

Software version TC3.0
MARCH 2010



Administrator guide

For TANDBERG Codec C90 and Profile 65" Dual using C90

What's in this guide?

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 updated versions of this guide. Go to: <http://www.tandberg.com/docs>



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Document revision history

- Revision 1: Initial release
- Revision 2: Correction for an error on page 49

Chapter 1

Introduction

Introduction

You may already be familiar with the administrator guides for the Profile Series and Codec C Series. To help you find the information you need, TANDBERG has split the guides into smaller and more accessible parts listed on the right of this page.

The purpose of this document

The purpose of this document is to provide you with information required to administrate your product at an advanced level.

Disclaimers and Notices

The objective of this documentation is to provide the reader with assistance in using and configuring the product. The capabilities of TANDBERG products and other manufacturers' products change over time and so the required configuration may be different from that indicated here. If you have any suggestions for changes to this document, please feed them back to TANDBERG through your TANDBERG Authorized Service Representative.

If you need technical support, please contact your TANDBERG Authorized Service Representative.

The specifications for the product and the information in this Guide are subject to change at any time, without notice, by TANDBERG. Every effort has been made to supply complete and accurate information in this Guide; however, TANDBERG assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

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Products covered in this guide

- TANDBERG Profile 65" Dual using C90
- TANDBERG Codec C90

Other documents you might find useful

- **Video conference room primer guide**
- **Getting started guide** for Profile Series, Codec C Series, Quick Set C20
- **User Guide** for Profile Series, Codec C Series and Quick Set C20
- **Administrator guide** for Profiles using Codec C20 and Quick Set C20
- **Administrator guide** for Profiles using Codec C60 and Codec C60/C40
- **Administrator guide** for Profiles using Codec C90 and Codec C90
- **Camera user guide** for PrecisionHD 1080p/720p
- **API guides** for Codec C90, C60, C40
- **Physical interfaces guides** for Codec C90, C60, C40
- **Legal and safety information** for Profile Series, Codec C Series and Quick Set C20

Download the user documentation

Go to: ► <http://www.tandberg.com/docs>

What's new in this version

The information on this page describes the highlights and main changes in the new version for the C Series line of codecs.

Software release notes

For a complete overview of the news and changes, we recommend reading the TANDBERG TC Software Release Notes (TC3). Go to: ► <http://www.tandberg.com/docs>

User documentation

You may already be familiar with the user guides for the Profile Series, Codec C Series and Quick Set C20. To help you find the information you need, TANDBERG has split the guides into smaller and more accessible parts.

The Administrator Guide has been split into:

- Getting started guide
- Video conference room primer guide
- Camera user guide
- Administrator guide (smaller size)
- Legal and safety information

The System Integrator Guide has been split into:

- API guides for Codec C90, C60, C40
- Physical interfaces guides for Codec C90, C60, C40

The User Guides have been merged into one guide:

- User Guide for Profile Series, Codec C Series and Quick Set C20

The user documentation is available from our web site. Select your product from the drop down list to see an overview of the user documentation for that product.

Go to: ► <http://www.tandberg.com/docs>

New features and improvements

Configuration profiles

Enhanced usability features with Configuration Profiles. The functionality is available from softkeys when you enter the "Advanced Configuration" menu.

Today's bookings

Systems provisioned by the TANDBERG Management System (TMS) can display today's current bookings in the GUI.

Confirm selection of video output resolution

When changing the output resolution, the system will prompt you and let you keep or cancel the selected resolution. In the event that the monitor doesn't support the new selected resolution, no prompt will be shown; selection will time out and thus the system will revert to the previous resolution.

System information, frame rate indicator

The call status will now include frame rate, thus making it easy to see if you are sending/receiving 30 or 60 frames per second. As this is just an indicator and not a proper frame rate counter, it will not show accurate sent or received frame rate. However you will be able to see if the system is now sending or receiving 60 frames per second.

Autocomplete

When starting to type in a number in the call dialog box, it will now provide matches from recent calls, corporate phonebook and local contacts.

Telephone call icon

A telephone call icon will now be displayed along with the telephone number when combined with a video call or presentation.

Russian Input method

When Cyrillic is selected as input method, Russian can be used as multitap. A Russian version of the remote control will be available at the same time as the TC3.0 release.

Do Not Disturb

A proper icon will now be displayed in the lower right corner, when do not disturb is active. And a text box reminding you that "Do not

disturb' is active will be presented in the middle of the screen, if you have no menus or presentation active.

Do not disturb can be activated by holding down the disconnect key until the Standby dialog box appears.

New menu languages

Finnish, Traditional Chinese, Portuguese Brazilian, Polish, Danish, Dutch

Call rate selection

The soft button to select call rate is now available from the 'Enter contact' field in the call dialog box.

Improved web interface

The web interface lets you:

- Check system info
- Upgrade software and add release and option keys
- Configure the system using the advanced configuration
- Upload custom wallpaper using png format.
- Place calls and see the call status
- Upload Certificates
- Download XML files
- Download system logs

Video enhancements

Optimal Definition Profiles

Each video input can now be configured to allow different optimal definition profiles. You can set the profile level, which tells your system how good lighting you have in your room, and you can set when to prefer 60 frames per second over 30 frames per second.

Overscan compensation

Support for monitor overscan compensation, where both video and GUI will be scaled to support monitors that do not support the ability to display an image in pixel-by-pixel mode.

Video enhancements, *continued...*

New encoding and decoding resolutions

- WUXGA (1920*1200)
- WXGA+ (1440*900) (only Codec C90 and C60)

Letterbox removal

The system will detect letterboxing or pillar boxing and scale the image to fit the screen. If the system receives a 4/3 image with letterboxing (16/9), it will scale the image to fit the entire screen.

Improved video layout control

It is now possible to configure which layout family to be used as default in any system state. This allows for having default self view on the second monitor for dual monitor systems.

This functionality has to be configured using the API (dataport).

Improved packet loss resilience

The packet loss concealment has been improved, which provides noticeable better performance over previous software versions in packet loss environments.

ClearPath (Experimental mode)

Available in TC3.0 in the Experimental menu as a technology preview, and should only be used for demonstration purposes.

ClearPath is TANDBERG's solution to minimize the negative effects of packet loss in a non-optimal network.

Must be enabled from the API or GUI. See the: Experimental Conference PacketLossResilience configuration.

Audio enhancements

Equalizer

Supported systems: C40, C60, C90. Audio equalizer, available in the API and the TANDBERG Audio Console. Can be turned on and off from the GUI, but the equalizer values must be set using the API.

Audio and video source association

Supported systems: C40, C60, C90. When set to on, you have the ability to associate an audio input to a video input, meaning the audio input will only be active when that video source is active.

Stereo echo cancellation

Supported systems: C90. Only available for the line inputs.

Integrator benefits

- For Integrators, GPIO is available on the C90 and C60
- Improved Audio Console features. The Audio console application is available from the TANDBERG Developer Zone web site. Go to: ► <http://developer.tandberg.com>
- The new Factory Reset command will reset all configurations and passwords, all logs will be deleted, all uploaded files (wallpapers etc) will be deleted. The option keys and release keys will not be deleted.
- New and changed API commands. See the API guides for the Codecs C Series. Go to: ► <http://www.tandberg.com/docs>

Camera

With the TC3.0.0 release, the PrecisionHD 1080p camera will automatically be upgraded to camera software release ID40056. Included in this release is:

- Ability to set DHCP to on over Visca.
- Added visca commands for changing integration time manually between 50 and 60Hz. To be used if the camera is not able to detect the power frequency.

TANDBERG Profile 65" Dual at a glance

Codec C90

- Full HD video
- High resolution data sharing
- Full HD Multisite
- Rich I/O capabilities

PrecisionHD 1080p

Full HD Camera designed for visual communication with:

- 12 x optical zoom
- Fast and precise pan, tilt and zoom

Dual monitor 65"

Full HD LCD Display

Audio module

Wide band audio module supporting:

- 20 kHz AAC-LD
- Full echo canceling
- Stereo

Audio amplifier

Optimized DNAM for TANDBERG Profile providing crystal clear and natural audio.

Microphones

3 x Microphones with cables

Remote control

- TANDBERG Remote Control TRC5 with 4 x AAA batteries

Foot stand

Floor standing foot plate



TANDBERG Codec C90 at a glance

The TANDBERG Codec C90 is used in telepresence and collaboration projects, having the ultimate collaboration engine with HD video & audio, tremendous power and the highest level of flexibility for any projects.

Design Features

- The best, most powerful codec available with the ultimate video and audio quality.
- 2U high, rack mountable, with special rack mounting solution included.
- Professional grade connectors.
- Unmatched quality and flexibility.
- Standards-compliant 1080p solution-compatible with standards-based video without losing features.

Application Features

- 1080p30 HD Individual Transcoding embedded Multisite.
- Collaborate on virtually anything with 5 simultaneous video inputs.
- HD Collaboration with 1080p30 or UXGA (UXGA ready and available with future software).
- Limitless integration possibilities.
- Ideal for telepresence and collaboration studios, boardrooms, auditoriums, education and tele-medicine applications.

Performance Features

- Optimal Definition up to 1080p.
- H.323/SIP up to 6 Mbps point-to-point; up to 10 Mbps total MultiSite bandwidth.
- Connect up to 12 HD sources and 8 microphones directly into the interface.
- Full Duplex Audio with High Quality Stereo Sound.
- Full APIs, see the API Guide for Codec C90.
- Takes advantage of the TANDBERG Total Solution with Management, Transcoded HD MultiSite™, Recording and Streaming, Firewall Traversal.

Integrator package

The integrator package of the TANDBERG Codec C90 comes with the TANDBERG PrecisionHD 1080p camera and two microphones and cables.



Chapter 2

Advanced configuration settings

Description of the advanced configuration settings

In the following pages you will find a complete list of the system settings which are configured from the Advanced configuration menu. Open the Home menu on screen and go to: Settings > Advanced > Advanced configuration. The examples shows either the default value or an example of a value.

The Audio settings

Audio Input HDMI [3, 4] Level

Defines the input level of the selected HDMI input connector in steps of 1dB from -24dB to 0dB.

See the Audio Level tables in the Physical Interfaces Guide for the codec for a complete overview of the menu values represented in dB.

Valuespace: <-24..0>

Range: -24 to 0dB

Example: Audio Input HDMI 3 Level: 0

Audio Input HDMI [3, 4] Mode

Determines whether or not the audio channels on the HDMI input should be enabled. The HDMI input 3 and 4 have two audio channels.

Valuespace: <On/Off>

On: Set to On to enable the audio channels on the selected HDMI input.

Off: Set to On to disable the audio channels on the selected HDMI input.

Example: Audio Input HDMI 3 Mode: On

Audio Input HDMI [3..4] VideoAssociation MuteOnInactiveVideo

Enable association of a video source to a HDMI audio input.

Valuespace: <On/Off>

On: A video source is associated, and the audio will be muted if the associated video source is not displayed.

Off: No video source is associated.

Example: Audio Input HDMI 3 VideoAssociation MuteOnInactiveVideo: Off

Audio Input HDMI [3..4] VideoAssociation VideoInputSource

Select the associated video input source.

Valuespace: <1/2/3/4/5>

Range: Select one of the five video input sources for the selected HDMI input.

Example: Audio Input HDMI 3 VideoAssociation VideoInputSource: 1

The Audio settings, *continued...*

Audio Input Line [1..4] Equalizer ID

Select equalizer ID[1..8].

Valuespace: <1..8>

Range: Select EqualizerID 1 to 8.

Example: Audio Input Line 1 Equalizer ID: 1

Audio Input Line [1..4] Equalizer Mode

Determines whether or not the selected equalizer is enabled.

Valuespace: <On/Off>

On: Use the selected equalizer

Off: No equalizer

Example: Audio Input Line 1 Equalizer Mode: Off

Audio Input Line [1..4] VideoAssociation MuteOnInactiveVideo

Enable association of a video source to a Line audio input.

Valuespace: <On/Off>

On: A video source is associated, and the audio will be muted if the associated video source is not displayed.

Off: No video source is associated.

Example: Audio Input Line 1 VideoAssociation MuteOnInactiveVideo: Off

Audio Input Line [1..4] VideoAssociation VideoInputSource

Select the associated video input source.

Valuespace: <1/2/3/4/5>

Range: Select one of the five video input sources for the Line input.

Example: Audio Input Line 1 VideoAssociation VideoInputSource: 1

Audio Input Line [1..4] Channel

Defines whether the Audio Line input is a mono signal or part of a multichannel signal.

Valuespace: <Left/Right/Mono>

Left: The Audio Line input signal is the left channel of a stereo signal.

Right: The Audio Line input signal is the right channel of a stereo signal.

Mono: The Audio Line input signal is a mono signal.

Example: Audio Input 1 Channel: Left

The Audio settings, *cont...*

Audio Input Line [1..4] Level

Defines the input level of the selected Line input connector in steps of 1dB from 0dB to 24dB.

See the Audio Level tables in the Physical Interfaces Guide for the codec for a complete overview of the menu values represented in dB.

Valuespace: <0..24>

Range: 0 to 24dB

Example: Audio Input Line 1 Level: 10

Audio Input Line [1..4] LoopSuppression

Loop suppression detects whether a delayed signal loop is present from an audio Line output to an audio Line input on the codec. If a loop is detected this unwanted feedback is suppressed.

NOTE! Only loops between line output 3 and line input 3, and between line output 4 and line input 4 are suppressible.

Valuespace: <On/Off>

On: Set to On to activate Loop Suppression.

Off: Set to Off to deactivate Loop Suppression.

Example: Audio Input Line 3 LoopSuppression: On

Audio Input Line [1..4] Mode

Determines whether or not an Audio Line input is enabled.

Valuespace: <On/Off>

On: Set to On to enable the Audio Line input.

Off: Set to Off to disable the Audio Line input.

Example: Audio Input Line 1 Mode: On

Audio Input Microphone [1..8] Equalizer ID

Select equalizer ID[1..8]

Valuespace: <1..8>

Range: Select EqualizerID 1 to 8.

Example: Audio Input Microphone 1 Equalizer ID: 1

The Audio settings, *cont...*

Audio Input Microphone [1..8] Equalizer Mode

Determines whether or not the selected equalizer is enabled.

Valuespace: <On/Off>

On: Use the selected equalizer

Off: No equalizer

Example: Audio Input Microphone 1 Equalizer Mode: Off

Audio Input Microphone [1..8] EchoControl Mode

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.

Valuespace: <On/Off>

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.

Off: Echo Control should be switched Off if external echo cancellation or playback equipment is used.

Example: Audio Input Microphone 1 EchoControl Mode: On

Audio Input Microphone [1..8] EchoControl NoiseReduction

The system has a built-in noise reduction which 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. Requires the Echo Control Mode to be enabled for the selected microphone.

Valuespace: <On/Off>

On: The Noise Reduction should be set to On in the presence of low frequency noise.

Off: Turns Noise Reduction Off for the selected microphone connector.

Example: Audio Input Microphone 1 EchoControl NoiseReduction: On

Audio Input Microphone [1..8] VideoAssociation MuteOnInactiveVideo

Enable association of a video source to the selected microphone connector.

Valuespace: <On/Off>

On: A video source is associated, and the audio will be muted if the associated video source is not displayed.

Off: No video source is associated.

Example: Audio Input Microphone 1 VideoAssociation MuteOnInactiveVideo: On

The Audio settings, *cont...*

Audio Input Microphone [1..8] VideoAssociation VideoInputSource

Select the associated video input source.

Valuespace: <1/2/3/4/5>

Range: Select one of the five video input sources for the microphone connector.

Example: Audio Input Microphone 1 VideoAssociation VideoInputSource: 1

Audio Input Microphone [1..8] Level

Defines the input level of the selected microphone connector in steps of 1dB from 0dB to 24dB.

See the Audio Level tables in the Physical Interfaces Guide for the codec for a complete overview of the menu values represented in dB.

Valuespace: <0..24>

Range: 0 to 24dB

Example: Audio Input Microphone 1 Level: 15

Audio Input Microphone [1..8] Mode

Determines whether or not the selected microphone connector is enabled.

Valuespace: <On/Off>

On: Set to On to enable the microphone connector.

Off: Set to Off to disable the microphone connector.

Example: Audio Input Microphone 1 Mode: On

Audio Input Microphone [1..8] Type

The microphone connectors are intended for electret type microphones. The selected microphone connector can be set to line or microphone mode.

Valuespace: <Microphone/Line>

Microphone: 48 V Phantom voltage and pre-amplification is On

Line: Select Line when you have a standard balanced line input. The phantom voltage and pre-amplification is Off.

Example: Audio Input Microphone 1 Type: Line

The Audio settings, *cont...*

Audio Output HDMI [1, 3] Level

Defines the output level of the selected HDMI output connector in steps of 1dB from -24dB to 0dB.

See the Audio Level tables in the Physical Interfaces Guide for the codec for a complete overview of the menu values represented in dB.

Valuespace: <-24..0>

Range: -24 to 0dB

Example: Audio Output HDMI 1 Level: 0

Audio Output HDMI [1, 3] Mode

Determines whether or not the audio channel on the selected HDMI output connector should be enabled.

Valuespace: <On/Off>

On: Set to On to enable the audio channel on the selected HDMI output.

Off: Set to On to disable the audio channel on the selected HDMI output.

Example: Audio Output HDMI 1 Mode: On

Audio Output Line [1..6] Channel

Defines whether the Audio Line output is a mono signal or part of a multichannel signal.

Valuespace: <Left/Right/Mono>

Left: The Audio Line output signal is the left channel of a stereo signal.

Right: The Audio Line output signal is the right channel of a stereo signal.

Mono: The Audio Line output signal is a mono signal.

Example: Audio Output Line 1 Channel: left

Audio Output Line [1..6] Equalizer ID

Select equalizer ID[1..8]

Valuespace: <1..8>

Range: Select EqualizerID 1 to 8.

Example: Audio Output Line 1 Equalizer ID: 1

Audio Output Line [1..6] Equalizer Mode

Determines whether or not the selected equalizer is enabled.

Valuespace: <On/Off>

On: Use the selected equalizer

Off: No equalizer

Example: Audio Output Line 1 Equalizer Mode: Off

The Audio settings, *cont...*

Audio Output Line [1..6] Level

Defines the output level of the selected Audio Output Line connector in steps of 1dB from -24dB to 0dB. See the Audio Level tables in the Physical Interfaces Guide for the codec for a complete overview of the menu values represented in dB.

Valuespace: <-24..0>

Range: -24 to 0dB

Example: Audio Output Line 1 Level: -10

Audio Output Line [1..6] Mode

Determines whether or not the selected Audio Line output connector is enabled.

Valuespace: <On/Off>

On: Set to On to enable the Audio Line output.

Off: Set to Off to disable the Audio Line output.

Example: Audio Output Line 1 Mode: On

Audio Output Line [1, 3] Type

Determines if the selected Audio Line output connector is an analog or digital type output.

Valuespace: <Auto/SPDIF>

Auto: If a TANDBERG Digital NAM is detected then SPDIF mode will be selected, otherwise analog mode will be selected.

SPDIF: Set to SPDIF when you want the Audio Line 1 or 3 output to be in digital mode.

Example: Audio Output Line 1 Type: Auto

Audio Output Line [2, 4, 5, 6] Type

Line output 2, 4, 5, 6 are dedicated analog outputs, hence type can be set to analog only.

Valuespace: <Analog>

Can be set to analog only.

Example: Audio Output Line 2 Type: Analog

Audio SoundsAndAlerts KeyTones Mode

The system can produce a sound every time a key on the remote control is pressed.

Valuespace: <On/Off>

On: There will be a sound indicator when pressing keys on the remote control.

Off: The remote control Key Tones is switched off.

Example: Audio SoundsAndAlerts KeyTones Mode: Off

The Audio settings, *cont...*

Audio SoundsAndAlerts RingTone

Selects the ring tone for incoming calls.

Valuespace: <Marbles/IceCrystals/Polaris/Alert/Discrete/Fantasy/Jazz/Nordic/Echo/Rhythmic>

Range: Select a tone from the list of ring tones.

Example: Audio SoundsAndAlerts RingTone: Jazz

Audio SoundsAndAlerts RingVolume

Sets the ring tone volume[0-100] for an incoming call in steps of 0.5dB from -34.5dB to 15dB.

Valuespace: <0..100>

Range: Select a value from 0 to 100. Volume 0 = Off.

Example: Audio SoundsAndAlerts RingVolume: 50

Audio Volume

Sets the volume level [0-100] on the loudspeaker output in steps of 0.5dB from -34.5dB to 15dB.

Valuespace: <0..100>

Range: Select a value from 0 to 100. Volume 0 = Off.

Example: Audio Volume: 70

The Camera settings

Cameras PowerLine Frequency

.Applies to cameras supporting PowerLine frequency anti-flickering, i.e PrecisionHD 1080p cameras.

Valuespace: <Auto/50Hz/60Hz>

Auto: Set to Auto to enable power frequency auto detection in the camera.

50Hz/60Hz: Set to 50Hz or 60Hz.

Example: Cameras PowerLine Frequency: Auto

Cameras Camera [1..7] Backlight

Backlight is used to compensate for lights shining directly at the camera (usually the sun entering the window) to avoid a too dark image from the room.

Valuespace: <On/Off>

On: Set to On to turn on the backlight compensation.

Off: Set to Off to turn the backlight compensation off.

Example: Cameras Camera 1 Backlight: Off

Cameras Camera [1..7] Brightness Level

Define the Brightness Level for the selected camera. Requires the Brightness Mode to be set to manual.

Valuespace: <1..31>

Range: Select a value from 1 to 31.

Example: Cameras Camera 1 Brightness Level: 1

Cameras Camera [1..7] Brightness Mode

Adjust the camera brightness.

Valuespace: <Auto/Manual>

Auto: When set to Auto, the camera brightness is automatically set by the system.

Manual: Set to Manual to enable manual control of the camera brightness, e.g. the level of the brightness level setting will be used for the camera.

Example: Cameras Camera 1 Brightness Mode: Auto

The Camera settings, cont...

Cameras Camera [1..7] Flip

With Flip mode (vertical flip) you can flip the image upside down.

Valuespace: <Auto/On/Off>

Auto: When the camera is placed upside down the image is automatically flipped upside down. Use this setting with cameras that can be mounted upside down, and that can auto detect that the camera is mounted upside down.

On: When set to On the video on screen is flipped. This setting is used with cameras that can be mounted upside down, but cannot auto detect that the camera is mounted upside down.

Off: Set to Off to display the video on screen the normal way.

Example: Cameras Camera 1 Flip: Off

Cameras Camera [1..7] Focus Mode

Set the camera focus mode.

Valuespace: <Auto/Manual>

Auto: When set to Auto the focus will be updated throughout the call. When moving the camera, the system will use auto focus for a few seconds to set the right focus of the new camera position. After a few seconds auto focus is turned off to prevent continuous focus adjustments of the camera.

Manual: If set to Manual the focus is adjusted manually.

Example: Cameras Camera 1 Focus Mode: Auto

Cameras Camera [1..7] Gamma Level

By setting the Gamma Level you can select which gamma correction table to use. This setting may be useful in difficult lighting conditions, where changes to the brightness setting does not provide satisfactory results. Requires the Gamma Mode to be set to Manual.

Valuespace: <0..7>

Range: Select a value from 0 to 7.

Example: Cameras Camera 1 Gamma Level: 0

Cameras Camera [1..7] Gamma Mode

Applies to cameras which supports Gamma mode. The Gamma Mode setting enables for gamma corrections. Gamma describes the nonlinear relationship between image pixels and monitor brightness. The TANDBERG PrecisionHD camera supports Gamma Mode. Not supported on The TANDBERG PrecisionHD 1080p camera.

Valuespace: <Auto/Manual>

Auto: Auto is the default and the recommended setting.

Manual: In severe light conditions, you may switch mode to manual and specify explicitly which gamma table to use by setting the Gamma Level.

Example: Cameras Camera 1 Gamma Mode: Auto

The Camera settings, *cont...*

Cameras Camera [1..7] IrSensor

The Camera IR setting determines whether the infrared receiver at the camera should be enabled or not. The IR sensor LED is located in the front of the camera and flickers when the IR sensor is activated from the remote control.

Valuespace: <On/Off>

On: Set to On to enable the IR sensor on the camera.

Off: Set to Off to disable the IR sensor on the camera.

Example: Cameras Camera 1 IrSensor: On

Cameras Camera [1..7] Mirror

With Mirror mode (horizontal flip) you can mirror the image on screen.

Valuespace: <Auto/On/Off>

Auto: When the camera is placed upside down the image is automatically mirrored. Use this setting with cameras that can be mounted upside down, and that can auto detect that the camera is mounted upside down.

On: Set to On to see the selfview in mirror mode, e.g. the selfview is reversed and the experience of selfview is as seeing yourself in a mirror.

Off: Set to Off to see the selfview in normal mode, e.g. the experience of selfview is as seeing yourself as other people see you.

Example: Cameras Camera 1 Mirror: Off

Cameras Camera [1..7] Whitebalance Level

Define the Whitebalance Level for the selected camera. Requires the Whitebalance Mode to be set to manual.

Valuespace: <1..16>

Range: Select a value from 1 to 16.

Example: Cameras Camera 1 Whitebalance Level: 1

Cameras Camera [1..7] Whitebalance Mode

Set the camera whitebalance mode.

Valuespace: <Auto/Manual>

Auto: When set to Auto, the camera will continuously adjust the whitebalance depending on the camera view.

Manual: Set to Manual to enable manual control of the camera whitebalance, e.g. the level of the whitebalance level setting will be used for the camera.

Example: Cameras Camera 1 Whitebalance Mode: auto

The Camera settings, *cont...*

Cameras Camera [1..7] DHCP

Applies to cameras which supports DHCP, i.e the PrecisionHD 1080p cameras. The camera must be connected to a LAN. When set, the command enables support for SW upgrade of daisy chained cameras. It will enable the camera's DHCP function and force start of MAC and IP address retrieval. Remember to reset the DHCP when the camera is no longer connected to a LAN.

Valuespace: <On/Off>

On: Set to On to enable DHCP in the camera. The camera is automatically re-booted. After re-boot the DHCP is started and the IP address will be retrieved. Run the command "xStatus Camera" for result.

Off: Set to Off will disable DHCP in the camera. NOTE: When camera is not connected to a LAN, this setting should be applied.

Example: Cameras Camera 1 DHCP: Off

The Conference settings

Conference [1..1] AutoAnswer Delay

Defines how long (in seconds) an incoming call has to wait before it is answered automatically by the system. Requires the Autoanswer Mode to be enabled.

Valuespace: <0..50>

Range: 0-50 seconds

Example: Conference 1 AutoAnswer Delay: 0

Conference [1..1] AutoAnswer Mode

Set the Autoanswer mode.

Valuespace: <On/Off>

On: The system will automatically answer all incoming calls.

Off: All incoming call must be answered manually by pressing the OK key or the green Call key on the remote control.

Example: Conference 1 AutoAnswer Mode: Off

Conference [1..1] AutoAnswer Mute

The Autoanswer Mute setting determines whether the microphone is muted when an incoming call is automatically answered.

Valuespace: <On/Off>

On: The incoming call will be muted when automatically answered.

Off: The incoming call will not be muted.

Example: Conference 1 AutoAnswer Mute: Off

Conference [1..1] MicUnmuteOnDisconnect

The MicUnmuteOnDisconnect setting determines if the microphones should be automatically unmuted when all calls are disconnected. In a meeting room or other shared resource this could be done to prepare the system for the next user.

Valuespace: <On/Off>

On: Microphones will be unmuted when all calls are disconnected

Off: Microphones will not be unmuted when all calls are disconnected

Example: Conference 1 MicUnmuteOnDisconnect: On

The Conference settings, *cont...*

Conference [1..1] DoNotDisturb Mode

The Do Not Disturb setting determines whether or not there should be an alert on incoming calls.

Valuespace: <On/Off>

On: Set to On when you want no alert to incoming calls. The calling side will receive a busy signal when trying to call the codec.

Off: This is the default setting. The DoNotDisturb is automatically turned Off if the codec receives any IR signal from the handheld remote control.

Example: DoNotDisturb Mode: Off

Conference [1..1] IncomingMultisiteCall Mode

The Incoming Multisite Call setting determines whether or not the system should accept incoming calls to an already active conference.

Valuespace: <Allow/Deny>

Allow: When set to Allow, 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.

Deny: The system will not accept incoming calls when you are in a call. The calling side will receive a busy signal.

Example: Conference 1 IncomingMultisiteCall Mode: Allow

Conference [1..1] FarEndControl Mode

Lets you decide if the remote side (far end) should be allowed to select your video sources and control your local camera (pan, tilt, zoom).

Valuespace: <On/Off>

On: Set to On when you want the far end to be able to select your video sources and control your local camera (pan, tilt, zoom). You will still be able to control your camera and select your video sources as normal.

Off: When set to Off the far end can not access any of the features above on your system.

Example: Conference 1 FarEndControl Mode: On

The Conference settings, *cont...*

Conference [1..1] Encryption Mode

In Point to point calls (BestEffort mode): If the far end system supports encryption (AES-128), the call will be encrypted. If not, the call will proceed without encryption.

In MultiSite calls (BestEffort mode): In order to have encrypted MultiSite conferences, all sites must support encryption. If not, the conference will be unencrypted.

Icons on screen: A padlock with the text "Encryption On" displays on screen, for a few seconds, when the conference starts.

Valuespace: <Off/On/BestEffort>

BestEffort: The system will use encryption whenever possible.

On: The system will only allow calls that are encrypted.

Off: The system will not use encryption.

Example: Conference 1 Encryption Mode: BestEffort

Conference [1..1] DefaultCall Protocol

Specify the Default Call Protocol to be used when placing calls from the system. The call protocol can also be defined directly for each call when setting up a call.

Valuespace: <H323/SIP>

H.323: Select H.323 to ensure that calls are set up as a H.323 calls.

SIP: Select SIP to ensure that calls are set up as a SIP calls.

Example: Conference 1 DefaultCall Protocol: H323

Conference [1..1] DefaultCall Rate

Specify the Default Call Rate to be used when placing calls from the system. The call rate can also be defined directly for each call when setting up a call.

Valuespace: <64..6000>

Range: 64-6000kbps

Example: Conference 1 DefaultCall Rate: 768

Conference [1..1] VideoBandwidth Mode

In "Dynamic" mode the available transmit bandwidth for the video channels is distributed among the currently active channels. This means that the main video channels will use the bandwidth of the presentation channel, if there is no active presentation. In "Static" mode the bandwidth is assigned to each video channel even if it is not active.

Valuespace: <Dynamic/Static>

Dynamic: The available transmit bandwidth for the video channels are distributed among the currently active channels.

Static: The available transmit bandwidth is assigned to each video channel, even if it is not active.

Example: Conference 1 VideoBandwidth Mode: Dynamic

The Conference settings, *cont...*

Conference [1..1] VideoBandwidth MainChannel Weight

The available transmit video bandwidth is distributed on the main channel and presentation channel according to "MainChannel Weight" and "PresentationChannel Weight". If the main channel weight is 2 and the presentation channel weight is 1, then the main channel will use twice as much bandwidth as the presentation channel.

Valuespace: <1..10>

Range: Select a value from 1 to 10.

Example: Conference 1 VideoBandwidth MainChannel Weight: 5

Conference [1..1] VideoBandwidth PresentationChannel Weight

The available transmit video bandwidth is distributed on the main channel and presentation channel according to "MainChannel Weight" and "PresentationChannel Weight". If the main channel weight is 2 and the presentation channel weight is 1, then the main channel will use twice as much bandwidth as the presentation channel.

Valuespace: <1..10>

Range: Select a value from 1 to 10.

Example: Conference 1 VideoBandwidth PresentationChannel Weight: 5

The GPIO settings

GPIO Pin [1..4] Mode

The four GPIO pins can be configured individually. The state can be retrieved by "xStatus GPIO Pin [1..4] State". The default pin state is High (+12V). When activated as output, they are set to 0V. To activate them as input, they must be pulled down to 0V.

Valuespace: <InputNoAction/OutputManualState/OutputInCall/OutputMicrophonesMuted/OutputPresentationOn/OutputAllCallsEncrypted/InputMuteMicrophones>

InputNoAction: The pin state can be set, but no operation is performed.

OutputManualState: The pin state can be set by "xCommand GPIO ManualState Set PinX: <High/Low>" (to +12V or 0V, respectively).

OutputInCall: The pin is activated when in call, deactivated when not in call.

OutputMicrophonesMuted: The pin is activated when microphones are muted, deactivated when not muted.

OutputPresentationOn: The pin is activated when presentation is active, deactivated when presentation is not active.

OutputAllCallsEncrypted: The pin is activated when all calls are encrypted, deactivated when one or more calls are not encrypted.

InputMuteMicrophones: When the pin is activated (0V), the microphones will be muted. When deactivated (+ 12V), the microphones are unmuted.

Example: GPIO Pin 1 Mode: InputNoAction

The H323 settings

H323 Profile [1..1] Authentication LoginName

The system sends the Authentication Login Name and the Authentication Password to a H.323 Gatekeeper for authentication. The authentication is a one way authentication from the codec to the H.323 Gatekeeper, i.e. the system is authenticated to the gatekeeper. If the H.323 Gatekeeper indicates that no authentication is required, the system will still try to register. Requires the H.323 Gatekeeper Authentication Mode to be enabled.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: H323 Profile 1 Authentication LoginName: ""

H323 Profile [1..1] Authentication Password

The system sends the Authentication Login Name and the Authentication Password to a H.323 Gatekeeper for authentication. The authentication is a one way authentication from the codec to the H.323 Gatekeeper, i.e. the system is authenticated to the gatekeeper. If the H.323 Gatekeeper indicates that no authentication is required, the system will still try to register. Requires the H.323 Gatekeeper Authentication Mode to be enabled.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: H323 Profile 1 Authentication Password:

H323 Profile [1..1] Authentication Mode

Set the authentication mode.

Valuespace: <On/Off>

On: If the H.323 Gatekeeper Authentication Mode is set to On and a H.323 Gatekeeper indicates that it requires authentication, the system will try to authenticate itself to the gatekeeper. Requires the Authentication ID and Authentication Password to be defined on both the codec and the Gatekeeper.

Off: If the H.323 Gatekeeper Authentication Mode is set to Off the system will not try to authenticate itself to a H.323 Gatekeeper, but will still try a normal registration.

Example: H323 Profile 1 Authentication Mode: Off

The H323 settings, *cont...*

H323 Profile [1..1] CallSetup Mode

The H.323 Call Setup Mode defines whether to use a Gatekeeper or Direct calling when establishing H323 calls.

NOTE! Direct H.323 calls can be made even though the H.323 Call Setup Mode is set to Gatekeeper.

Valuespace: <Direct/Gatekeeper>

Direct: An IP-address must be used when dialling in order to make the H323 call.

Gatekeeper: The system will use a Gatekeeper to make a H.323 call. When selecting this option the H323 Profile Gatekeeper Address and H323 Profile Gatekeeper Discovery settings must also be configured.

Example: H323 Profile 1 CallSetup Mode: Gatekeeper

H323 Profile [1..1] Gatekeeper Address

Specifies the IP address of the Gatekeeper. Requires the H.323 Call Setup Mode to be set to Gatekeeper and the Gatekeeper Discovery to be set to Manual.

Valuespace: <S: 0, 255>

Format: String with a maximum of 255 characters.

Example: H323 Profile 1 Gatekeeper Address: "10.47.1.58"

H323 Profile [1..1] Gatekeeper Discovery

Determines how the system shall register to a H.323 Gatekeeper.

Valuespace: <Manual/Auto>

Manual: The system will use a specific Gatekeeper identified by the Gatekeeper's IP-address.

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 that the Gatekeeper is in auto discovery mode 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.

Example: H323 Profile 1 Gatekeeper Discovery: Manual

H323 Profile [1..1] H323Alias E164

The H.323 Alias E.164 defines the address of the system, according to the numbering plan implemented in the H.323 Gatekeeper. The E.164 alias is equivalent to a telephone number, sometimes combined with access codes.

Valuespace: <S: 0, 30>

Format: Compact string with a maximum of 30 characters. Valid characters are 0–9, * and #.

Example: H323 Profile 1 H323Alias E164: "90550092"

The H323 settings, *cont...*

H323 Profile [1..1] H323Alias ID

Lets you specify the H.323 Alias ID which is used to address the system on a H.323 Gatekeeper and will be displayed in the call lists. Example: "firstname.surname@company.com", "My H.323 Alias ID"

Valuespace: <S: 0, 49>

Format: String with a maximum of 49 characters

Example: H323 Profile 1 H323Alias ID: "firstname.surname@company.com"

H323 Profile [1..1] PortAllocation

The H.323 Port Allocation setting affects the H.245 port numbers used for H.323 call signalling.

Valuespace: <Dynamic/Static>

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 20999. Once 20999 is reached they restart again at 11000. For RTP and RTCP media data, the system is using UDP ports in the range 2326 to 2487. Each media channel is using two adjacent ports, ie 2330 and 2331 for RTP and RTCP respectively. The ports are automatically selected by the system within the given range. Firewall administrators should not try to deduce which ports are used when, as the allocation schema within the mentioned range may change without any further notice.

Static: When set to Static the ports are given within a static predefined range [5555–6555].

Example: H323 Profile 1 PortAllocation: Dynamic

The Network settings

Network [1..1] Assignment

Defines whether to use DHCP or Static IP assignment.
Changes to this setting requires a restart of the codec.

Valuespace: <Static/DHCP>

Static: The IP Address, Subnet Mask and Default Gateway for the system must be specified in the respective address fields.

DHCP: The system addresses are automatically assigned by the DHCP server.

Example: Network 1 Assignment: DHCP

Network [1..1] DNS Domain Name

DNS Domain Name is the default domain name suffix which is added to unqualified names.

Example: If the DNS Domain Name is "company.com" and the name to lookup is "MyVideoSystem", this will result in the DNS lookup "MyVideoSystem.company.com".

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: Network 1 DNS Domain Name: "company.com"

Network [1..1] DNS Server [1..5] Address

Defines the network addresses for DNS servers. Up to 5 addresses may be specified. If the network addresses are unknown, contact your administrator or Internet Service Provider.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: Network 1 DNS Server 1 Address: ""

Network [1..1] IEEE8021X AnonymousIdentity

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. If set, the anonymous ID will be used for the initial (unencrypted) EAP Identity Request.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: Network 1 IEEE8021X AnonymousIdentity: ""

The Network settings, cont...

Network [1..1] IEEE8021X Eap Md5

Message-Digest algorithm 5. Is a Challenge Handshake Authentication Protocol that relies on a shared secret. MD5 is a Weak security. EAP - Extensible Authentication Protocol. MD5 - Message Digest Algorithm 5.

Valuespace: <On/Off>

On: The EAP-MD5 protocol is enabled. Default mode is On.

Off: The EAP-MD5 protocol is disabled.

Example: Network 1 IEEE8021X Eap Md5: On

Network [1..1] IEEE8021X Eap Peap

Protected Transport Layer Security. Developed by Microsoft, Cisco and RSA Security. Authenticates LAN clients without the need for client certificates. EAP - Extensible Authentication Protocol. PEAP - Protected Extensible Authentication Protocol.

Valuespace: <On/Off>

On: The EAP-PEAP protocol is enabled. Default mode is On.

Off: The EAP-PEAP protocol is disabled.

Example: Network 1 IEEE8021X Eap Peap: On

Network [1..1] IEEE8021X Eap TTLS

Tunneled Transport Layer Security. Developed by Funk Software and Certicom. Usually supported by Agere Systems, Proxim and Avaya. Authenticates LAN clients without the need for client certificates. EAP - Extensible Authentication Protocol. TTLS - Tunneled Transport Layer Security.

Valuespace: <On/Off>

On: The EAP-TTLS protocol is enabled. Default mode is On.

Off: The EAP-TTLS protocol is disabled.

Example: Network 1 IEEE8021X Eap TTLS: On

Network [1..1] IEEE8021X Identity

The 802.1X Identity is the user name needed for 802.1X authentication.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: Network 1 IEEE8021X Identity: ""

The Network settings, *cont...*

Network [1..1] IEEE8021X Mode

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.

Valuespace: <On/Off>

On: The 802.1X authentication is enabled.

Off: The 802.1X authentication is disabled. Default mode is Off.

Example: Network 1 IEEE8021X Mode: Off

Network [1..1] IEEE8021X Password

The 802.1X Password is the password needed for 802.1X authentication.

Valuespace: <S: 0, 32>

Format: String with a maximum of 32 characters.

Example: Network 1 IEEE8021X Password: "****"

Network [1..1] IPv4 Address

Defines the Static IP address for the system. Only applicable if Static IP assignment is chosen.

Valuespace: <S: 0, 64>

Format: Compact string with a maximum of 64 characters.

Example: Network 1 IPv4 Address: "10.47.5.100"

Network [1..1] IPv4 Gateway

Defines the IP default gateway. Only applicable if Static IP assignment is chosen.

Valuespace: <S: 0, 64>

Format: Compact string with a maximum of 64 characters.

Example: Network 1 IPv4 Gateway: "10.47.5.100"

Network [1..1] IPv4 SubnetMask

Defines the IP subnet mask. Only applicable if Static IP assignment is chosen.

Valuespace: <S: 0, 64>

Format: Compact string with a maximum of 64 characters.

Example: Network 1 IPv4 SubnetMask: "255.255.255.0"

The Network settings, *cont...*

Network [1..1] IPv4 QoS Mode

Defines whether IP Diffserv QoS should be used. The QoS (Quality of Service) is a method which handles the priority of audio, video and data in the network. The QoS settings must be supported by the infrastructure. DiffServ (Differentiated Services) is a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying, managing network traffic and providing QoS priorities on modern IP networks.

Valuespace: <Off/Diffserv>

Off: When set to Off no QoS method is used.

Diffserv: Select Diffserv and then go to the Diffserv sub-menus (Audio, Data, Signalling and Video) to configure these settings.

Example: Network 1 IPv4 QoS Mode: diffserv

Network [1..1] IPv4 QoS Diffserv Audio

The DiffServ Audio setting is used to define which priority Audio packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Valuespace: <0..63>

Audio: A recommended value is DiffServ Code Point (DSCP) is AF41, which equals the value 34. If in doubt, contact your network administrator.

Example: Network 1 IPv4 QoS Diffserv Audio: 0

Network [1..1] IPv4 QoS Diffserv Data

The DiffServ Data setting is used to define which priority Data packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Valuespace: <0..63>

Data: A recommended value is DiffServ Code Point (DSCP) AF23, which equals the value 22. If in doubt, contact your network administrator.

Example: Network 1 IPv4 QoS Diffserv Data: 0

The Network settings, *cont...*

Network [1..1] IPv4 QoS Diffserv Signalling

The DiffServ Signalling setting is used to define which priority Signalling packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Valuespace: <0..63>

Signalling: A recommended value is DiffServ Code Point (DSCP) AF31 which equals the value 26. If in doubt, contact your network administrator.

Example: Network 1 IPv4 QoS Diffserv Signalling: 0

Network [1..1] IPv4 QoS Diffserv Video

The DiffServ Video setting is used to define which priority Video packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Valuespace: <0..63>

Video: A recommended value is DiffServ Code Point (DSCP) AF41, which equals the value 34. If in doubt, contact your network administrator.

Example: Network 1 IPv4 QoS Diffserv Video: 0

Network [1..1] MTU

Set the ethernet MTU (Maximum Transmission Unit).

Valuespace: <400..1500>

Range: Select a value from 400 to 1500.

Example: Network 1 MTU: 1500

Network [1..1] Speed

Set the ethernet link speed.

Valuespace: <Auto/10half/10full/100half/100full/1000full>

Auto: Autonegotiate link speed.

10half: Force link to 10Mbps half-duplex.

10full: Force link to 10Mbps full-duplex.

100half: Force link to 100Mbps half-duplex.

100full: Force link to 100Mbps full-duplex.

1000full: Force link to 1Gbps full-duplex.

Example: Network 1 Speed: Auto

The Network settings, *cont...*

Network [1..1] TrafficControl Mode

Configure how video packets transmission speed shall be controlled.

Valuespace: <On/Off>

On: Transmit video packets at maximum 20Mbps. Can be used to smooth out bursts in the outgoing network traffic.

Off: Transmit video packets at link speed.

Example: Network 1 TrafficControl: On

The NetworkServices settings

NetworkServices H323 Mode

Determines whether the system should be able to place and receive H.323 calls.

NOTE! Changes in this setting requires the codec to be restarted.

Valuespace: <On/Off>

On: Set to On to enable the possibility to place and receive H.323 calls.This is the default setting.

Off: Set to Off to disable the possibility to place and receive H.323 calls.

Example: NetworkServices H323 Mode: On

NetworkServices HTTP Mode

HTTP is a web-interface for system management, call management such as call transfer, diagnostics and software uploads.

Valuespace: <On/Off>

On: The HTTP protocol is enabled.

Off: The HTTP protocol is disabled.

Example: NetworkServices HTTP Mode: On

NetworkServices HTTPS Mode

HTTPS is a Web protocol that encrypts and decrypts user page requests as well as the pages that are returned by the Web server.

Valuespace: <On/Off>

On: The HTTPS protocol is enabled.

Off: The HTTPS protocol is disabled.

Example: NetworkServices HTTPS Mode: On

NetworkServices HTTPS VerifyServerCertificate

When the system connects to an external HTTPS server (like a phonebook server or an external manager), this server will present a certificate to the system to identify itself. This setting tells the system if it should verify that the certificate is signed by a trusted Certificate Authority (CA). This requires that list of trusted CA's is uploaded to the system in advance.

Valuespace: <On/Off>

On: Verify server certificates.

Off: Do not verify server certificates.

Example: NetworkServices HTTPS VerifyServerCertificate: Off

The NetworkServices settings, cont...

NetworkServices NTP Address

Enter the NTP Address to define the network time protocol server address. This address will be used if NTP Mode is set to Manual, or if set to Auto and no address is supplied by a DHCP server.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: NetworkServices NTP Address: "1.tandberg.pool.ntp.org"

NetworkServices NTP Mode

The Network Time Protocol (NTP) is used to synchronize the time of the system to a reference time server. The time server will subsequently be queried every 24th hour for time updates. The time will be displayed on the top of the screen. The system will use the time to timestamp messages transmitted to Gatekeepers or Border Controllers requiring H.235 authentication. 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.

Valuespace: <Auto/Manual>

Auto: The system will use the NTP server, by which address is supplied from the DHCP server in the network. If no DHCP server is used, or the DHCP server does not provide the system with a NTP server address, the system will use the static defined NTP server address specified by the user.

Manual: The system will always use the static defined NTP server address specified by the user.

Example: NetworkServices NTP Mode: Manual

NetworkServices SIP Mode

Determines whether the system should be able to place and receive SIP calls.

NOTE! Changes in this setting requires the codec to be restarted.

Valuespace: <On/Off>

On: Set to On to enable the possibility to place and receive SIP calls.This is the default setting.

Off: Set to Off to disable the possibility to place and receive SIP calls.

Example: NetworkServices SIP Mode: On

NetworkServices SNMP CommunityName

Enter the name of the Network Services SNMP Community. 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. The default password is "public". If you have the TANDBERG Management Suite (TMS) you must make sure the same SNMP Community is configured there too. Note! The SNMP Community password is case sensitive.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: NetworkServices SNMP CommunityName: "public"

The NetworkServices settings, *cont...*

NetworkServices SNMP Host [1..3] Address

Enter the address of up to three SNMP Managers. All traps will then be sent to the hosts listed.

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. 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.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: NetworkServices SNMP Host 1 Address: ""

NetworkServices SNMP Mode

SNMP (Simple Network Management Protocol) is used in network management systems to monitor network-attached devices (routers, servers, switches, projectors, etc) for conditions that warrant administrative attention. SNMP exposes management data in the form of variables on the managed systems, which describe the system configuration. These variables can then be queried (set to ReadOnly) and sometimes set (set to ReadWrite) by managing applications.

Valuespace: <Off/ReadOnly/ReadWrite>

Off: Set to Off when you want to disable the SNMP network service.

ReadOnly: Set to ReadOnly when you want to enable the SNMP network service for queries only.

ReadWrite: Set to ReadOnly when you want to enable the SNMP network service for both queries and commands.

Example: NetworkServices SNMP Mode: ReadWrite

NetworkServices SNMP SystemContact

Enter the name of the Network Services SNMP System Contact.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: NetworkServices SNMP SystemContact: ""

NetworkServices SNMP SystemLocation

Enter the name of the Network Services SNMP System Location.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: NetworkServices SNMP SystemLocation: ""

The NetworkServices settings, *cont...*

NetworkServices Telnet Mode

Telnet is a network protocol used on the Internet or local area network (LAN) connections.

Valuespace: <On/Off>

On: The Telnet protocol is enabled.

Off: The Telnet protocol is disabled. This is the default factory setting.

Example: NetworkServices Telnet Mode: Off

The Phonebook settings

Phonebook Server [1..5] ID

Enter a name for the external phonebook.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: Phonebook Server 1 ID: ""

Phonebook Server [1..5] URL

Enter the address (URL) to the external phonebook server.

Valuespace: <S: 0, 255>

Format: String with a maximum of 255 characters.

Example: Phonebook Server 1 URL: "http://tms.company.com/tms/public/external/phonebook/phonebook.asmx"

The Provisioning settings

Provisioning ExternalManager Address

Specifies the IP Address to the External Manager/Management system. If an External Manager address and a path is configured, the system will post an HTTP message to this address when starting up. When receiving this HTTP posting the External Manager (typically a management system) can return configurations/commands to the unit as a result. 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.

Valuespace: <S: 0, 64>

Format: String with a maximum of 64 characters.

Example: Provisioning ExternalManager Address: ""

Provisioning ExternalManager Path

Specifies the path to the External Manager/Management system. If an External Manager address and a path is configured, the system will post an HTTP message to this address when starting up. When receiving this HTTP posting the External Manager (typically a management system) can return configurations/commands to the unit as a result. 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.

Valuespace: <S: 0, 255>

Format: String with a maximum of 255 characters.

Example: Provisioning ExternalManager Path: "tms/public/external/management/SystemManagementService.asmx"

Provisioning ExternalManager Protocol

Determines whether or not to use secure management.

Valuespace: <HTTP/HTTPS>

HTTP: Set to HTTP to disable secure management. Requires HTTP to be enabled in the Network Services HTTP Mode setting.

HTTPS: Set to HTTPS to enable secure management. Requires HTTPS to be enabled in the Network Services HTTPS Mode setting.

Example: Provisioning ExternalManager Protocol: http

Provisioning Mode

Provides the possibility of managing the codec (endpoint) by using an external manager/management system.

Valuespace: <Off/TMS>

Off: The system will not try to register to any management system.

TMS: If set to TMS the system will try to register with a TMS server as described in Provisioning ExternalManager settings. TMS is short for TANDBERG Management System. Contact your TANDBERG representative for more information.

Example: Provisioning Mode: TMS

The SerialPort settings

SerialPort BaudRate

Specify the baud rate on the COM port (data port). The default value is 38400.

Other default parameters for the COM port are: Parity: None Databits: 8 Stopbits: 1 Flow control: None.

Valuespace: <9600/19200/38400/57600/115200>

Range: Select a baud rate from the baud rates listed (bps).

Example: SerialPort BaudRate: 38400

SerialPort LoginRequired

The Serial Login setting determines whether or not there should be a login when connecting to the COM port (data port).

Valuespace: <On/Off>

On: Login is required when connecting to the COM port (data port).

Off: The user can access the COM port (data port) without any login.

Example: SerialPort LoginRequired: On

The SIP settings

SIP Profile [1..1] Authentication [1..1] LoginName

This is the user name part of the credentials used to authenticate towards the SIP proxy.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: SIP Profile 1 Authentication 1 LoginName: ""

SIP Profile [1..1] Authentication [1..1] Password

This is the password part of the credentials used to authenticate towards the SIP proxy.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: SIP Profile 1 Authentication 1 Password:

SIP Profile [1..1] DefaultTransport

Select the transport protocol to be used over the LAN.

Valuespace: <UDP/TCP/TLS/Auto>

UDP: The system will always use UDP as the default transport method.

TCP: The system will always use TCP as the default transport method.

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.

Auto: The system will try to connect using transport protocols in the following order: TLS, TCP, UDP.

Example: SIP Profile 1 DefaultTransport: Auto

SIP Profile [1..1] Outbound

The client initiated connections mechanism for firewall traversal, connection reuse and redundancy. The current version supports <http://tools.ietf.org/html/draft-ietf-sip-outbound-20>.

Valuespace: <On/Off>

On: Set up multiple outbound connections to servers in the Proxy Address list.

Off: Connect to the single proxy configured first in Proxy Address list.

Example: SIP Profile 1 Outbound: Off

The SIP settings, cont...

SIP Profile [1..1] Proxy [1..4] Address

The Proxy Address is the manually configured address for the outbound proxy. 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. If Outbound is enabled, multiple proxies can be addressed.

Valuespace: <S: 0, 255>

Format: Compact string with a maximum of 255 characters.

Example: SIP Profile 1 Proxy 1 Address: ""

SIP Profile [1..1] Proxy [1..4] Discovery

Set the SIP Proxy server discovery to auto or manual.

Valuespace: <Auto/Manual>

Manual: When Manual is selected, the manually configured SIP Proxy address will be used

Auto: When Auto is selected, the SIP Proxy address is obtained using Dynamic Host Configuration Protocol (DHCP).

Example: SIP Profile 1 Proxy 1 Discovery: Manual

SIP Profile [1..1] Type

Enables SIP extensions and special behaviour for a vendor or provider

Valuespace: <Standard/Alcatel/Avaya/Cisco/Microsoft/Nortel/Experimental/Siemens>

Standard: Should be used when registering to standard SIP proxy like OpenSer.

Alcatel: Must be used when registering to a Alcatel-Lucent OmniPCX Enterprise R7 or later.

Avaya: Must be used when registered to a Avaya Communication Manager.

Cisco: Must be used when registering to a Cisco CallManager version 5 or later.

Microsoft: Must be used when registering to a Microsoft LCS or OCS server.

Nortel: Must be used when registering to a Nortel MCS 5100 or MCS 5200 PBX.

Experimental: Can be used if auto is not working Note! This mode is for testing purposes only.

Example: SIP Profile 1 Type: Standard

SIP Profile [1..1] URI

The SIP URI or number is used to address the system. This is the URI that is registered and used by the SIP services to route inbound calls to the system. A Uniform Resource Identifier (URI) is a compact string of characters used to identify or name a resource.

Valuespace: <S: 0, 255>

Format: Compact string with a maximum of 255 characters.

Example: SIP Profile 1 URI: "sip:name@example.com"

The Standby settings

Standby BootAction

Decide what the system is going to do on boot.

Valuespace: <None/Preset1/Preset2/Preset3/Preset4/Preset5/Preset6/Preset7/Preset8/Preset9/Preset10/Preset11/Preset12/Preset13/Preset14/Preset15/RestoreCameraPosition/DefaultCameraPosition>

None: No action.

Preset 1..15: Activate the selected preset.

RestoreCameraPosition: Set the camera to the position it had before the last boot.

DefaultCameraPosition: Set the camera to the factory default position.

Example: Standby BootAction: DefaultCameraPosition

Standby Control

Determine whether the system should go into standby mode or not.

Valuespace: <On/Off>

On: Enter standby mode when the Standby Delay has timed out. Requires the Standby Delay to be set to an appropriate value.

Off: Not entering standby mode.

Example: Standby Control: On

Standby Delay

Define how long (in minutes) the system shall be in idle mode before it goes into standby mode. Requires the Standby Control to be enabled.

Valuespace: <1..480>

Range: 1-480 minutes

Example: Standby Delay: 10

Standby StandbyAction

NEW TC2.1 Decide what the system is going to do when going into standby mode.

Valuespace: <None/PrivacyPosition>

None: No action.

PrivacyPosition: Turns the camera to a sideways position for privacy.

Example: Standby StandbyAction: PrivacyPosition

The Standby settings, *cont...*

Standby WakeupAction

Decide what the system is going to do when leaving standby mode.

Valuespace: <None/Preset1/Preset2/Preset3/Preset4/Preset5/Preset6/Preset7/Preset8/Preset9/Preset10/Preset11/Preset12/Preset13/Preset14/Preset15/RestoreCameraPosition/DefaultCameraPosition>

None: No action.

Preset 1..15: Activate the selected preset.

RestoreCameraPosition: Set the camera to the position it had before entering standby.

DefaultCameraPosition: Set the camera to the factory default position.

Example: Standby WakeupAction: RestoreCameraPosition

The SystemUnit settings

SystemUnit CallLogging Mode

Enables/disables logging of calls received or placed by the system. The call logs may then be viewed via the GUI or using the xHistory command.

Valuespace: <On/Off>

On: Enable logging.

Off: Disable logging.

Example: SystemUnit CallLogging Mode: On

SystemUnit IrSensor Mode

The System Unit IR Sensor setting determines whether the infrared receiver on the codec should be enabled or not. The IR sensor LED is located in the front of the codec and flickers when an ir signal is received from the remote control.

Valuespace: <On/Off/Auto>

On: Set to On to enable the IR sensor on the codec.

Off: Set to Off to disable the IR sensor on the codec.

Auto: The system will automatically disable the IR sensor on the codec if the IR sensor at camera is enabled. Otherwise the IR sensor on the codec will be enabled.

Example: SystemUnit IrSensor Mode: On

SystemUnit MenuLanguage

The setting is used to select the language for the GUI (Graphical User Interface).

Valuespace: <English/Norwegian/Swedish/German/French/Italian/Japanese/Russian/Spanish/Korean/Finnish/ChineseSimplified/ChineseTraditional/PortugueseBrazilian/Turkish/Polish>

Example: SystemUnit MenuLanguage: English

SystemUnit Name

Enter a System Name to define a name of the system unit. If the H.323 Alias ID is configured on the system then this ID will be used instead of the system name. The system name will be displayed:

* When the codec is acting as an SNMP Agent

* Towards a DHCP server

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: SystemUnit Name: "Meeting Room Name"

The Time settings

Time DateFormat

Specifies the date format.

Valuespace: <DD_MM_YY/MM_DD_YY/YY_MM_DD>

DD_MM_YY: The date January 30th 2009 will be displayed: 30.01.09

MM_DD_YY: The date January 30th 2009 will be displayed: 01.30.09

YY_MM_DD: The date January 30th 2009 will be displayed: 09.01.30

Example: Time DateFormat: DD _ MM _ YY

Time TimeFormat

Specifies the time format.

Valuespace: <24H/12H>

24H: Set the time format to 24 hours.

12H: Set the time format to 12 hours (AM/PM).

Example: Time TimeFormat: 24H

The Time settings, *cont...***Time Zone**

Specifies the time zone where the system is located, using Windows time zone description format.

Valuespace: <GMT-12:00 (International Date Line West)/GMT-11:00 (Midway Island, Samoa)/GMT-10:00 (Hawaii)/GMT-09:00 (Alaska)/GMT-08:00 (Pacific Time (US & Canada) Tijuana)/GMT-07:00 (Arizona)/GMT-07:00 (Mountain Time (US & Canada))/GMT-07:00 (Chihuahua, La Paz, Mazatlan)/GMT-06:00 (Central America)/GMT-06:00 (Saskatchewan)/GMT-06:00 (Guadalajara, Mexico City, Monterrey)/GMT-06:00 (Central Time (US & Canada))/GMT-05:00 (Indiana (East))/GMT-05:00 (Bogota, Lima, Quito)/GMT-05:00 (Eastern Time (US & Canada))/GMT-04:30 (Caracas)/GMT-04:00 (La Paz)/GMT-04:00 (Santiago)/GMT-04:00 (Atlantic Time (Canada))/GMT-03:30 (Newfoundland)/GMT-03:00 (Buenos Aires, Georgetown)/GMT-03:00 (Greenland)/GMT-03:00 (Brasilia)/GMT-02:00 (Mid-Atlantic)/GMT-01:00 (Cape Verde Is.)/GMT-01:00 (Azores)/GMT (Casablanca, Monrovia)/GMT (Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London)/GMT+01:00 (West Central Africa)/GMT+01:00 (Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna)/GMT+01:00 (Brussels, Copenhagen, Madrid, Paris)/GMT+01:00 (Sarajevo, Skopje, Warsaw, Zagreb)/GMT+01:00 (Belgrade, Bratislava, Budapest, Ljubljana, Prague)/GMT+02:00 (Harare, Pretoria)/GMT+02:00 (Jerusalem)/GMT+02:00 (Athens, Istanbul, Minsk)/GMT+02:00 (Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius)/GMT+02:00 (Cairo)/GMT+02:00 (Bucharest)/GMT+03:00 (Nairobi)/GMT+03:00 (Kuwait, Riyadh)/GMT+03:00 (Moscow, St. Petersburg, Volgograd)/GMT+03:00 (Baghdad)/GMT+03:30 (Tehran)/GMT+04:00 (Abu Dhabi, Muscat)/GMT+04:00 (Baku, Tbilisi, Yerevan)/GMT+04:30 (Kabul)/GMT+05:00 (Islamabad, Karachi, Tashkent)/GMT+05:00 (Ekaterinburg)/GMT+05:30 (Chennai, Kolkata, Mumbai, New Delhi)/GMT+05:45 (Kathmandu)/GMT+06:00 (Sri Jayawardenepura)/GMT+06:00 (Astana, Dhaka)/GMT+06:00 (Almaty, Novosibirsk)/GMT+06:30 (Rangoon)/GMT+07:00 (Bangkok, Hanoi, Jakarta)/GMT+07:00 (Krasnoyarsk)/GMT+08:00 (Perth)/GMT+08:00 (Taipei)/GMT+08:00 (Kuala Lumpur, Singapore)/GMT+08:00 (Beijing, Chongqing, Hong Kong, Urumqi)/GMT+08:00 (Irkutsk, Ulaan Bataar)/GMT+09:00 (Osaka, Sapporo, Tokyo)/GMT+09:00 (Seoul)/GMT+09:00 (Yakutsk)/GMT+09:30 (Darwin)/GMT+09:30 (Adelaide)/GMT+10:00 (Guam, Port Moresby)/GMT+10:00 (Brisbane)/GMT+10:00 (Vladivostok)/GMT+10:00 (Hobart)/GMT+10:00 (Canberra, Melbourne, Sydney)/GMT+11:00 (Magadan, Solomon Is., New Caledonia)/GMT+12:00 (Fiji, Kamchatka, Marshall Is.)/GMT+12:00 (Auckland, Wellington)/GMT+13:00 (Nuku alofa)>

Example: Time Zone: "GMT (Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London)"

The Video settings

Video DefaultPresentationSource

Define which video input source shall be used as the default presentation source (e.g. when you press the Presentation key on the remote control). The input source is configured to a video input connector. See the Video Input Matrix table at the back of the codec and the description of the Video Input Matrix in the Interfaces section.

Valuespace: <1..5>

Range: Select one of the five presentation sources

Example: Video DefaultPresentationSource: 3

Video Input DVI [3, 5] Type

The official DVI standard supports both digital and analog signals. In most cases the default AutoDetect setting can detect whether the signal is analog RGB or digital. However, in some rare cases when DVI-I cables are used (these cables can carry both the analog and digital signals) this detection might fail. This setting makes it possible to override the AutoDetect and select the correct DVI video input. This setting should also be used if the video input is an analog component (YPbPr) type signal. This is used by some cameras (Sony EVI-HD1) and DVD/Blu-ray players. Since it is not possible to auto detect the difference between AnalogRGB and AnalogYPbPr, the Analog YPbPr setting has to be selected.

Valuespace: <AutoDetect/Digital/AnalogRGB/AnalogYPbPr>

AutoDetect: Set to AutoDetect to automatically detect if the signal is analog RGB or digital.

Digital: Set to Digital to force the DVI video input to Digital when using DVI-I cables with both analog and digital pins and AutoDetect fails.

AnalogRGB: Set to AnalogRGB to force the DVI video input to AnalogRGB when using DVI-I cables with both analog and digital pins and AutoDetect fails.

AnalogYPbPr: Set to AnalogYPbPr to force the DVI video input to AnalogYPbPr, as the component (YPbPr) signal cannot be auto detected.

Example: Video Input DVI 3 Type: AutoDetect

Video Input Source [1..5] CameraControl CameraId

Select the ID of the camera in the Visca chain that is connected to this camera source. The CameraId setting represents the camera's position in the Visca chain.

Cascaded cameras and Visca commands are described in the PrecisionHD 1080p User Guide. The user guide is found at www.tandberg.com/docs

Valuespace: <1..5>

Example: Video Input Source 1 CameraControl CameraId: 1

The Video settings, *cont...*

Video Input Source [1..5] CameraControl Mode

Determines whether or not the camera control should be enabled for the selected video input source.

Valuespace: <On/Off>

On: Set to On to enable camera control for the camera connected to the selected video input connector.

Off: Set to Off to disable camera control for the camera connected to the selected video input connector.

Example: Video Input Source 1 CameraControl Mode: On

Video Input Source [1] Connector

Select which video input connector to be active on connector group 1. The available options for Source 1 are listed below.

Valuespace: <HDMI/HDSDI/YPbPr>

HDMI: Select HDMI when you want to use the HDMI 1 connector as input.

HDSDI: Select HD-SDI when you want to use the HD-SDI 1 connector as input.

YPbPr: Select YPbPr when you want to use the Y-Pb-Pr (Component) 1 connectors as input.

Example: Video Input Source 1 Connector: HDMI

Video Input Source [2] Connector

Select which video input connector to be active on connector group 2. The available options for Source 2 are listed below.

Valuespace: <HDMI/HDSDI/YPbPr>

HDMI: Select HDMI when you want to use the HDMI 2 connector as input.

HDSDI: Select HD-SDI when you want to use the HD-SDI 2 connector as input.

YPbPr: Select YPbPr when you want to use the Y-Pb-Pr (Component) 2 connectors as input.

Example: Video Input Source 2 Connector: HDMI

Video Input Source [3] Connector

Select which video input connector to be active on connector group 3. The available options for Source 3 are listed below.

Valuespace: <HDMI/HDSDI/DVI>

DVI: Select DVI-I when you want to use the DVI-I 3 connector as input.

HDMI: Select HDMI when you want to use the HDMI 3 connector as input.

HDSDI: Select HD-SDI when you want to use the HD-SDI 3 connector as input.

Example: Video Input Source 3 Connector: DVI

The Video settings, *cont...*

Video Input Source [4] Connector

Select which video input connector to be active on connector group 4. The available options for Source 4 are listed below.

Valuespace: <HDMI/HDSDI>

HDMI: Select HDMI when you want to use the HDMI 4 connector as input.

HDSDI: Select HD-SDI when you want to use the HD-SDI 4 connector as input.

Example: Video Input Source 4 Connector: HDMI

Video Input Source [5] Connector

Select which video input connector to be active on connector group 5. The available options for Source 5 are listed below.

Valuespace: <YC/Composite/DVI>

DVI: Select DVI-I when you want to use the DVI-I 5 connector as input.

YC: Select YC when you want to use the S-Video (YC) input. Connect the S-Video input to the connector marked as Y/Comp and C.

Composite: Select Comp when you want to use the Composite input. Connect the Composite input to the connector marked as Y/Comp.

Example: Video Input Source 5 Connector: DVI

Video Input Source [1..5] Name

Customizable name of the connector group. Enter the name of the video input source 1-5.

Valuespace: <S: 0, 50>

Format: String with a maximum of 50 characters.

Example: Video Input Source 1 Name: ""

The Video settings, *cont...*

Video Input Source [1..5] OptimalDefinition Profile

The system will automatically choose what resolution and framerate to transmit based on input resolution/framerate, available bandwidth and whether this source is configured for motion or sharpness. For motion sources, this setting can be used to adjust how rapidly the system should increase the transmitted resolution when increasing bandwidth. For instance, if the source is a camera input is 1920x1080p60, the system will transmit 1920x720p60 at about 2.2Mb/sec and above with this setting set to normal, but will transmit 1920x720p60 at about 1.1Mb/sec and above with this setting set to high. In general you could choose medium or high if you have good quality video inputs and good lighting conditions, while normal would give a good experience in most conditions, including not optimal lighting.

Valuespace: <Normal/Medium/High>

See *Table 1*: Optimal definition for systems supporting 1080p and *Table 2*: Optimal definition for systems supporting 720p60.

Example: Video Input Source 1 OptimalDefinition Profile: Normal

Table 1: Optimal definition, for systems supporting 1080p

	w288p30	w448p30	w576p30	720p30	1080p30
Normal	256kbit/s	512 kbit/s	768 kbit/s	1152 kbit/s	2560 kbit/s
Medium	128kbit/s	384 kbit/s	512 kbit/s	768 kbit/s	1920 kbit/s
High	128kbit/s	256 kbit/s	512 kbit/s	768 kbit/s	1472 kbit/s

Table 2: Optimal definition, for systems supporting 720p60

	w144p60	w288p60	w448p60	w576p60	720p60
Normal	128kbit/s	512 kbit/s	1152 kbit/s	1472 kbit/s	2240 kbit/s
Medium	128kbit/s	384 kbit/s	768 kbit/s	1152 kbit/s	1472 kbit/s
High	128kbit/s	256 kbit/s	512 kbit/s	768 kbit/s	1152 kbit/s

The Video settings, *cont...*

Video Input Source [1..5] OptimalDefinition Threshold60fps

For each video input, this setting tells the system the lowest resolution where it should transmit 60fps. So for all resolutions lower than this, the maximum transmitted framerate would be 30fps, while above this resolution 60fps would also be possible, if the available bandwidth is adequate.

Valuespace: <512_288/768_448/1024_576/1280_720/Never>

512_288: Set the threshold to 512x288.

768_448: Set the threshold to 768x448.

1024_576: Set the threshold to 1024x576.

1280_720: Set the threshold to 1280x720.

Never: Do not set a threshold for transmitting 60fps.

Example: Video Input Source 1 OptimalDefinition Threshold60fps: 1280_720

Video Input Source [1..5] Quality

When encoding and transmitting video there will be a tradeoff between high resolution and high framerate. For some video sources it is more important to transmit high framerate than high resolution and vice versa. The Quality setting specifies whether to give priority to high frame rate or to high resolution for a given source.

Valuespace: <Motion/Sharpness>

Motion: Gives the highest possible framerate. 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.

Sharpness: Gives the highest possible resolution. Used when you want the highest quality of detailed images and graphics.

Example: Video Input Source 1 Quality: Motion

Video Layout ScaleToFrame

Defines what to do if the aspect ratio of a video input source doesn't match the aspect ratio of the corresponding image frame in a composition. For example if you have a 4:3 input source (like XGA) to be displayed on a 16:9 output (like HD720).

Valuespace: <Manual/MaintainAspectRatio/StretchToFit>

Manual: If the difference in aspect ratio between the video input source and the target image frame is less than the ScaleToFrameThreshold configuration (in percent), the image is stretched to fit. Unless the system will maintain the original aspect ratio.

MaintainAspectRatio: Will maintain the aspect ratio of the input source, and fill in black in the rest of the frame (letter boxing or pillar boxing).

StretchToFit: Will stretch (horizontally or vertically) the input source to fit into the image frame.

Example: Video Layout ScaleToFrame: MaintainAspectRatio

The Video settings, *cont...*

Video Layout ScaleToFrameTreshold

Only applicable if the ScaleToFrame configuration is set to manual. If the difference in aspect ratio between the video input source and the target image frame is less than the ScaleToFrameThreshold configuration (in percent), the image is stretched to fit. Unless the system will maintain the original aspect ratio.

Valuespace: <0..100>

Range: Select a value from 0 to 100 percent.

Example: Video Layout ScaleToFrameTreshold: 5

Video Layout Scaling

Defines whether the system should automatically adjust aspect ratio for images or frames when it differs between the image and the frame it is to be placed in.

Valuespace: <On/Off>

On: Let the system automatically adjust aspect ratio.

Off: Do not do any aspect ratio changes automatically.

Example: Video Layout Scaling: On

Video MainVideoSource

Define which video input source shall be used as the main video source. The input source is configured to a video input connector. See the Video Input Matrix table at the back of the codec and the description of the Video Input Matrix in the Interfaces section.

Valuespace: <1..5>

Range: Select one of the five video sources

Example: Video MainVideoSource: 1

Video Monitors

The codec can be used with more than one monitor and this setting lets you set the codec's monitor layout mode to single, dual, presentation only on the dual monitor, or quadruple.

Valuespace: <Single/Dual/DualPresentationOnly/Quadruple>

Single: The same layout is shown on all monitors.

Dual: The layout is distributed on two monitors.

DualPresentationOnly: All participants in the call will be shown on the first monitr, while the presentation (if any) will be shown on the second monitor.

Quadruple: The layout is distributed on four monitors, so that each remote participant and the presentation will be shown on separate monitors

Example: Video Monitors: Single

The Video settings, *cont...*

Video OSD InputMethod InputLanguage

The codec can be enabled for Cyrillic input characters in the GUI (Graphical User Interface). NOTE: Requires that Video OSD inputMethod Cyrillic is set to On.

Valuespace: <Latin/Cyrillic>

Latin: Latin characters can be entered when using the remote control (default setting).

Cyrillic characters can be entered using the remote control. NOTE: Requires a TANDBERG Remote Control TRC5 with Cyrillic fonts.

Example: Video OSD InputMethod InputLanguage: Latin

Video OSD InputMethod Cyrillic

This configuration is used to hide or show the Cyrillic mode as menu input language in the GUI (Graphical User Interface).

Valuespace: <On/Off>

On: Cyrillic mode is available as a menu input language in the GUI. This will enable the setting Video OSD InputMethod InputLanguage.

Off: Cyrillic mode is NOT available as a menu input language in the GUI.

Example: Video OSD InputMethod Cyrillic: Off

Video OSD Mode

The Video OSD (On Screen Display) Mode lets you define whether or not information and icons on screen should be displayed.

Valuespace: <On/Off>

On: Set to On to display the on screen menus, icons and indicators.

Off: Set to Off to hide the on screen menus, icons and indicators.

Example: Video OSD Mode: On

Video OSD Output

The Video OSD (On Screen Display) Output lets you define which monitor should display the on screen menus, information and icons. By default the OSD output is displayed on the first monitor.

If you have a single monitor and you cannot see any OSD on the monitor: If the OSD output has been set to the second monitor and the second monitor is not connected, then you cannot see any menus, information or icons on the screen. To move the OSD output to the first monitor press the following shortcut sequence on the remote control. Press the Disconnect key followed by: * # * # 0 x # (where x is output 1 to 4).

Valuespace: <1..4>

Range: Select 1 for HDMI 1 output, select 2 for DVI-I 2 output, select 3 for HDMI 3 output, or select 4 for DVI-I 4 output.

Example: Video OSD Output: 1

The Video settings, *cont...*

Video OSD TodaysBookings

This setting can be used to display the systems bookings for today on the main OSD menu. This requires that the system is bookable by an external booking system, like TMS (TANDBERG Management Suite).

Valuespace: <On/Off>

On: Displays information about this systems bookings on screen.

Off: Do not display todays bookings.

Example: Video OSD TodaysBookings: Off

Video Output HDMI [1, 3] MonitorRole

The monitor role describes what video stream will be shown on the monitor connected to the output connector. Applicable only if the monitor configuration is set to dual or quadruple.

Valuespace: <First/Second/PresentationOnly/Third/Fourth>

First: Show main video stream.

Second: Show presentation video stream if active, or other participants.

PresentationOnly: Show presentation video stream if active, and nothing else.

Third: Use for remote participants (only for quadruple monitor setup).

Fourth: Use for remote participants (only for quadruple monitor setup).

Example: Video Output HDMI 1 MonitorRole: First

Video Output HDMI [1, 3] OverscanLevel

Some TV's or other monitors may not display the whole image sent out on the systems video output, but cuts the outer parts of the image. In this case this setting can be used to let the system not use the outer parts of video resolution. Both the video and the OSD menu will be scaled in this case.

Valuespace: <Medium/High/None>

Medium: The system will not use the outer 3% of the output resolution.

High: The system will not use the outer 6% of the output resolution

None: The system will use all of the output resolution.

Example: Video Output HDMI 1 OverscanLevel: None

The Video settings, *cont...*

Video Output HDMI [1, 3] Resolution

Select the preferred resolution for the monitor connected to HDMI video output. This will force the selected resolution on the monitor.

Valuespace: <Auto/640_480_60/800_600_60/1024_768_60/1280_1024_60/1280_720_60/1920_1080_60/1280_768_60/1360_768_60/1366_768_60/1600_1200_60/1920_1200_60>

Auto: The system will automatically try to set the optimal resolution based on negotiation with the connected monitor.

Range: 640x480@60p, 800x600@60p, 1024x768@60p, 1280x1024@60p, 1280x720@60p, 1920x1080@60p, 1280x768@60p, 1360x768@60p, 1366x768@60p, 1600x1200@60p, 1920x1200@60p

Example: Video Output HDMI 1 Resolution: 1920 _ 1080 _ 60

Video Output DVI [2, 4] MonitorRole

The monitor role describes what video stream will be shown on the monitor connected to the output connector. Applicable only if the monitor configuration is set to dual or quadruple.

Valuespace: <First/Second/PresentationOnly/Third/Fourth>

First: Show main video stream.

Second: Show presentation video stream if active, or other participants.

PresentationOnly: Show presentation video stream if active, and nothing else.

Third: Use for remote participants (only for quadruple monitor setup).

Fourth: Use for remote participants (only for quadruple monitor setup).

Example: Video Output DVI 4 MonitorRole: First

Video Output DVI [2, 4] OverscanLevel

Some TV's or other monitors may not display the whole image sent out on the systems video output, but cuts the outer parts of the image. In this case this setting can be used to let the system not use the outer parts of video resolution. Both the video and the OSD menu will be scaled in this case.

Valuespace: <Medium/High/None>

Medium: The system will not use the outer 3% of the output resolution.

High: The system will not use the outer 6% of the output resolution

None: The system will use all of the output resolution.

Example: Video Output DVI 2 OverscanLevel: None

The Video settings, *cont...*

Video Output DVI [2, 4] Resolution

Select the preferred resolution for the monitor connected to video output DVI-I 2 or 4. This will force the selected resolution on the monitor.

Valuespace: <Auto/640_480_60/800_600_60/1024_768_60/1280_1024_60/1280_720_60/1920_1080_60/1280_768_60/1360_768_60/1366_768_60/1600_1200_60/1920_1200_60>

Auto: The system will automatically try to set the optimal resolution based on negotiation with the connected monitor.

Range: 640x480@60p, 800x600@60p, 1024x768@60p, 1280x1024@60p, 1280x720@60p, 1920x1080@60p, 1280x768@60p, 1360x768@60p, 1366x768@60p, 1600x1200@60p, 1920x1200@60p

Example: Video Output DVI 2 Resolution: 1920_1080_60

Video Output Composite [5] MonitorRole

The monitor role describes what video stream will be shown on the monitor connected to the output connector. Applicable only if the monitor configuration is set to dual or quadruple.

Valuespace: <First/Second/PresentationOnly/Third/Fourth>

First: Show main video stream.

Second: Show presentation video stream if active, or other participants.

PresentationOnly: Show presentation video stream if active, and nothing else.

Third: Use for remote participants (only for quadruple monitor setup).

Fourth: Use for remote participants (only for quadruple monitor setup).

Example: Video Output Composite 5 MonitorRole: First

Video Output Composite [5] OverscanLevel

Some TV's or other monitors may not display the whole image sent out on the systems video output, but cuts the outer parts of the image. In this case this setting can be used to let the system not use the outer parts of video resolution. Both the video and the OSD menu will be scaled in this case.

Valuespace: <Medium/High/None>

Medium: The system will not use the outer 3% of the output resolution.

High: The system will not use the outer 6% of the output resolution

None: The system will use all of the output resolution.

Example: Video Output Composite 5 OverscanLevel: None

The Video settings, *cont...*

Video Output Composite [5] Resolution

Select the preferred resolution for the monitor connected to video output composite 1. This will force the selected resolution on the monitor.

Valuespace: <PAL/NTSC>

Range: Select PAL or NTSC resolution.

Example: Video Output Composite 5 Resolution: NTSC

Video Selfview

The Video Selfview setting determines whether or not the main video source (selfview) should be displayed on screen.

Valuespace: <On/Off>

On: Set to On when you want selfview to be displayed on screen.

Off: Set to Off when you do not want selfview to be displayed on screen.

Example: Video Selfview: On

Video Wallpaper

The Video Wallpaper setting determines whether or not a background picture should be displayed on screen when idle.

Valuespace: <None/Growing/Summersky/Custom>

None: Set to None if you do not want a wallpaper to be displayed on screen.

Summersky, Growing: Select the wallpaper to be displayed on screen.

Custom: The custom wallpaper is uploaded from the web interface. Open a web browser and enter the IP address of the codec. Select "Wallpaper" from the menu on top of the screen. Browse for the file and press the "Upload" button. Toggle once between "None" and "Custom" wallpaper to make the change take effect. See the Appendices section for further details about the web interface.

Example: Video Wallpaper: Summersky

The Experimental menu

The Advanced configurations menu has an option called Experimental. The settings within this menu can be used 'as is' and will not be further documented. **NOTE!** The Experimental menu WILL change.

Experimental Audio Input Microphone [1..8] Channel

The Experimental settings can be used 'as is'. NOTE: The Experimental settings WILL change.

Defines whether the microphone signal is a mono signal or part of a multichannel signal.

Valuespace: <Left/Right/Mono>

Left: The microphone signal is the left channel of a stereo signal.

Right: The microphone signal is the right channel of a stereo signal.

Mono: The microphone signal is a mono signal.

Example: Experimental Audio Input Microphone 1 Channel: Mono

Experimental Audio Input Microphone [1..8] EchoControl HighPassFilter

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <On/Off>

Example: Experimental Audio Input Microphone 1 EchoControl HighPassFilter: Off

Experimental AudioTracking Camera [1..7] Mode

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <On/Off>

Example: Experimental AudioTracking Camera 1 Mode: Off

Experimental CapsetFilter

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <S: 0, 32>

Example: Experimental CapsetFilter: ""

Experimental Conference [1..1] PacketLossResilience

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <On/Off>

Example: Experimental Conference 1 PacketLossResilience: Off

The Experimental menu, *cont...*

Experimental CustomSoftbuttons State [1..2] Softbutton [1..5] Type

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <NotSet/MainSource/PresentationSource/CameraPreset/Actions/SpeedDial>

Example: Experimental CustomSoftbuttons State 1 Softbutton 1 Type: NotSet

Experimental CustomSoftbuttons State [1..2] Softbutton [1..5] Value

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <S: 0, 255>

Example: Experimental CustomSoftbuttons State 1 Softbutton 1 Value: ""

Experimental SoftwareUpgrade Mode

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change..

Valuespace: <Auto/Manual>

Example: Experimental SoftwareUpgrade Mode: Auto

Experimental SoftwareUpgrade ServerAddress

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <S: 0, 255>

Example: Experimental SoftwareUpgrade ServerAddress: "http://csupdate.tandberg.com/getswlist.py"

Experimental SystemUnit Controller Address

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <S: 0, 255>

Example: Experimental SystemUnit Controller Address: ""

Experimental UserInterfaces OSD PhonebookMerged

The Experimental settings can be used 'as is' and will not be further documented. NOTE: The Experimental settings WILL change.

Valuespace: <On/Off>

Example: Experimental UserInterfaces OSD PhonebookMerged: Off

Chapter 3

Password protection

Password protection

The system can be password protected in three ways:

- The **Advanced menu** can be password protected with a menu password.
- The **Codec** can be password protected with an administrator password.
- The **Web interface** is password protected with the same administrator password as for the codec. **NOTE!** Requires a reboot of the codec.

NOTE! When a new password has been defined make sure you save a copy of the password in a safe place. Contact your TANDBERG representative if you have forgotten the password.

Setting the codec administrator password

To define the administrator password on the codec:

1. Connect to the codec through the network or the serial data port, using a command line interface (ssh, telnet or scp)
2. Log in to the codec with user name (admin) and no password.
3. Run the following API command and enter a password:

```
xCommand SystemUnit AdminPassword Set
Password: "*****"
```
4. The password format is a string with 0–255 characters.
5. **Reboot** the codec.

Password protection of the web interface

The web interface is password protected with the same user name and password as defined for the codec.

NOTE! To activate the administrator password on the web interface, after having defined or changed the administrator password, a reboot of the codec is required. Without a reboot the administrator password will only apply when you log in to the codec.

Log in to the codec or the web interface

- You can log in to the codec with the user name and password, either from a web interface or from a command line interface. You will need to enter both the user name and password.
- The user name is **admin**, and cannot be changed.

How to deactivate the administrator password

1. Connect to the codec through the network, using a command line interface (ssh, telnet or scp).
2. Login to the codec with the required user name (admin) and password.
3. Run the following API command with a blank password:

```
xCommand SystemUnit AdminPassword Set
Password: ""
```
4. **Reboot** the codec.

Setting the menu password

To define a password for the Advanced menus:

1. In the on-screen menu, go to **Home > Settings > Advanced > Set menu password**.
2. The password is a string with 0–255 characters.
3. Enter the new password in the **Set password** menu
4. Press **Save**.

Log in to the Advanced menu

When a password is set, the password is required to get access to the Advanced menu on screen.

How to change the menu password

1. To change the password, go to **Home > Settings > Advanced > Set menu password**.
2. Enter the new password in the **Set password** menu
3. Press **Save**.

How to deactivate the menu password

1. To deactivate the password, go to **Home > Settings > Advanced > Set menu password**.
2. Leave the input field empty in the **Set password** menu.
3. Press **Save** to save the blank password. This will deactivate the menu password.

Chapter 4

About monitors

About monitors when you have a Codec C90

The main monitor

The main monitor can be connected to any of the video outputs HDMI 1 (the default connector for the main monitor) HDMI 3 (the default connector for the dual monitor), DVI-I 2 or DVI-I 4.

Connecting to HDMI 1

The HDMI 1 output is, by default, defined as the main monitor connector. When you connect the main monitor to this output the menu and icons (OSD - on screen display) will show on this monitor.

Connecting to DVI-I 2, DVI-I 4, HDMI 3

When connecting the main monitor to the DVI-I 2, DVI-I 4 or HDMI 3 output, you must move the OSD to this output.

If you cannot see any menu on screen you must run a key sequence on the remote control. The menu on screen, icons and other information (OSD - on screen display) will be moved to the selected output. At the same time, the resolution will be set to the default value, which is 1024x768@60Hz for DVI and 1280x720@60Hz for HDMI.

Moving the OSD using the remote control

If the main monitor is connected to DVI-I 2 video output you must run the following shortcut or key sequence on the remote control.

- **Disconnect * # * # 0 x #** x=1 (HDMI 1); x=2 (DVI-I 2); x=3 (HDMI 3); x=4 (DVI-I 4)

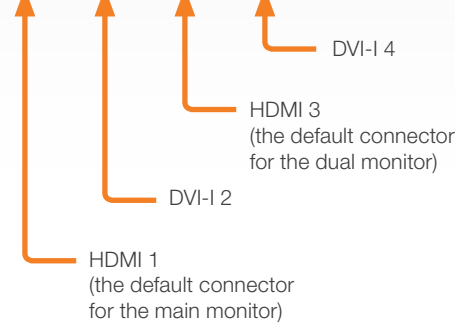
Example: Set DVI-I 2 as the OSD output.

 - * - # - * - # - 0 - 2 - #

Moving the OSD using API commands

You can also set the resolution and the OSD output by setting up a serial port connection and running API commands. See the API Guide for the codec for information about API commands.

The video outputs at Codec C90



Dual monitors

When you want to run a dual monitor setup, connect the second monitor to video output HDMI 3 on the codec.

Dual monitor configuration

Go to Advanced settings to set the monitor to dual:

1. Navigate to Settings > Advanced > Advanced settings > Video > Output > Monitor and set the **Monitor** to **Dual**.

Chapter 5

Audio matters

Dynamic audio API

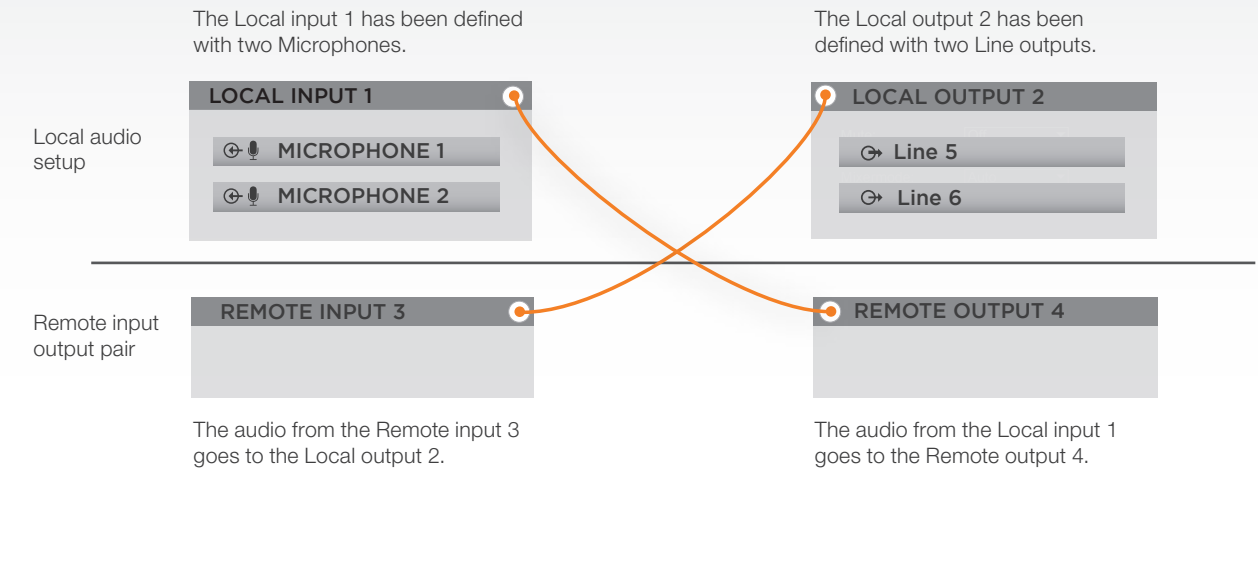
With a set of xCommand Audio API commands, the audio system is fully configurable:

- A local input is defined as a mix of input connectors. A local input can be created and deleted. You can add and remove input connectors and update the local input settings.
- A local output is a mix of local input and remote input signals. All connectors attached to a local output receive the same signal.
- A remote input and remote output pair is created for each call.
- A remote output receives the signals from all local and remote inputs, except the remote input from the same site.
- The mixer matrix of each local and remote output can easily be managed by disconnecting and connecting local and remote inputs.

Example 1:

The dynamic audio API offers a great flexibility when configuring the system and it is simple to use. To have audio in your calls you only need one local input with a microphone attached to it, and one local output with an output connector attached to it.

When the call is established a remote input and remote output pair are created and all the connections to these from the local audio system are set up automatically.



The equalizer

The system has 8 user defined equalizers, each made up of 6 second order IIR sections, see the illustration below. Each of these 8 equalizers can be applied to one or more of the audio input and output connectors on the codec.

The Audio Console application

We recommend using the Audio Console, with the build in equalizer GUI, to modify the equalizers. The Audio Console application is found at the TANDBERG Developer Zone web page.

Go to: ► <http://developer.tandberg.com/web/guest/tools/integrators/audio-console>

The equalizer filter parameters

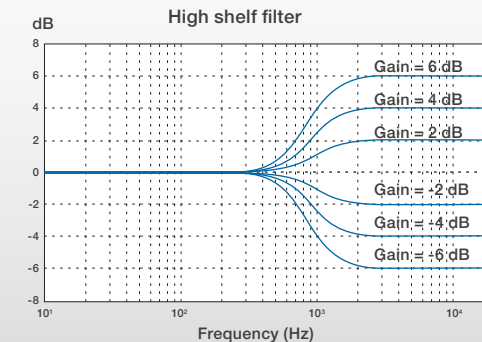
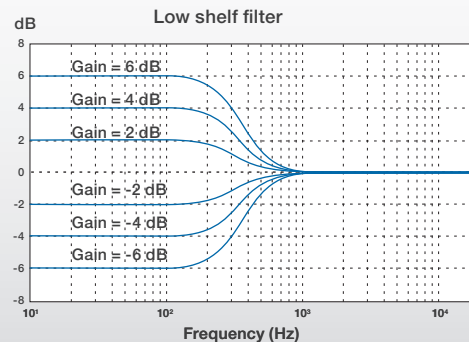
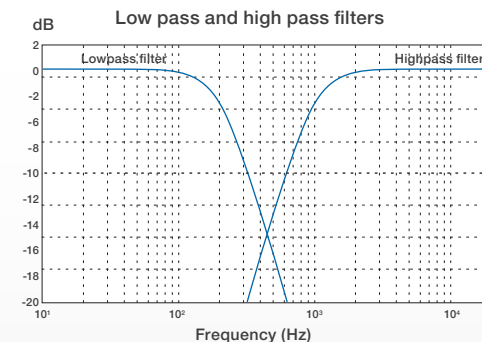
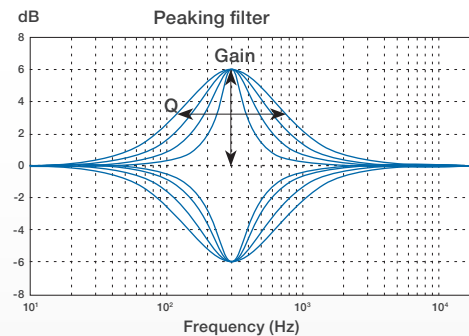
Each section (1 ... 6) of each user defined equalizer (1 ... 8) can be modified independently by setting the four parameters:

- Filter type (Peaking, low shelf, high shelf, low pass, high pass)
- Frequency
- Gain
- Q-value

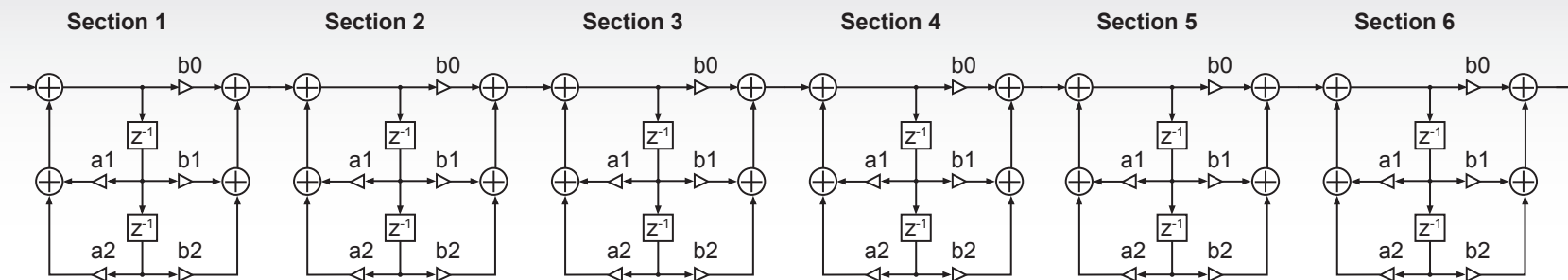
To switch off one of the six equalizer sections; set the second order section to have a flat frequency response. This can be done by setting the filter type to "none" or by setting the filter type to "peaking" and the gain to "0" (zero).

The filter types

The illustrations below shows the 5 different filter types and frequency response variations dependent on some of the parameter variations. The Q-value for low pass, high pass, low shelf and high shelf filters should be set to $1/\sqrt{2}$ in order to get maximally flat responses. The Q-value (or Q-factor) is defined as $Q=f_0/bw$. Where f_0 =resonance frequency in Hz; and bw =filter bandwidth in Hz.



The equalizer IIR filter

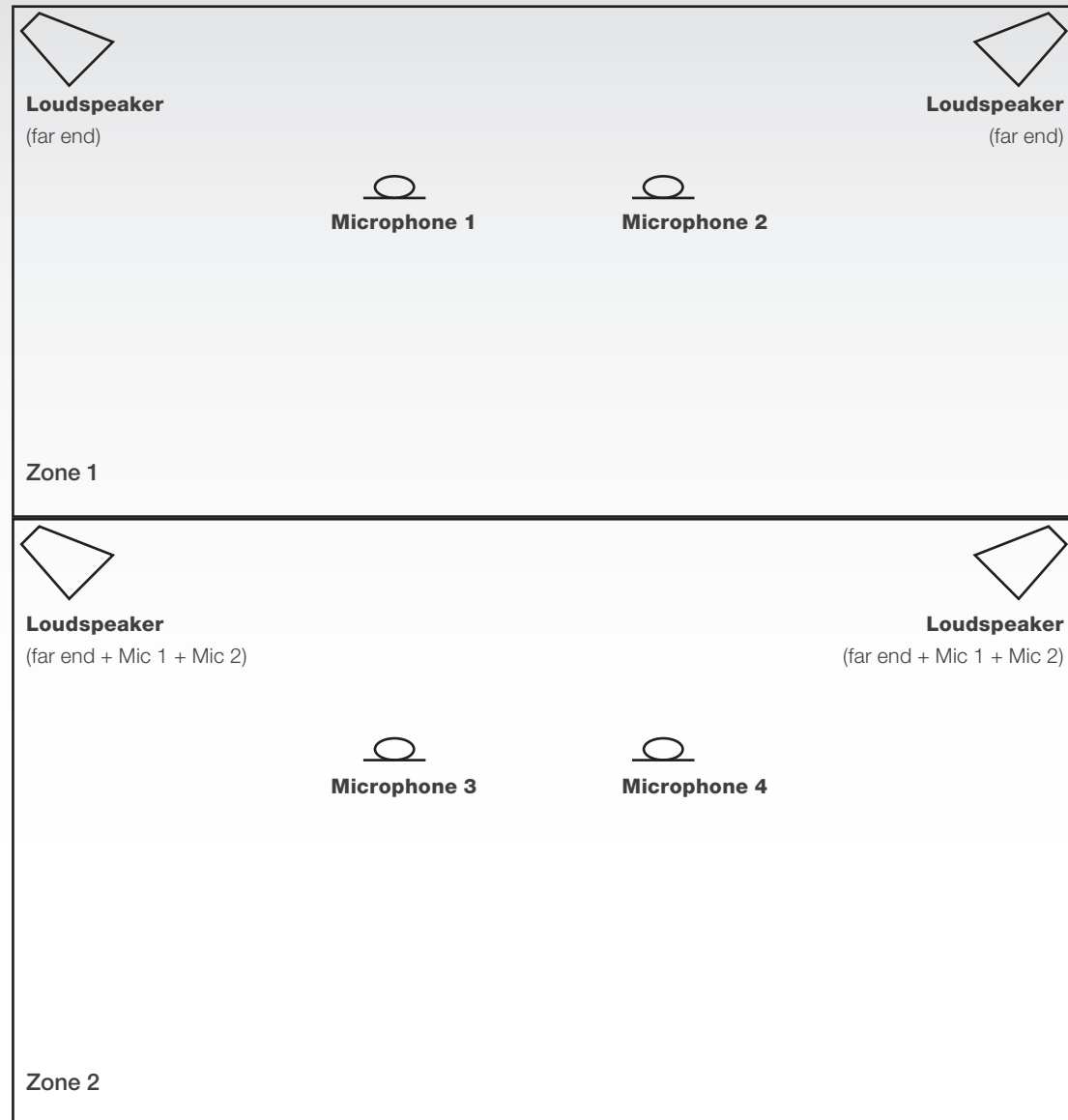


Microphone reinforcement

To improve speech intelligibility in a large room, the local microphones are played out on speakers locally as well as being sent to far end.

- The room can be viewed as being divided in two zones. It is assumed that there is a low acoustic coupling between microphones in zone 1 and speakers in zone 2 and vice versa.
- Microphones in zone 1 will be played out on all loudspeakers in zone 2.
- Microphones in both zones will be transmitted to far end.
- The input signal from far end will be played out on loudspeakers in both zones.

Using microphone reinforcement in a large room



Stereo

Stereo in point to point call

Receive stereo

If the other participant sends stereo the codec will receive stereo. To play stereo the local output still needs to be configured correctly (see local stereo circuit example).

Transmit stereo

In order to send stereo, the other participant must be able to receive stereo. Also, the local input with the stereo signal must be configured correctly (see local stereo circuit example). In addition, there must be a signal on one of the connectors connected to the local input.

Stereo in Multisite

- The TANDBERG Codec C90 sends and receives stereo signals in multisite.
- The TANDBERG Codec C60/C40 will only send and receive mono signals in multisite.

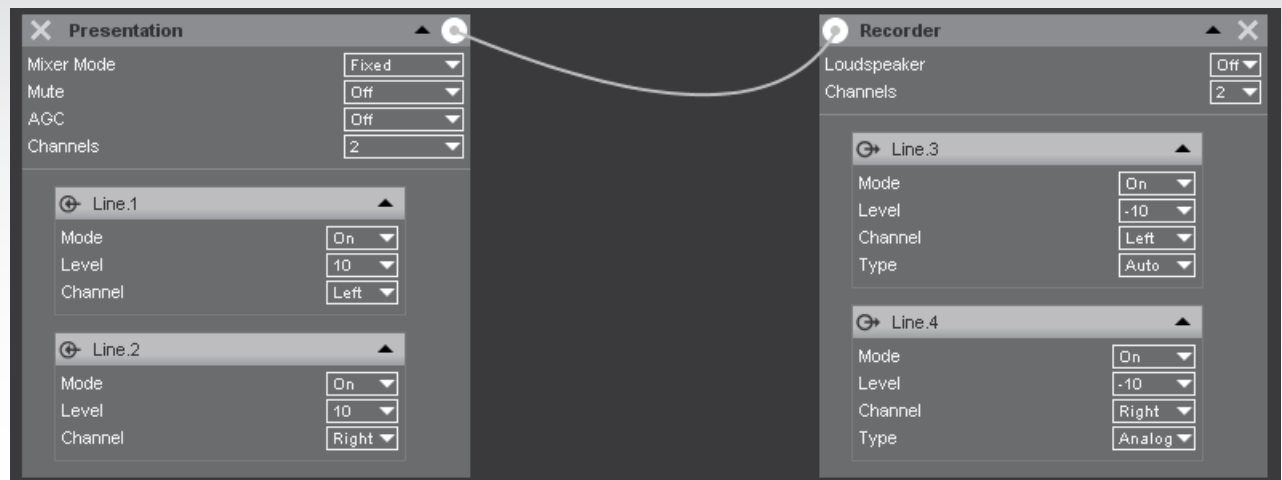
Examples of local stereo configuration

When you want to record a stereo presentation the audio system can be configured as shown in the illustration.

In the example the local input has two connectors: Line 1 and Line 2. When these two connectors are mixed together as a stereo signal, Line 1 is the left channel and Line 2 is the right channel.

And the local output has two connectors: Line 3 and Line 4. The local output pans the stereo signal according to the channel configuration of the connectors. Line 3 receives the left channel and Line 4 receives the right channel.

Local stereo circuit example (from the Audio Console)



Presentation

The local input has two connectors: Line 1 and Line 2. When these two connectors are mixed together as a stereo signal, Line 1 is the left channel and Line 2 is the right channel.

Recorder

The local output has two connectors: Line 3 and Line 4. The local output pans the stereo signal according to the channel configuration of the connectors. Line 3 receives the left channel and Line 4 receives the right channel.

Local stereo circuit example with API commands

The graphic gives a picture of how to configure the audio system for recording a stereo presentation. You can do the same from the API. The belonging xCommands and xConfigurations are listed below.

In this example there is a local input with input id 5 and a local output with output id 6. Both are set to stereo by the channels parameter.

- `xCommand Audio LocalInput Update Inputid:5 Name:"Presentation" MixerMode:Fixed AGC:On Mute:Off Channels:2`
- `xCommand Audio LocalOutput Update Outputid:6 Name:"Recorder" Loudspeaker:No Channels:2`
- `xConfiguration Audio Input Line 1 Channel: Left`
- `xConfiguration Audio Input Line 2 Channel: Right`
- `xConfiguration Audio Output Line 3 Channel: Left`
- `xConfiguration Audio Output Line 4 Channel: Right`

Chapter 6

Appendices

Optimal Definition Profiles

Under ideal lighting conditions the bandwidth requirements can be substantially reduced with the optimal definitions profiles.

Generally, we recommend the Optimal Definition set at Normal.

If lighting condition is conducive TANDBERG recommends that you test the endpoint on the various Optimal Definition setting prior to implementation.

To set the optimal definition profile

- Go to: Settings > Advanced > Advanced settings > Video > Input > Source [1..n] > OptimalDefinition > Profile
- Go to: Settings > Advanced > Advanced settings > Video > Input > Source [1..n] > OptimalDefinition > Threshold60fps

The Camera settings must be set to Motion to ensure the Optimal Definition to work. With the Camera settings set to Sharpness, the endpoint will transmit the highest resolution possible, regardless of frames per second.

To set the camera settings:

- Go to: Settings > Advanced > Advanced settings > Camera.



High (720p60)

Typically used in dedicated video conferencing rooms. Requires good lighting conditions for a good overall experience.

Under ideal conditions the bandwidth requirements can be reduced by up to 50%.



Medium (w576p60)

Typically used in rooms with better than normal, and consistent lighting.

The bandwidth requirements can be reduced by up to 25%.



Normal (w448p60)

This setting is typically used in office environments where the environment is normal to poorly lit.

Generally, we recommend the Optimal Definition set at Normal.

Optimal definition profiles for systems supporting 1080p					
30fps	w288p30	w448p30	w576p30	720p30	1080p30
Normal	256kbit/s	512 kbit/s	768 kbit/s	1152 kbit/s	2560 kbit/s
Medium	128kbit/s	384 kbit/s	512 kbit/s	768 kbit/s	1920 kbit/s
High	128kbit/s	256 kbit/s	512 kbit/s	768 kbit/s	1472 kbit/s

Optimal definition profiles for systems supporting 720p60					
60fps	w144p60	w288p60	w448p60	w576p60	720p60
Normal	128kbit/s	512 kbit/s	1152 kbit/s	1472 kbit/s	2240 kbit/s
Medium	128kbit/s	384 kbit/s	768 kbit/s	1152 kbit/s	1472 kbit/s
High	128kbit/s	256 kbit/s	512 kbit/s	768 kbit/s	1152 kbit/s

The Video Input Matrix

The video input matrix is found at the rear side of the codec and illustrates the combinations in which the video inputs can be connected.

About the matrix

Only one video input source from each row can be active at any time.

The numbers in the left column represents the Video Input Sources 1–5. The main connectors, which are used in basic setup, are marked in orange color.

The Comp. 5 and S-Video (YC) 5 inputs uses the same physical connectors and can not be connected at the same time.

Configure the video inputs

Go to the Advanced configuration menu on screen to configure the video inputs.

Navigate to: Settings > Advanced > Advanced Configurations > Video > Input > Source 1. Configure the five video input sources:

- Video Input Source [1–5] Connector: <HDMI/HDSDI/DVI/YC/Composite/YPbPr> (the value space will differ by connector)
- Video Input Source [1–5] Name: <Enter a name, and save>
- Video Input Source [1–5] Quality: <Motion/Sharpness>

Navigate to: Settings > Advanced > Advanced Configurations > Video. Configure the main video source and the default presentation source for the system. The values <1–5> represents the video input sources [1–5].

- Video MainVideoSource: <1..5>
- Video DefaultPresentationSource: <1..5>

Video input matrix				
Input Sources	Connector Name			
1	1st Camera	HDMI 1	HD-SDI 1	YPrPb 1
2	2nd Camera	HDMI 2	HD-SDI 2	YPrPb 2
3	PC	HDMI 3	HD-SDI 3	DVI-I 3
4		HDMI 4	HD-SDI 4	–
5		DVI-I 5	Comp. 5	YC 5

Only one video input source from each row can be active at any time.

Default configurations

- Video Input Source 1 Connector: HDMI
- Video Input Source 2 Connector: HDMI
- Video Input Source 3 Connector: DVI
- Video Input Source 4 Connector: HDMI
- Video Input Source 5 Connector: DVI
- Video Input Source 1 Name: "Main Camera"
- Video Input Source 2 Name: "Secondary Camera"
- Video Input Source 3 Name: "PC"
- Video Input Source 4 Name: "DVD"
- Video Input Source 5 Name: "Document Camera"
- Video Input Source 1 Quality: Motion
- Video Input Source 2 Quality: Motion
- Video Input Source 3 Quality: Sharpness
- Video Input Source 4 Quality: Motion
- Video Input Source 5 Quality: Sharpness
- Video MainVideoSource: 1 (which is the main camera)
- Video DefaultPresentationSource: 3 (which is the PC)

TANDBERG DNAM for Profile 65"

The TANDBERG DNAM (Digital Natural Audio Module) used in Profile 65", is built on two specially designed and separate modules, which is the amplifier and the loudspeaker cabinet.

The DNAM Loudspeaker

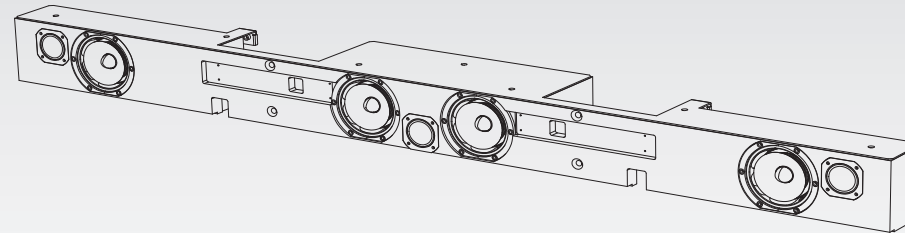
- 3-way Center Speaker system
- Frequency range 50Hz - 20kHz
- 2 x 100mm low- and midrange loudspeakers, 8 ohms nominal, reference quality (SEAS Excel series)
- 1 x 25mm dome tweeter, 6 ohms nominal, excellent quality
- Crossover filtered audio signals received from DNAM amplifier
- Long time max power 70 Watt on all loudspeakers
- Enclosed MDF speaker cabinet

Integrated Stereo Speaker

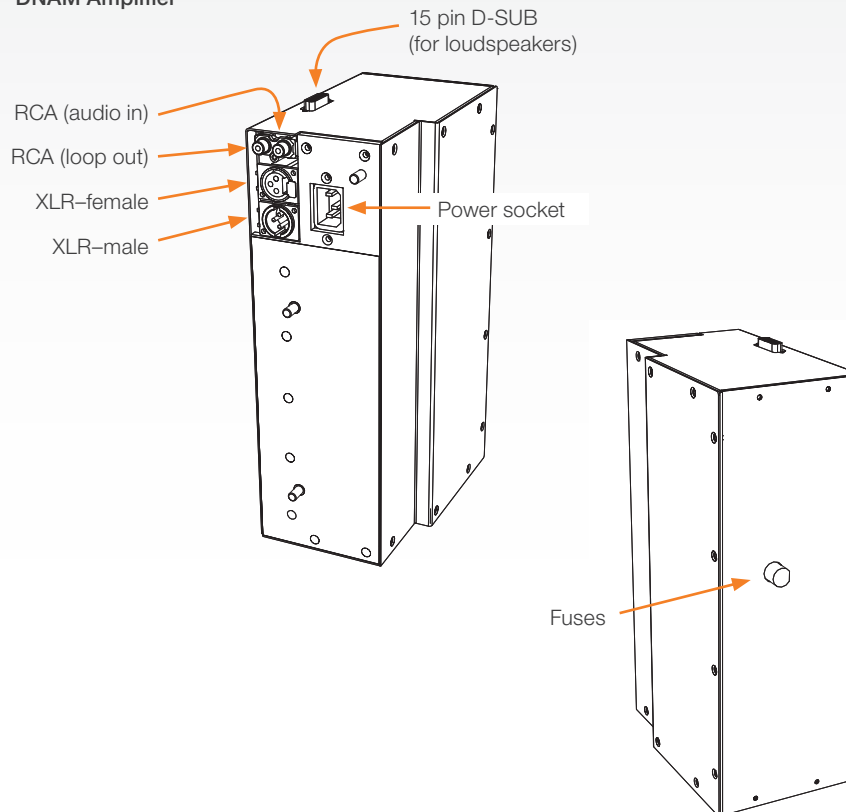
2-way Stereo Speaker System, each side has:

- 1 x 100mm low- and midrange loudspeaker, 8 ohms nominal, reference quality (SEAS Excel series)
- 1 x 25mm dome tweeter, 6 ohms nominal, excellent quality
- Passive crossover filter
- Frequency range 70 Hz - 20 kHz
- Long time max power 70 Watt
- Enclosed MDF speaker cabinet

DNAM Loudspeaker



DNAM Amplifier



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.

CE Declarations

TANDBERG Codec C90

For an official, signed version of this document, or details regarding documentation from the technical construction file, please contact TANDBERG.

EC Declaration of conformity	
MANUFACTURER:	TANDBERG Telecom AS
PRODUCT NAME:	TANDBERG Codec C90
TYPE NUMBER:	TTC6-09
DESCRIPTION:	Video Conferencing Equipment
DIRECTIVES: This equipment complies with.	LVD 2006/95/EC EMC 2004/108/EC
HARMONIZED STANDARDS: Applied in order to verify compliance with directives.	EN 60950-1:2001, A11:2004 EN 55022 (2006) EN 55024 (1998) + A1 (2001) + A2 (2003) EN 61000-3-2 (2006) EN 61000-3-3 (1995) + A1 (2001) + A2 (2005)
TEST REPORTS and CERTIFICATES ISSUED BY:	Reports/Certificates No.: LVD (Nemko AS) 106684 EMC (Nemko AS) E08517.00
TECHNICAL CONSTRUCTION FILE NO.:	X14347
YEAR WHICH THE CE-MARK WAS AFFIXED:	2008

TANDBERG Profile using Codec C90

For an official, signed version of this document, or details regarding documentation from the technical construction file, please contact TANDBERG.

EC Declaration of conformity	
MANUFACTURER:	TANDBERG Telecom AS
PRODUCT NAME:	TANDBERG Telepresence T1 TANDBERG Profile 65 Dual C90
TYPE NUMBER:	TTC6-11
DESCRIPTION:	Video Conferencing Equipment
DIRECTIVES: This equipment complies with.	LVD 2006/95/EC EMC 2004/108/EC
HARMONIZED STANDARDS: Applied in order to verify compliance with directives.	EN 60950-1:2006 EN 55022 (2006) EN 55024 (1998) + A1 (2001) + A2 (2003) EN 61000-3-2 (2006) EN 61000-3-3 (1995) + A1 (2001) + A2 (2005)
TEST REPORTS and CERTIFICATES ISSUED BY:	Reports / Certificates No.: LVD (Nemko AS) 121982 EMC (Nemko AS) E08564.00
TECHNICAL CONSTRUCTION FILE NO.:	X14383 rev. 2
YEAR WHICH THE CE-MARK WAS AFFIXED:	2008

China RoHS table

This products described in this guide complies with the Chinese 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。



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

- 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
- RFC 4796 The SDP Content Attribute
- RFC 4583 SDP Format for BFCP Streams
- RFC 5589: SIP Call Control Transfer
- draft-ietf-avt-rtp-h264-rcdo-02
- draft-ietf-avt-rtp-rfc3984bis-06
- draft-ietf-sip-outbound-20: Managing Client Initiated Connections

Media capabilities supported in SIP

The audio and video media capabilities supported in SIP are the same as for H.323.

Technical specifications

TANDBERG Profile 65" Dual

UNIT DELIVERED COMPLETE WITH:

FullHD LCD Display, Codec C90, PrecisionHD 1080p camera, remote control, microphones, Digital Audio Module, integrated speakers and cabling

MONITOR

Two 65" Full HD LCD, 16:9, 1080 X 1920 resolution

BASE

Floor standing foot plate

BANDWIDTH

H.323/SIP up to 6 Mbps point-to-point
Up to 10 Mbps total MultiSite bandwidth

FIREWALL TRAVERSAL

TANDBERG Expressway™ Technology
H.460.18, H.460.19 Firewall Traversal

VIDEO STANDARDS

H.261, H.263, H.263+, H.264

VIDEO FEATURES

Native 16:9 Wide screen
Advanced Screen Layouts
Intelligent Video Management
Local Auto Layout
9 embedded individual video compositors, one for every output and one for every encoder

VIDEO INPUTS (13 INPUTS)

4 x HDMI inputs, supported formats:

1920 x 1080@60, 59.94 Hz (1080p60)
1920 x 1080@50 Hz (1080p50)
1920 x 1080@30, 29.97 Hz (1080p30)
1920 x 1080@25 Hz (1080p25)
1920 x 1080@24, 23.97 Hz (1080p24)
1280 x 720@60, 59.94 Hz (720p60)
1280 x 720@50 Hz (720p50)
720 x 480@60, 59.94 Hz (480p60)
640 x 480@60, 72, 75, 85 Hz (VGA)
1600 x 1200@50, 60 Hz (UXGA)
1280 x 1024@60, 75, 85 Hz (SXGA)
1024 x 768@60, 70, 75, 85 Hz (XGA)

800 x 600@56, 60, 72, 75, 85 Hz (SVGA)
1920 x 1200@50 Hz (WUXGA)
1680 x 1050@60 Hz (WSXGA+)
1440 X 900@60 Hz (WXGA+)
1280 x 768@60, 75, 85 Hz (WXGA)
1400 x 1050@60, 75 Hz
1366 x 768@60 Hz
1360 x 768@60 Hz
1280 x 960@60, 85 Hz
1280 x 800@60 Hz (WXGA)
1152 x 864@75 Hz
848 x 480@60 Hz
720 x 576@50 Hz (576p50)

4 x HD-SDI inputs, supported formats:

1920 x 1080@30 Hz (1080p30)
1920 x 1080@25 Hz (1080p25)
1280 x 720@60 Hz (720p60)
1280 x 720@50 Hz (720p50)
1280 x 720@30 Hz (720p30)
1280 x 720@25 Hz (720p25)

2 x DVI-I inputs, supported formats:

Digital (DVI-D):
Same as HDMI, ref. above.

Analog RGB (DVI-A):

1920 x 1080@60 Hz (1080p60)
1920 x 1200@50 Hz (WUXGA)
1680 x 1050@60 Hz (WSXGA+)
1600 x 1200@60 Hz (UXGA)
1440 x 900@60 Hz (WXGA+)
1400 x 1050@60, 75 Hz
1366 x 768@60 Hz
1360 x 768@60 Hz
1280 x 1024@60, 75, 85 Hz (SXGA)
1280 x 960@60, 85 Hz
1280 x 800@60 Hz (WXGA)
1280 x 768@60, 75, 85 Hz (WXGA)
1280 x 720@60 Hz (720p60)
1152 x 864@75 Hz
1024 x 768@60, 70, 75, 85 Hz (XGA)
848 x 480@60 Hz
800 x 600@56, 60, 72, 75, 85 Hz (SVGA)
720 x 576@50 Hz
720 x 480@60, 59.94 Hz (480p60)
640 x 480@60, 72, 75, 85 Hz (VGA)

Analog YPbPr (DVI-A):

Same as YPbPr, ref. below.
Extended Display Identification Data (EDID)

2 x YPbPr inputs, supported formats:

1920 x 1080@60 Hz (1080p60)
1920 x 1080@50 Hz (1080p50)
1920 x 1080@30 Hz (1080p30)
1920 x 1080@25 Hz (1080p25)
1280 x 720@60 Hz (720p60)
1280 x 720@50 Hz (720p50)
1280 x 720@30 Hz (720p30)
720 x 576@50 Hz (576p50)
720 x 480@60 Hz (480p60)

1 x S-Video/Composite input (BNC connector), supported formats:

PAL/NTSC

VIDEO OUTPUTS (5 OUTPUTS)

2 x HDMI outputs, 2 x DVI-I outputs, supported formats:

1920 x 1080@60 Hz (1080p60)
1920 x 1200@60Hz (WUXGA)
1600 x 1200@60 Hz (UXGA)
1366 x 768@60 Hz
1360 x 768@60 Hz
1280 x 720@60 Hz (720p60)
1280 x 1024@60 Hz (SXGA)
1280 x 768@60 Hz (WXGA)
1024 x 768@60 Hz (XGA)
800 x 600@60 Hz (SVGA)
640 x 480@60 Hz (VGA)

VESA Monitor Power Management

1 X Composite output (BNC connector), supported formats:

PAL/NTSC

LIVE VIDEO RESOLUTIONS (ENCODE/DECODE)

176 x 144@30 fps (QCIF)
352 x 288@30 fps (CIF)
512 x 288@30 fps (w288p)
576 x 448@30 fps (448p)
768 x 448@30 fps (w448p)
704 x 576@30 fps (4CIF)
1024 x 576@30 fps (w576p)
640 x 480@30 fps (VGA)

800 x 600@30 fps (SVGA)
1024 x 768@30 fps (XGA)
1280 x 1024@30 fps (SXGA)
1280 x 720@30 fps (720p30)
1920 x 1080@30 fps (1080p30)*
1280 x 768@30 fps (WXGA)
1440 x 900@30 fps (WXGA+)
1680 x 1050@30 fps (WSXGA+)
1600 x 1200@30 fps (UXGA)
512 x 288@60 fps (w288p60)*
768 x 448@60 fps (w448p60)*
1024 x 576@60 fps (w576p60)*
1280 x 720@60 fps (720p60)*
1920x1200@20fps (WUXGA)

AUDIO STANDARDS

G.711, G.722, G.722.1, 64 bit & 128 bit MPEG4 AAC-LD, AAC-LD Stereo

AUDIO FEATURES

CD-Quality 20KHz Mono and Stereo
Eight separate acoustic echo cancellers
8-port Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Active lip synchronization

AUDIO INPUTS (14 INPUTS)

8 x microphone, 48V phantom powered, XLR connector each with separate echo cancellers and noise reduction, all microphones can be set for balanced line level
2 x RCA/Phono, Line Level: Stereo PC input
2 x RCA/Phono, Line Level: Stereo auxiliary/DVD input
2 x HDMI, digital: Stereo PC/DVD inputs

AUDIO OUTPUTS (8 OUTPUTS)

2 x XLR, balanced line level, stereo main audio
2 x RCA/Phono, line level, stereo main audio, configurable to S/PDIF
2 x RCA/Phono, line level, stereo to recording device
1 x HDMI, digital, stereo main audio
1 x HDMI, digital, stereo to recording device

DUAL STREAM

H.239 (H.323) dual stream
BFCP (SIP) dual stream
Available in MultiSite from any site
Support for resolutions up to 1080p30 in both main stream and dual stream simultaneously

TANDBERG Profile 65" Dual, *continued...*

MULTISITE FEATURES

4-way High Definition SIP/H.323 MultiSite
 Full Individual audio and video transcoding up to 1080p30
 Individual layouts in MultiSite CP (Takes out SelfView)
 H.323/SIP/VoIP in the same conference
 Best Impression (Automatic CP Layouts)
 H.264, Encryption, Dual Stream from any site
 IP Downspeeding
 Dial in/Dial out
 Conference rates up to 10 Mbps

PROTOCOLS

H.323
 SIP

EMBEDDED ENCRYPTION

H.323/SIP point-to-point and multipoint calls
 Standards-based: H.235 v2 & v3 and AES
 Automatic key generation and exchange
 Supported in Dual Stream & MultiSite

IP NETWORK FEATURES

DNS lookup for service configuration
 Differentiated Services (QoS)
 IP adaptive bandwidth management (including flow control)
 Auto gatekeeper discovery
 Dynamic playout and lip-sync buffering
 H.245 DTMF tones in H.323
 Date and Time support via NTP
 Packet Loss based Downspeeding
 URI Dialing
 TCP/IP
 DHCP
 Direct DNS dialing
 802.1x network authentication

SECURITY FEATURES

Management via HTTPS and SSH
 IP Administration Password
 Menu Administration Password
 Disable IP services
 Network Settings protection

NETWORK INTERFACES

2** x separate LAN/Ethernet (RJ-45) 10/100/1000 Mbit

GPIO

GPIO—General purpose Input/Output

OTHER INTERFACES

USB host for future usage
 USB device for future usage

PRECISIONHD 1080P CAMERA

1/3" CMOS
 12 x zoom
 +15°/-25° tilt, +/- 90° pan
 43.5° vertical field of view
 72° horizontal field of view
 Focus distance 0.3m–infinity
 1920 x 1080 pixels progressive @ 60fps
 Other formats supported (configurable through Dip-switch):
 1920 x 1080@60 Hz (HDMI only)
 1920 x 1080@50 Hz (HDMI only)
 1920 x 1080@30 Hz
 1920 x 1080@25 Hz
 1280 x 720@60 Hz
 1280 x 720@50 Hz
 1280 x 720@30 Hz
 1280 x 720@25 Hz
 Automatic or manual focus/brightness/whitebalance
 Far-end camera control
 Daisy-chain support (Visca protocol camera)
 Dual HDMI and HD-SDI output
 Upside-down mounting with automatic flipping of picture

SYSTEM MANAGEMENT

Support for the TANDBERG Management Suite
 Total management via embedded SNMP, Telnet, SSH, XML, SOAP
 Remote software upload: via web server, SCP, HTTP, HTTPS
 1 x RS-232 local control and diagnostics
 Remote control and on-screen menu system

DIRECTORY SERVICES

Support for Local directories (My Contacts)
 Corporate Directory
 Unlimited entries using Server directory supporting LDAP and H.350
 Unlimited number for Corporate directory (through TMS)
 200 number local directory
 Received Calls
 Placed Calls

Missed Calls with Date and Time

POWER

Auto-sensing power supply
 100–240 VAC, 50/60 Hz
 Max rating – 1400 Watts
 Normal operation – 1100 Watts
 Standby – 160 Watts

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 2006/95/EC (Low Voltage Directive)
 — Standard EN 60950-1
 Directive 2004/108/EC (EMC Directive)
 — Standard EN 55022, Class A
 — Standard EN 55024
 — Standard EN 61000-3-2/-3-3
 Approved according to UL 60950-1 and CSA 60950-1-07
 Complies with FCC15B Class A

DIMENSIONS

Height: 65in/165cm
 Width: 120in/300cm
 Depth: 5.9in/15cm

WEIGHT

Weight: 660lbs/300kg

All specifications subject to change without notice, system specifics may vary.

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MTBF PRODUCT RELIABILITY/MTBF

The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components for Codec C90 and PrecisionHD 1080p camera 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

March 2010

* requires option

** only one LAN/Ethernet interface supported

Technical specifications

TANDBERG Codec C90

UNIT DELIVERED COMPLETE WITH:

Video conferencing codec, remote control, rack mounting rails, LAN cable, power cable

BANDWIDTH

H.323/SIP up to 6 Mbps point-to-point
Up to 10 Mbps total MultiSite bandwidth

FIREWALL TRAVERSAL

TANDBERG Expressway™ Technology
H.460.18, H.460.19 Firewall Traversal

VIDEO STANDARDS

H.261, H.263, H.263+, H.264

VIDEO FEATURES

Native 16:9 Widescreen
Advanced Screen Layouts
Intelligent Video Management
Local Auto Layout

VIDEO INPUTS (13 INPUTS)

4 x HDMI inputs, supported formats:

1920 x 1080@60, 59.94 Hz (1080p60)
1920 x 1080@50 Hz (1080p50)
1920 x 1080@30, 29.97 Hz (1080p30)
1920 x 1080@25 Hz (1080p25)
1920 x 1080@24, 23.97 Hz (1080p24)
1920 x 1200@50 Hz (WUXGA)
1680 x 1050@60 Hz (WSXGA+)
1600 x 1200@50, 60 Hz (UXGA)
1440 X 900@60 Hz (WXGA+)
1400 x 1050@60, 75 Hz
1366 x 768@60 Hz
1360 x 768@60 Hz
1280 x 1024@60, 75, 85 Hz (SXGA)
1280 x 960@60, 85 Hz
1280 x 800@60 Hz (WXGA)
1280 x 768@60, 75, 85 Hz (WXGA)
1280 x 720@60, 59.94 Hz (720p60)
1280 x 720@50 Hz (720p50)
1152 x 864@75 Hz
1024 x 768@60, 70, 75, 85 Hz (XGA)

848 x 480@60 Hz
800 x 600@56, 60, 72, 75, 85 Hz (SVGA)
720 x 576@50 Hz (576p50)
720 x 480@60, 59.94 Hz (480p60)
640 x 480@60, 72, 75, 85 Hz (VGA)

4 x HD-SDI inputs, supported formats:

1920 x 1080@30 Hz (1080p30)
1920 x 1080@25 Hz (1080p25)
1280 x 720@60 Hz (720p60)
1280 x 720@50 Hz (720p50)
1280 x 720@30 Hz (720p30)
1280 x 720@25 Hz (720p25)

2 x DVI-I inputs, supported formats:

Digital (DVI-D):
Same as HDMI, ref. above.

Analog RGB (DVI-A):

1920 x 1080@60 Hz (1080p60)
1920 x 1200@50 Hz (WUXGA)
1680 x 1050@60 Hz (WSXGA+)
1600 x 1200@60 Hz (UXGA)
1440 x 900@60 Hz (WXGA+)
1400 x 1050@60, 75 Hz
1366 x 768@60 Hz
1360 x 768@60 Hz
1280 x 1024@60, 75, 85 Hz (SXGA)
1280 x 960@60, 85 Hz
1280 x 800@60 Hz (WXGA)
1280 x 768@60, 75, 85 Hz (WXGA)
1280 x 720@60 Hz (720p60)
1152 x 864@75 Hz
1024 x 768@60, 70, 75, 85 Hz (XGA)
848 x 480@60 Hz
800 x 600@56, 60, 72, 75, 85 Hz (SVGA)
720 x 576@50 Hz
720 x 480@60, 59.94 Hz (480p60)
640 x 480@60, 72, 75, 85 Hz (VGA)

Analog YPbPr (DVI-A):

Same as YPbPr, ref. below.

Extended Display Identification Data (EDID)

2 x YPbPr inputs, supported formats:

1920 x 1080@60 Hz (1080p60)
1920 x 1080@50 Hz (1080p50)

1920 x 1080@30 Hz (1080p30)
1920 x 1080@25 Hz (1080p25)
1280 x 720@60 Hz (720p60)
1280 x 720@50 Hz (720p50)
1280 x 720@30 Hz (720p30)
720 x 576@50 Hz (576p50)
720 x 480@60 Hz (480p60)

1 x S-Video/Composite input (BNC connector), supported formats:

PAL/NTSC

VIDEO OUTPUTS (5 OUTPUTS)

2 x HDMI outputs, 2 x DVI-I outputs, supported formats:

1920 x 1080@60 Hz (1080p60)
1920 x 1200@60Hz (WUXGA)
1600 x 1200@60 Hz (UXGA)
1366 x 768@60 Hz
1360 x 768@60 Hz
1280 x 720@60 Hz (720p60)
1280 x 1024@60 Hz (SXGA)
1280 x 768@60 Hz (WXGA)
1024 x 768@60 Hz (XGA)
800 x 600@60 Hz (SVGA)
640 x 480@60 Hz (VGA)

VESA Monitor Power Management

1 X Composite output (BNC connector), supported formats:

PAL/NTSC

LIVE VIDEO RESOLUTIONS (ENCODE/DECODE)

176 x 144@30 fps (QCIF)
352 x 288@30 fps (CIF)
512 x 288@30 fps (w288p)
576 x 448@30 fps (448p)
768 x 448@30 fps (w448p)
704 x 576@30 fps (4CIF)
1024 x 576@30 fps (w576p)
640 x 480@30 fps (VGA)
800 x 600@30 fps (SVGA)
1024 x 768@30 fps (XGA)
1280 x 1024@30 fps (SXGA)
1280 x 720@30 fps (720p30)
1920 x 1080@30 fps (1080p30)*
1280 x 768@30 fps (WXGA)

1440 x 900@30 fps (WXGA+)
1680 x 1050@30 fps (WSXGA+)
1600 x 1200@30 fps (UXGA)
512 x 288@60 fps (w288p60)*
768 x 448@60 fps (w448p60)*
1024 x 576@60 fps (w576p60)*
1280 x 720@60 fps (720p60)*
1920x1200@20fps (WUXGA)

AUDIO STANDARDS

G.711, G.722, G.722.1, 64 bit & 128 bit MPEG4 AAC-LD, AAC-LD Stereo

AUDIO FEATURES

CD-Quality 20KHz Mono and Stereo
Eight separate acoustic echo cancellers
8-port Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Active lip synchronization

AUDIO INPUTS (14 INPUTS)

8 x microphone, 48V phantom powered, XLR connector each with separate echo cancellers and noise reduction, all microphones can be set for balanced line level
2 x RCA/Phono, Line Level: Stereo PC input
2 x RCA/Phono, Line Level: Stereo auxiliary/DVD input
2 x HDMI, digital: Stereo PC/DVD inputs

AUDIO OUTPUTS (8 OUTPUTS)

2 x XLR, balanced line level, stereo main audio
2 x RCA/Phono, line level, stereo main audio, configurable to S/PDIF
2 x RCA/Phono, line level, stereo to recording device
1 x HDMI, digital, stereo main audio
1 x HDMI, digital, stereo to recording device

DUAL STREAM

H.239 (H.323) dual stream
BFCP (SIP) dual stream
Available in MultiSite from any site
Support for resolutions up to 1080p30 in both main stream and dual stream simultaneously

MULTISITE FEATURES

4-way High Definition SIP/H.323 MultiSite
Full Individual audio and video transcoding up to 1080p30
Individual layouts in MultiSite CP (Takes out SelfView)
H.323/SIP/VoIP in the same conference
Best Impression (Automatic CP Layouts)

TANDBERG Codec C90, *continued...*

H.264, Encryption, Dual Stream from any site
 IP Downspeeding
 Dial in/Dial out
 Conference rates up to 10 Mbps

PROTOCOLS

H.323
 SIP

EMBEDDED ENCRYPTION

H.323/SIP point-to-point and multipoint calls
 Standards-based: H.235 v2 & v3 and AES
 Automatic key generation and exchange
 Supported in Dual Stream & MultiSite

IP NETWORK FEATURES

DNS lookup for service configuration
 Differentiated Services (QoS)
 IP adaptive bandwidth management (including flow control)
 Auto gatekeeper discovery
 Dynamic playout and lip-sync buffering
 H.245 DTMF tones in H.323
 Date and Time support via NTP
 Packet Loss based Downspeeding
 URI Dialing
 TCP/IP
 DHCP
 Direct DNS dialing
 802.1x network authentication

SECURITY FEATURES

Management via HTTPS and SSH
 IP Administration Password
 Menu Administration Password
 Disable IP services
 Network Settings protection

NETWORK INTERFACES

2** x separate LAN/Ethernet (RJ-45) 10/100/1000 Mbit

GPIO

GPIO—General purpose Input/Output

OTHER INTERFACES

USB host for future usage
 USB device for future usage

PRECISIONHD 1080P CAMERA

1/3" CMOS
 12 x zoom
 +15°/-25° tilt, +/- 90° pan
 43.5° vertical field of view
 72° horizontal field of view
 Focus distance 0.3m–infinity
 1920 x 1080 pixels progressive @ 60fps
 Other formats supported (configurable through Dip-switch):
 1920 x 1080@60 Hz (HDMI only)
 1920 x 1080@50 Hz (HDMI only)
 1920 x 1080@30 Hz
 1920 x 1080@25 Hz
 1280 x 720@60 Hz
 1280 x 720@50 Hz
 1280 x 720@30 Hz
 1280 x 720@25 Hz
 Automatic or manual focus/brightness/whitebalance
 Far-end camera control
 Daisy-chain support (Visca protocol camera)
 Dual HDMI and HD-SDI output
 Upside-down mounting with automatic flipping of picture

SYSTEM MANAGEMENT

Support for the TANDBERG Management Suite
 Total management via embedded SNMP, Telnet, SSH, XML, SOAP
 Remote software upload: via web server, SCP, HTTP, HTTPS
 1 x RS-232 local control and diagnostics
 Remote control and on-screen menu system

DIRECTORY SERVICES

Support for Local directories (My Contacts)
 Corporate Directory
 Unlimited entries using Server directory supporting LDAP and H.350
 Unlimited number for Corporate directory (through TMS)
 200 number local directory
 Received Calls
 Placed Calls
 Missed Calls with Date and Time

POWER

Auto-sensing power supply
 100–240 VAC, 50/60 Hz
 175 watts max. for codec and main camera

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 2006/95/EC (Low Voltage Directive)— Standard EN 60950-1
 Directive 2004/108/EC (EMC Directive)— Standard EN 55022, Class B— Standard EN 55024— Standard EN 61000-3-2/-3-3
 Approved according to UL 60950-1 and CSA 60950-1-07
 Complies with FCC15B Class B

DIMENSIONS

Length: 17.36in/44.1cm
 Height: 3.67in/9.3cm
 Depth: 11.8in/30cm

WEIGHT

Weight: 11.22 lbs/5.1kg

All specifications are subject to change without notice, system specifics may vary.

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All other trademarks are property 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 certificate is available upon request

February 2010

* requires option

** only one LAN/Ethernet interface supported

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