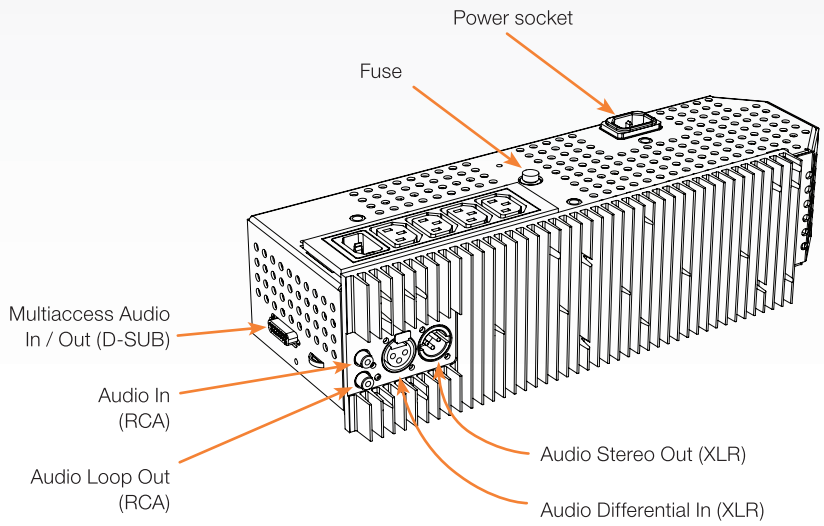
Stereo Loudspeaker System, each side has:

- 1 x 90 mm fullrange loudspeaker, 8 Ohms nominal, excellent quality
- Frequency range 70 Hz - 20 kHz
- Enclosed MDF Loudspeaker cabinet

**DNAM Loudspeaker cabinet**



**DNAM Amplifier**




## The DNAM Amplifier

- 3 x 50W continuous average Center Output Power (load specified by DNAM Center Loudspeakers)
- 2 x 50W continuous average Stereo Output Power (load specified by DNAM Stereo Loudspeakers)
- Full dynamic range for audio (20Hz–20kHz)
- Digital Signal Processing and Filtering on all channels for best audio detail clarity
- Digital Crossover Filtering on center channels
- In/out:
  - Audio In - SPDIF (stereo) or Analog (mono), using the same connector.
  - Audio Differential In - (female XLR pinout: 1 - GND, 2 – Signal (+), 3 – Signal (-))
  - Audio Loop Out - line out directly from the input, always analog even with SPDIF in.
  - Audio Stereo Out - (male XLR, common GND configuration)
- Fuse 2A 250V Slow, 5 x 20mm, Littelfuse type 215002. Push and twist anti-clockvice to release.

# TANDBERG DNAM with Amplifier and Speakers

The TANDBERG DNAM applies to:

- TANDBERG 8000 *MXP*
- TANDBERG 6000 *MXP* Profile
- TANDBERG 6000 *MXP*
- TANDBERG Maestro *MXP*

The DNAM's, are described on the following pages

## TANDBERG DNAM (Digital Natural Audio Module)*

The DNAM audio system is built on two specially designed and separate modules, the:

- DNAM audio amplifier
- DNAM loudspeaker cabinet

The DNAM loudspeaker cabinet is based on several editions. For the 6000 *MXP* and the 8000 *MXP* system, the audio amplifier is integrated in the loudspeaker cabinet. For the Maestro *MXP* system the amplifier and the loudspeaker cabinet is integrated directly into the system pedestal.

### The DNAM Amplifier*

- 3 x 50W continuous average Center Output Power (load specified by DNAM Center Speakers).
- 2 x 50W continuous average Stereo Output Power (load specified by TANDBERG Loudspeaker Stereo Kit).
- Full dynamic range for audio (high fidelity range) or Integrated stereo speakers.
- Digital Signal Processing and Filtering on all channels for best audio detail clarity.
- Digital Crossover Filtering on center channels.
- In/out:
  - Audio In - SPDIF (stereo) or Analog (mono), using the same connector.
  - Differential In - (female XLR pinout: 1 - GND, 2 – Signal (+), 3 – Signal (-))
  - Loop Out - line out directly from the input, always analog even with SPDIF in.
  - Stereo Out - (male XLR, common GND configuration)
- Fuse 2A 250V Slow, 5 x 20mm, Littelfuse type 215002.

* The high-end TANDBERG systems can have different solutions on integrated audio modules and speakers. Please contact your TANDBERG representative for more information.

** Integrated stereo speakers are available with the 3000 *MXP* Profile and 6000 *MXP* Profile only.

## The DNAM Loudspeaker Cabinet (Center Speakers)*

- 3-way Center Speaker system
- Frequency range 50Hz - 20kHz
- 2 x 130mm low- and midrange loudspeakers, 8 ohms nominal, high quality
- 1 x 25mm dome tweeter, 6 ohms nominal, high quality
- Crossover filtered audio signals received from DNAM amplifier
- Long time max power 90 Watt on all loudspeakers
- Enclosed MDF speaker cabinet

### Integrated Stereo Speakers**

- 2 * 15W Stereo Speakers, high quality
- Frequency range 100Hz - 20kHz
- Enclosed MDF speaker cabinet

Using the external and optional Stereo Speaker Kit will improve the stereo sound, even on systems with integrated stereo speakers**. Note that the Stereo Speaker Kit is not available for Mini-DNAM.

**IMPORTANT!** Before connecting the Stereo Speaker Kit, make sure the complete video communication system is powered down.

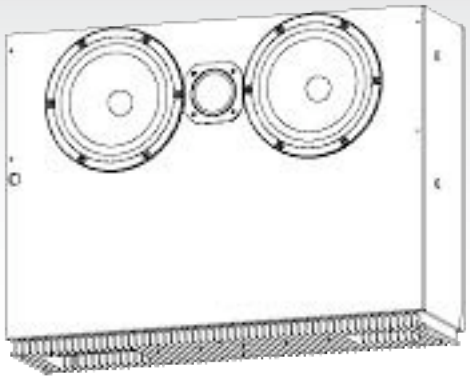
When connecting the Stereo Speaker Kit to a system with already integrated stereo speakers, these integrated speakers will be disabled, and a new filter and specification setup is loaded when powering up the video communication system.

Read about Stereo Speaker Kit in the Peripheral equipment section.

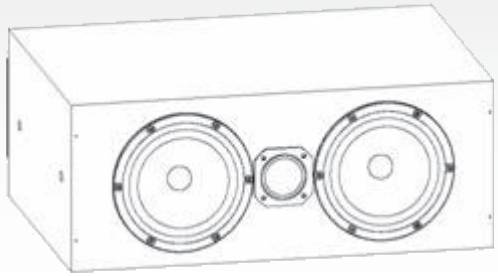
## Interface Required for Playback

For playback, a system with one video input and one audio input without integrated echo cancellation is required.

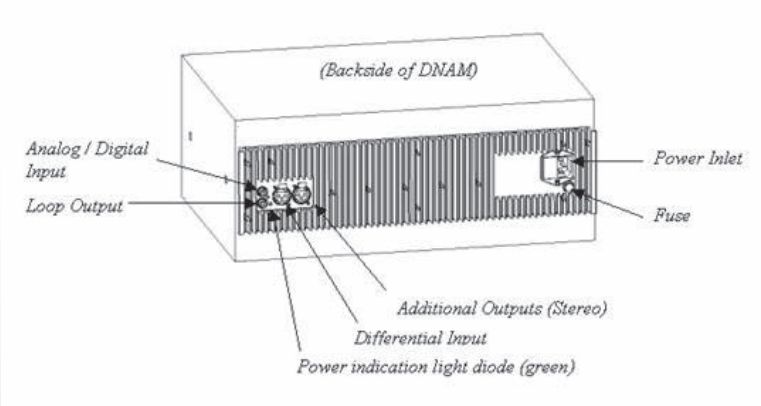
# TANDBERG DNAM Configurations



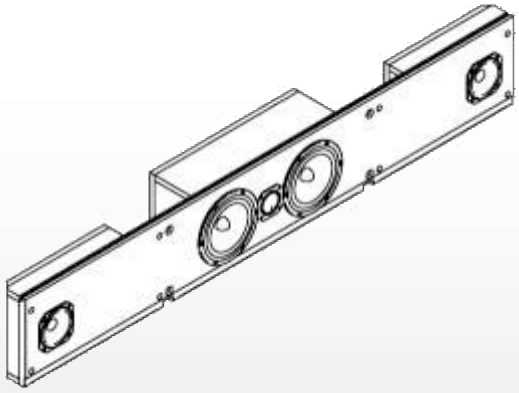
TANDBERG 8000 *MXP* DNAM configuration



TANDBERG 6000 *MXP* DNAM configuration




TANDBERG DNAM Amplifier backside configuration



TANDBERG 6000 *MXP* Profile DNAM configuration
Centered Speakers + Integrated Stero Speakers

# TANDBERG Mini-DNAM with Amplifier and Speaker

The TANDBERG Mini-DNAM applies to:

- TANDBERG 3000 *MXP* Profile

## TANDBERG Mini-DNAM*

The Mini-DNAM audio system is built on two specially designed and separate modules; the Mini-DNAM amplifier and the Mini-DNAM loudspeaker cabinet.

The Mini-DNAM loudspeaker cabinet is stereo-configured and based on two versions made for fitting both the TANDBERG 3000 Profile 43'' and 32'' systems.

The compact sized amplifier is mounted in the rear of the speaker cabinet.

### Mini-DNAM Loudspeaker Cabinet*

2 * 15W Stereo Speakers, high quality

Frequency range 100Hz - 20kHz

Enclosed MDF speaker cabinet

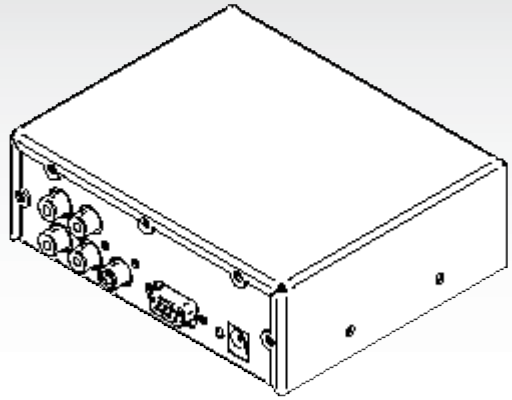
### Mini-DNAM Amplifier*

Stereo digital SPDIF input

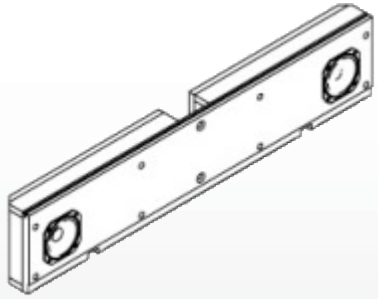
2x30W into 8ohm

External DC power supply

Compact size



TANDBERG 3000 *MXP* Profile Mini-DNAM Amplifier*



TANDBERG 3000 *MXP* Profile Mini-DNAM Loudspeaker Cabinet*

* The high-end TANDBERG systems can have different solutions on integrated audio modules and speakers. Please contact your TANDBERG representative for more information.

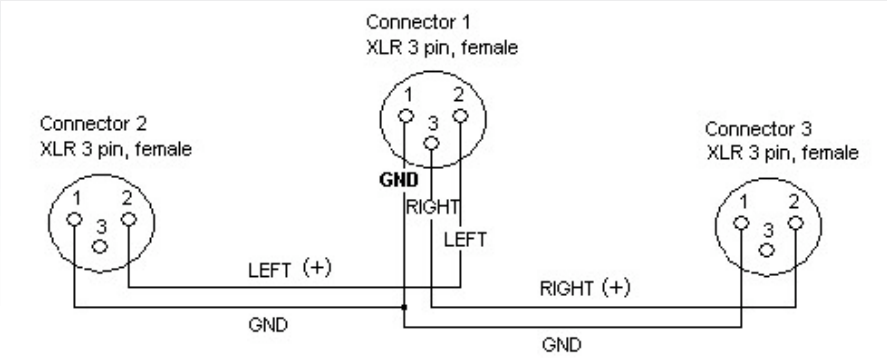
# Stereo Speaker Kit

The Stereo Speaker Kit applies for systems with DNAM and a stereo SPDIF output:

- TANDBERG 8000 *MXP* (standard)
- TANDBERG 6000 *MXP* Profile
- TANDBERG Maestro *MXP*

**NOTE!** If the stereo speakers setting is enabled in the menu without having any stereo speakers connected to the Digital NAM, or having other speakers than the TANDBERG stereo speakers, it may cause the acoustic echo-canceller to malfunction.

DNAM Stereo output cable (from Stereo Speaker Kit)




## Stereo Speaker Kit

The Stereo Speaker Kit provides a pair of floor-standing loudspeakers in addition to the built-in DNAM.Using these speakers will enable stereo functionality in your system and thereby enhance the sound experience.

To experience stereo sound, the stereo speakers have to be connected to the Digital Natural Audio Module (DNAM) as well as confirming this under Stereo Settings in the main audio menu.

The stereo sound source may either be located at the far end, or locally as a sound source (CD, DVD) connected to the codec audio AUX/VCR inputs.

### Control Panel Settings

If using a local stereo sound source, you also have to enable Stereo I/O mode (On) in the same audio menu, to be able to receive stereo sound on your system, and to send stereo signals to the far end. See the stereo audio settings for more information.

Check also that the full-range frequency audio coding AAC-LD is enabled. Go to the Call Quality menu and see that AAC-LD is checked, and that AAC-LD 128 threshold is the same or lower than the call rate you are planning to use. See the Call Quality menu, Audio Algorithm and AAC-LD 128kbps for more information.

### Installation

An installation sheet is enclosed in the Stereo Loudspeaker Kit, which also describes recommended physical speaker placement.
**IMPORTANT!** Make sure the complete video communication system is powered down before connecting the Stereo Speaker Kit.

### Stereo Speaker Kit specification

- 2-way Stereo Speaker system (dual speakers in low- and midrange)
- Passive Crossover Filtering.
- Frequency range 50Hz - 20kHz
- 2 x 130mm low- and midrange loudspeakers, 8 ohms nominal, high quality.
- 1 x 25mm dome tweeter, 6 ohms nominal, high quality
- Long time max power 90 Watt on all loudspeakers
- Enclosed aluminum speaker cabinet

# Telephone Add-On

The video system has a built in audio bridge* that can bring in Voice over IP (VoIP) telephony or normal telephone sites using ISDN.

A built in audio bridge is an audio MCU (Multipoint Conference Unit).

Note that this requires a system with mixed audio output (audio from local and far end) and one audio input without integrated echo cancelling.

In addition to using ISDN and IP for your telephone sites, it is possible to connect a telephone using normal POTS line** by:

Connect the audio out from the conference telephone to the AUX input.

Connect the audio input from the conference telephone to the AUX output, which provides a mixed signal between local and far end.

* Optional MultiSite package available

** Require a conference phone with external audio input and output

## Chapter 8

# Appendices

Learn about security, how to upgrade your video system, diagnostics tools, the web interface, and much more in the appendices section. In the end you will find the product specification for each product.

### Stay up-to-date

We recommend you visit the TANDBERG web site regularly for an updated version of this guide. Go to: ▶ http://www.tandberg.com/docs

In this chapter...


- About security
- System upgrade using the web interface
- System upgrade using FTP
- System upgrade using ISDN
- Diagnostics tools for IP
- Monitor power management system
- About EDID
- NSF Service codes
- About FIPS mode
- Cisco Call Manager registration
- Dimensions
- Technical specifications

# Security

## Access Code

When Access Code is enabled, the user will be asked to enter an access code before he/she can make a call. The system will verify if the entered access code is valid by checking the code with the allowed codes listed in the access.txt file on the ftp-server in the system. If no access.txt file is uploaded, registration of the code will be done without validation. Read more about Access Codes in Call Control with Access Codes.

## Administrator Password

Access to the Control Panel menus on the video system can be controlled by using password protection. An Administrator Password can be set in Menu Settings, in Security or from the dataport: `Cxf<S/MM>RUi□□Mx:□□Svf□lRix□`. The pin-code should be maximum 5 - five digits. To erase the password, enter an empty pin-code.

## Streaming password

By setting a streaming password in the streaming menu on the system, a password has to be entered on the streaming client to be able to see the video stream from the system.

## IP Password

By setting an IP Access Password on the system, all access to the system using IP (Telnet, FTP and WEB) requires a password. This password can be enabled from telnet or dataport using the command: `vSS/MM>RUi□□vS□S/MM>RUi□`. The default IP user name and password is “TANDBERG”. To remove this password, use the command: “`vSS/MM>RUi `”. From telnet, this is only possible by first entering the correct password.

## IP Services

The different IP services on the system - FTP, Telnet, Telnet Challenge, HTTP, HTTPS, SNMP, SSH, H.323 and SIP can be disabled to prevent access to the system. By using the commands below, the services can be independently enabled/disabled:

```
@lRfrvh<U/:vRf□sxgfx:□sxgfx:□k/ggxfhx□□s □□ss □□ss m□
mm□□□□□□□lRix□□□.f□.rr□
@lRfrvh<U/:vRf□sxgfx:□k/ggxfhx□lRix□□□.f□.rr□□aSRU:y
@lRfrvh<U/:vRf□m01 □lRix□□□.f□.rr□tx/i.fgK□sU/SM.fgK□
```

## SNMP Security alert

This function will notify any Management Application (such as TMS - TANDBERG Management Suite) if anyone tries to perform Remote Management on the system using an illegal password.

The Security alert that is sent to the Management Application will contain information about the IP address and the service (WEB, Telnet, FTP) being used for the attempt. If TMS is used, email notifications or alarms about the attempt can be sent to specified persons.

## Encryption

All TANDBERG systems support both AES and DES encryption. By default this feature is enabled such that when connecting with any other video system or MCU, a TANDBERG system will attempt to establish a secure conference using AES or DES encryption. The TANDBERG system will attempt this for both IP and ISDN connections. Where a remote system or MCU supports encryption, the highest common encryption algorithm will be selected on a port-by-port basis.

The type and status of the encryption negotiated is indicated by padlock symbols and on-screen messages. Encryption on the TANDBERG systems is fully automatic, and provides clear security status indicators;

- An open padlock indicates that encryption is being initialized, but the conference is not yet encrypted.
- Single padlock indicates DES encryption.
- Double padlock indicates AES encryption.

In addition to on-screen indicators the Call Status menu provides two information fields regarding call encryption. The first field is the Encryption Code, which will identify either AES or DES. The second field is the Encryption Check Code and is comprised of an alphanumeric string. This string will be the same for systems on either side of an encrypted conference. If the Check Codes do not match, this would indicate that the call has been exposed to a “Man In The Middle” attack.

When a system with MultiSite functionality hosts a conference, the highest possible encryption algorithm will be negotiated on a site-by-site basis. MultiSite conferences can therefore support a mix of AES and DES encrypted endpoints in the same conference. A conference will be as secure as its weakest link.

All systems supporting DES encryption can upgrade to AES encryption. Please contact your TANDBERG representative for more information.

The standards supporting the encryption mechanisms employed by TANDBERG are: AES, DES, H.233, H234 and H.235 (H235v3 & v2 for backwards compatibility) with extended Diffie Hellman key distribution via H.320, H.323 and Leased Line connections.

The TANDBERG AES implementation is validated as conforming to the Advanced Encryption Standard (AES) Algorithm, as specified in Federal Information Processing Standard Publication 197, Advanced Encryption Standard, by The National Institute of Standards and Technology (NIST).

## IEEE 802.1x /EAP (Extensible Authentication Protocol)

This is a standard for authentication and authorization of units/systems onto the network.

Static configuration

- System ID and Password
- Anonymous ID for encryption challenge
- Enable methods

Supported methods

- MD5 (simple challenge)
- PEAP (encrypted channel)
- TTLS

Note that 802.1x wireless LAN is not supported.

# The Web Interface

You can easily access and maintain the video system remotely via a local area network (LAN) using a standard Web-browser.

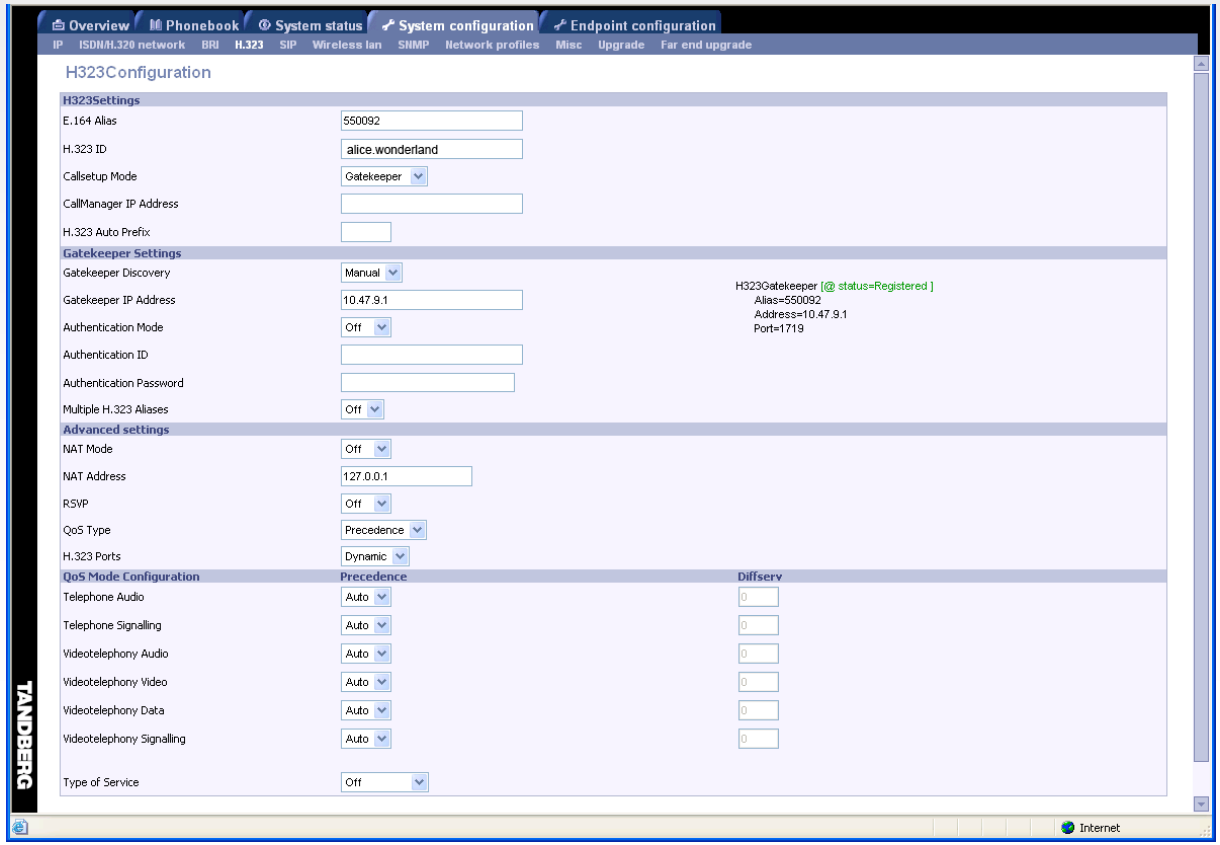
**NOTE!** The access to the web interface may be password protected by the IP Access Password.

Open the web interface

1. In the address field type the IP-address of your video system.
2. If the video system is setup with an IP Access Password you must enter the password:
   - Password (IP Access Password). The default IP Access Password is TANDBERG.

   - and the Web-page from the system will be shown.

The example below shows the System Configuration > H.323 Configuration page.



# System upgrade using the web interface

The TANDBERG MXP systems can be software upgraded in three different ways:

- Using Web Interface
- Using FTP
- Using ISDN

## Software File

Before starting the software upgrade of the TANDBERG MXP system, please make sure to have the new Software File, (for instance s050000F30.pkg).

Your TANDBERG Partner will provide this for you.

## Release Key

Before starting the software upgrade of the TANDBERG MXP system, please make sure to have the Release Key for this software available.

Your TANDBERG Partner will provide this for you.

## Backup

All options and settings will automatically be stored when upgrading, so no backup is necessary.

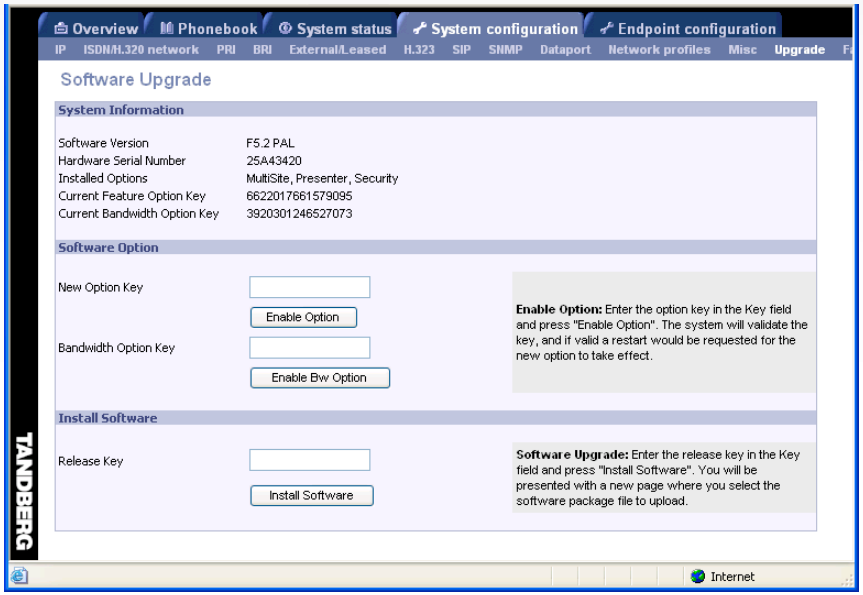
## What happens If the upgrade is interrupted

If the system upgrade process is aborted before it's complete, the system will work as normal with the original software.

## The system upgrade procedure

To upgrade using the web interface, please do the following steps

1. Type the IP address of the TANDBERG MXP system that shall be upgraded (for instance 10.0.8.77) in a standard browser, such as Internet Explorer 6.0.
2. The web interface of the codec will then be displayed. Select the 'System Configuration' tab on top of the page, and then the sub-tab 'Upgrade'.
3. Enter the Release key in the 'Release Key' field and press the 'Install Software' button.
4. Type in the path to where the new software file is stored, or select the file by using the 'Browse' button.
5. The progress for the sw upgrade can be tracked by pressing the 'telnet' link in the help text box BEFORE pressing the install button. Please note that this is not a necessary action for a successful software upgrade. An indication of the software upgrade progress will also be shown on the display of the system
6. Press the 'Install' button to start the software upgrade.
7. When the software upgrade is complete, you need to click on the restart button and press OK to restart the system in order to activate the new software. Once verified, the system will reboot once more to complete the upload of all systems parameters kept from the old software revision.
8. To verify that the new sw is installed, refresh the page shown in figure1 after restart. The 'Software Version' should now show the new software version uploaded to the system. The same information can also be found in the menu on the system under 'Control Panel/ System Information'.



# System upgrade using FTP

The TANDBERG MXP systems can be software upgraded in three different ways:

- Using Web Interface
- Using FTP
- Using ISDN

## Software File

Before starting the software upgrade of the TANDBERG MXP system, please make sure to have the new Software File, (for instance s050000F30.pkg).

Your TANDBERG Partner will provide this for you.

## Release Key

Before starting the software upgrade of the TANDBERG MXP system, please make sure to have the Release Key for this software available.

Your TANDBERG Partner will provide this for you.

## Backup

All options and settings will automatically be stored when upgrading, so no backup is necessary.

## What happens If the upgrade is interrupted

If the system upgrade process is aborted before it's complete, the system will work as normal with the original software.

## The system upgrade procedure

To upgrade using the web interface, please do the following steps

1. Copy the new software file to a folder on your harddisk, for instance `l□nMRr:>/Ux`.
2. Open a DOS window, and go to the folder where the new software is stored.
3. Type ftp `□vS□/iiUxMM□Rr□:kx□s□0□□□t□□1o □MKM:xC□` for example '`r:S□□□□□□□□□□`'
4. Type in the supplied '`txgx/Mx□□xK`' as provided from your TANDBERG Partner.
5. Type in your IP password (default is "`s□0□□□t□`") as password.
6. Type '`S<:□□MRr:>/Ux□rvgx□f/Cx□`' and press Enter. The new software file will now be uploaded to the TANDBERG MXP system. Example: '`S<:□M□□□□□□□□□□S2h`'
7. When the software upload is complete, end the ftp connection to the TANDBERG MXP system by typing '`bKx`' in the DOS prompt.
8. To exit the DOS window completely, type '`x@v:`'
9. Restart the video system to activate the new software.

# System upgrade using ISDN

The TANDBERG MXP systems can be software upgraded in three different ways:

- Using Web Interface
- Using FTP
- Using ISDN

## Software File

Before starting the software upgrade of the TANDBERG MXP system, please make sure to have the new Software File, (for instance s050000F30.pkg).

Your TANDBERG Partner will provide this for you.

## Release Key

Before starting the software upgrade of the TANDBERG MXP system, please make sure to have the Release Key for this software available.

Your TANDBERG Partner will provide this for you.

## Backup

All options and settings will automatically be stored when upgrading, so no backup is necessary.

## What happens If the upgrade is interrupted

If the system upgrade process is aborted before it's complete, the system will work as normal with the original software.

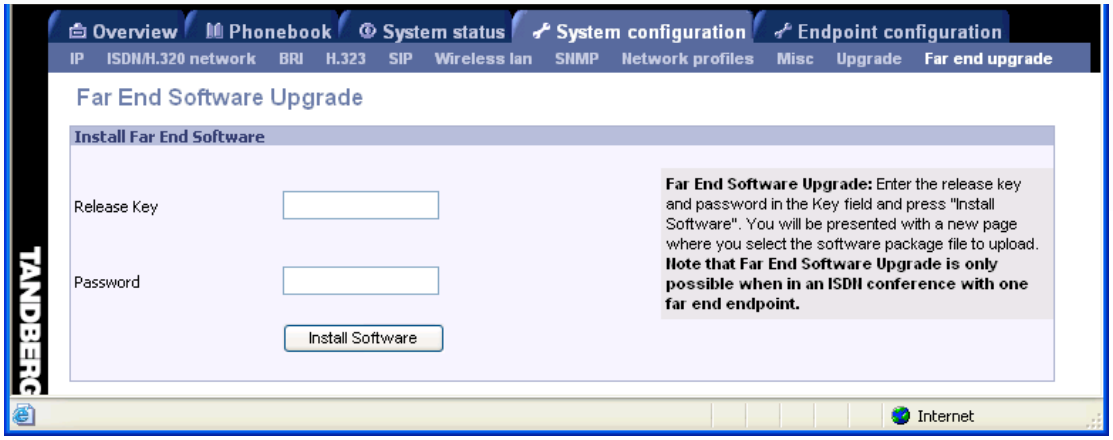
## About far end ISDN system upgrade

**NOTE!** Far end software upgrade is only possible when in an ISDN conference with one other far end endpoint. Both systems must be on software version F3.0 or newer for this functionality.

## The system upgrade procedure

To upgrade using the web interface, please do the following steps

1. Connect to the system that shall be upgraded using ISDN
2. Copy the new software file to a folder on your computer, for instance `l□nMRr:>/Ux`.
3. Type the IP address of the TANDBERG MXP system that the software upgrade is going to be done from (for instance 10.0.8.77) in a standard browser, such as Internet Explorer 6.0. The web interface of the codec will then be displayed.
4. Select the SYSTEM CONFIGURATION tab on top of the page, and then the sub-tab FAR END UPGRADE.
5. Enter the release key for the system to be upgraded in the 'Release Key' field. If no release key is given, the Far End System will use the previously stored release key if possible. This will work when upgrading from a main release to a dot release.
6. Make sure the setting "Far End System Upgrade" is set to "On" at the remote site. This setting can be found in the Settings/General/Permissions menu.
7. Enter the password set at the far end for remote upgrade (default password is "TANDBERG")
8. Press 'Install Software' .The system will now use about 90% of the call capacity to transfer the software file across. During this time, audio and video will be turned off.
9. Once the software has been transferred and verified at the far end, you will get a new webpage with information that the upgrade of the far end was successful. At the same time, a message box will appear at the remote system asking if you want to reboot the system to activate the new software.
10. To activate the new software. The ISDN connection needs to be closed, and the TANDBERG MXP system must be rebooted. In the menu on the system under 'Control Panel/System Information', the installed software should now be displayed as the 'Software Version'.



# Diagnostics Tools for IP

## Using Diagnostic Tools for IP (H.323)

Using the Diagnostics Tools for IP will require a PC and setting up a telnet session towards the PC and the video system.

### Q.931

To show Q.931 trace during a call you need to issue the command '`MKMgRh□Rf`'. One can get traces for RAS, Q.931 and H.245 with this command. It is a complex trace and requires an extensive knowledge in H.323 signaling to be understood.

### Ping

Ping is used to see if the system is able to reach a specific IP-address, using a mechanism in IP called ICMP. If the system is unable to register to its Gatekeeper, or if it is unable to dial a specific endpoint, one can use ping to see if there is at least an IP-route to the Gatekeeper or to the endpoint. In case you have problems, one would first ping the default gateway, then the Gatekeeper, and then the other endpoint.

### Traceroute

Traceroute does exactly that; it traces the route an IP-packet takes to reach its destination and displays all router hops. Traceroute is very useful for seeing exactly where there is a routing-problem in the IP-network, and for checking where transport-delay is introduced.

### Layer 4 Ports used in H.323 calls

The layer 4 ports used by the system in a H.323 call can be defined as follows:

- Dynamic: The ports are allocated at random from 2048 to 65535.
- Dynamic H323 ports are allocated at random from 11000 to 65535.
- Static: Will use the predefined layer 4 ports listed in the tables to the right.

### More Commands to be found...

The diagnostics commands are explained in the TANDBERG MXP System Integrators Guide.

Go to: http://www.tandberg.com/docs and see the Application Programmer Interface section.

| Point-to-Point + DuoVideo | | |
|---|---|---|
| **Function** | **Port** | **Type** |
| Gatekeeper Discovery (RAS) | 1719 | UDP |
| Q.931 Call Setup | 1720 | TCP |
| H.245 | Range 5555-5574 | TCP |
| Video | Range 2326-2385 | UDP |
| Audio | Range 2326-2385 | UDP |
| Data/FECC | Range 2326-2385 | UDP |

| MultiSite + DuoVideo | | |
|---|---|---|
| **Function** | **Port** | **Type** |
| Gatekeeper Discovery (RAS) | 1719 | UDP |
| Q.931 Call Setup | 1720 | TCP |
| H.245* | Range 5555-5574 | TCP |
| Video | Range 2326-2485 | UDP |
| Audio | Range 2326-2485 | UDP |
| Data/FECC | Range 2326-2485 | UDP |

* While using MultiSite, if a site is disconnected and reconnected without terminating the entire conference, the next site to be connected will have a H.245 port outside of the specified range. If this functionality is required through a firewall, the range of TCP ports can be extended past 5564. However, if a site is disconnected and reconnected, without ending the conference enough times one can quickly end up outside of this range again.

# Monitor Power Management Systems

## VESA Display Power Management

Because of the tremendous amount of energy consumed by monitors when operating, the system will reduce power consumption and extend monitor lifecycle by suspending the (switch off) monitors and projectors when the system goes into sleep/standby.

This applies for all VESA Display Power Management compliant displays that are connected to the VGA/DVI output of the system.

The display device needs to comply with VESA Display Power Management System (DPMS).

NOTE This requires a system supplied with a VGA/DVI output.

## VESA DPMS Standard

The VESA DPMS standard consists of 4 modes, Normal, Standby, Suspend and Off, and applies to all Sync formats (e.g. VGA).

| DPMS Standard | | | | |
|---|---|---|---|---|
| | Normal | Standby | Suspend | Off |
| Horisontal Sync | On | Off | On | Off |
| Vertical Sync | On | On | Off | Off |
| Power Savings | None | Minimal | Substantial | Maximum |
| Recovery Time | None | 2-3 seconds | 2-3 seconds | 8-10 seconds |

In Off mode some power may still be drawn in order to power indicator lights etc.

EDID contains the information on which mode a specific monitor supports.

TANDBERG supports all four modes. However, in software version F1 and above, all monitors not listed below are automatically set to Off.

| Monitor vs DPMS Mode | |
|---|---|
| Monitor | DPMS Mode |
| Dell | Off |
| T8000 MXP - Pioneer | Suspend |
| T6000 MXP - SAMPO | Suspend |
| Maestro MXP - Project Design | Off |

VESA - Video Electronic Standards Association
DPMS - Display Power Management System
EDID - Extended Display Identification Data
DMPM - Digital Monitor Power Management

## Digital Monitor Power Management

DMPM - Digital Monitor Power Management is monitor power management applied over the digital DVI interface. TANDBERG supports DMPM in software version F2 and above.

The following monitor power states are defined:

### Monitor On Power state

Transmitter (TANDBERG codec) and receiver (Monitor) are powered and active. This power state is equivalent with the DPMS normal mode.

### Intermediate Power state

When the codec goes from active to standby, it turns off the DVI transmitter and the monitor can go from Monitor On

### Active-off Power state

The monitor can go from Intermediate Power state to Active-off Power state when the monitor timer expires.

### Non-Link Recoverable Off Power State

The monitor can enter Non-Link Recoverable Off Power State when the codec is switched off or if the DVI cable is disconnected. This power state is equivalent to the DPMS “Off (with no DPMS recovery)” state.

### Monitor Power Switch Off Power state

This state can be entered when the power switch on the monitor is toggled to its off position. This state has two sub-states dependent on if the codec is switched on or off.

# Extended Display Identification Data (EDID)

Extended Display Identification Data (EDID) is a VESA standard data format that will allow the system to communicate its capabilities, including vendor information like the supported VGA-formats and frequency range limits to a PC connected to the XGA/DVI input.

**NOTE!** This requires a system supplied with a XGA/DVI input.

This means that the PC always* will be able to output a valid VGA/DVI signal to the system with no manual reconfiguration of the PC screen settings.

TANDBERG supports EDID structure v1.3, which adheres to the Microsoft Plug & Play definition.

This standard contains information on product ID, basic display parameters, timing identifications and detailed timing descriptions.

For TANDBERG video systems with software version F1 and above, TANDBERG will use the EDID information to decide which resolution to use, 800x600 @ 75Hz or 1024x768 @ 60Hz.

* Need to comply with the VESA EDID Standard.

Listed below are some of the monitors TANDBERG have tested and verified against:

| Tested and Verified Monitors | |
|---|---|
| EDID & Timing | |
| ADI A715 | LG L3200A |
| Dell W1700 | LG M3200C |
| Dell W1900 | LG M3201C |
| EIZO L367 | Löewe TAA112747 |
| EIZO F730 | MAG D700 |
| ErgoScan 400S | MAG DJ707 |
| Hitachi CM640ET | Panasonic SL75 |
| FourSeason | Pioneer PDP-50MXE10 |
| Hitachi CM769ET | Pioneer PDP-42MXE10-S |
| IBM 9494-HBO | Pioneer PDP-43MXE1-S |
| IBM G97 | Pioneer PDP-50MXE11 |
| IBM E74 | Pioneer PDP-50MXE1-S |
| IBM 6743-60N | Pioneer PDP-50MXE20-S |
| JVC LT-23X475 | Samsung 191T |
| JVC LT-23C50BU | Samsung 323T |
| JVC LT-23X576 | |
| | |
| | |
| | |

Listed below are results of an example using 1024x768@60Hz:

| Example (1024x768@60Hz) | |
|---|---|
| **Detailed timing description** | **Value** |
| PixelClockDiv10000: | 6500 |
| Horizontal Active: | 1024 |
| Horizontal Blanking: | 320 |
| Vertical Active: | 768 |
| Vertical Blanking: | 38 |
| Horizontal Sync Offset: | 24 |
| Horizontal Sync Pulse Width: | 136 |
| Vertical Sync Offset: | 3 |
| Vertical Sync Pulse Width: | 6 |
| Horizontal Image Size: | Not available |
| Vertical Image Size: | Not available |
| Horizontal Border: | 0 |
| Vertical Border: | 0 |

# E1/T1 Networks - NSF Service Codes

AT&T offers several digital switched services. These include SDN with service code 1 and ACCUNET with service code 6.

To the right you will find a list of common service profiles. As these profiles may change, contact your service provider to get the correct profile.

| AT&T Service Code (Ref.1) | |
|---|---|
| Code | Service |
| 0 | Disable * |
| 1 | SDN (including GSDN) |
| 2 | Toll Free Megacom (800) |
| 3 | Megacom |
| 6 | ACCUNET Switched Digital Service (incl. Switched Digital International) |
| 7 | Long Distance Service (incl. AT&T World Connect) |
| 8 | International Toll Free Service (1800) |
| 16 | AT&T MultiQuest |
| 23 | Call Redirection Service |

| Sprint Service Code (Ref.2) | |
|---|---|
| Code | Service |
| 0 | Reserved |
| 1 | Private |
| 2 | Inwatts |
| 3 | Outwatts |
| 4 | FX |
| 5 | TieTrunk |

| MCI Service Code (Ref.2) | |
|---|---|
| Code | Service |
| 1 | VNET / Vision |
| 2 | 800 |
| 3 | PRISM1, PRISMII, WATS |
| 4 | 900 |
| 5 | DAL |

* “0” will still send NSF in the Q931 setup, which may cause calls to fail. Set to mode “off” if not needed.

Ref. 1: AT&T TR 41459 Specification, June 1999, page 76

Ref. 2: Ascend Multiband Plus-T1/PRI, User Documentation, Page 6-8

# About FIPS Mode

When FIPS mode is enabled, the video system will operate according to NIST FIPS 140-2 Level 1 requirements. This means that only services and cryptographic algorithms that are accepted according to this standard will be used. Options and menu items which is not approved will be grayed out and/or not be selectable in the menus.

## Certificate management

NIST issues certificates to products that has been verified and tested to comply with this standard, as of this writing TANDBERG is in the process of obtaining such a certificate.

- FIPS - Federal Information Processing Standards.
- NIST - National Institute of Standards and Technology, the issuer of validation certificates.
- Certificate - Text file which indicates a trusted third party (issuer or CA) verifying the authenticity of the unit (in this context).
- CA - Certificate authority, issuer of (root) certificates.

## How to activate FIPS Mode

1. Enter the Security Settings menu and set the FIPS mode to ON.
2. A warning box will appear:
   7pR<□/Ux□/bR<:□:R□/l:vO/:x□□□ m□CRix□□skx□MKM:xC
   >vgg□bx□UxM:/U:xi□>kxf□M/Ovfh□:kvM□S/hx□3
   - Press the CANCEL button to leave without any changes.
   - Press the SAVE AND RESTART button for the changes to take effect.

## How to deactivate FIPS Mode

1. Enter the Security Settings menu and set the FIPS mode to OFF.
2. A warning box will appear:
   “pR<□/Ux□/bR<:□:R□ix/l:vO/:x□□□ m□CRix□□skx□MKM:xC
   >vgg□bx□UxM:/U:xi□>kxf□M/Ovfh□:kvM□S/hx□“
   - Press the CANCEL button to leave without any changes.
   - Press the OK button to proceed and press the SAVE AND RESTART button for the changes to take effect.

## Menus disabled in FIPS mode

- Main Menu > Presentation > VNC
- Control Panel > Diagnostics > View Administrator Settings > Video quality > VNC
- Control Panel > Diagnostics > View Administrator Settings > Video name > VNC
- Control Panel > General > Permissions > Far End ISDN System Upgrade
- Control Panel > Call Quality > Video quality > VNC
- Control Panel > Security > Encryption Mode > DES
- Control Panel > Security > VNC Password
- Control Panel > Presentation Settings > Call Video Source > VNC
- Control Panel > Presentation Settings > Presentation Source > VNC
- Control Panel > Presentation Settings > Snapshot Source > VNC
- Control Panel > Video > Video Name > VNC
- Control Panel > Security > Streaming Password
- Control Panel > Menu Settings > Icons > Encryption (possible to turn off the security icon)
- Control Panel > Network > LAN Settings > SIP Settings > Autentication
- Control Panel > Network > LAN Settings > Wireless LAN Settings (and all sub menus)
- Control Panel > Network > LAN Settings > IEEE802.1x

# About FIPS Mode, *cont...*

When FIPS mode is enabled, the video system will operate according to NIST FIPS 140-2 Level 1 requirements. This means that only services and cryptographic algorithms that are accepted according to this standard will be used. Options and menu items which is not approved will be grayed out and/or not be selectable in the menus.

## Certificate management

NIST issues certificates to products that has been verified and tested to comply with this standard, as of this writing TANDBERG is in the process of obtaining such a certificate.

### Uploading HTTPS certificate for FIPS Mode

When in FIPS mode, we recommend using HTTPS for web management instead of HTTP. HTTPS in FIPS mode requires a user installed certificate to operate.

Be sure to enable FIPS mode first (using either the remote control or the dataport interface, then in a secure environment, use the HTTP protocol to install the required certificates before doing a restart to the video system. See the previous page on how to enable FIPS Mode.

To ensure the authenticity of an endpoint, it is recommended that the administrator issues/obtains and installs unique certificates to each endpoint. This is done through the Web Interface.

To install a certificate, you need:

- HTTPS certificate ( .PEM format)
- Private key ( .PEM format)
- Passphrase (optional)
- The IP Address of the video system (see Control Panel > Diagnostics > System Information)

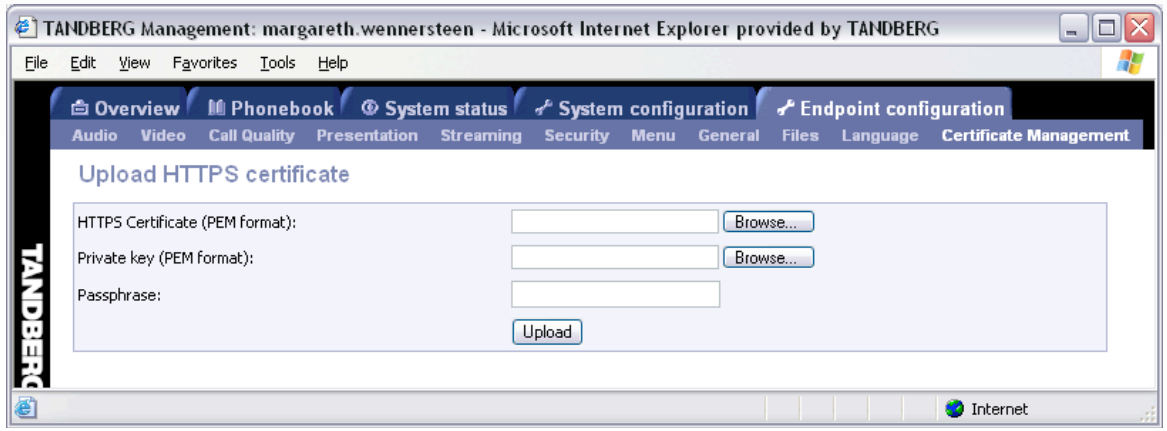
### The software upload procedure

**NOTE!** The certificate must be installed AFTER enabling FIPS mode, using HTTP (not HTTPS) access to the codec. This must be done by an administrator in a secure environment, since the installation of the certificate must occur over an unsecure link (HTTP) and sensitive files (such as the private key) are being uploaded.

1. Start a Web-browser on your PC and type in the IP-ADDRESS of your video system.
2. If the video system is setup with an IP Access Password you must enter the password. The default IP Access Password is TANDBERG.
3. Go to Endpoint Configuration > Certificate Management
4. Press BROWSE to locate the files for the HTTPS certificate and Private Key <□SxC□rRUC/:>
5. Type in the Passphrase and press UPLOAD to upload the certificate and private key

### After having uploaded the Certificate

1. After the certificate installation, it is recommended to disable HTTP and use only HTTPS. Go to Control Panel > Network > LAN Settings > IP Services to disable HTTP (set to OFF) and enable HTTPS (set to ON).
2. Press the SAVE AND RESTART button for the changes to take effect.



# Cisco CallManager Registration

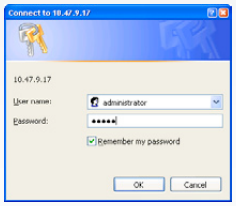
The registration of a TANDBERG MXP in Cisco CallManager is supported on the CallManager (CCM) 4.0 software and forward. The TANDBERG plug in for Cisco Call Manager must be installed. This example is valid for SCCP versions of the MXP.

## Configuring TANDBERG MXP on Cisco CallManager 4.1

Open a web browser and enter the address to the Cisco Callmanager Administration.

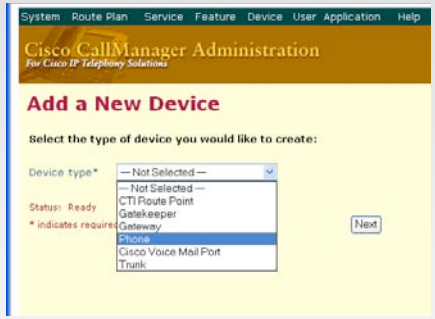
Example: `k::SM□□□□□□□□□□□□□llC/iCvf□`

1) Log on to CallManager:




2) Select Device > ADD NEW DEVICE:


3) Select Device Type > PHONE and press Next:



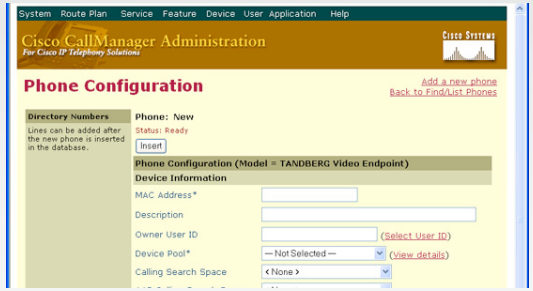

4) Select Phone Type > TANDBERG VIDEO ENDPOINT and press Next:


5) Fill in the PHONE CONFIGURATION and press INSERT.

The MAC Address is found on your TANDBERG video system.

a) Go to Control Panel > Diagnostics > System Information.

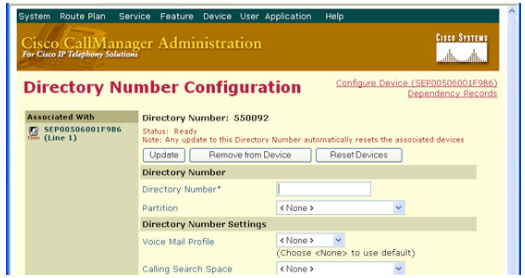
b) or use Telnet and the command: `@M:/:□□□C/l`




6) Fill in the DIRECTORY NUMBER CONFIGURATION and press ADD.

a) The Directory Number is the E.164 Alias and is found on your TANDBERG video system. Go to Control Panel > Network > LAN Settings > H.323 Settings > E.164 Alias.

b) In the FORWARD AND PICKUP SETTINGS enter the time of NO ANSWER RING DURATION. The time selected has to have a value from 1 to 300 seconds.




You have now successfully configured the Cisco CallManager with a TANDBERG MXP system!

When the TANDBERG MXP system is registered to a Cisco CallManager, it will be possible to place and receive calls from this system to any other video and voice systems that are registered on the same Cisco CallManager.

# Supported RFCs in SIP

The RFC (Request for Comments) series contains technical and organizational documents about the Internet, including the technical specifications and policy documents produced by the Internet Engineering Task Force (IETF).

## Current RFCs and Drafts supported in SIP* for MXP

- RFC 1889 RTP: A Transport Protocol for Real-time Applications
- RFC 2190 RTP Payload Format for H.263 Video Streams
- RFC 2327 SDP: Session Description Protocol
- RFC 2396 Uniform Resource Identifiers (URI): Generic Syntax
- RFC 2429 RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)
- RFC 2617 Digest Authentication
- RFC 2782 DNS RR for specifying the location of services (DNS SRV)
- RFC 2833 RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals
- RFC 2976 The SIP INFO Method
- RFC 3016 RTP Payload Format for MPEG-4 Audio/Visual Streams
- RFC 3047 RTP Payload Format for ITU-T Recommendation G.722.1
- RFC 3261 SIP: Session Initiation Protocol
- RFC 3262 Reliability of Provisional Responses in SIP
- RFC 3263 Locating SIP Servers
- RFC 3264 An Offer/Answer Model with SDP
- RFC 3311 UPDATE method
- RFC 3361 DHCP Option for SIP Servers
- RFC 3420 Internet Media Type message/sipfrag
- RFC 3515 Refer method
- RFC 3550 RTP: A Transport Protocol for Real-Time Applications
- RFC 3581 Symmetric Response Routing
- RFC 3605 RTCP attribute in SDP
- RFC 3711 The Secure Real-time Transport Protocol (SRTP)
- RFC 3840 Indicating User Agent Capabilities in SIP
- RFC 3890 A Transport Independent Bandwidth Modifier for SDP
- RFC 3891 The SIP “Replaces” Header
- RFC 3892 Referred-By Mechanism
- RFC 3960 Early Media
- RFC 3984 RTP Payload Format for H.264 Video
- RFC 4028 Session Timers in SIP
- RFC 4145 TCP-Based Media Transport in the SDP
- RFC 4568 SDP:Security Descriptions for Media Streams
- RFC 4574 The Session Description Protocol (SDP) Label Attribute
- RFC 4582 The Binary Floor Control Protocol
- RFC 4585 Extended RTP Profile for RTCP-Based Feedback
- RFC 4587 RTP Payload Format for H.261 Video Streams
- RFC 4629 RTP Payload Format for ITU-T Rec. H.263 Video
- RFC 5168 XML Schema for Media Control
- RFC4796 The Session Description Protocol (SDP) Content Attribute
- RFC4583 Session Description Protocol (SDP) Format for Binary Floor Control Protocol (BFCP) Streams
- RFC 5389: Session Traversal Utilities for NAT (STUN)
- RFC4508 Conveying Feature Tags with the SIP REFER Method
- draft-ietf-avt-rtp-h264-params-01 Parameters for Static Macroblocks and Aspect Ratio in the RTP Payload Format for H.264 Video
- draft-ietf-sipping-cc-transfer-12 Session Initiation Protocol Call Control - Transfer
- draft-ietf-mmusic-ice-19: Interactive Connectivity Establishment (ICE): A Protocol for Network Address Translator (NAT) Traversal for Offer/Answer Protocols
- draft-ietf-behave-turn-13: Traversal Using Relays around NAT (TURN): Relay Extensions to Session Traversal Utilities for NAT (STUN)
- draft-ietf-behave-stun-test-vectors-04: Test vectors for STUN
- draft-ietf-sip-ice-option-tag-02: Indicating Support for Interactive Connectivity Establishment (ICE) in the Session Initiation Protocol (SIP)
- draft-ietf-avt-rtp-h264-rcdo-02 RTP Payload Format for H.264 RCDO Video

* See the TANDBERG MXP Software Release Document for the software version covered by this guide. The software version is found at the first page of this document. Go to: http://www.tandberg.com/support/documentation.php?p=Upgrades_and_Diagnostics

### d E T NdNAEERST dPdN E

The audio and video media capabilities supported in SIP are the same as for H.323.

# Bandwidth information for TANDBERG endpoints

## Bandwidth Information for TANDBERG MXP Endpoints

| *Model* | *8000MXP* | *6000MXP Profile, Maestro MXP, Profile 52" with 6000MXP* | *3000MXP Profile, 3000NetMXP* | *Tactical MXP (ISDN,V35)* | *1700MXP* | *1000MXP* |
|---|---|---|---|---|---|---|
| Bandwidth<br>Point to point<br>ISDN / IP | Standard: 768 / 3072<br>Option: 1920 / 4096 | Standard: 768 / 3072<br>Option: 1920 / 4096 | Standard: 384 / 1536<br>Option: 512 / 1920<br>3000NET: 384 / 1536 | Standard: 384 / 1536<br>Option: 512 / 1920, 384 / 1536<br>Tactical NET: 384 / 1536 | Standard: 1920 (IP only)<br>Options: 512 / 1920 | Standard: 768 (IP only)<br>Options: 128 / 768, 384 / 768 |
| MultiSite | Total: 3072kbps 4x768 video + 4 audio 3x1536 video + no audio<br><br>Total: 6144kbps 6x1152 video + 5 audio 5x1536 video + no audio 4x1920 video + 5 audio 3x3072 video + no audio | Total: 3072kbps 4x768 video + 4 audio 3x1536 video + no audio<br><br>Total: 6144kbps 6x1152 video + 5 audio 5x1536 video + no audio 4x1920 video + 5 audio 3x3072 video + no audio | Total: 1536kbps 4x512 video + no audio 4x384 video + 3 audio<br><br>Total: 2304kbps 4x768 video + no audio 4x512 video + 3 audio | Total: 1536kbps 4x512 video + no audio 4x384 video + 3 audio<br><br>Total: 2304kbps 4x768 video + no audio 4x512 video + 3 audio | Total: 2304kbps 4x768 video + no audio 4x512 video + 3 audio | Not Available |
| Rate Matching | Yes | Yes | Yes | Yes | Yes | Not Available |
| Dual Stream (DuoVideo / H.239) | Yes | Yes | Yes | Yes | Yes | Yes |
| Secure Conference | All bandwidths | All bandwidths | All bandwidths | All bandwidths | All bandwidths | All bandwidths |
| H.264 | Up to 2 Mbps | Up to 2 Mbps | Up to 2 Mbps | Up to 2 Mbps | Up to 2 Mbps | Up to 768 kbps |
| Picture Mode MultiSite | VS, CP4, CP5+1 | VS, CP4, CP5+1 | VS, CP4, CP5+1 | VS, CP4, CP5+1 | Not Available | Not Available |

## Bandwidth Information for TANDBERG MXP Endpoints

| *Model* | *Edge 95MXP* | *Edge 85MXP* | *Edge 75MXP* | *990MXP, 990Net MXP* | *880MXP, 880Net MXP* | *770MXP* | *550MXP* |
|---|---|---|---|---|---|---|---|
| Bandwidth<br>Point to point<br>ISDN / IP | Standard: 1920 (IP only)<br>Options: 512 / 1920, 768 / 1920 | Standard: 1152 (IP only)<br>Option: 384 / 1152 | Standard: 768 (IP only)<br>Option: 128 / 768 | Standard: 1920 (IP only)<br>Options: 512 / 1920<br>990NET: 768 / 1920 | Standard: 1152 (IP only)<br>Option: 384 / 1152 | Standard: 768 (IP only)<br>Option: 128 / 768 | Standard: 768 (IP only)<br>Options: 128 / 768, 384 / 768 |
| MultiSite | Total: 2304kbps 4x768 video + no audio 4x512 video + 3 audio | Total: 1152kbps 4x384 video + no audio 4x320 video + 3 audio | Not Available | Total: 2304kbps 4x768 video + no audio 4x512 video + 3 audio | Total: 1152kbps 4x384 video + no audio 4x320 video + 3 audio | Not Available | Not Available |
| Rate Matching | Yes | Yes | Not Available | Yes | Yes | Not Available | Not Available |
| Dual Stream (DuoVideo / H.239) | Yes | Yes | Yes | Yes | Yes | Yes | Not Available |
| Secure Conference | All bandwidths | All bandwidths | All bandwidths | All bandwidths | All bandwidths | All bandwidths | All bandwidths |
| H.264 | Up to 2 Mbps | Up to 768 kbps | Up to 768 kbps | Up to 2 Mbps | Up to 768 kbps | Up to 768 kbps | Up to 768 kbps |
| Picture Mode MultiSite | Not Available | Not Available | Not Available | Not Available | Not Available | Not Available | Not Available |

# Declaration of conformity

For an official, signed version of these documents, or details regarding documentation from the technical construction file, please contact TANDBERG.

| Declaration of Conformity for TANDBERG MXP Endpoints | | | | | |
|---|---|---|---|---|---|
| ***Manufacturer*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** |
| Product Name | **TANDBERG 8000MXP** | **TANDBERG 6000MXP Profile** | **TANDBERG 3000MXP Profile** | **TANDBERG Maestro** | **TANDBERG 1700MXP** |
| Type Number | TTC60-04E | TTC60-08 | TTC60-07 | TTC60-06 | TTC7-15 |
| Description | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment |
| This Product Complies with Commission Directives | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC |
| This Product Complies with Harmonized Standards | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 1995<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3<br>TBR 4 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3<br>TBR 4 Layer 1, 2 and 3 | EN 60950-1: 2001<br>EN 55022: 1994<br>EN 55024: 1998<br>EN 61000-3-2: 2000<br>EN 61000-3-3: 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3<br>TBR 4 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1998<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995 |
| Technical Contruction File | X13782 | X13497 | X13496 | D13628 | X13781 |
| Year which the CE-Mark was Affixed | 2000 | 2005 | 2005 | 2004 | 2006 |

## Declaration of conformity, *cont...*

For an official, signed version of these documents, or details regarding documentation from the technical construction file, please contact TANDBERG.

### Declaration of Conformity for TANDBERG MXP Endpoints

| ***Manufacturer*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** |
|---|---|---|---|---|---|
| Product Name | **TANDBERG 1000MXP** | **TANDBERG Edge 75 MXP**<br>**TANDBERG Edge 85 MXP**<br>**TANDBERG Edge 95 MXP** | **TANDBERG 770MXP**<br>**TANDBERG 880MXP**<br>**TANDBERG 990MXP** | **TANDBERG 550MXP** | **TANDBERG Tactical MXP** |
| Type Number | TTC7-12 | TTC7-14 | TTC7-08 | TTC7-13 | TTC4-01 |
| Description | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment |
| This Product Complies with Commission Directives | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC |
| This Product Complies with Harmonized Standards | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 |
| Technical Contruction File | X13677 | X13805 | X13678 | X13687 | X13182 |
| Year which the CE-Mark was Affixed | 2005 | 2006 | 2005 | 2005 | 2005 |

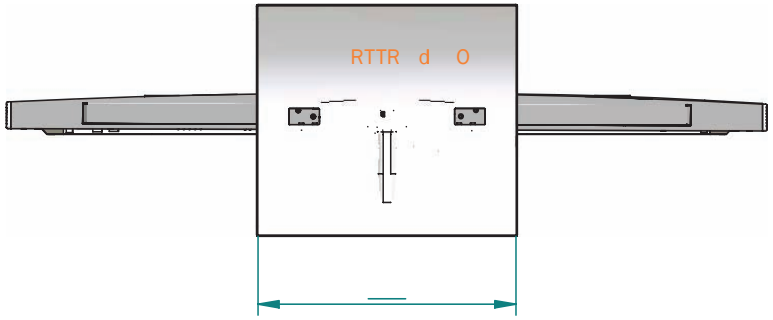
## Declaration of conformity, *cont...*

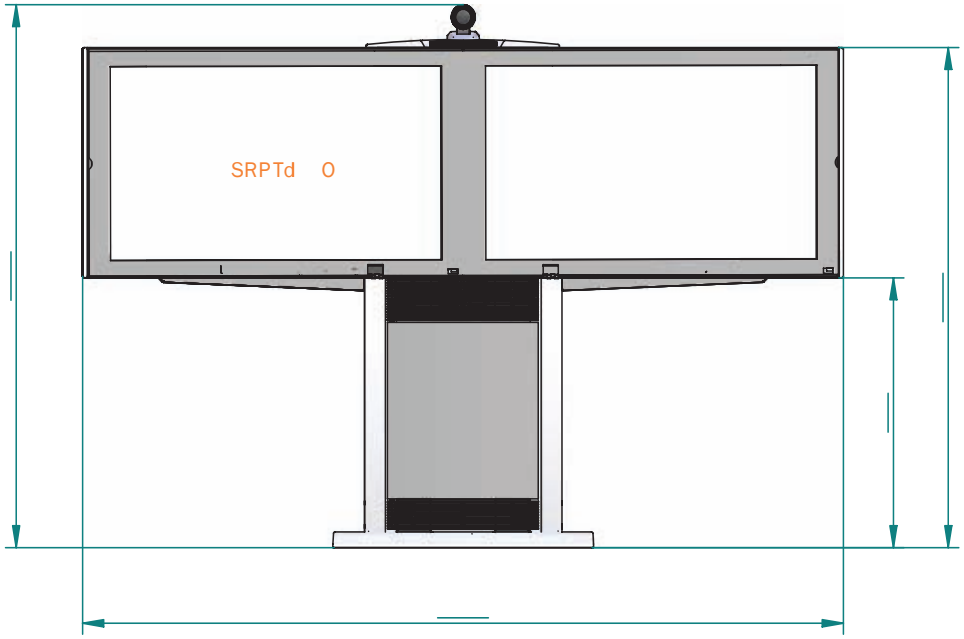
For an official, signed version of these documents, or details regarding documentation from the technical construction file, please contact TANDBERG.

| Declaration of Conformity for TANDBERG MXP Endpoints | | | | |
|---|---|---|---|---|
| ***Manufacturer*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** | ***TANDBERG Telecom AS*** |
| Product Name | **TANDBERG Compass MXP**<br>**TANDBERG Utility MXP** | **TANDBERG Codec 3000MXP** | **TANDBERG Codec 6000MXP** | **TANDBERG PROFILE 52** |
| Type Number | TTC4-02 | TTC7-09 | TTC6-08 | TTC60-13 |
| Description | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment | Video Conferencing Equipment |
| This Product Complies with Commission Directives | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 73/23/EEC<br>EMC 89/336/EEC<br>R&TTE 99/5/EEC | LVD 2006/95/EC<br>EMC 2004/108/EC |
| This Product Complies with Harmonized Standards | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3 | EN 60950-1 : 2001<br>EN 55022 : 1994<br>EN 55024 : 1998<br>EN 61000-3-2 : 2000<br>EN 61000-3-3 : 1995<br>TBR 3 Layer 1, 2 and 3<br>TBR 4 Layer 1, 2 and 3 | EN 60950-1:2006<br>EN 55022 (2006)<br>EN 55024 (1998) + A1 (2001) + A2 (2003)<br>EN 61000-3-2 (2006)<br>EN 61000-3-3 (1995) + A1 (2001) + A2 (2005) |
| Technical Contruction File | X13540 | X13686 | D13359 | X14475 |
| Year which the CE-Mark was Affixed | 2005 | 2005 | 2004 | 2009 |

# Dimensions

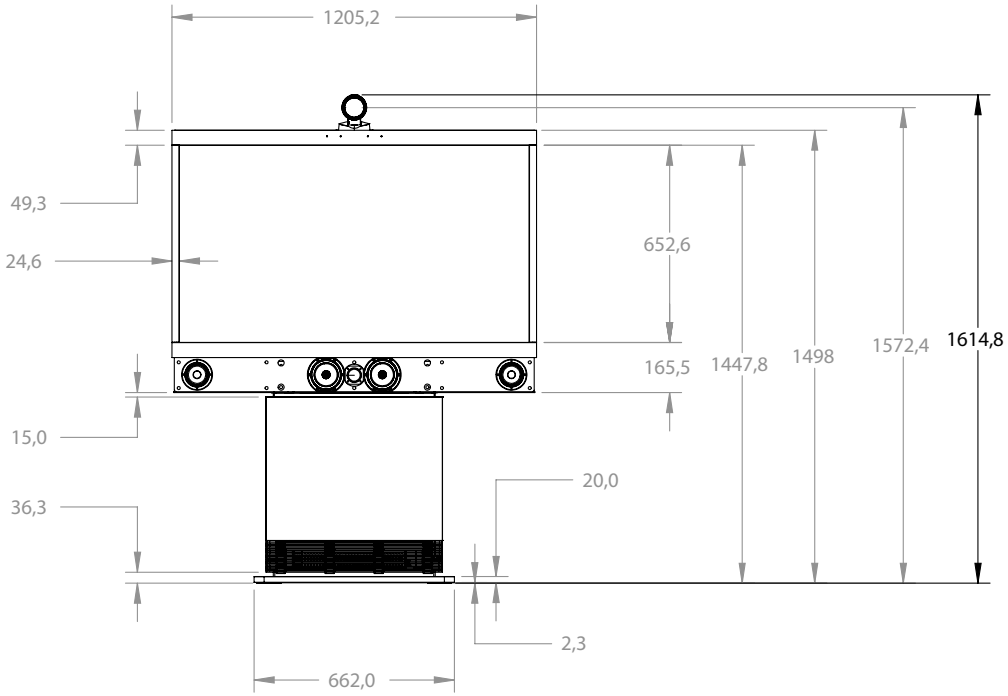
TANDBERG 8000 MXP dimensions

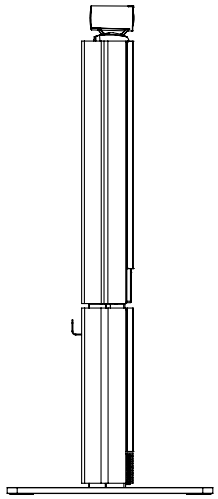


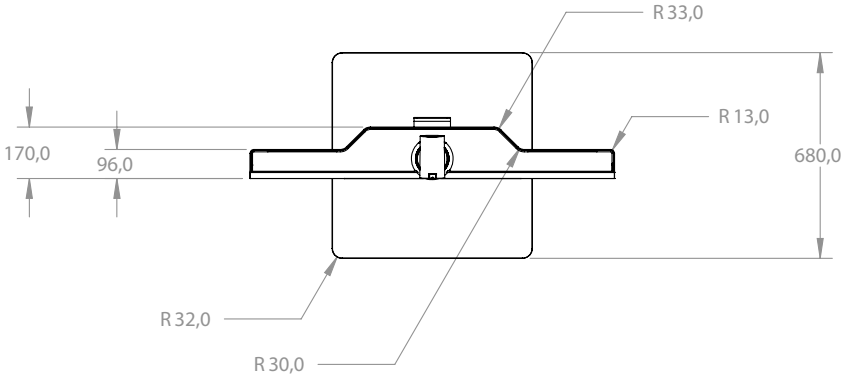




# Dimensions

TANDBERG Profile 52” with Codec 6000 MXP dimensions

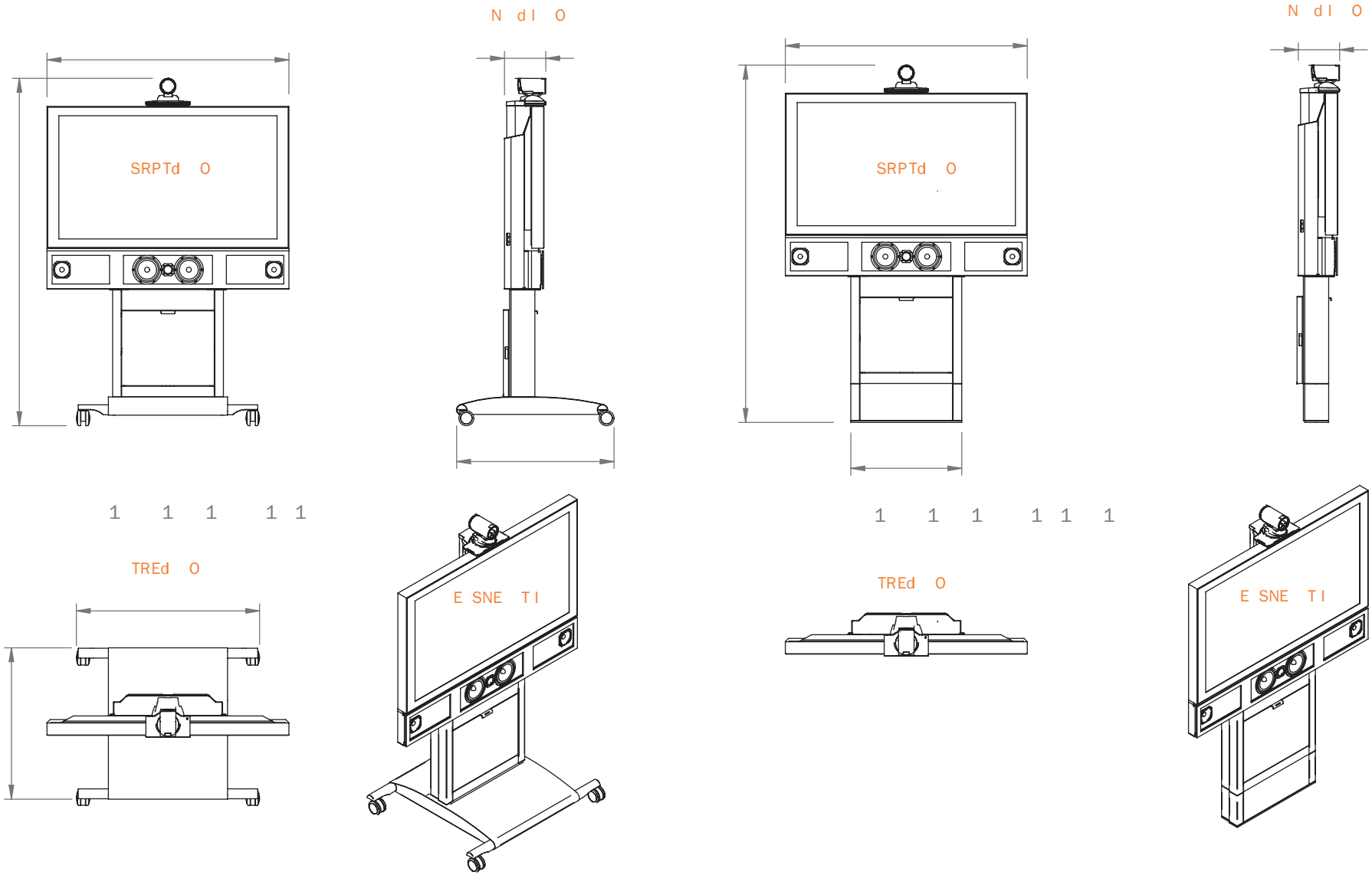




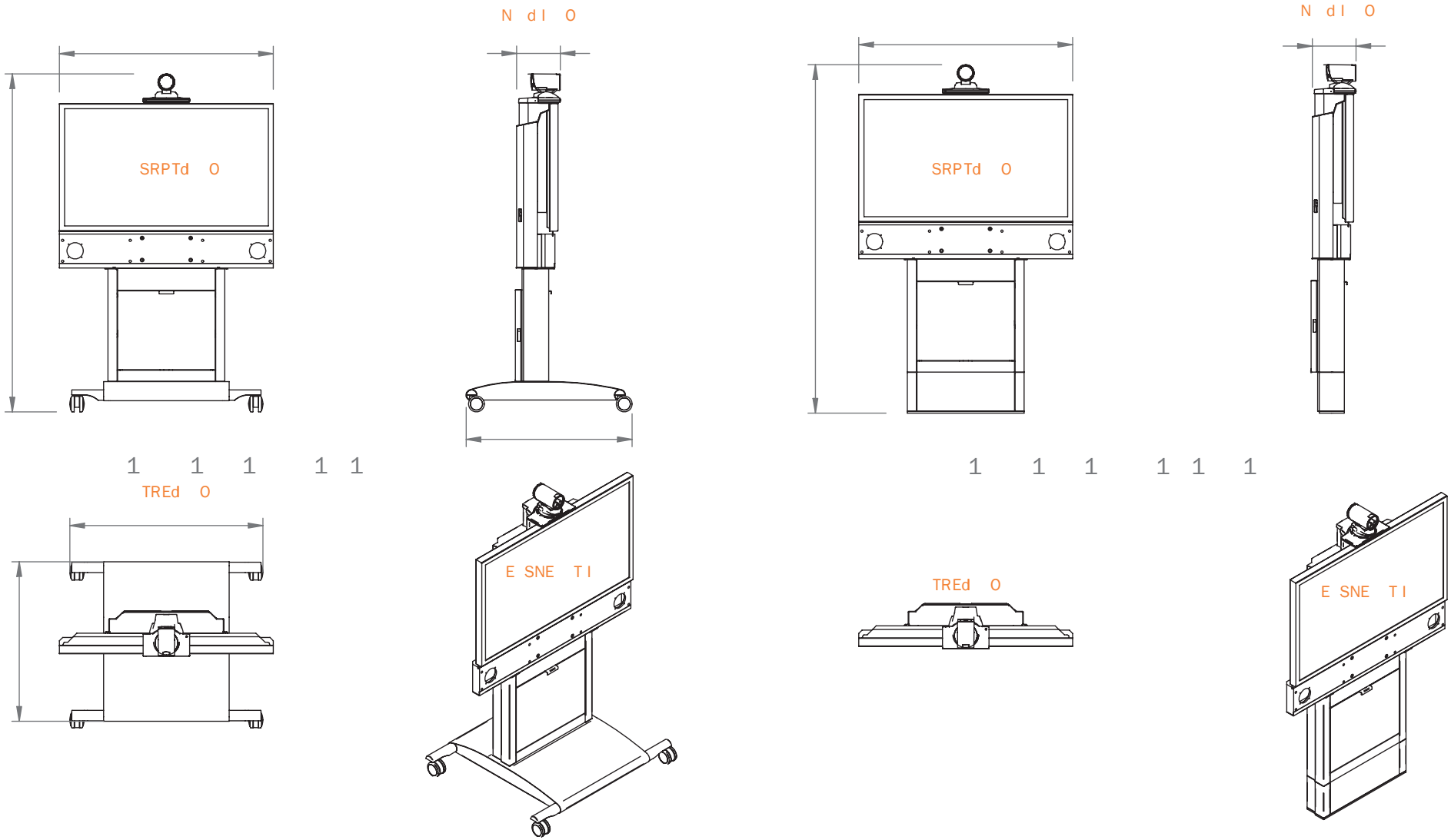
# Dimensions

TANDBERG 6000 MXP Profile dimensions



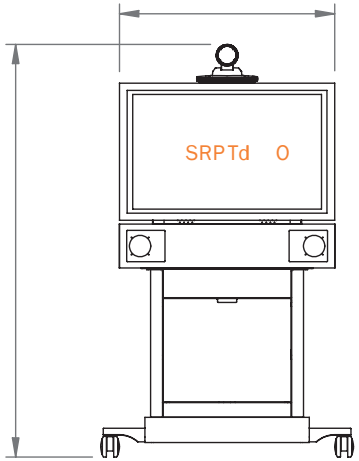
# Dimensions

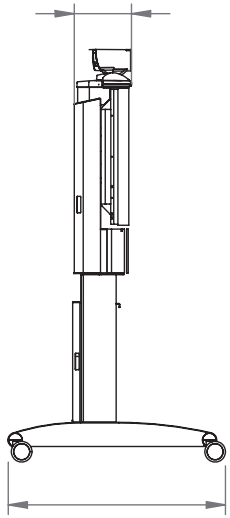
TANDBERG 3000 MXP Profile 42” dimensions

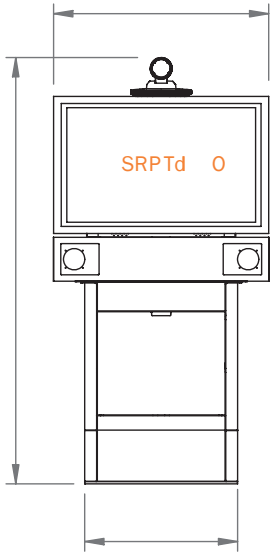


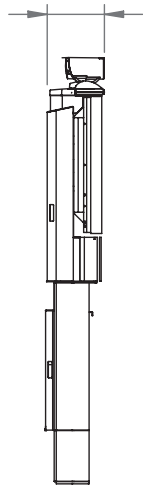
# Dimensions

TANDBERG 3000 MXP Profile 32” dimensions

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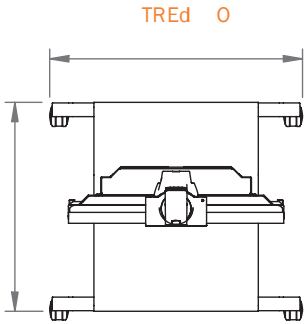


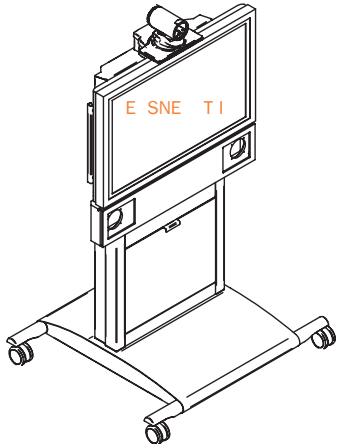


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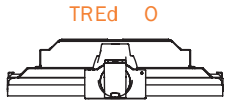
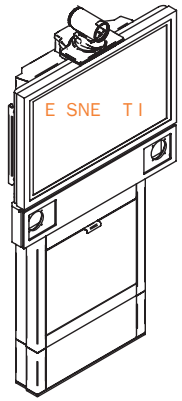
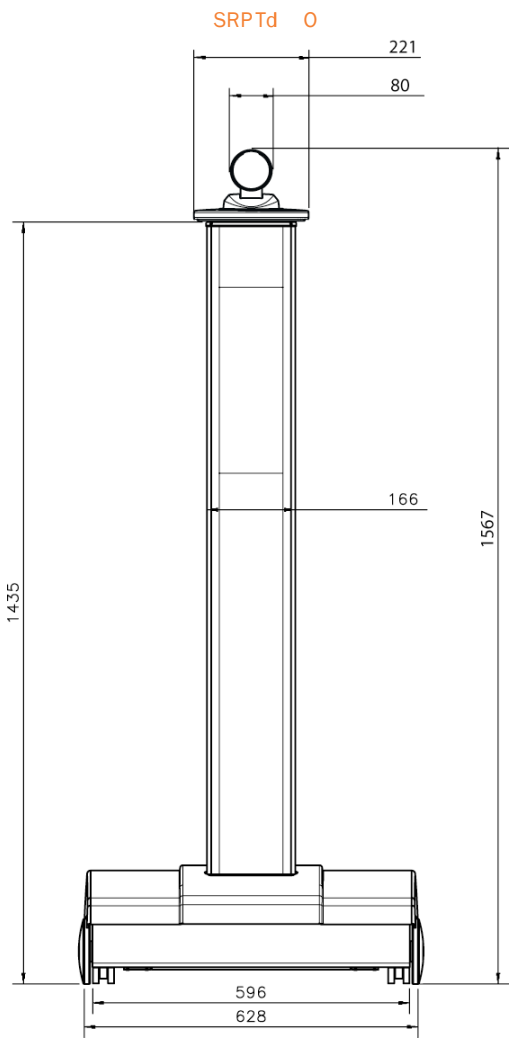
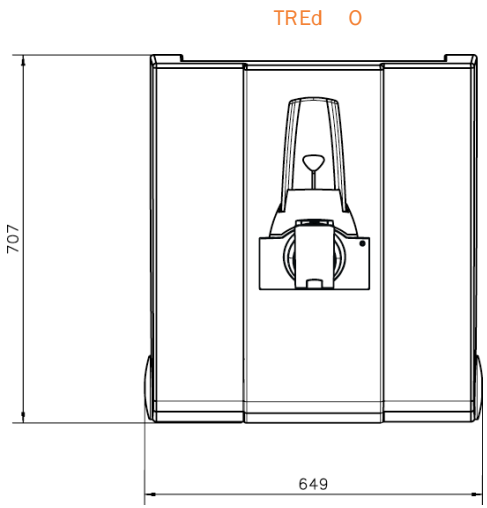


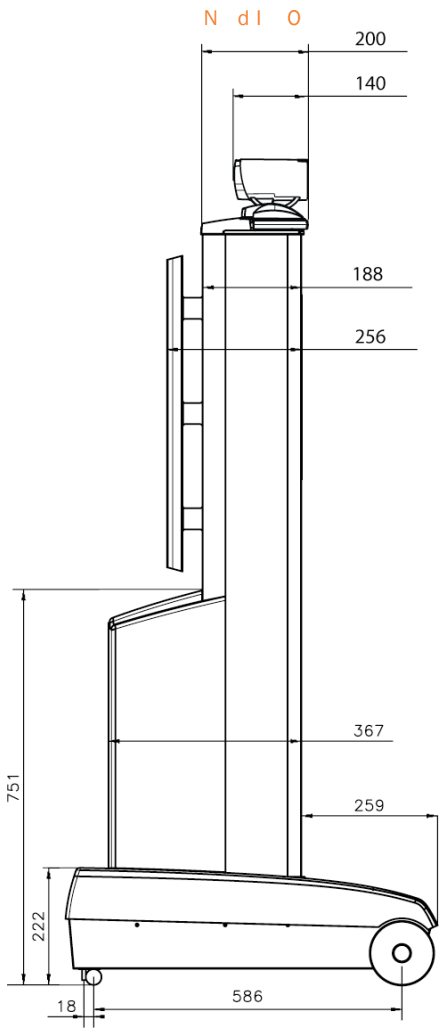



# Dimensions

TANDBERG Maestro MXP dimensions

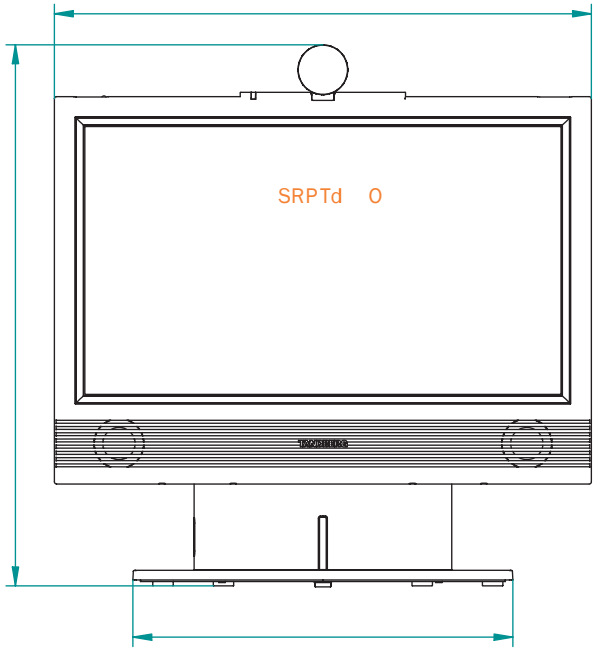


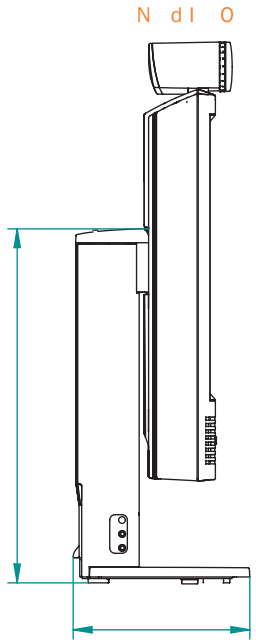



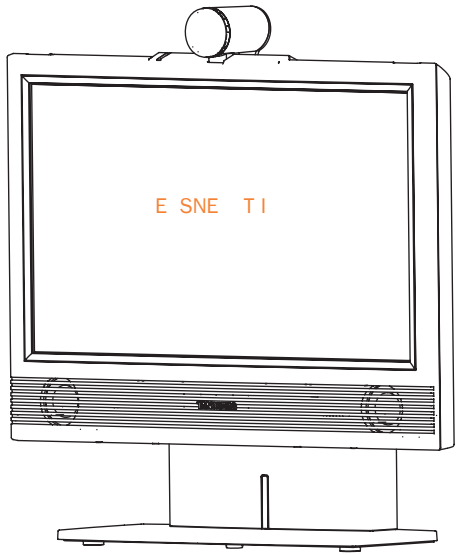



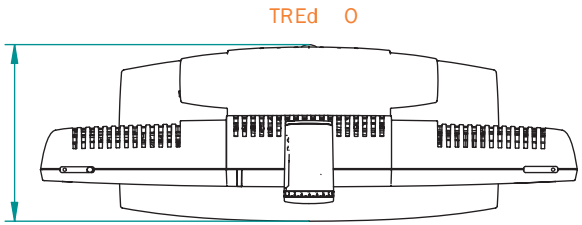
# Dimensions

TANDBERG 1700 MXP dimensions



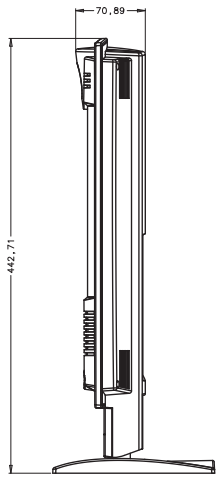



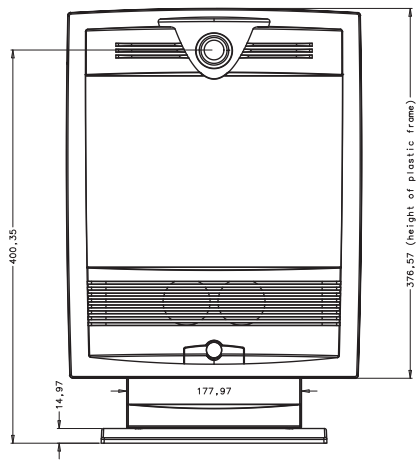
# Dimensions

TANDBERG 1000 MXP dimensions

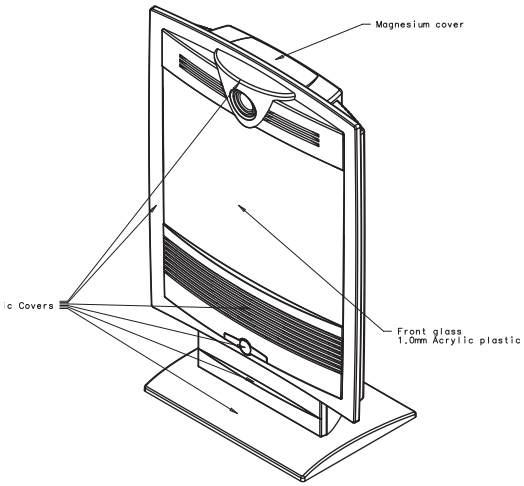
N dI O



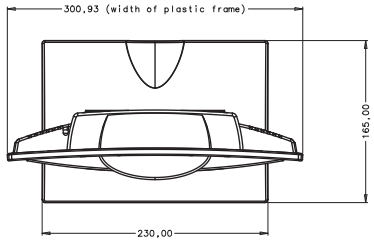

SRPTd O




E SNE TI



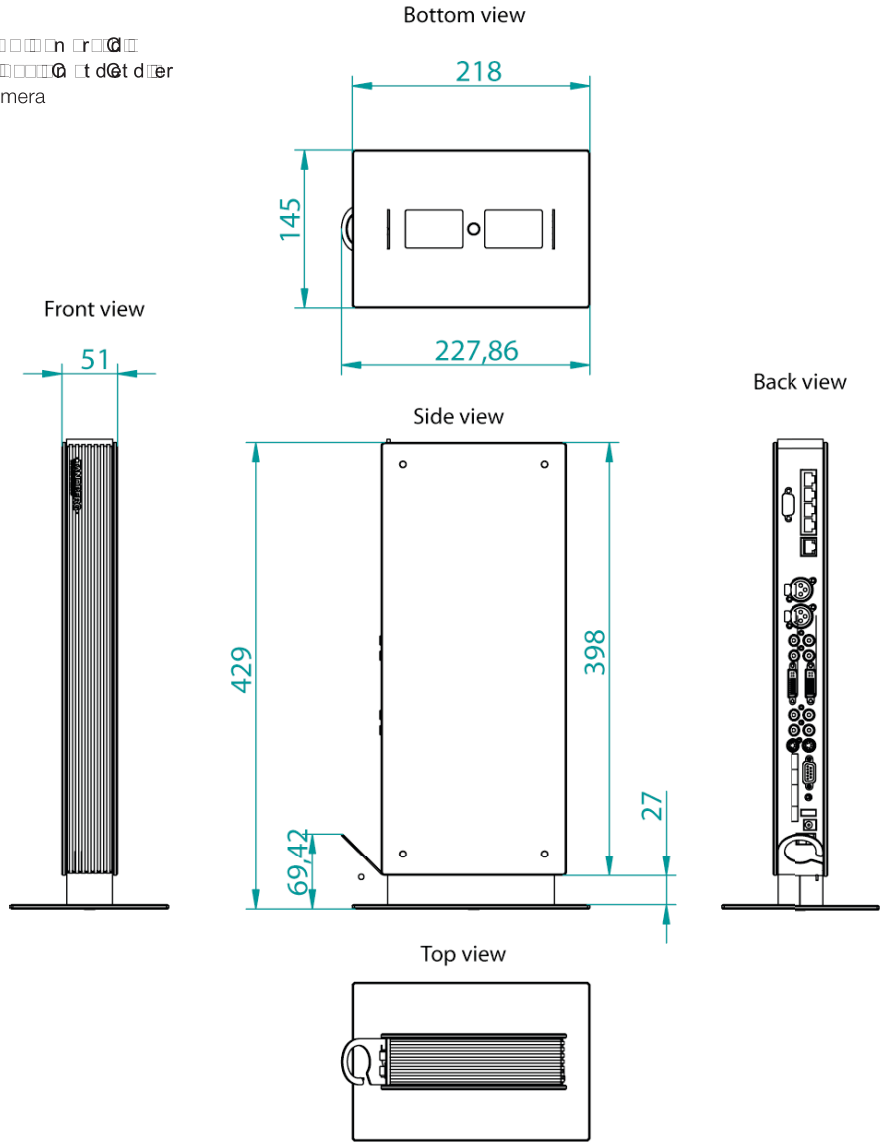

TREd O

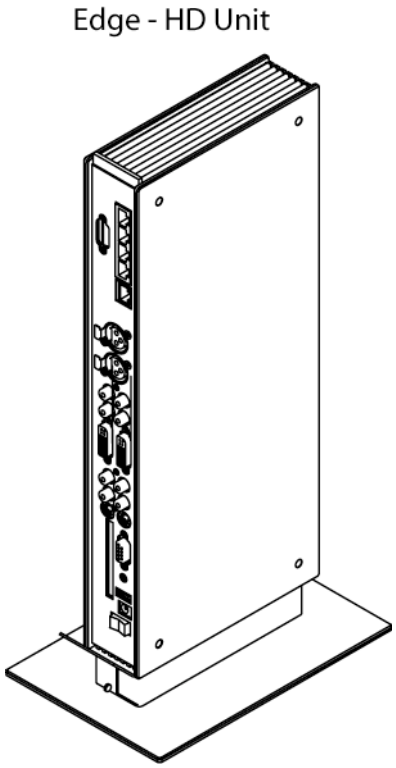


# Dimensions

## TANDBERG Edge 95/85/75 MXP dimensions

[illegible]
[illegible] MXP [illegible]
TANDBERG Precision HD Camera

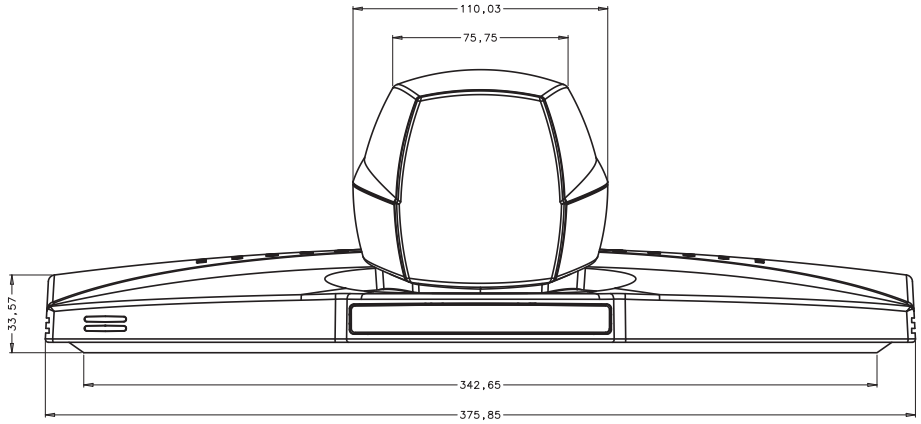


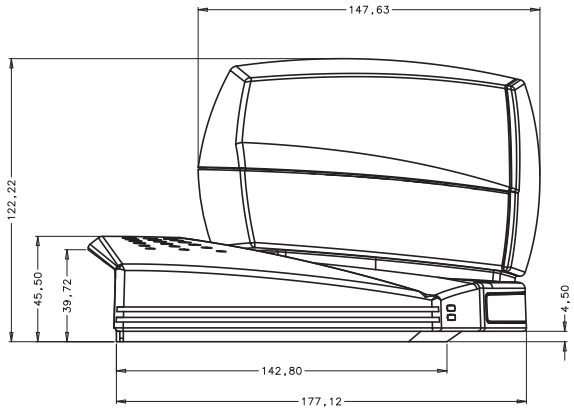
# Dimensions

TANDBERG 990/880/770 MXP and 550 MXP dimensions

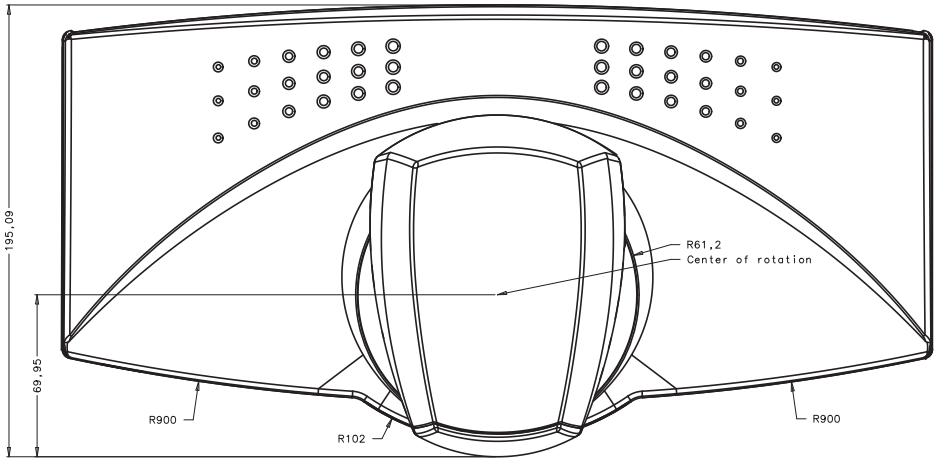
SRPTd O




N dl O

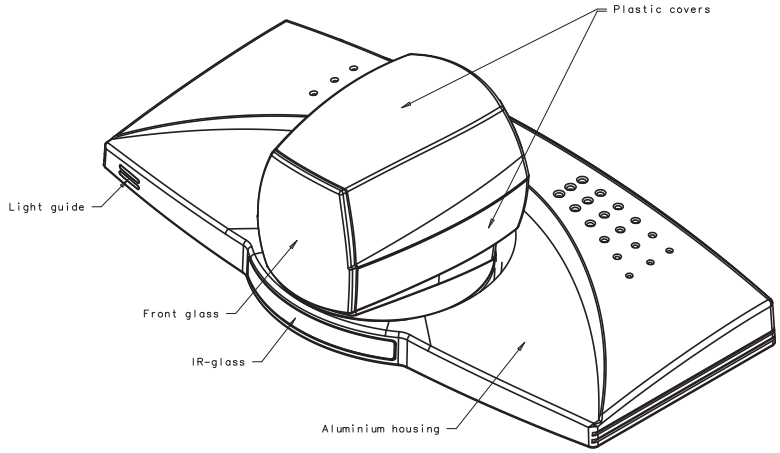



TREd O



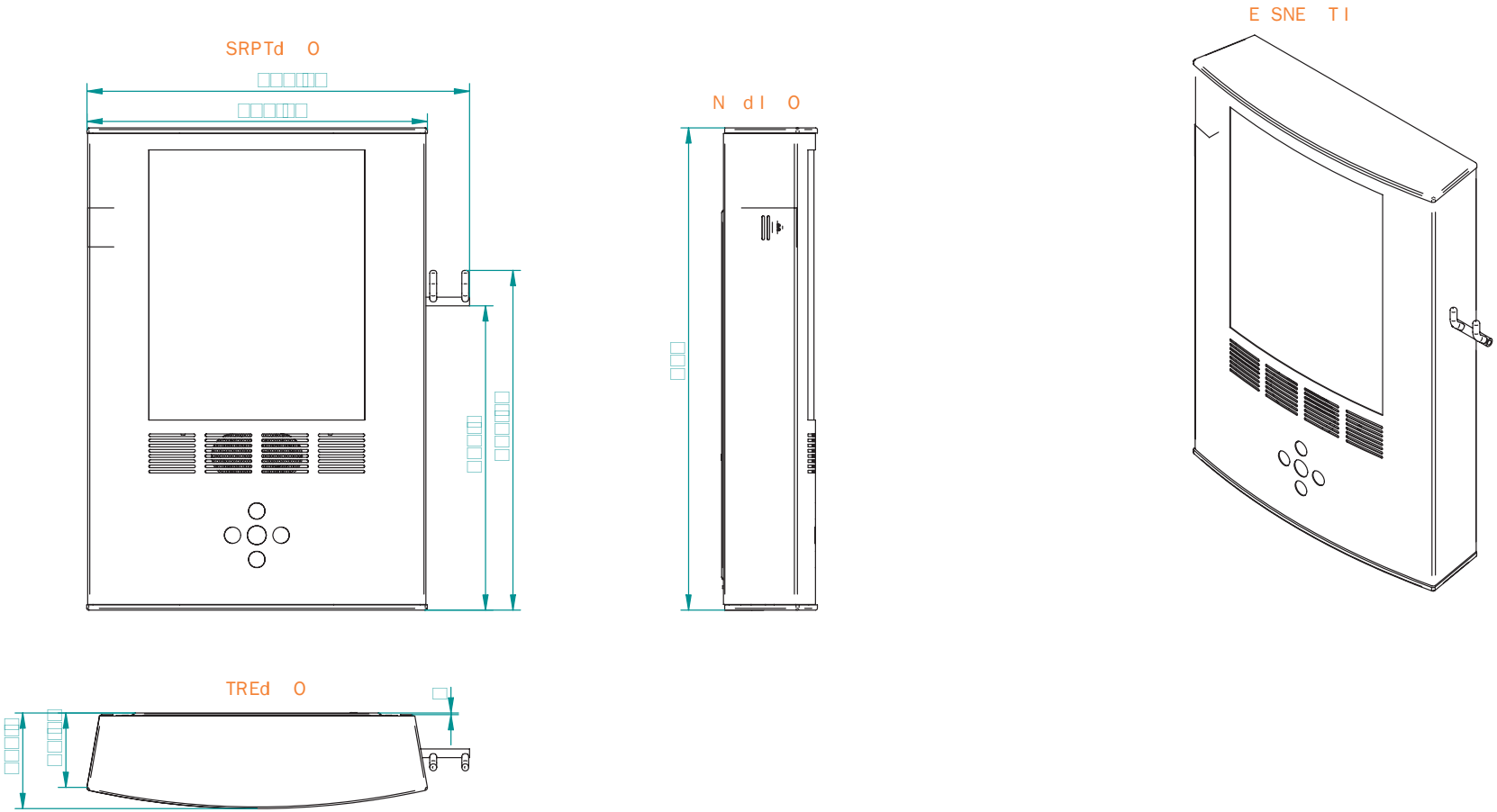

M 2:5 (0.4:1)

E SNE TI



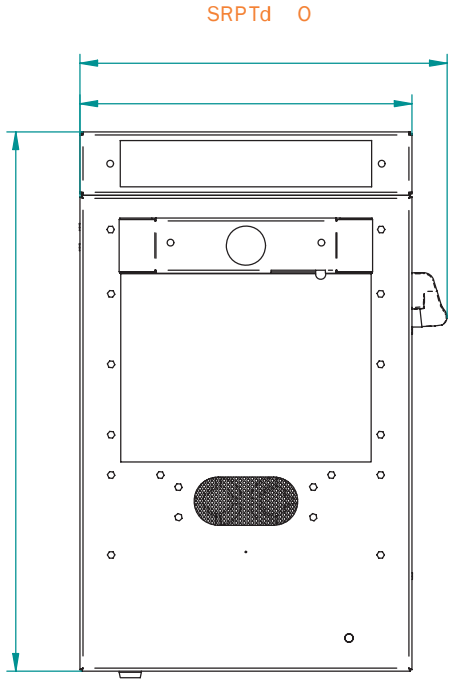
# Dimensions

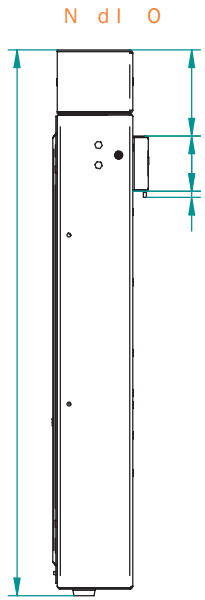
TANDBERG Compass MXP dimensions

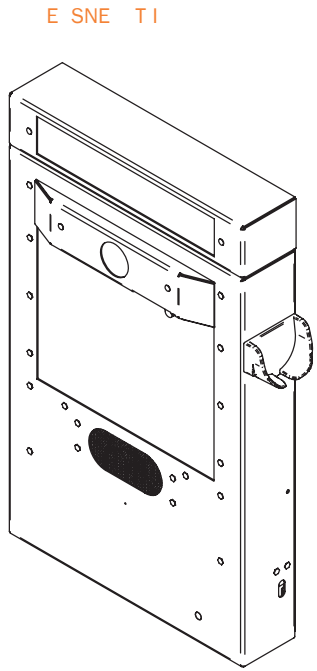


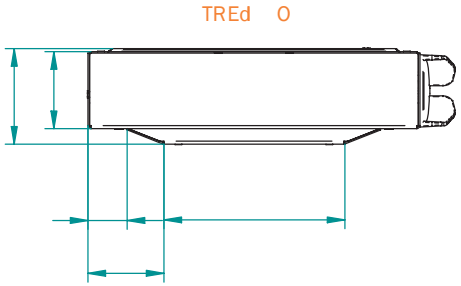
# Dimensions

TANDBERG Utility MXP dimensions



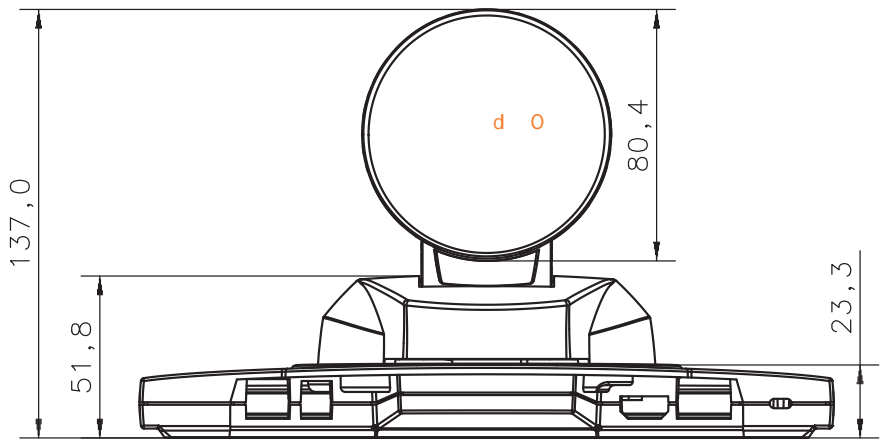



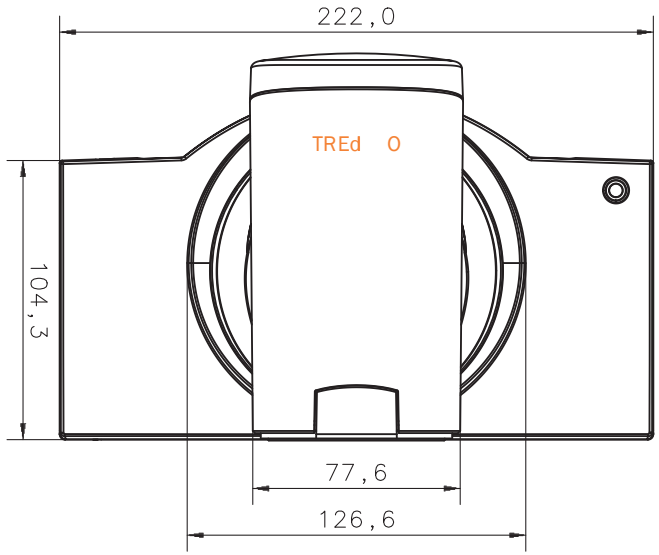



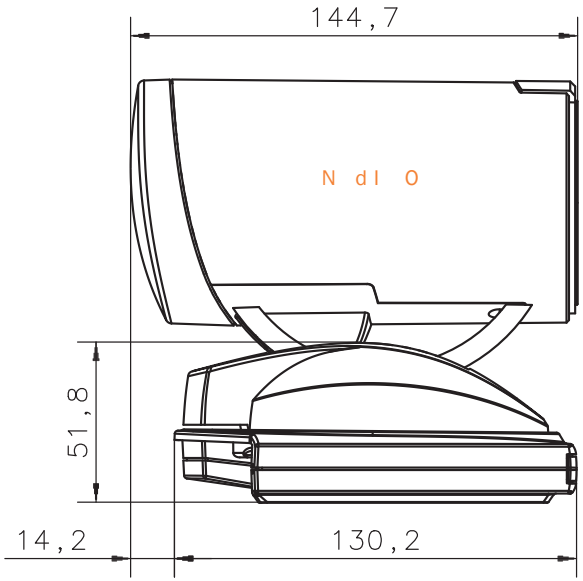



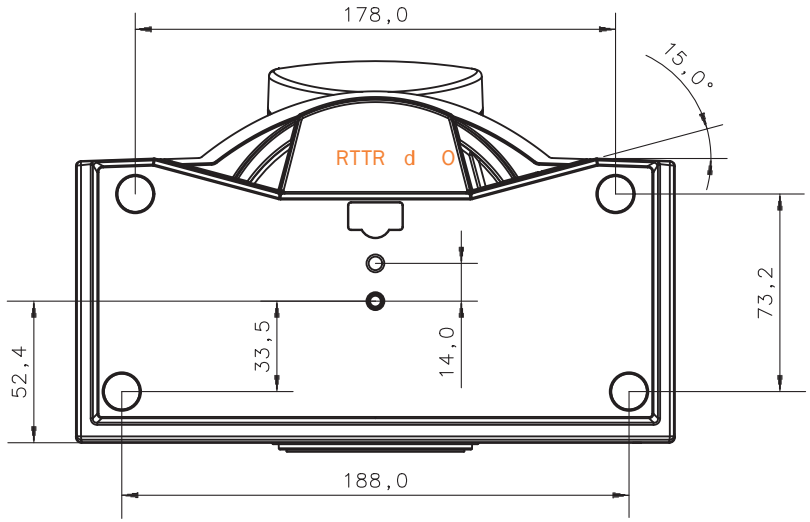
# Dimensions

TANDBERG PrecisionHD camera dimensions



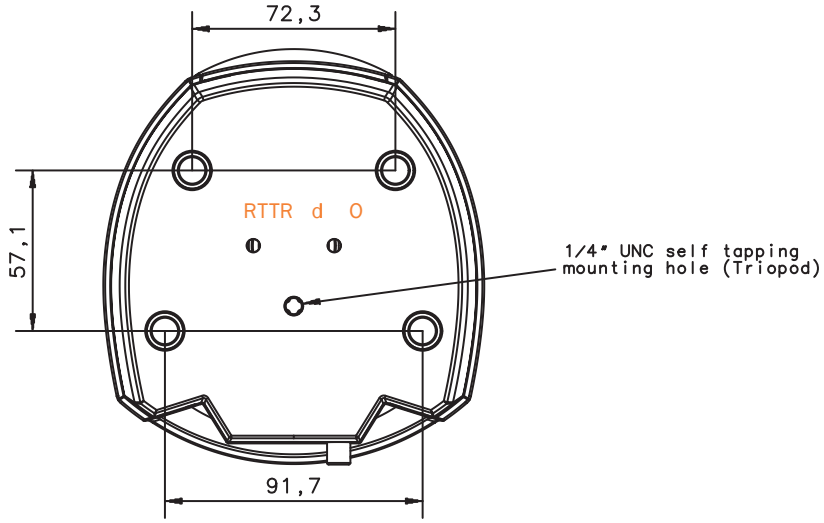



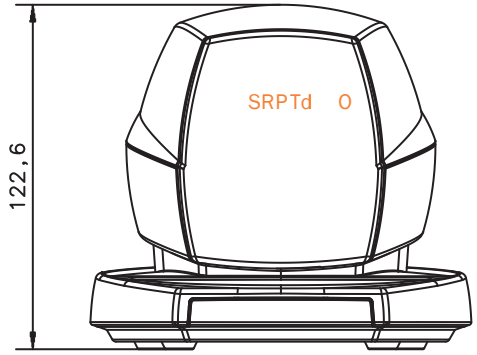



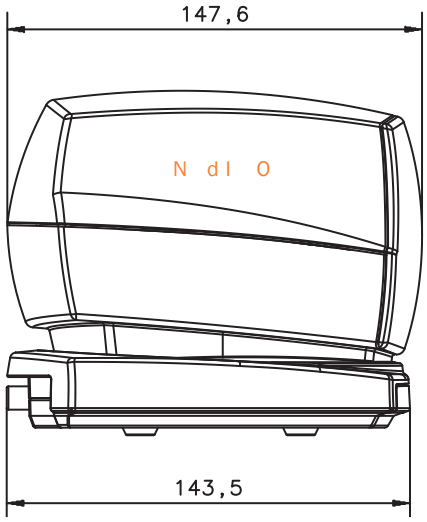



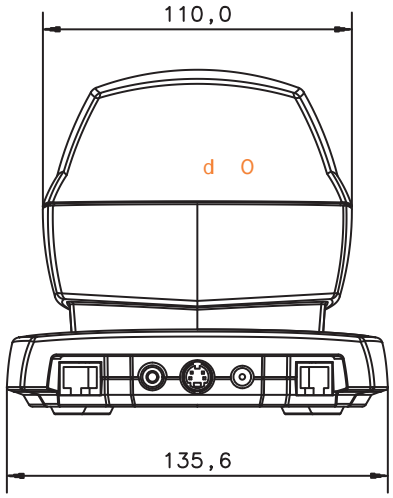
# Dimensions

TANDBERG WAVE II camera dimensions



# Technical specifications

## TANDBERG 8000 MXP

**UNIT DELIVERED COMPLETE WITH:**
2 x 50" wide-screen plasma monitors, wireless remote control, Tracker, TANDBERG PrecisionHD Camera, microphone, Digital Audio Module™, integrated cabling and stand, and Optional Satellite Stereo Speakers

**MONITORS**
Dual 50" plasma screens
16:9 high resolution widescreen format

**BANDWIDTH**
H.320 up to 2 Mbps
H.323 up to 4 Mbps point-to-point
SIP up to 4 Mbps
Up to 6 Mbps total MultiSite bandwidth

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (6 INPUTS)**
1 x HD Main Camera or 1 x MiniDin, S-video: main camera
1 x MiniDin, S-video: auxiliary/document camera
1 x RCA/Phono, composite: document camera/aux
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800 x 600 (@ 60,72,75,85 Hz), 1024 x 768 (@ 60,70,75 Hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 720 @ 60hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (6 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x MiniDin, S-video: dual monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
2 x DVI-I/XGA: main and dual monitor
XGA Output
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz, 1280 x 768 (WXGA) @ 60 Hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit & 128 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20 KHz Mono and Stereo
Telephone add-on via MultiSite
Four separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Stereo Speakers
Packet loss management
Active lip synchronization
GSM interference audio feature

**AUDIO INPUTS (4 INPUTS)**
3 x microphone, 24V phantom powered, XLR connector, each with separate echo cancellers
1 x RCA/Phono, Line Level: separate echo canceller
1 x RCA/Phono, Line Level: auxiliary (or VCR/DVD Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (3 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue Line Level: main audio or Analogue Stereo L
1 x RCA/Phono, Line Level: auxiliary (or Analogue Stereo R or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR (mono or Stereo R)

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in Multisite from any site

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
HO on ISDN-PRI Facility
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
NATO standard KG194/KIV-7 encryptor support
H.331 Broadcast Mode
URI Dialing
Universal IMUX Support

**MULTISITE FEATURES**
H.323/H.320/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4, CP 5 + 1 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H.320 & H.323
Unicode H.243 Terminal Names
Dial in / Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 6 Mbps
Up to 6 video and 5 audio sites
4 sites @ 2 Mbps, 6 sites @ 768 (+telephone calls)
Mix ISDN (BRI or PRI), or Serial Interface (V.35) with IP up to maximum conference rate
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

# Technical specifications for 8000 MXP, *cont...*

### SECURITY FEATURES

Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

### NETWORK INTERFACES

6 x ISDN BRI (RJ-45), S-interface
1 x E1/T1 G.703 (RJ-45) for ISDN PRI or Leased E1/T1 mode: Manual or Auto (Data Triggered)
1 x E1/T1 G.703 (RJ-45) for future usage
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/cable modem)
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran IMUX, Leased Line, Data Triggered, and Manual
1 x USB for future usage

### ETHERNET/INTERNET/INTRANET CONNECTIVITY

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

### OTHER MAJOR STANDARDS SUPPORTED

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

### PRECISIONHD CAMERA

7 x zoom 1/3" CMOS +10°/-20° tilt +/- 90° pan
42° vertical field of view
72° total vertical field of view
70° horizontal field of view
250° total horizontal field of view
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps
Automatic or manual focus/brightness/white balance
Far-end camera control
15 near and far-end camera presets
Voice-activated camera positioning
Daisy-chain support (Visca protocol camera)

### CLOSED CAPTIONING/TEXT CHAT

T.140 text chat available from RS-232,Telnet,Web and User Interface

### PRESENTATIONS AND COLLABORATION

Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

### SYSTEM MANAGEMENT

Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP,
Telnet, SSH, XML, SOAP and FTP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

### DIRECTORY SERVICES

Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

### 19 SELECTABLE MENU LANGUAGES

Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai Chinese, Korean, Japanese and Russian Input Method Editor

### CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO

Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen

### POWER

100–250 VAC, 50–60 Hz 65 watts max. for codec and main camera
500 watts max. per monitor
250 watts for DNAM

### OPERATING TEMPERATURE AND HUMIDITY

0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

### STORAGE AND TRANSPORT TEMPERATURE

-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

### APPROVALS

Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
– Standard TBR4
Approved according to UL 60950
and CAN/CSA C22.2 No. 60950
Complies with FCC15B Class B

### FOOTPRINT

Width: 33.9"/86 cm
Depth: 29.1"/74 cm

* Requires TANDBERG Management Suite version 9.0 or newer

All specifications subject to change without notice, system specifics may vary.

All images in these materials are for representational purposes only, actual products may d i f f e r.



### MTBF PRODUCT RELIABILITY/MTBF

The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:

Power On Hours (POH) > 69 000 hours

Useful Life Cycle > 6 years

ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG 6000 MXP Profile

**UNIT DELIVERED COMPLETE WITH:**
1 wide flatscreen monitor, wireless remote control, TANDBERG PrecisionHD Camera, microphone, Digital audio module, integrated speakers, integrated cabling, wall-mount, pedestal, tracker and optional wheel base

**MONITOR**
50" WXGA monitor

**BANDWIDTH**
H.320 up to 2 Mbps
H.323 up to 4 Mbps point-to-point
SIP up to 4 Mbps
Up to 6 Mbps total MultiSite bandwidth

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (6 INPUTS)**
1 x HD Main Camera or 1 x MiniDin, S-video: main camera
1 x MiniDin, S-video: auxiliary/document camera
1 x RCA/Phono, composite: document camera/aux
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800 x 600 (@ 60, 72,75,85 hz), 1024 x 768 (@ 60,70,75 hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 1024 @ 60 hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (6 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x MiniDin, S-video: dual monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
2 x DVI-I/XGA: main and dual monitor
XGA OUTPUT
800 x 600 @ 75hz, 1024 x 768 @ 60 hz, 1280 x 768 (WXGA) @ 60 hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728 , 64 bit & 128 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono and Stereo
Telephone add-on via MultiSite
Four separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Optional Stereo Package
Packet loss management
Active lip synchronization
Digital Natural Audio Module (DNAM)
5*50 W output power
5 integrated speakers and 2 optional satellite speakers
GSM interference audio feature

**AUDIO INPUTS (4 INPUTS)**
3 x microphone, 24V phantom powered, XLR connector, each with separate echo cancellers, the third microphone can be set for line level
1 x RCA/Phono, Line Level: separate echo canceller
1 x RCA/Phono, Line Level: auxiliary (or VCR/DVD Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (3 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue Line Level: main audio or Analogue Stereo L
1 x RCA/Phono, Line Level: auxiliary (or Analogue Stereo R or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR (mono or Stereo R)

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in Multisite from any site

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
HO on ISDN-PRI Facility
Maximum call length timer
Automatic SPID and line number configuration
(National ISDN, GR-2941-CORE)
SoftMux
NATO standard KG194/KIV-7 encryptor support
H.331 Broadcast Mode
URI Dialing
Universal IMUX Support

**MULTISITE FEATURES**
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4,CP 5 + 1 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on ISDN & IP
Unicode h.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 6 Mbps
Up to 6 video and 5 audio sites
4 sites @ 2 Mbps, 6 sites @ 768 (+telephone calls)
Mix ISDN (BRI or PRI), or Serial Interface (V.35) with IP up to maximum conference rate
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

# Technical specifications for 6000 MXP Profile, *cont...*

**SECURITY FEATURES**

Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**

6 x ISDN BRI (RJ-45), S-interface
1 x E1/T1 G.703 (RJ-45) for ISDN PRI or Leased E1/T1 mode: Manual or Auto (Data Triggered)
1 x E1/T1 G.703 (RJ-45) for future usage
1 x LAN/Ethernet (RJ-45) 10/100 Mbit
(LAN/DSL/cable modem)
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran IMUX, Leased Line, Data Triggered, and Manual
1 x USB for future use

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331,
RFC 3261, RFC 2237, RFC 3264, RC 3311. RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**PRECISION HD CAMERA**

7 x zoom 1/3" CMOS +10°/-20° tilt +/- 90° pan
42° vertical field of view
72° total vertical field of view
70° horizontal field of view
250° total horizontal field of view
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps
Automatic or manual focus/brightness/whitebalance
Far-end camera control
15 near and far-end camera presets
Voice-activated camera positioning
Daisy-chain support (Visca protocol camera)

**CLOSED CAPTIONING/TEXT CHAT**

T.140 text chat available from RS-232, Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**

Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.
DuoVideo
H.239

**SYSTEM MANAGEMENT**

Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, XML, SOAP and FTP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**

Support for Local Directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server Directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**

Arabic, Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish, Thai Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**

Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen

**POWER**

100–120/200–240VAC, 60/50Hz, 6A

**OPERATING TEMPERATURE AND HUMIDITY**

0° C to 40° C (32° F to 104° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**

-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

**APPROVALS**

Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
– Standard TBR4
Approved according to UL 60950 and CAN/CSA C22.2 No.60950
Complies with FCC15B Class B

**FOOTPRINT**

***WALL-MOUNT WITH PEDESTAL:***

Width: 22"/56 cm
Depth: 4.7"/12 cm

***ROLLABOUT:***

Width: 35.4"/90 cm
Depth: 29.7"/75.5 cm

*Requires TANDBERG Management Suite 9 or newer

All specifications subject to change without notice, system specifics may vary.

All images in these materials are for representational purposes only, actual products may d i f f e r.



**MTBF PRODUCT RELIABILITY/MTBF**

The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:

Power On Hours (POH) > 69 000 hours

Useful Life Cycle > 6 years

ISO 9001 certificate is available upon request

May 2008

# Technical specifications

## TANDBERG 3000 MXP Profile

**UNIT DELIVERED COMPLETE WITH:**
1 wide flatscreen monitor, wireless remote control, TANDBERG PrecisionHD Camera, microphone, Digital audio module, integrated speakers, integrated cabling, wall-mount, pedestal and optional wheel base

**MONITOR**
32" or 42" WXGA monitor

**BANDWIDTH**
H.320 up to 512 kbps
H.323 up to 2 Mbps
SIP up to 2 Mbps

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (5 INPUTS)**
1 x 9 Pin DSUB:HD Main camera or S-video & control main camera
1 x MiniDin, S-video: auxiliary/document camera
1 x RCA/Phono, composite: document camera/aux
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800 x 600 (@ 60, 72,75,85 hz), 1024 x 768 (@ 60, 70, 75 hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 1024 @ 60hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (4 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
1 x DVI-I/XGA: main or second monitor
XGA OUTPUT
800 x 600 @ 75hz, 1024 x 768 @ 60 hz, 1280 x 768 (WXGA) @ 60 hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728 , 64 bit & 128 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono and Stereo
Telephone add-on via MultiSite
Two separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Packet loss management
Active lip synchronization
Digital Natural Audio Module (DNAM)
2*30 W output power
2 integrated speakers
GSM interference audio feature

**AUDIO INPUTS (4 INPUTS)**
2 x microphone, 24V phantom powered, XLR connector
1 x RCA/Phono, Line Level: auxiliary (or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (2 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue Line Level: main audio or Analogue Stereo L
1 x RCA/Phono, Line Level: VCR or Analogue Stereo R

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in Multisite from any site

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
H.331 Broadcast Mode
NATO standard KG194/KIV-7 encryptor support**
URI Dialing
Universal IMUX Support (3000 Net)

**MULTISITE FEATURES**
H.323/H.320/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H,320 & H.323
Unicode h.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 2.3 Mbps with optional bandwidth upgrade (1.5 Mbps is standard conference rate)
Up to 4 video and 3 audio sites
4 sites @ 768 kbps (+telephone calls)
Mix ISDN-BRI and IP up to maximum conference rate
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323,SIP, Streaming

**SECURITY FEATURES**

# Technical specifications for 3000 MXP Profile, *cont...*

Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**

4 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran IMUX, Leased Line, Data Triggered, and Manual**
1 x USB for future use

**WIRELESS LAN SUPPORT**

Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241,H.243, H.281, BONDING (ISO 13871), H.320, H.323,H.331, RFC 3261, RFC 2237, RFC 3264, RC 3311. RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**PRECISION HD CAMERA**

7 x zoom 1/3" CMOS +10°/-20° tilt +/- 90° pan
42° vertical field of view
72° total vertical field of view
70° horizontal field of view
250° total horizontal field of view
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps
Automatic or manual focus/brightness/whitebalance
Far-end camera control
15 near and far-end camera presets
Voice-activated camera positioning
Daisy-chain support (Visca protocol camera)

**CLOSED CAPTIONING/TEXT CHAT**

T.140 text chat available from RS-232, Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**

Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV, Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.
DuoVideo
H.239

**SYSTEM MANAGEMENT**

Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**

Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**

Arabic, Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish, Thai Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**

Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen

**POWER**

100–240VAC, 60/50Hz, 6A

**OPERATING TEMPERATURE AND HUMIDITY**

0° C to 40° C (32° F to 104° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**

-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

**APPROVALS**

Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to UL 60950 and CAN/CSA C22.2 No. 60950
Complies with FCC15B Class B

**FOOTPRINT**

***WALL-MOUNT WITH PEDESTAL:***
Width: 22"/56 cm
Depth: 4.7"/12 cm
***ROLLABOUT:***
Width: 35.4"/90 cm
Depth: 29.7"/75.5 cm

* Requires TANDBERG Management Suite 9 or newer
** Optional equipment, must be specified at the time of order, Serial Por t replaces ISDN BRI
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**

The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG Maestro MXP

**UNIT DELIVERED COMPLETE WITH:**
Integrated 5" LCD display, TANDBERG PrecisionHD Camera, microphone, Digital Natural Audio Module (DNAM), integrated cabling, cart

**BANDWIDTH**
H.320 up to 2 Mbps
H.323 up to 4 Mbps point-to-point
SIP up to 4 Mbps
Up to 6 Mbps total MultiSite bandwidth

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (6 INPUTS)**
1 x HD Main Camera or 1 x MiniDin, S-video: main camera
1 x MiniDin, S-video: auxiliary/document camera
1 x RCA/Phono, composite: document camera/aux
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800 x 600 (@ 60, 72, 75, 85 Hz), 1024 x 768 (@ 60, 70, 75 Hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 1024 @ 60Hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (6 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x MiniDin, S-video: dual monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
2 x DVI-I/XGA: main and dual monitor
XGA OUTPUT
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz, 1280 x 768 (WXGA) @ 60 Hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728 , 64 bit & 128 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono and Stereo
Telephone add-on via MultiSite
Four separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Optional Stereo Package
Packet loss management
Active lip synchronization
GSM interference audio feature

**AUDIO INPUTS (4 INPUTS)**
3 x microphone, 24V phantom powered, XLR connector, each with separate echo cancellers
1 x RCA/Phono, Line Level: separate echo canceller
1 x RCA/Phono, Line Level: auxiliary (or VCR/DVD Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (3 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue Line Level: main audio or Analogue Stereo L
1 x RCA/Phono, Line Level: auxiliar y (or Analogue Stereo R or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR (mono or Stereo R)

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in MultiSite from any site

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
HO on ISDN-PRI Facility
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
NATO standard KG194/KIV-7 encryptor support
H.331 Broadcast Mode
URI Dialing
Universal IMUX Support

**MULTISITE FEATURES**
H.323/H.320/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4, CP 5 + 1 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H.320 & H.323
Unicode H.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 6 Mbps
Up to 6 video and 5 audio sites
4 sites @ 2 Mbps, 6 sites @ 768 (+telephone calls)
Mix ISDN (BRI or PRI), or Serial Interface (V.35) with IP up to maximum conference rate
MulitwayTM

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**

# Technical specifications for Maestro MXP, *cont...*

Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**

6 x ISDN BRI (RJ-45), S-inter face
1 x E1/T1 G.703 (RJ-45) for ISDN PRI or Leased E1/T1 mode: Manual or Auto (Data Triggered)
1 x E1/T1 G.703 (RJ-45) for future usage
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL)
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran IMUX, Leased Line, Data Triggered, and Manual
1 x USB for future usage

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**PRECISION HD CAMERA**

7 x zoom 1/3" CMOS +10°/-20° tilt +/- 90° pan
42° vertical field of view
72° total vertical field of view
70° horizontal field of view
250° total horizontal field of view
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps
Automatic or manual focus/brightness/whitebalance
Far-end camera control
15 near and far-end camera presets
Voice-activated camera positioning
Daisy-chain support (Visca protocol camera)

**CLOSED CAPTIONING/TEXT CHAT**

T.140 text chat available from RS-232, Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**

Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV, Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**

Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, XML, SOAP and FTP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**

Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**

Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**

Picture JPEG (logo.jpg): Recommended maximum size is 704x576
for Welcome Screen and 352x288 for Encryption Required Screen

**POWER**

Auto-sensing power supply
100–250 VAC, 50–60 Hz
65 watts max for codec and camera
50 watts integrated LCD display
250 watts for DNAM

**OPERATING TEMPERATURE AND HUMIDITY**

0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**

-20° C to 60° C (-4° F to 140° F) at RH 10-90% (non-condensing)

**APPROVALS**

Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
– Standard TBR4
Approved according to UL 60950 and CAN/CSA C22.2 No.60950
Complies with FCC15B Class B

**DIMENSIONS**

Width : 649 mm
Depth : 707 mm
Height : 1460 mm
Weight : 31 kg

*Requires TANDBERG Management Suite 9.0 or newer
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**

The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

Winner of the Standing Ovation Award from Presentations Magazine.

May 2008

# Technical specifications

## TANDBERG 1700 MXP

**UNIT DELIVERED COMPLETE WITH:**
Integrated HD Camera with camera cover, 20" Widescreen LCD, wireless remote control, microphone, and cables

**LCD SCREEN**
Widescreen LCD (16:9)
Wide view angle screen
WXGA; 1366 x 768
Auto or manual brightness

**BANDWIDTH**
H.323 up to 2 Mbps
SIP up to 2 Mbps

**FIREWALL TRAVERSAL**
TANDBERG Expressway TechnologyTM
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture (POP) & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS**
1 x DVI-I/SXGA: PC
PC using VNC (SoftPresenter)
1 x DVI-I: PC
Input: 800 x 600 (@ 60, 72, 75, 85 Hz), 1024 x 768 (@ 60, 70, 75 Hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 1024 @ 60/Hz
Extended Display Identification Data (EDID)

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768 pixels)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728 , 64 bit & 128 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20 KHz Mono and Stereo
Telephone add-on via MultiSite
Two separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Packet loss management
Active lip synchronization
GSM interference audio feature

**PRIVACY FEATURE**
Headset Microphone: 3.5mm Jack
Headset loudspeaker: 3.5mm Stereo jack

**AUDIO INPUTS (2 INPUTS)**
2 Built-in microphones
PC Audio input: 3.5mm Stereo Jack

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in MultiSite from any site

**NETWORK FEATURES**
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
URI Dialing

**MULTISITE FEATURES**
H.323/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H.323
Unicode H.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 2.3 Mbps
Up to 4 video and 3 audio sites
4 sites @ 768 kbps (+telephone calls)
Mulitway™

**EMBEDDED ENCRYPTION**
H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**
Internal 2 port Ethernet switch
1 x LAN/Ethernet (RJ-45) 10/100 Mbit for PC
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/cable modem)
1 x USB for future usage

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**
TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server

# Technical specifications for 1700 MXP, *cont...*

Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**
H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, H.323,
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**CAMERA**
1/3" CMOS 65° horizontal field of view
38° vertical field of view (monitor and camera tilt)
88° total vertical field of view (with monitor and camera tilt)
Manual focus
Automatic or manual brightness/whitebalance
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps

**CLOSED CAPTIONING/TEXT CHAT**
T.140 text chat available from Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for Local directories (My Contacts),
Corporate Directory and Global Directory
Total management via embedded web server, SNMP,
Telnet, SSH, FTP and SOAP
Remote software upload: via web server or ftp server
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**
Support for Local, Global and Dynamic Server Directories
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen

**POWER**
Auto-sensing power supply 100–250 VAC, 50–60 Hz
120W MAX

**OPERATING TEMPERATURE AND HUMIDITY**
0°C to 40°C (32°F to 104°F) ambient temperature
Up to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**
-20°C to 60° (-4°F to 140°) at RH 10–90% (non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive) —
Standard EN 60950-1 / IEC60950-1
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B- Standard EN 55024
– Standard EN 61000-3-2/-3-3
Approved according to UL 60950-1and CAN/CSA C22.2 No. 60950-1
Complies with FCC15B Class B

**UNIT DIMENSIONS**
Height: 51.0 cm (20.1 inches)
Width: 50.0 cm (19.7 inches)
Depth: 16.0 cm (6.3 inches)Footprint: 35.4 cm (13.9 inches) wide x 16.0 cm (6.3 inches) deep
Weight: 9,90 kg (21.8 lbs)

* Requires TANDBERG Management Suite 9 or newer
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**
The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG 1000 MXP

**UNIT DELIVERED COMPLETE WITH:**
Wireless remote control, built-in camera, microphone, speakers, cables, 12.1" LCD screen, table-top stand

**LCD SCREEN**
Wide view angle screen
XGA resolution
Auto or manual brightness

**BANDWIDTH**
H.320 up to 384 kbps
H.323 up to 768 kbps
SIP up to 768 kbps

**FIREWALL TRAVERSAL**
TANDBERG Expressway TechnologyTM
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.264, H.264 RCDO

**VIDEO FEATURES**
Intelligent Video Management
Picture in Picture (PIP)
Dual Monitor Emulation (Side by Side)
PC Zoom
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (1 INPUT)**
Built-in main camera
1 x DVI-I/SXGA: PC
Input: 800 x 600 (@ 60, 72, 75, 85 Hz), 1024 x 768 (@ 60, 70, 75 Hz), 1280 x 1024 @ 60 Hz
Extended Display Identification Data (EDID)

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, or SXGA

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels) receive only
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels) receive only
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels) receive only
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono
Automatic noise reduction
Acoustic echo canceller
Automatic gain control
Packet loss management
Active lip synchronization
GSM interference audio feature

**PRIVACY FEATURE**
Headset, 2.5 mm mini jack

**FRAME RATES**
30 frames per second @ 168 kbps and above

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
URI Dialing

**MULTISITE FEATURES**
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**
3 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x USB for future usage

**WIRELESS LAN SUPPORT**
Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**
TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML, MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**
H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**CAMERA**
1/4" CCD
752(H ) x 582(V) resolution
Lens: f=4mm F1:1.2
64° horizontal field of view
49° vertical field of view
Minimum illumination 5.0 lux (video output 50%, AGC on)
Manual focus

**CLOSED CAPTIONING/TEXT CHAT**
T.140 text chat available from Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Natural Presenter Package including:

## Technical specifications for 1000 MXP, *cont...*

PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Dual Monitor Emulation (Side by Side)
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP,
Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
External Services from TMS

**DIRECTORY SERVICES**
Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
Placed Calls with Date and Time
Received Calls with Date and Time
Directories in Local Languages
Last number dialed
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editors

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen.

**POWER**
Auto-sensing power supply
100–250 VAC, 50–60 Hz
45 watts max.

**OPERATING TEMPERATURE AND HUMIDITY**
0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**
-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to UL 60950 and
CAN/CSA C22.2 No. 60950
Complies with FCC15B Class B

**UNIT DIMENSIONS**
Height: 17.7”/45.0 cm
Width: 11.8”/30.0 cm
Depth: 2.6”/6.6 cm
Weight: 9.0 lbs/4.1 kg

*Requires TANDBERG Management Suite 9 or newer
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**
The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG Edge 95/85/75 MXP

**UNIT DELIVERED COMPLETE WITH:**
Wireless remote control, TANDBERG PrecisionHD Camera, microphone, brackets, and cables

**BANDWIDTH**
***95 MXP:***
H.320 up to 512 kbps
H.323 & SIP up to 2 Mbps
***85 MXP:***
H.320 up to 384 kbps
H.323 & SIP up to 1.1 Mbps
***75 MXP:***
H.320 up to 128 kbps
H.323 & SIP up to 768 kbps

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (5 INPUTS)**
1 x 9 PinDSUB: HD Main Camera
1 x MiniDin, S-video: auxiliary/document camera
1 x RCA/Phono, composite: document camera/aux
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800 x 600 (@ 60,72,75,85 Hz),1024 x 768 (@ 60,70,75 Hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 1024 @ 60 Hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (4 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
1xDVI-1/XGA: main or second monitor
XGA Output
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz, 1280 x 768 (WXGA) @ 60 Hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit & 128 bit MPEG4AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono and Stereo
Telephone add-on via MultiSite
Two separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Optional Stereo Package
Packet loss management
Active lip synchronization
GSM interference audio feature

**AUDIO INPUTS (4 INPUTS)**
2 x microphone, 24V phantom powered, XLR connector
1 x RCA/Phono, Line Level: auxiliary (or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (2 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue
Line Level: main audio or Analogue Stereo L
1 x RCA/Phono, Line Level: VCR or Analogue Stereo R

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in MultiSite from any site (95 & 85 MXP only)

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
H.331 Broadcast Mode
NATO standard KG194/KIV-7 encryptor support**
URI Dialing

**MULTISITE FEATURES (95 & 85 MXP ONLY)**
H.323/H.320/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H.320 & H.323
Unicode H.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 2.3 Mbps with optional bandwidth upgrade (1.5 Mbps is standard conference rate)
Up to 4 video and 3 audio sites
4 sites @ 768 kbps (+telephone calls)
Mix ISDN-BRI and IP up to maximum conference rate
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP"
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code

# Technical specifications for Edge 95/85/75 MXP, *cont...*

Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**
4 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit
(LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran
IMUX, Leased Line, Data Triggered, and Manual**
1 x USB for future usage

**WIRELESS LAN SUPPORT**
Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**
TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**
H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**PRECISIONHD CAMERA**
7 x zoom 1/3" CMOS +10°/-20° tilt +/- 90° pan
42° vertical field of view
72° total vertical field of view
70° horizontal field of view
250° total horizontal field of view
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps
Automatic or manual focus/brightness/whitebalance
Far-end camera control
15 near and far-end camera presets
Voice-activated camera positioning
Daisy-chain support (Visca protocol camera)

**CLOSED CAPTIONING/TEXT CHAT**
T.140 text chat available from Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP,
Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**
Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen.

**POWER**
Auto-sensing power supply
100–250 VAC, 50–60 Hz
40 watts max.

**OPERATING TEMPERATURE AND HUMIDITY**
0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

May 2008

**STORAGE AND TRANSPORT TEMPERATURE**
-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to UL 60950 and CAN/CSA C22.2 No.60950
Complies with FCC15B Class B

**DIMENSIONS**

Height: 16.9"/42.9cm
Width (including footstand): 5.7"/14.5cm
Depth (including footstand): 9.0"/22.8cm
Weight: 7.7 lbs/3.5 kg

Height: 5.4"/13.7cm
Width: 8.7"/22.2cm
Depth: 5.7"/14.5cm
Weight: 3.53 lbs/1.6 kg

* Requires TANDBERG Management Suite 9 or newer
** Optional equipment, must be specified at the time of order, Serial Por t replaces ISDN BRI
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**
The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

# Technical specifications

## TANDBERG 990/880/770 MXP

**UNIT DELIVERED COMPLETE WITH:**
Wireless remote control,W.A.V.E II camera, microphone and cables

**BANDWIDTH**
***990 MXP:***
H.320 up to 512 kbps
H.323 & SIP up to 2 Mbps
***880 MXP:***
H.320 up to 384 kbps
H.323 & SIP up to 1.1 Mbps
***770 MXP:***
H.320 up to 128 kbps
H.323 & SIP up to 768 kbps

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture & Large POP
Side by Side
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (4 INPUTS)**
Built-in main camera
1 x MiniDin, S-video: auxiliary/document camera
1 x RCA/Phono, composite: document camera/aux
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800 x 600 (@ 60,72,75,85 Hz), 1024 x 768 (@ 60,70,75 Hz), 1280 x 720 (HD720P) (@ 50, 60 Hz), 1280 x 1024 @ 60 Hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (4 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
1xDVI-1/XGA: main or second monitor
XGA Output
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz, 1280 x 768 (WXGA) @ 60 Hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit & 128 bit MPEG4AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono and Stereo
Telephone add-on via MultiSite
Two separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Optional Stereo Package
Packet loss management
Active lip synchronization
GSM interference audio feature

**AUDIO INPUTS (4 INPUTS)**
2 x microphone, 24V phantom powered, XLR connector
1 x RCA/Phono, Line Level: auxiliary (or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (2 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue
Line Level: main audio or Analogue Stereo L
1 x RCA/Phono, Line Level: VCR or Analogue Stereo R

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320
Available in MultiSite from any site (990 & 880 MXP only)

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
H.331 Broadcast Mode
NATO standard KG194/KIV-7 encryptor support**
URI Dialing
Universal IMUX Support (990/880 Net)

**MULTISITE FEATURES (990 & 880 MXP ONLY)**
H.323/H.320/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H.320 & H.323
Unicode H.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 2.3 Mbps with optional bandwidth upgrade (1.5 Mbps is standard conference rate)
Up to 4 video and 3 audio sites
4 sites @ 768 kbps (+telephone calls)
Mix ISDN-BRI and IP up to maximum conference rate
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password

# Technical specifications for 990/880/770 MXP, *cont...*

Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**
4 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit
(LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran IMUX, Leased Line, Data Triggered, and Manual**
1 x USB for future usage

**WIRELESS LAN SUPPORT**
Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**
TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**
H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**W.A.V.E. (WIDE ANGLE VIEW) II CAMERA**
10 x zoom 1/4" CCD +15°/-20° tilt +/-95°pan
61° vertical field of view
96° total vertical field of view
77° horizontal field of view
267° total horizontal field of view
460 (PAL) / 470 (NTSC) TV lines
Min. illumination 2 Lux (F1.8)
Auto or manual focus/brightness/white balance
Far-end camera control
15 near and far-end camera pre-sets
Voice-activated camera positioning

**CLOSED CAPTIONING/TEXT CHAT**
T.140 text chat available from Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

***DIRECTORY SERVICES***
Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Picture JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for Encryption Required Screen.

**POWER**
Auto-sensing power supply
100–250 VAC, 50–60 Hz
40 watts max.

**OPERATING TEMPERATURE AND HUMIDITY**
0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**
-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to UL 60950 and CAN/CSA C22.2 No.60950
Complies with FCC15B Class B

**UNIT DIMENSIONS**
Height: 5.1"/13.0 cm
Width: 14.9"/38.0 cm
Depth: 7.9"/20.0 cm
Weight: 5.0 lbs/2.3 kg

* Requires TANDBERG Management Suite 9 or newer
** Optional equipment, must be specified at the time of order, Serial Por t replaces ISDN BRI
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**
The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG 550 MXP

**UNIT DELIVERED COMPLETE WITH:**
Wireless remote control, W.A.V.E. II camera, microphone, and cables

**BANDWIDTH**
H.320 up to 384 kbps
H.323 up to 768 kbps
SIP up to 768 kbps

**FIREWALL TRAVERSAL**
TANDBERG ExpresswayTM Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture (POP)
Side by Side
PC Zoom
Intelligent Video Management
Local Auto Layout

**VIDEO INPUTS (1 INPUT)**
Built-in main camera
1 x RCA/Phono, composite: document camera/auxiliary
1 x XGA: PC using VNC (PC SoftPresenter)

**VIDEO OUTPUTS (3 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x XGA: main monitor
XGA Output
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz,
1280 x 768 (WXGA) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels) receive only
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels) receive only
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768 pixels)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels) receive only
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono
Acoustic echo canceller
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Packet loss management
Active lip synchronization
GSM interference audio feature

**AUDIO INPUTS (2 INPUTS)**
1 x microphone, 24V phantom powered, XLR connector
1 x RCA/Phono, Line Level: Auxiliary/VCR

**AUDIO OUTPUT (1 OUTPUT)**
1 x RCA/Phono, Line Level: Monitor

**FRAME RATES**
15 frames per second 56–128 kbps
30 frames per second 168–768 kbps

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration
(National ISDN, GR-2941-CORE)
SoftMux
H.331 Broadcast Mode
URI Dialing

**MULTISITE FEATURES**
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
H.235 Authentication
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management
(including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**
3 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit
(LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x USB for future usage

**WIRELESS LAN SUPPORT**
Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**
TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**
H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**W.A.V.E. (WIDE ANGLE VIEW) II CAMERA**
10 x zoom 1/4" CCD +15°/-20° tilt +/-95°pan
61° vertical field of view
96° total vertical field of view
77° horizontal field of view
267° total horizontal field of view
460 (PAL)/470 (NTSC) TV lines
Min. illumination 2 Lux (F1.8)
Auto or manual focus/brightness/white balance

# Technical specifications for 550 MXP, *cont...*

Far-end camera control
15 near and far-end camera pre-sets
Voice-activated camera positioning

**CLOSED CAPTIONING/TEXT CHAT**
T.140 text chat available from Telnet,
Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Soft Presenter Package including:
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP,
Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**
Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English,
French, German, Italian, Japanese, Korean, Norwegian,
Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editors

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Picture JPEG (logo.jpg): Recommended maximum size
is 704x576 for Welcome Screen and 352x288 for
Encryption Required Screen

**POWER**
Auto-sensing power supply
100–250 VAC, 50–60 Hz
40 watts max.

**OPERATING TEMPERATURE AND HUMIDITY**
0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**
-20° C to 60° C (-4° F to 140° F) at RH 10–90%
(non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to UL 60950
and CAN/CSA C22.2 No. 60950
Complies with FCC15B Class B

**UNIT DIMENSIONS**
Height: 5.1"/13.0 cm
Width: 14.9"/38.0 cm
Depth: 7.9"/20.0 cm
Weight: 5.0 lbs/2.3 kg

*Requires TANDBERG Management Suite 9 or newer
All specifications subject to change without notice,
system specifics may var y.
All images in these materials are for representational
purposes only, actual products may d i f f e r.
TANDBERG and Expressway are registered trademar ks or
trademarks of TANDBERG in the U.S. and other countries.
All other trademarks are proper ty of their respective owners.

**MTBF PRODUCT RELIABILITY/MTBF**
The predicted reliability is expressed in the expected
random Mean Time Between Failures (MTBF) for the
electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG Tactical MXP

**UNIT DELIVERED COMPLETE WITH:**
Case with integrated 3000 MXP codec, LCD Monitor, user interface, remote control, camera, microphone, speaker, AC-to-DC and DC-to-DC power regulator, privacy audio headset and wheels and handle cart

**MONITOR**
Display Type: Color TFT LCD Screen
Screen Size: 15,4" Wide
Pixel Resolution: 1280x800 WXGA

**BANDWIDTH**
H.320 up to 512 kbps
H.323 up to 2 Mbps
SIP up to 2 Mbps

**FIREWALL TRAVERSAL**
TANDBERG Expressway TechnologyTM
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.263++ (Natural Video), H.264, H.264 RCDO

**VIDEO FEATURES**
Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture (POP) & Large POP
Dual monitor emulation (Side by Side)
PC Zoom
Intelligent Video Management
Simultaneous videoconference & local PC mode
Local Auto Layout

**VIDEO INPUTS (4 INPUTS)**
Built-in main camera
1 x 9 Pin DSUB: S-video & control aux camera (Wave II)
1 x MiniDin, S-video: auxiliary / document camera
1 x RCA/Phono, composite: VCR
1 x DVI-I: PC
Input: 800x600 (@ 60, 72, 75, 85 Hz), 1024x768 (@ 60, 70, 75 Hz), 1280x720 (HD720P) (@ 50, 60 Hz), 1280x1024 @ 60 Hz
Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (4 OUTPUTS)**
1 x MiniDin, S-video: main monitor
1 x RCA/Phono, composite: main monitor or VCR
1 x RCA/Phono, composite: dual monitor or VCR
1 x DVI/XGA: main or second monitor
XGA OUTPUT
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz,
1280 x 768 (WXGA) @ 60 Hz, 1280 x 720 (HD720p) @ 60 Hz
VESA Monitor Power Management

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, W-XGA, SXGA and HD720p

**LIVE VIDEO RESOLUTION**
***NATIVE NTSC:***
400p (528 x 400 pixels)
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels)
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768 pixels)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels)
w448p (768 x 448 pixels)
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit & 128 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono and Stereo
Telephone add-on via MultiSite
Two separate acoustic echo cancellers
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Auto-switching for headset at connection
Packet loss management
Active lip synchronization
GSM interference audio feature

**PRIVACY FEATURES**
Headset, 2x 3.5 mm mini jack
Camera cover

**AUDIO INPUTS (4 INPUTS)**
2 x microphone, 24V phantom powered, XLR connector
1 x RCA/Phono, Line Level: auxiliary (or VCR Stereo L)
1 x RCA/Phono, Line Level: VCR/DVD (Stereo R)

**AUDIO OUTPUTS (2 OUTPUTS)**
1 x RCA/Phono, S/PDIF (mono/stereo) or Analogue Line Level: main audio
1 x RCA/Phono, Line Level: VCR

**FRAME RATES**
30 frames per second @ 168 kbps and above
60 fields per second @ 336 kbps and above (Point-to-point)

**DUAL STREAM**
DuoVideo including H.239
Available on H.323 & H.320
Available in Multisite from any site

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux
H.331 Broadcast Mode
NATO standard KG194/KIV-7 encryptor support**
URI Dialing

**MULTISITE FEATURES**
H.323/H.320/SIP/Telephony/VoIP in the same conference
Audio and Video Transcoding
Video rate matching from 56 kbps — maximum conference rate
CP4 and Voice Switched
Best Impression (Automatic CP Layouts)
H.264, Encryption, Digital Clarity
Dual Stream from any site
ISDN & IP Downspeeding and IPLR
MultiSite (H.243) Cascading on H.320 & H.323
Unicode H.243 Terminal Names
Dial in/Dial out
Chair control for host system
Snapshot of ongoing conference (JPEG)
Snapshot of ongoing DuoVideo/H.239 presentation (JPEG)
Separate welcome page for encrypted conferences
Conference rates up to 2.3 Mbps with optional bandwidth upgrade (1.5 Mbps is standard conference rate)
Up to 4 video and 3 audio sites
4 sites @ 768 kbps (+telephone calls)
Mix ISDN-BRI/V.35** and IP up to maximum conference rate
Mulitway™

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point and multipoint calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code

# Technical specifications for Tactical MXP, *cont...*

Streaming password
H243 MCU Password
Network Settings protection
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**

4 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x X.21/V.35/RS-449 with RS-366 dialing, RS-366 Adtran IMUX, Leased Line, Data Triggered, and Manual**
Inmarsat GAN, VSAT, DVB-RCS
1 x USB for future usage

**WIRELESS LAN SUPPORT**

Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML, MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**CAMERA**

1/4" CCD
752 (H) x 582 (V) Pixels
Min. illumination 1.1 Lux (Video Output 50%, AGC ON, Standard lens)
1.2 Lux (Output level 50%/AGC On/F1,4)

**PRECISIONHD CAMERA (OPTIONAL)**

7 x zoom 1/3" CMOS +10°/-20° tilt +/- 90° pan
42° vertical field of view
72° total vertical field of view
70° horizontal field of view
250° total horizontal field of view
Focus distance 0.3m–infinity
1280 x 720 pixels progressive @ 30fps
Automatic or manual focus/brightness/whitebalance
Far-end camera control
15 near and far-end camera presets
Voice-activated camera positioning
Daisy-chain support (Visca protocol camera)

**CLOSED CAPTIONING/TEXT CHAT**

T.140 text chat available from RS-232,Telnet,Web and User Interface

**PRESENTATIONS AND COLLABORATION**

Natural Presenter Package including:
PC Presenter (DVI-I, SXGA In)
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**

Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

**DIRECTORY SERVICES**

Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory
200 number local directory
16 dedicated MultiSite entries
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

**19 SELECTABLE MENU LANGUAGES**

Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editor

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**

Picture JPEG (logo.jpg): Recommended maximum size is 704x576
for Welcome Screen and 352x288 for Encryption Required Screen

**POWER**

100–250 VAC, 50–60 Hz 60 watts max. LPS
12-32 V DC, 60 watts LPS

**OPERATING TEMPERATURE AND HUMIDITY**

0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**

-25° C to 70° C (-4° F to 140° F) IP67

**ENVIRONMENTAL TESTS**

ETSI EN 300319-2-1/2/3 with respect to temp, humidity, shock, vibration and free fall

**APPROVALS**

Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to CAN/CSA C22.2 No. 60950
Complies with FCC15B Class B

**DIMENSIONS**

Length: 21.2"/54 cm
Height: 8.3"/21 cm
Depth: 16"/40 cm
Weight: 25.4 lbs/11.5 kg

* Requires TANDBERG Management Suite 9 or newer.
** Optional equipment, must be specified at the time of order, Serial Por t replaces ISDN BRI.
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.


**MTBF PRODUCT RELIABILITY/MTBF**

The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Technical specifications

## TANDBERG Compass MXP

**UNIT DELIVERED COMPLETE WITH:**
Built-in camera, microphone, speakers, cables, 12.1" LCD screen, LED light source, telephone handset, wall-mount bracket

**LCD SCREEN**
Wide view angle screen
XGA resolution
Auto brightness

**BANDWIDTH**
H.320 up to 384 kbps
H.323 up to 768 kbps
SIP up to 768 kbps

**FIREWALL TRAVERSAL**
TANDBERG Expressway TechnologyTM
Auto NAT
H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**
H.261, H.263, H.263+, H.264, H.264 RCDO

**VIDEO FEATURES**
Intelligent Video Management
Picture in Picture (PIP)
Dual Monitor Emulation (Side by Side)

**VIDEO INPUTS (1 INPUT)**
Built-in main camera
Extended Display Identification Data (EDID)

**VIDEO FORMAT**
NTSC, PAL, VGA, SVGA, XGA, or SXGA

**LIVE VIDEO RESOLUTIONS**
***NATIVE NTSC:***
400p (528 x 400 pixels) receive only
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (iSIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)
***NATIVE PAL:***
448p (576 x 448 pixels) receive only
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (iCIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels) SQCIF (128 x 96 pixels) decode only
***NATIVE PC RESOLUTIONS:***
XGA (1024 x 768 pixels)
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)
***WIDE RESOLUTIONS:***
w288p (512 x 288 pixels) receive only
w448p (768 x 448 pixels) receive only
w720p (1280 x 720 pixels) receive only

**STILL IMAGE TRANSFER**
CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

**AUDIO STANDARDS**
G.711, G.722, G.722.1, G.728, 64 bit MPEG4 AAC-LD

**AUDIO FEATURES**
CD-Quality 20KHz Mono
Automatic noise reduction
Acoustic echo canceller
Automatic gain control
Packet loss management
Active lip synchronization
GSM interference audio feature

**PRIVACY FEATURE**
Armored telephone handset

**FRAME RATES**
30 frames per second @ 168 kbps and above

**DUAL STREAM**
DuoVideo
H.239 dual stream
Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320

**NETWORK FEATURES**
Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration (National ISDN, GR-2941-CORE)
SoftMux

**EMBEDDED ENCRYPTION**
H.320 and H.323 point-to-point calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
NIST-validated DES
Automatic key generation and exchange
Supported in Dual Stream

**IP NETWORK FEATURES**
IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management (including flow control)
Auto Gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

**IPv6 NETWORK SUPPORT**
Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS, ftp, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP, Streaming

**SECURITY FEATURES**
Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network settings protection
SIP Authentication via NTLM
SIP Authentication via Digest
FIPS Mode

**NETWORK INTERFACES**
3 x ISDN BRI (RJ-45), S-interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/cable modem)
1 x USB for future usage

**ETHERNET/INTERNET/INTRANET CONNECTIVITY**
TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML, MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

**OTHER MAJOR STANDARDS SUPPORTED**
H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243, H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

**CAMERA**
1/4" CCD
752(H ) x 582(V) resolution
Lens: f=4mm F1:1.2
64° horizontal field of view
49° vertical field of view
Minimum illumination 5.0 lux (video output 50%, AGC on)

**CLOSED CAPTIONING/TEXT CHAT**
T.140 text chat available from Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Natural Presenter Package including:
Digital Clarity & Native Formats
Dual Monitor Emulation (Side by Side)
Streaming compatible with Cisco IP/TV, Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN

**DIRECTORY SERVICES**
Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories
400 number global directory

# Technical specifications for Compass MXP, *cont...*

200 number local directory
Directories in Local Languages

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editors

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Pictures JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for the other screens

**POWER**
Auto-sensing power supply
100–250 VAC, 50–60 Hz
36 Watts max.

**OPERATING TEMPERATURE AND HUMIDITY**
0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**
-20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to and CAN/CSA C22.2 No. 60950-1
Complies with FCC15B Class B

**UNIT DIMENSIONS**
Height: 21.8”/55.4 cm
Width: 17.4”/44.0 cm
Depth: 4.3”/11.0 cm
Weight: 33.0 lbs/15.0 kg

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May 2008

# Technical specifications

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Built-in camera, microphone, speakers, cables, 12.1" LCD screen, LED light source, telephone handset, wall-mount bracket, remote control

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Wide view angle screen
XGA resolution
Auto brightness

**BANDWIDTH**
H.320 up to 384 kbps
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H.261, H.263, H.263+, H.264, H.264 RCDO

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Camera cover

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30 frames per second @ 168 kbps and above

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Dynamic bandwidth adjustment (H.323)
Available on H.323 & H.320

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Supported in Dual Stream

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TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML, MD-5 Challenge
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Internal web server
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RFC 3261, RFC 2237, RFC 3264, RC 3311, RFC 3550, RFC 2032, RFC 2190, RFC 2429, RFC 3407

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1/4" CCD
752(H ) x 582(V) resolution
Lens: f=4mm F1:1.2
64° horizontal field of view
49° vertical field of view
Minimum illumination 5.0 lux (video output 50%, AGC on)

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T.140 text chat available from Telnet, Web and User Interface

**PRESENTATIONS AND COLLABORATION**
Natural Presenter Package including:
Digital Clarity & Native Formats
Dual Monitor Emulation (Side by Side)
Streaming compatible with Cisco IP/TV, Apple QuickTime®, RealPlayer® v8, VLC Media Player etc.

**SYSTEM MANAGEMENT**
Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP, Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN

**DIRECTORY SERVICES**
Support for Local directory (My Contacts), Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting LDAP and H.350
Unlimited number of entries for Corporate directory (through TMS) within a maximum of 40 directories

# Technical specifications for Utility MXP, *cont...*

400 number global directory
200 number local directory
Directories in Local Languages

**19 SELECTABLE MENU LANGUAGES**
Arabic, Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Spanish, Suomi, Swedish and Thai
Chinese, Korean, Japanese and Russian Input Method Editors

**CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO**
Pictures JPEG (logo.jpg): Recommended maximum size is 704x576 for Welcome Screen and 352x288 for the other screens

**POWER**
Auto-sensing power supply
100–250 VAC, 50–60 Hz
36 Watts max.

**OPERATING TEMPERATURE AND HUMIDITY**
0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

**STORAGE AND TRANSPORT TEMPERATURE**
-20° C to 60° C (-4° F to 140° F) at RH 10-90% (non-condensing)

**APPROVALS**
Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to CAN/CSA C22.2 No. 60950-1
Complies with FCC15B Class B

**UNIT DIMENSIONS**
Height: 21.1”/53.6 cm
Width: 14.4”/36.5 cm (without handset)
Depth: 3.7”/9.5 cm
Weight: 23.1 lbs/10.5 kg

*Requires TANDBERG Management Suite 9 or newer
All specifications subject to change without notice, system specifics may var y.
All images in these materials are for representational purposes only, actual products may d i f f e r.



**MTBF PRODUCT RELIABILITY/MTBF**
The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components based on the Power On Hours:
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 cer tificate is available upon request

May 2008

# Glossary

199 AV1: External input for the TANDBERG/LOEWE monitor.

2ND MONITOR: The second monitor of your video communication system. The second monitor is normally placed on the right side of the first monitor.

4CIF: 4 times CIF, 704x576 pixels

4SIF: 4 times SIF, 704x480 pixels

A

AACLD: Advanced Audio Coding Low Delay

ACCESS CODE: Use Access code to password protect outgoing calls.

ACCESSORIES BOX: The cabinet contains the following: W.A.V.E. camera, table microphone, remote control and tracker and documentation.

ACCESSORIES DRAWER: See Accessories box

AES: Strong encryption. (Advanced Encryption Standard)

AGC: Automatic Gain Control. Maintains the audio signal level at a fixed value by attenuating strong signals and amplifying weak signals. Very weak signals, i.e. noise alone, will not be amplified.

ALERT SPEAKER: The internal speaker will warn you of an incoming call even though the monitor may not be switched on.

AUDIO CALL: Audio call equals a telephone call. You can make a call with the video system with audio only.

AUDIO INPUT 4: Intended for connection to an external microphone amplifier or an external fixed mixer.

AUDIO INPUT 5: Intended for connection to external playback devices (or to telephone add-on hybrids).

AUDIO INPUT 6: Intended for connection to a VCR or DVD player or other external playback devices.

AUDIO OUT 1: Intended for connection to TANDBERG Natural Audio, televisions or audio amplifiers.

AUDIO OUT 2: Intended for connection to audio recording equipment (or to a telephone add-on hybrid).

AUDIO OUT 3: Intended for connection to a VCR or other recording equipment.

AUTO-DISPLAY SNAPSHOT: Sent and received snapshot will automatically appear on full screen display.

AUTO ANSWER: The system will automatically answer all incoming calls when idle.

AUTOMATIC DUOVIDEO: DuoVideo Mode is put to Auto. When starting a presentation, DuoVideo will start automatically (if possible).

B

BANDWIDTH: Decides the quality of the video call. High bandwidth gives high quality.

C

CALL CONTROL DATA TRIGGERED: Uses TxData, RxData and clock signals only. Use Data Triggered when no handshake signal is available.

CALL CONTROL LEASED LINE: Is a non-dialing protocol and should be used when two systems are connected in a point-to-point connection. Use Leased Line when the handshaking signals DTR and CD are available.

CALL CONTROL MANUAL: Should be used when no handshake signals are available, and the external equipment requires a constantly connected line.

CALL CONTROL RS366 DIALING: The only dialing protocol and would normally be used together with network clocking RS449/V35 Compatible when the external system uses RS2366 ports.

CALL STATUS: Comprehensive information about the call listing transmitted and received audio/video/data information.

CAMERA TRACKING: Voice Activated Camera Positioning - the camera will automatically view the current speaker.

CAMERA TRACKING MODE: Voice Activated Camera Positioning - the camera will automatically view the current speaker.

CHAIR CONTROL: Enables one participant to control the meeting by selecting which of the conference participants that is to be broadcasted to the other participants.

CHANNEL STATUS: Comprehensive information about the call progress listing the numbers called, and if an error occurs a cause code is displayed.

CIF: Common Intermediate Format, 352x288 pixels

CLOSED CAPTIONING: Text chat.

CODEC: The Codec is the heart of the system. The main task for the Codec is the compression of outgoing video, audio and data, the transmission of this information to the far end, and the decompression of the incoming information.

CONTINUOUS PRESENCE: See Split Screen

CONTROL PANEL: The Control Panel is found in the Menu.

CSU: Channel Service Unit

D

DAISY-CHAINING: Use of several cameras in a video conference.

DATAPORT: The system provides two standard RS 232 data ports to allow a computer to be connected for data transfer and control purposes.

DATAPORT 1: A standard RS 232 data port to allow a computer to be connected for data transfer and control purposes.

DATAPORT 2: Dedicated to the main camera and will not be available in standard configuration.

DES: Encryption. (Data Encryption Standard)

DHCP: Dynamic Host Configuration Protocol.

DIAGNOSTICS: Allows testing of individual system components and displays the current system settings.

DIGITAL CLARITYTF: Participants enjoy presentations of exceptionally high quality resolution video.

DISCONNECT SITE: As a Chairman, you get the option Disconnect site. Disconnect site allows you to disconnect any participant in the conference.

DO NOT DISTURB: When Do Not Disturb is active the system will not accept any incoming calls.

DOCUMENT CAMERA: A document camera is an additional camera that is used for showing text, diagrams as well as physical objects.

DOWNSPEEDINGTF: If channels are dropped during a video meeting, the connection is automatically maintained without interruption.

DUAL MONITOR: The second monitor

DUAL MONITOR SYSTEM: A video conference system with two monitors.

DUOVIDEOTF: Allows participants at the far end to simultaneously watch a presenter on one screen and a live presentation on the adjoining screen.

E

E.164 ALIAS: The E.164 address of the system. Equivalent to a telephone number, sometimes combined with access codes. The system will not register with the Gatekeeper if the E164 alias is not set.

E1: Network type, 30 channels. Default for PAL versions.

ECHO CANCELLER: Continuously adjusts itself to the audio characteristics of the room and compensates for any changes it detects in the audio environment.

ECHO CONTROL: When set to On the far end is prevented to hear their own audio.

ENCRYPTION: Use encryption to make secure calls with DES (encryption) or AES (strong encryption).

END VIEW: Stop viewing the site previously chosen with View Site, and return the view to the site that is currently On Air. Can be used by all conference participants.

## Glossary, *continued...*

ETHERNET SPEED: The speed (Mbps) on the connection from the system to the LAN.

F

FALLBACK TO TELEPHONY: Enables fallback from video calls to telephony/speech calls.

FAR END: In a video conference, Far End means the remote side of the conference. Far End Camera is your conference partner's camera. Opposite to Near End

FECC: Far End Camera Control. When activated it is possible to control the far end's camera, select video sources, activate presets and request still images.

FLOOR: In a multipoint call, use Request Floor to broadcast your picture to all other participants. This is handy when you are having presentations, for teachers etc.

G

G.711: Audio algorithm for normal quality audio (telephone quality, 3.1 kHz) The system will always have G.711 enabled.

G.722: Audio algorithm for high quality audio (7 kHz).

G.722.1: Audio algorithm for compressed high quality audio (7 kHz)

G.728: Audio algorithm for compressed normal quality audio (telephone quality, 3.1 kHz)

GATEWAY: The gateway enables sites on IP and sites on ISDN to participate in meetings with each other.

GLOBAL PHONE BOOK: A phone book provided by TMS.

H

H.261: Video algorithm for legacy video compression and decompression. The system will always transmit H.261

H.263: Video algorithm for normal video compression and decompression

H.264: Video algorithm for bandwidth-efficient video compression and decompression

HARDWARE SERIAL NUMBER: A unique number (listed in the System Information menu) to identify your system towards your TANDBERG representatives.

HUMFILTER: A high pass filter which reduces very low frequency noise.

I

ICIF: Interlaced CIF, 352x288 pixels, 50 fields per second

INCOMING CALL: Someone calls in to your system

INCOMING MCU CALLS: If occupied in a call, the system will provide a visual/audio indication of an incoming call and ask to accept or reject the call.

IP ADDRESS: Defines the network address of the system. This address is only used in static mode.

IP ASSIGNMENT: IP-address, IP-subnet mask and Gateway are assigned by the DHCP server.

IP ASSIGNMENT STATIC: The system's IP-address and IP-subnet mask must be specified in the IP-address field.

IP PRECEDENCE: Used to define which priority the system should have in the network. Higher numbers indicate higher priority.

IP SUBNET MASK: Defines the type of network. This address is only used in static mode.

IP TOS: IP Type Of Service. Helps a router select a router path when multiple paths are available.

ISIF: Interlaced SIF, 352x240 pixels, 60 fields per second

L

LAYOUT: Use the Layout key to change picture layout on the screen.

M

MAIN CAMERA: Your camera. Video input 1

MAX CALL LENGTH: This feature will automatically end both incoming and outgoing calls when the call time exceeds the length specified.

MAX CHANNELS: Indicates the maximum number of channels the system is allowed to use on the E1/T1 interface.

MCU: Multipoint Conference Unit.

MCU STATUS LINE: Shows indicators for MultiSite, MCU and DuoVideo

MICOFF: Microphone is switched off.

MIX MODE: How to adjust the weighting of each microphone to obtain the best possible audio and minimize the background noise.

MODEM MODE: (Dataport) Supports external control of the system via a PC as in Control Mode. Once a call is established, Dataport 1 will automatically switch to Data mode. When the call disconnects, Dataport 1 switches back to Control Mode.

MSN: Multiple Subscriber Number. Possible to attach different ISDN terminals, with different numbers, to the same physical ISDN telephone line. The service can be ordered from the telephone company.

MULTIPOINT CALL: A call with more than two participants including yourself

MULTISITE: The TANDBERG systems internal MCU. Built-in system which makes it possible to establish meetings with up to 6 video calls and 5 telephone calls. The MultiSite option is not available on all systems.

MULTISITE CASCADING: By connecting up to 4 or 6 (depending on the system capacity) MultiSite systems together to achieve a higher number of participants in a multipoint call.

N

NAT: Network Address Translation. NAT support in the video communication system enables proper exchange of audio/video data when connected to an external video system when the IP traffic goes through a NAT router. Used in small LANs, often home offices, when a PC and a video communication system is connected to a router with NAT support.

NAT ADDRESS: The external/global IP-address to the router with NAT support. Packets sent to the router will then be routed to the system's IP address.

NATURAL AUDIO MODULETM: Designed to improve audio quality during a video conference. It is mounted in the cabinet above the Codec and consists of an audio system optimized for speech.

NATURAL PRESENTER PACKAGE: Consists of DuoVideo, Digital Clarity and PC Presenter.

NEAR END: In a video conference, Near End means your own side of the conference. Near Camera is your own camera. Opposite to Far End

NETWORK CLOCKING: Specifies the number of physical external clock signals.

NETWORK INTERFACE: Indicates if the network is of type E1 or T1.

NETWORK PROFILES: It is possible to define up to 6 network profiles, each consisting of name and call prefix, and three of them also include network selection.

NON STANDARD FACILITY: The network provider may require service selection in your ISDN configuration. Valid NSF codes are from 1 to 31. 0 will disable NSF service codes.

NR: Noise Reduction. Reduces constant background noise (e.g. noise from air-conditioning systems, cooling fans, etc.).

NSF: Non Standard Facility.

NTSC: National Television System Committee. Video standard corresponding to 4SIF. Primary used in USA, Japan and other countries.

O

OPTION KEY: Required by the system to activate optional features such as MultiSite and Presenter.

P

PAL: Phase Alternation by Line. Video standard corresponding to 4CIF.

## Glossary, *continued...*

Primary used in Europe, Middle East and Asia

PARALLEL DIAL: Channels will be dialed and connected in parallel when setting up a bonding call.

PC PRESENTERTF: An easily accessible PC connection plug. When connected the PC image is displayed on the monitor.

PC SOFTPRESENTERTF: Shows PC images via the LAN connection.

PIP: Picture-In-Picture

POINT-TO-POINT CALL: A call with two participants including your self

POP: Picture Outside Picture. POP is a picture layout mode that is optimized for wide screens: Full screen, 1+3 layout and emulated dual monitor layout.

PRECISION HD CAMERA: High Definition camera – delivers high resolution quality video

PRESENTATION: Use the Presentation key to show another video source from a predefined presentation source. Select Presentation from the menu to choose among all available video sources.

PRESENTATION SOURCE: The video source that is on display when you press the Presentation Key on the remote control

PRESETS: Predefined camera positions (and video sources)

### Q

QCIF: Quarter CIF, 176x144 pixels

QSIF: Quarter SIF, 176x120 pixels

### R

RELEASE FLOOR: To end the request floor function.

RELEASE FLOOR TO SITE: Allows the chairman to release the floor.

REMOTE: Short for Remote Control

REQUEST FLOOR: The MCU will broadcast the video in full screen to all other participants in the conference. If the MCU conference has a chairman, a request will be sent to the chairman.

RESTART: Restarts the system.

RESTORE DEFAULTS: Restores system settings to the factory defaults.

RESTRICTED CALL: A call to a 56 kbps network. By default the system will dial an unrestricted call (a call to a 64 kbps network) and downspeed to 56 kbps if necessary.

### S

S-VHS: S-video

S-VIDEO: The standard camera uses one of the S-video inputs in the codec.

SELFVIEW: Outgoing video. In most cases, the image of your self.

SERIAL NUMBER: A unique number (the hardware serial number, listed in the System Information menu) to identify your system towards your TANDBERG representatives.

SIDE-BY-SIDE: Side-by-side view means that two pictures are displayed side by side each other on the screen. You will se two equally sized pictures.

SIF: Standard Input Format, 352x240 pixels

SNMP: Simple Network Management Protocol.

SNMP COMMUNITY: SNMP Community names are used to authenticate SNMP requests. SNMP requests must have a password in order to receive a response from the SNMP agent in the system. The SNMP Community name is case sensitive.

SNMP TRAP HOST: Identifies the IP-address of the SNMP manager.

SNMP TRAPS: Generated by the agent to inform the manager about important events.

SOFTMUX: Ensures high reliability and includes the unique Downspeeding feature. It also makes it possible to dial to another video communication equipment, phones and mobile phones in a uniform way, and provides an on-screen, real-time feedback on the progress of a call.

SPLIT SCREEN: All the participants in a MultiSite conference are displayed on the screen. (Former Continuous Presence)

START CHANNEL: Indicates the firstE1/T1 channel the system is allowed to use. The setting might be used when if the E1/T1 line is shared with other equipment.

START UP VIDEO SOURCE: The video source that is on display when the system wakes up from standby mode.

STATUS FORMAT: Provides call quality feedback on the status line.

STREAMING: Allows broadcasting of audio/video via an IP network.

STREAMING ADDRESS: Defined as the IP-address of a streaming client, streaming server or a multicast address.

STREAMING ADDRESS PORT: If several codecs are streaming to the same IP-address, different ports have to be used in order for the client to know which stream to receive.

STREAMING ALLOW REMOTE START: Streaming can be started from the Video communication system using the remote control, by using the Data port, or from external user interfaces like the Web-browser or Telnet session.

STREAMING ANNOUNCEMENTS: The system will announce to the network that it is streaming. This enables a streaming client (e.g. a PC) to connect to the system's streaming session. Used by Cisco IP/TV.

STREAMING PASSWORD: Prevents unauthorized access to the streaming functionality.

STREAMING SOURCE: Select between local video and/or far end video to be streamed. Local and far end audio is always streamed.

STREAMING TTL/ROUTER HOPS: Used for streaming data to limit how many routers the data should pass before it is rejected.

STREAMING VIDEO RATE: Defines the Video streaming rate from the system.

SVGA: Super VGA. (800x600)

SXGA: Super extended Graphics Array (1280x1024)

SYSTEM **INFORMATION**: Lists system numbers, line status, software version and other useful information.

SYSTEM NAME: Identifies a video communication system

### T

T1: Network type, 24 channels. Default for NTSC versions.

T1 LINE CODING: Indicates how the signals on the line should be coded. If parts of the systems use restricted coding, this should be selected.

TAKE CHAIR: Request chairmanship of the conference. If no one else is chairman, the request is granted.

TCS-4: Used to address different systems on a LAN when dialing in via a gateway.

TERMINAL NAMES: Lists the site numbers or name (if supported) of other sites connected in the conference.

TERMINATE MEETING: The chairman can terminate the conference, i.e. all participants are disconnected.

TMS: TANDBERG Management Suite

TOUCH TONES: To dial extension numbers etc. during a call, use touch tones in order to get tones instead of preset on the number keys.

TRACKER: The tracker is a small infrared remote control device made to steer the camera to any desired location within the room.

TSC-1: TCS-1 is used for H243 password on H320 MCU's

### V

VCR: Video Cassette Recorder

VGA: Video Graphics Array. (640 x 480)

VGA OUT QUALITY: Changes the resolution of the VGA signal available in the VGA Out connector at the rear of the codec.

VIEW SETTINGS: Displays all the system settings in a read only format.

VIEW SITE: View any participant in the conference other than the participant currently On Air. Can be used by all conference participants.

VNC: Virtual Network Computing.

## Glossary, *continued...*

VOICE SWITCHED: The active site will be displayed in full screen during a MultiSite conference.

W

WAVE II CAMERA: Wide Angle View Camera - delivers the widest angle of view in the industry.

WELCOME MENU: The welcome menu displays the Menu when you are outside a call.

X

XGA: Extended Graphics Array (1024 x 768)

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