TANDBERG MXP – API (Dataport User Guide)

Software version F1

TANDBERG

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1 Introduction

In addition to the ability to transmit audio and video over ISDN and other networks, the TANDBERG 770-8000 MXP, from now on only called TANDBERG MXP, supports data transmission (for example the transmission of text files or control sequences to equipment at the remote side of a videoconference).

The API Guide contains guidelines on the use of the TANDBERG MXP's Dataport for the following purposes:

- Diagnostics/self-test
- File transfer/transparent data transmission (using programs such as Microsoft NetMeeting™ or a Terminal program) (not supported over IP).
- Control of the TANDBERG MXP.
- Remote access to the dataport commands interface by using Telnet.

The TANDBERG 6000-8000 MXP has two dataports, Dataport 1 and Dataport 2, TANDBERG 3000 MXP has 1 Dataport and Camera port while the TANDBERG 770-990 MXP only have one dataport. The TANDBERG MXP all have a LAN port. Dataport 1 may be used for file/data transfer to another TANDBERG MXP unit. In addition Dataport 1 may also be used to control the TANDBERG MXP. Dataport 2 provides access for control of the TANDBERG 3000-8000 MXP; in addition it is used to control the TANDBERG 3000-8000 MXP Camera Unit or an additional camera such as Sony EVI D30/D31, using the VISCA protocol. For the remainder of this document the word *Dataport* should be understood to relate to Dataport 1 unless otherwise stated.

To transfer data across the network the TANDBERG MXP uses some of its video capacity. In normal operating modes any reduction in video is unnoticed. It should be noted that the data channel (in DDC mode) borrows capacity from video only when required i.e. **not** permanently. As a result, although equipment may be connected to the *Dataport*, the video will only be influenced when data is actually being transmitted (DDC is not supported over IP).

The default mode is the **Modem-mode**, which permits control of the TANDBERG when the unit is not connected to another videoconferencing[1] unit. Once a call is established, the Dataport immediately starts functioning as if it were set to Data mode, using the dynamic data channel (DDC). During the connection, all data sent to the dataport is transmitted to the far end via the data channel. Once the call is disconnected, the dataport reverts back to the mode allowing control of the local unit. The configuration of the dataport does not change, only its behaviour to what functionality the dataport allows changes. The Modem mode is intended to mimic the behaviour of a traditional serial modem

To obtain a data channel that is transparent at all times during a videoconference, but that does not revert to control outside of a conference, you should select **Data** mode for the *Dataport*. This is the recommended mode to use in file transfer and remote control applications (not supported over IP).

With either **Modem** or **Data** modes, all information sent to the local TANDBERG's *Dataport* during a videoconference would automatically be transmitted to the *Dataport* of the remotely connected videoconferencing unit. If the intention is to control the TANDBERG via the *Dataport*, rather than via the handheld remote control, you should select **Control** mode from the Dataport menu. Control via the *Dataport* is easily accomplished using a PC. Control mode provides access to all those functions selectable from the remote control and more. In control mode however, no data is transmitted via the Dataport to the remote unit. Control mode does however provide a significant level of feedback and in this mode it is possible to determine the current configuration of the TANDBERG by querying its individual parameters.

[1] Transmission of data to a remote videoconferencing unit is only possible if the remote unit is another TANDBERG MXP videoconferencing system. This statement should be understood to apply throughout this document where reference is made to transmission of data to a remote unit via the Dataport.

For local control or the transfer of data files, almost any terminal emulation program such as Microsoft Windows Terminal®, Hyper Terminal™, ProComm Plus®, Telix®, etc. may be used.

Modem and Data modes are used in conjunction with DDC.

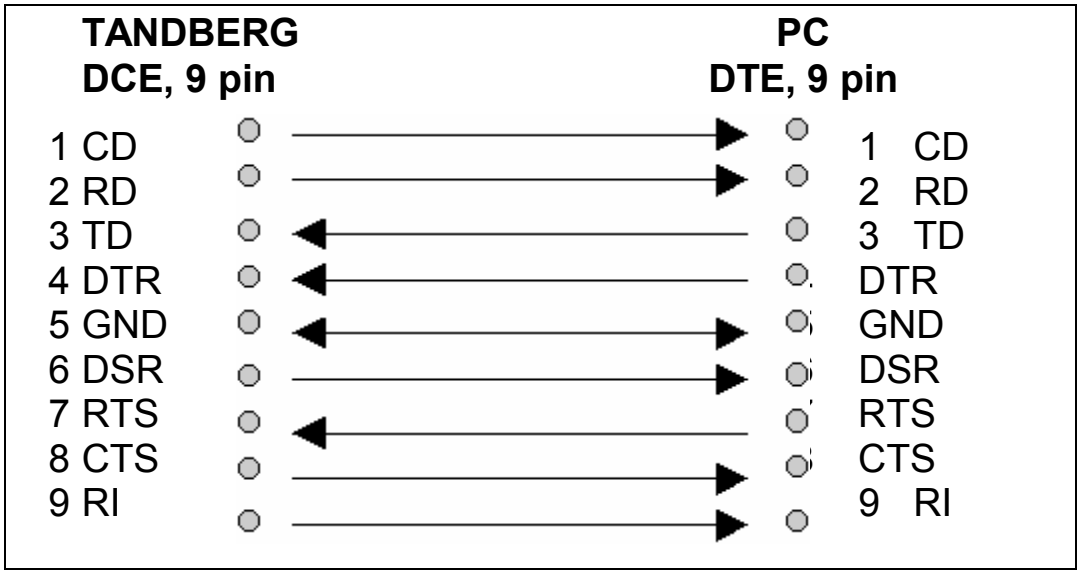
If, after reading this manual, you require additional information concerning the use of the Dataport, please contact your local TANDBERG dealer who may be able to supply you with relevant information for special applications.

2 Connecting Equipment To The Dataport

The pin outs for Dataports 1 and 2 are similar and are defined in the following table. The DTE could be a PC or other device capable of serial communication. On Dataport 2, pin 4 is set to constant +12V (TANDBERG 6000-8000 MXP only) to provide power to the standard TANDBERG MXP Camera.

Pin no	Signal	Description	Direction
1	CD	Carrier detect	To DTE
2	RD	Receive data	To DTE
3	TD	Transmit data	From DTE
4	DTR	Data terminal ready	From DTE
5		Ground	
6	DSR	Data set ready	To DTE
7	RTS	Ready to send	From DTE
8	CTS	Clear to send	To DTE
9	RI	Ring indicator	To DTE

The Dataport on the TANDBERG MXP is a conveniently located, 9-pin, female, D-sub connector, supporting RS-232 protocol and configured as a DCE. **A straight through cable should be used between the TANDBERG's Dataport and the COM port on your PC** as shown below**.** The figure below illustrates the recommended cable-wiring scheme:



The implementation of the RS-232 port on the TANDBERG MXP has the following features:

- DTR is ignored[2] (data terminal ready)
- RTS is ignored (ready to send)
- DSR is always set (data set ready)
- RI is asserted on an incoming call and resets once CD has been set (ring indication)
- CD (carrier detect) is high during a call
- CTS is asserted when the codec is ready to receive data.
- Carriage Return must follow commands issued to the Dataport.

[2] Unless a call is initiated using the ATD command (via a PC application for example) in which case toggling DTR will disconnect the call.

2.1 Configuring The Dataports From The Menu

Pressing OK on the TANDBERG's remote control displays the unit's Main Menu. The Dataports' configuration settings are available through the Control Panel menu. Within the Control Panel Menu, Administrator Settings and Network are entries for Dataport 1 and Dataport 2[3].

Dataport 2 is dedicated to Control of the camera, therefore you can only switch between 2 modes Auto and VISCA. The VISCA mode should be used with external cameras supporting the VISCA protocol such as the Sony cameras EVI D30/D31, and makes it possible to control this camera with the standard TANDBERG MXP remote control. The auto mode should be used when a TANDBERG MXP camera or a PC is connected to the Dataport.

To configure the *Dataport* select either "Dataport 1" or "Dataport 2" and a menu listing the available settings for that Dataport will be displayed. The available settings are:

Baudrate, Parity, Databits, Stopbits, Mode.

Dataport 1: The Mode sub-menu of Dataport 1 lists the 4 options: **Data, Control and Modem**. The default configuration for Dataport 1 is "**Modem**" which enables local control when not in a call, but allows the transmission of data to a remote unit during a call.

Data mode:

To use the Dataport to transmit and receive data, select **Data** mode. A transparent data channel via the *Dataport* will be available whenever a call is established.

Modem mode:

To use the Dataport both to control the TANDBERG MXP outside of a call and then to enable transmission of data during a call; select **Modem** mode. This mode of operation is very similar to that used when operating a Hayes® compatible modem.

When not in a call, all data sent to the TANDBERG MXP through the Dataport will be interpreted by the command interface.

When a call is established the TANDBERG MXP automatically provides a transparent data channel and all data sent to the local TANDBERG's Dataport will appear at the remote unit's Dataport[4]. To return the TANDBERG's Dataport to control mode during a call the **escape sequence** '+++' may be used. To switch back to data mode the command 'ATO' may be used.

Control mode:

To control the TANDBERG MXP using the *Dataport*, select **Control** mode. With Control mode selected all data sent to the TANDBERG MXP through the Dataport will be interpreted by the command interface at all times.

2.2 Troubleshooting

If communication cannot be established between the PC/terminal and the TANDBERG's Dataport we recommend the following be checked:

- Confirm that the cable pin outs are according to the specification set out in the *Hardware and Cabling* section of this document (a straight through 9-pin to 9-pin cable should be used).

[3] Dataport 2 is not applicable for the TANDBERG 770-3000 MXP.
[4] Provided the remote unit is a TANDBERG unit and has it's Dataport set to Data or Modem mode with both sides have set matching parameters.

- Confirm that the PC/terminal Dataport parameters match those of the TANDBERG's *Dataport*. Hardware flow control (RTS/CTS) should be set to ON on the PC, and the correct serial port should be selected.
- Confirm that the TANDBERG's *Dataport* is set to the correct mode (Data/Modem/Control). If a connection has been established, 'OK' will appear on the PC/terminal's screen when switching from 'Data ' to 'Modem' in the TANDBERG's *Dataport* Mode menu.
- Verify that the PC/terminal Dataport is working properly by connecting it back-to-back to another PC/terminal and send characters in both directions[5].

[5] You will need a null-modem cable to perform this test

3 TANDBERG MXP Dataport Commands

When the Dataport is set up in **Modem** mode and a call is not established or the Dataport is set up in **Control mode,** typing '**?**' or 'help' on your PC/Terminal will result in a list of the User Commands being displayed at your terminal.
The TANDBERG MXP User Commands control most of the functions of the TANDBERG MXP. The TANDBERG MXP does not distinguish between upper and lower case for this command set.
The arguments marked with < > are mandatory. The arguments marked with [ ] are optional
.
When dialling a number with a subaddress/TCS-4 or two numbers, please use the following arguments (all examples are shown dialling with a telephone number 12345678):
*** sub** e.g. 1234545678*123, where 123 is the subaddress or TCS-4 address.
**** 2nd number** e.g. 1234545678**87654321, where 87654321 is the second number address.
Wherever the phrase *number* is mentioned you may assume the arguments above.
There are 4 basic formats for issuing commands via the Dataport:
Argument
This format requires an argument upon which the TANDBERG MXP will operate.
e.g. *dial 12345*
The TANDBERG MXP's response is a simple *OK* if the argument is acceptable or *ERROR* if it is not

Syntax Query
This format takes a *?* as the argument or parameter for a command.
e.g. *dial ?*
The TANDBERG MXP will respond by listing the syntax for the queried command, in this case

*usage: dial <ipaddress|number>[**2nd number][*sub] [calltype[r]] [p<n>]*
ipaddress = <n.n.n.n> numeric IP address (implies p3)
numbe = [!]<number>
! = dial using directory entry "number"
r = restricted call
p<n> = call number using profile <n>. <n>={1,2,3,...}. p1 is default.
Hint: p1=auto p2=H320 ISDN p3=H323 LAN
calltype = {tlph,1xh221,2xh221,1b,2b,3b,4b,5b,6b,8b,12b,18b,23b,30b,H0,auto,max}

Set Parameter
This format requires a parameter upon which the TANDBERG MXP will act.
e.g. *autoans on*
The TANDBERG 3000-8000 MXP response[6] will be a confirmation of the command being set and the new parameter. In this case the response will be **P autoans on*. If the parameter supplied is incorrect a response of *ERROR* will be given.
Parameter Query
This format requires no parameter.
e.g. *autoans*
The TANDBERG MXP's response will be to return the command being queried along with its current setting. In this case the response will be **P autoans on*, to indicate that this parameter was currently set to *on*.

NOTE:
The TANDBERG MXP is available with different network configurations, which will affect some of the dataport commands.

[6] The TANDBERG 3000-8000 MXP will only make a response if the dataport command *feedback* has been set to on.

To determine your systems configuration, see ‘Power Up and System Info’ or the system boot-up text.

3.1 Storage Level

All configuration commands will have a storage attribute in the description field for the command. There are five different storage levels:
level 0 indicates that the configuration is stored in RAM and will be lost after system boot
level 1 indicates that the configuration will survive boot, but will be reset with the *defvalues set* command
level 2 indicates that the configuration will survive boot and *defvalues set*, but will be reset by adding the parameter *all* to the *defvalues set* command
level 3 indicates that the configuration will survive boot and *defvalues set*. It will also survive *defvalues set all* if *protect* is set to *on*. If protect is set to *off* the configuration will be reset with the command *defvalues set all*
persistant indicates that the values are only reset with *defvalues set factory*.

3.2 Changed Dataport Commands from E4B9 release

The following commands have been changed since the last release.

Command	E4B9 Usage	F1 Usage
Vidin	usage: vidin <1/2/3/4/5>	usage: vidin <1/2/3/4/5/6>
Duovideo	usage: duovideo open [number] [qual] duovideo close duovideo vidqual <m/a/s> duovideo source <c/1/2/../5> duovideo auto <on/off> duovideo number <auto/manual> qual = {1xh221,2xh221,1b,2b,...}	usage: duovideo open [source] or duovideo close or duovideo source <c/1/2/../6> or duovideo auto <on/off> - source – c/1/2/3/4/5/6[7]
Vidfeature	usage: vidfeature tv <auto/off/384/512/768/1152/1472/1536/1920> or: vidfeature pc <auto/off> or: vidfeature h264 <auto/off> tv - enable natural video (iCIF, interlaced) pc - enable pc video (VGA, custom formats) quality h264 - enable h264 video when possible	usage: vidfeature tv <rate> - rate - off/auto//64/128/192/256/320/384/512/768/1152/1472/1536/1920/2560/3072
h323qos	usage: h323qos prec <type> <IPprecedence> h323qos diffs <type> <Diffserv> h323qos tos <TypeOfService> h323qos rsvp <auto/off> h323qos mode <ip-precedence/diffserve/off> <type> = audio/video/data/sign <IPprecedence> = 1/2/3/4/5/6/7/off/auto <Diffserv> = 0/1/2/...63 <TypeOfService> = delay/throughput/reliable/cost/off	usage: h323qos prectlph <audio> <precvalue> or: h323qos diffstlph <audio> <diffsvalue> or: h323qos precvtlph <audio/video/data/signalling> <precvalue> or: h323qos diffsvtlph <audio/video/data/signalling> <diffsvalue> or: h323qos mode <precedence/diffserv/off> or: h323qos tos <delay/throughput/reliable/cost/off> or: h323qos rsvp <auto/off> - precvalue - 1/2/3/4/5/6/7/auto/off diffsvalue - 0..63
Language	usage: language <english/german/norwegian/french/swedish/spanish/japanese/chinese/traditional/russian/italian/portuguese>	usage: language <english/german/norwegian/french/swedish/spanish/japanese/chinese/traditional/russian/italian/portuguese/korean>
Still	usage: still send [1/2/3/4/5] or: still req [n] or: still <on/off> send - sends a high quality still image from source req - request a high quality still image on - view still image off - view normal	usage: still send [1/2/3/4/5/6] or: still req [n] or: still <on/off> - send - sends a high quality still image from source req - request a high quality still image on - view still image

[7] c: no source

Command	E4B9 Usage	F1 Usage
	n - still image input source	off - view normal n - still image input source (1..15)
Encrypt	usage: encrypt <off/auto>	usage: encrypt <on/off/auto>
Sport	usage: sport <port> [baud] [parity] [databits] [stopbits] [camera/mode] port - data1/data2 baud - 1200/2400/4800/9600/19200/38400 parity - n/o/e none, odd or even parity databits - 7/8 7 or 8 databits stopbits - 1/2 1 or 2 stopbits camera - v/a visca or auto camera mode (data2 only) mode - d/m/t/c/k data channel, modem, T120, control mode (data1 only) or keyboard	usage: sport <port> [baud] [parity] [databits] [stopbits] [camera/mode] port - data1/data2 baud - 1200/2400/4800/9600/19200/38400/57600/115200 parity - n/o/e none, odd or even parity databits - 7/8 7 or 8 databits stopbits - 1/2 1 or 2 stopbits camera - v/a visca or auto camera mode (data2 only) mode - d/m/c/k data channel, modem, control mode (data1 only) or keyboard
netisdn	usage: netisdn <ni/att/euro/1tr6/japan/australia/fetex/italy> netisdn sendcomplete <on/off> netisdn restart <on/off> netisdn alert <on/off> netisdn hlc <on/off> netisdn sub <on/off>	usage: netisdn <ni/att/euro/1tr6/japan/australia/fetex/italy> netisdn sendcomplete <on/off> netisdn restart <on/off> netisdn alert <on/off> netisdn hlc <on/off>

3.3 List of E4B9 Dataport Commands not available in the F1 release

The following commands are no longer in use in the F1 release.

- Audioqual
- Autoreqfloor
- Autostill
- Cammove
- Corpdir
- Imagefilter
- Loopback
- Mode
- Presmode
- Sidebyside
- Toggle-sidebyside
- Vidmap
- Welcomescreen

3.4 New F1 Dataport Commands compared to the E4B9 release

- Audiofeature
- Prinumbrange
- About

See the following chapters for implementation details.

4 Implementation details

The following chapters show implementation details for the user request commands, the system configuration commands, the status commands, the debug commands and the special commands.

4.1 F1 User Request Commands

Command	Usage	Description
boot	usage: boot [norestore]	Causes the codec to re-boot and produces the following output to the dataport after re-boot. **boot** Break ? Loading (#1) ... OK System boot. Hardware Serial No: 01047990
defvalues	usage: defvalues set [all/audio/factory] WARNING! Entering the 'defvalues set all' will erase your option keys. WARNING!! Entering the 'defvalues set factory' will erase your option keys, the flash-disk and the eeprom.	Restores the factory default settings. **defvalues set** This command will not affect the network settings or SPID settings. **defvalues set all** Resets all values to factory defaults. Note! This will also erase the software option key. Please download the parameter file, or write down the optionkey before you execute this command. Issue the command optionkey to view the current value of the optionkey. **defvalues set factory** Note! Will have same effect as defvalues set all (including erasing the optionkey), but in addition it will erase the /user directory of the FTP server as well as erasing the EEPROM. The system will reboot when the command has executed. This command can not be executed if the command “protect” is set to on. **defvalues set audio** Reset audio settings to factory default levels.
dial	usage: dial <number[**2ndNumber][*sub]> [calltype[r]] [profile] or: dial <l1..l99> - (dial from directory) or: dial <m1..m16> - (dial from mcudirectory) or: dial <g1..g99> - (dial from globdirectory) - calltype - tlph/1xh221/2xh221/1b/2b/3b/4b/5b/6b/8b/12b/18b/23b/30b/2m5/3m/h0/auto/max r - (denotes restricted call) profile - p1/p2/p3/p4/p5/p6	Used to dial a specific number, directory entry or mcudirectory entry.
disc	Usage: disc [CallId] - callID – 1..10	Used to disconnect a given site. Disconnect without arguments disconnects all calls.

Command	Usage	Description
duovideo	usage: duovideo open [source] or: duovideo close or: duovideo source <c/1/2/../5/6> or: duovideo auto <on/off>	Opens a second videostream. **open [source]** Opens another videocall (not mcu) to the specified number. **close** Disconnects second videocall **source** Selects which source should be used as the duo video source. **auto** When set to on, the unit will automatically make a Duo Video call to systems running B3 sw or higher, when pressing a videosource button on the remote control. **Examples:** **duovideo open 12345678 4b** Opens a second videocall to number 12345678 with a 4b (256kb/s) quality. If the command is issued outside a call an error message will be returned, example: **duovideo open** Duo Video not possible ERROR Example of feedback: *S duovideo none *P duovideo auto off *P duovideo source c *P duovideo number auto
help	usage: help	Displays the help menu
mcucommand	usage: mcucommand floor <request/release/vs/mcu#,site#> or: mcucommand chair <request/release> or: mcucommand viewrequest <mcu#,site#/release> or: mcucommand disconnect [mcu#,site#] or: mcucommand password <password> or: mcucommand id <id>	See section **mcucommand** and **mcustat** later in this document.
preset-activate	usage: preset-activate <0-14>	Selects one of the fifteen presets.

Command	Usage	Description
rinfo	usage: rinfo <sw/hw/lp/vc/param>	Returns information concerning a remote TANDBERG MXP unit. Argument Information returned Example **sw** Software version and info A1.0 1 4 10. **hw** Hardware serial number 00908967. **lp** Line processor board type and rev. M00400 rev. 0x01 **vc** Video Coder board and rev. M00410 rev. x01 **param** Current parameter set. All menu settings ptions and info. This command is not available during a H.323 call or while in a multisite call

4.2 F1 System Configuration Commands

4.2.1 Audio Settings

Command	Usage	Description
alrtvol	usage: alrtvol <volume/test> - volume - 0...15/test test - (test volume)	Sets the ringing tone volume **0** Volume 0 (off) **15** Volume 15(max.) **test** Plays Ringing tone to test volume Example of feedback: *P alrtvol 8 Storage: level 1

Command	Usage	Description
audioagc	usage: audioagc <a/b/c/rx> <on/off> - (note: a - Mic.1-3,Audio4 b - Audio5 (AUX) c - Audio6 (VCR) rx - received audio)	Sets the Automatic Gain Control (AGC) for all audio inputs as well as for the received audio. TANDBERG 6000-8000 MXP: **a** Mic1-3, Audio4 **b** Audio5 (AUX) **c** Audio6 (VCR) **rx** Received Audio TANDBERG 770-3000 MXP: **a** Mic1-2 **b** Audio3 (AUX) **c** Audio4 (VCR) **rx** Received Audio Example of feedback: *P audioagc a on *P audioagc b on *P audioagc c on *P audioagc rx on *Storage: level 1*
audiofeature	usage: audiofeature g711 or: audiofeature g722 <on/off> or: audiofeature g722.1 <on/off> or: audiofeature g728 <on/off> or: audiofeature aac-ld <on/off>	Sets various audio features to on or off. Example of feedback: *P audiofeature g711 on *P audiofeature g722 on *P audiofeature g722.1 on *P audiofeature g728 on *P audiofeature aac-ld on *Storage: level 2*

Command	Usage	Description
audiofeedback	usage: audiofeedback <on/off>	Sets audio specific feedback on or off. When audiofeedback is on in a point to point or MCU call, the current "loudest" site is displayed on the dataport in the format: *S audiofeedback remote1 *S audiofeedback local *S audiofeedback remote2 In addition a speech indicator provides feedback on the dataport, when speech activity changes on any audio input on the codec, or at any video site of a conference (telephone add-on sites are excluded). The feedback will be given in the format: "*S audmap xx yy". xx and yy are hexadecimal bitmaps presented in small case letters. xx indicates which conference sites are currently speaking. yy indicates which local audio inputs are currently speaking. Local site active (A): xx = 01 Remote site 1 active (B): xx = 02 Remote site 2 active (C): xx = 04 Remote site 3 active (D): xx = 08 Mic 1 active: yy = 01 Mic 2 active: yy = 02 Mic 3 active: yy = 04 Line in 1 active: yy = 08 Line in 2 active: yy = 10 Line in 3 active: yy = 20 **Example, mcu conference:** Site A: mic 2, line in 1 and line in 3 active => site A is active. Mic 1, mic 3 and line in 2 inactive. Site B: inactive Site C: active Site D: inactive Feedback: *S audmap 05 2a On a system with only 4 audio inputs (TANDBERG 770-3000 MXP), feedback is of the same format, but differs in "yy" in the following matter: Mic 1 active: yy = 01 Mic 2 active: yy = 02 Audio in 3 active: yy = 04 Audio in 4 active: yy = 08 Example of feedback: *S audmap 04 00 *S audiofeedback remote2 *S audmap 04 01 *S audmap 05 01 *S audiofeedback local *Storage: level 1*

Command	Usage	Description
audioin	usage: audioin [1/2/3/4/5] <on/off> or: audioin [6] <on/off/auto> or for TANDBERG 770-3000 MXP: usage: audioin [1/2/3/4] <on/off> or: audioin [4] <on/off/auto>	Selects which of the audio inputs should be active inputs. TANDBERG 6000-8000 MXP: **1** Microphone 1 (XLR connector) **2** Microphone 2 (XLR connector) **3** Microphone 3 (XLR connector) **4** AudioIn 4 (line level) **5** AudioIn 5 (line level) **6** AudioIn 6 (line level) By setting audio input 6 to auto, it will be turned off until VCR is selected on the remote control, or video input 4 is activated via the Dataport. **audioin on**, or **audioin off** turns all audio inputs on/off. TANDBERG 770-3000 MXP: **1** Microphone 1 (XLR connector) **2** Microphone 2 (XLR connector) **3** AudioIn 3 (line level) **4** AudioIn 4 (line level) By setting audio input 4 to auto, it will be turned off until VCR is selected on the remote control, or video input 4 is activated via the Dataport. **audioin on**, or **audioin off** turns all audio inputs on/off. Example of feedback: *P audioin 1 on *P audioin 2 on *P audioin 3 on *P audioin 4 on *P audioin 5 off *P audioin 6 auto *Storage: level 1*

Command	Usage	Description
audiolevel	usage: audiolevel <i1/i2/i3/i4/i5/i6/o1/o2/o3> <1..16>	Sets the audio input and output levels from 1-16. TANDBERG 6000-8000 MXP: Sets the audio input and output levels from 1-16. **i1** Microphone 1 (XLR connector) **i2** Microphone 2 (XLR connector) **i3** Microphone 3 (XLR connector) **i4** Audio4 **i5** Audio5 **i6** Audio6 **o1** Output1 **o2** Output2 **o3** Output3 TANDBERG 770-3000 MXP: **i1** Microphone 1 (XLR connector) **i2** Microphone 2 (XLR connector) **i3** Microphone 3 (XLR connector) **i4** Audio4 **o1** Output1 **o2** Output2 Example of feedback: Command: audiolevel i1 *P audiolevel i1 5 Command: audiolevel o1 *P audiolevel o1 10 *Storage: level 1*
audiomix	usage: audiomix <fixed/auto>	Selects fixed or automatic audio mixing. **fixed** W fixed is selected, all inputs are always active. This may increase the background noise. **auto** When auto is selected , the audio levels from the inputs with echo cancellation (TANDBERG 6000-8000 MXP audio inputs 1-4, TANDBERG 770-3000 MXP audio inputs 1-2) are mixed automatically. If the channel level is below an estimated noise floor level the channel will not be active (default). Example of feedback: *P audiomix auto *Storage: level 1*
audiomodule	usage: audiomodule <0/1/2/3> - (note: 0 - None) (note: 1 - NaturalAudio) (note: 2 - NaturalAudio2) (note: 3 – DNAM)	Audiomodule is used to select between the different TANDBERG MXP Audio Modules that can be attached to the TANDBERG 6000-8000 MXP. (TANDBERG 770-3000 MXP not applicable.) **0** No Natural Audio Module connected. **1** Natural Audio Module 1 (NAM 1) is connected **2** Natural Audio Module 2 (NAM 2) is connected **3 Digital** Natural Audio Module (DNAM) is connected Example of feedback: *P audiomodule 2 *Storage: level 3*

Command	Usage	Description
audioout	usage: audioout [1/2/3] <on/off> or for TANDBERG 770-3000 MXP: audioout [1/2] <on/off>	Sets the audio outputs to either on or off. If no specific output is identified all audio outputs will be set to on (or off). Example of feedback: *P audioout 1 on *P audioout 2 on *P audioout 3 on *Storage: level 1*
automute	usage: automute <on/off>	When automute is set to on, the mic will be turned off automatically at boot and at end of calls. Example of feecback: *P automute on *Storage: level 1*
echoctrl	usage: echoctrl [1/2/3/4] <nr/on/off>	TANDBERG 6000-8000 MXP: Selects the echo control mode for each of the first four audio inputs. Audio inputs 5 and 6 do not have echo cancellation. **1** Mic1 **2** Mic2 **3** Mic3 **4** Audio4 **on** Echo control enabled **off** Echo control disabled **nr**[8] Noise reduction (reduces low frequency and background noise) [default]. TANDBERG 770-3000 MXP: Selects the echo control mode for each of the first two audio inputs. Audio inputs 3 and 4 do not have echo cancellation. **1** Mic1 **2** Mic2 **on** Echo control enabled **off** Echo control disabled **nr**[9] Noise reduction (reduces low frequency and background noise) [default]. For more information about roomsize and motion, please refer to the TANDBERG MXP user manual. Example of feedback: *P echoctrl 1 nr *P echoctrl 2 nr *P echoctrl 3 nr *P echoctrl 4 nr *Storage: level 1*

[8] In addition to the engaging the noise reduction the setting ‘nr’ also turns echo control ON
[9] In addition to the engaging the noise reduction the setting ‘nr’ also turns echo control ON

4.2.2 VGA/Monitor Settings

Command	Usage	Description
dualmon	usage: dualmon <on/off> -	Sets the codec's monitor mode. It allows the user to set up the codec so it can utilize two displays. Example of feedback: *P dualmon on *Storage: level 1*
monformat	usage: monformat <pc/tv> <formatid> - formatid – 0/1/2/3/4	Valid only for T7000. Specifies picture format for pc and tv. Default pc format is 0. Default tv format is 2. The format specifications are: 0 : Default screen format. Picture scaled to screen size. 1 : True 4:3, picture scaled to 4:3 no cutting. 2 : codec menu format. Picture full width, cut so that menus are displayed properly. 3 : 15:9 picture scaled to 1280X768 4 : 16:9 picture scaled to 16:9 no cutting. Example of feedback: *P monformat pc 0 *P monformat tv 0 *Storage: level 3*
monset	usage: monset <monitorid> brightness <0..16> - monitorid - 1/2	Valid only for T7000. Display settings for the system monitors. May display individual settings, and may also set new settings for the monitor. *Storage: level 1*
monstat	usage: monstat [monitorid] - monitorid - 1/2	Used to determine if the video source is best displayed in PAL/NTSC or VGA format. TV indicates that the video source is best displayed in PAL/NTSC . PC indicate that the video source is best displayed in VGA formats. **monitorid 1/2** Selects which monitor to get feedback from. If omitted, feedback from both monitors will be given. Example of feedback: *S monstat 1 tv 0 *S monstat 2 pc 0
vgaout	usage: vgaout <svga/xga/auto> - (note - svga = 800x600 xga = 1024x768)	Sets VGA out videoformat to 800*600 (SVGA) or 1024*768 (XGA). See also **vgamon** command. Example of feedback: *P vgaout auto *Storage: level 1*

Command	Usage	Description
vidfeature	usage: vidfeature tv <rate> - rate - off/auto//64/128/192/256/320/384/512/768/1152/1472/1536/1920/2560/3072	Set Natural Video/TV quality to auto or off or at the specified threshold were the unit should start transmitting natural video (iCIF). Command example: "**vidfeature tv 768**" Example of feedback: *P vidfeature tv auto *Storage: level 1*
vidin	usage: vidin <1/2/3/4/5/6>	Selects the active video input source. *Storage: level 1*
vidname	usage: vidname <1/2/3/4/5/6> <name> - <name> = "" - delete	Records a name in the video source menu to be associated with the identified physical video input. To remove a name, use: **vidname <1/2/3/4/5/6> " "** Example of feedback: *P vidname 1 "Main Cam" *P vidname 2 AUX *P vidname 3 "Doc Cam" *P vidname 4 VCR *P vidname 5 PC *P vidname 6 VNC *Storage: level 1*
vidtone	usage: vidtone <a/b/c/d/e/f/test>	Selects the ringing tone used to indicate an incoming video call. **A** Standard tone **B** Tone B **C** Tone C **D** Tone D **E** Tone E **F** Tone F **test** Test tone Example of feedback: *P vidtone c *Storage: level 1*

Command	Usage	Description
vnc	usage: vnc <ipaddress:display-number> [password] or: vnc key <character> or: vnc mouse <x> <y> <button>	Used to connect to a VNC server, so that a live PC image can be transferred to the system over the LAN network. **ipaddress** The ipaddress of the VNC service **displaynumber** The displaynumber of the VNC service. This number must matcht the isplaynumber of the VNCserver. **key** Used to send key commands to the PC which is running the VNC service**.** **mouse** Used to control the mouse on the PC which is running the VNC service. Example of feedback: *S vnc idle *P vnc 10.0.2.180:0 rogerpc *Storage: level 3*

4.2.3 Camera Settings

Command	Usage	Description
camcenter	usage: camcenter <on/off>	If multiple mics pick up speech when camera tracking is on, the algorithm will try to incorporate all the speakers in the picture, if possible. Example of feedback: *P camcenter on *Storage: level 1*
campos	usage: campos get or: campos set [pan=p] [tilt=t] [zoom=z] [focus=f]	Get current camera position, or set new camera position. Max and min limit of position varies between camera models. For the W.A.V.E camera the following numbers are valid: **pan** 1295 = Maximum left 647 = Centre 0 = Maximum right **tilt** 248 = Upper most position 172 = Centre 0 = Lower most position **zoom** 0 = No zoom 1023 = Maximum zoom **focus** 4096 = Maximum far sighted 40959 = Maximum near sighted Example of feedback: *S campos pan=23 tilt=-164 zoom=431 focus=20480 *Storage: level 1*

Command	Usage	Description
camsettings	usage: camsettings [camid] <brightness> <auto/manual> [level] - camid: 1..5, 1 is default if not specified level: 0..16	Set brightness of WAVE camera. **n** Camera number 1..5, default is 1 **level** A value between 1 and 16. **Note!** Level applies to manual mode only. Example of feedback: *P camsettings 1 brightness auto 7 *P camsettings 2 brightness auto 7 *P camsettings 3 brightness auto 7 *P camsettings 4 brightness auto 7 *P camsettings 5 brightness auto 7 *Storage: level 1*
camsleepmode	usage: camsleepmode <on/off>	If turned on, the main camera will go into sleep position (maximum right panning) when screensaver is turned on. At the same time it will activate video source 1 (maincam), if any other video source is currently selected. Example of feedback: *P camsleepmode off *Storage: level 1*

Command	Usage	Description
camtrack	usage: camtrack <on/off> [slow/norm/fast]	Selects automatic camera tracking mode. There are three modes *slow*, *norm*, *fast*. Note! At least two of the presets P7, P8 and P9 must be stored before automatic camera tracking will function. The camera position stored at P7 relates to Mic1, P8 relates to Mic 2 and P9 relates to Mic 3. **slow** The camera will include people in the picture once they have spoken for approx. 1 sec, but they will normally not be excluded until they have been silent for approx. 50-60 sec (provided that others are speaking). This mode is suitable when overview images are preferred to close-ups. **norm** The camera will include people in the picture once they have spoken for approx. 1 sec, but they will normally not be excluded until they have been silent for approx. 25-30 sec (provided that others are speaking). This is the mode to use in regular meetings [default]. **fast** The camera will frequently move back and forth and for most of the time show (film) only the person currently speaking. Intensity of speech has no influence on time-out periods. This mode is suitable hen close-ups are preferred to overview images. Example of feedback: *P camtrack off fast **Note! On the TANDBERG770-3000 only P7 and P8 are used, since they have only two microphone inputs.** *Storage: level 1*

Command	Usage	Description
extcam[10]	usage: extcam <on/off> [pres=n] [source=n]	Enables or disables the external camera mode. e.g.: Command: **extcam on pres=4 source=3** This will define 3 external camera sources for the codec and allow 4 presets. If the first argument is 'ON', the other two optional arguments may be specified. If the first argument is 'OFF', using *pres* and *source* arguments will result in an ERROR being returned by the codec. The *pres* argument enables external control equipment to inform the codec how many external camera presets are available. If this argument is omitted, the codec handles preset switching internally using 15 presets[11].

[10] Available from F1.2
[11] See the 'preset-act' and 'preset-store' commands later in this document

		External control equipment can specify how many external video sources are available using the *source* argument. If this argument is omitted, the codec handles video source switching internally using its 5 video sources. The legal range for the *source* argument is 0 to 9. The command provides feedback. If the *pres=n* argument is not displayed as part of the feedback then internal preset switching is active. If the *source=n* argument is displayed as part of the feedback then internal video source switching is enabled. When "extcam" is set ON and far end camera control commands (FECC) are received from a remote videoconferencing system, the codec will output camera control feedback to the Dataport in the form: **C direction operation* **e.g.: Remote unit requests local camera to start moving left** *C le start Remote unit requests local camera to stop moving left *C le stop Other feedback movements are: ri up do f+ f- z+ z- **NOTE:** 1. If "extcam" is 'on' the "vidin" command is <u>not</u> disabled. It is therefore still possible to use the codec's internal video matrix to switch between video sources physically attached to the codec. 2. If "source=xx" is specified, and the TANDBERG MXP codec receives a FECC request to change video source it must respond with the "extswitch" command. This command confirms to the remote codec that the TANDBERG MXP codec has switched video sources. If this is not done subsequent FECC commands (from the remote codec) may not work. FECC feedback will not appear if the TANDBERG MXP camera is connected to the codec and this camera is the active video source, instead the camera will respond to FECC pan , tilt, zoom, and focus commands. However, when another physical video input is selected (i.e. using "vidin") FECC feedback will appear. Therefore it is possible to use the TANDBERG MXP camera alongside other cameras and maintain FECC control.
extswitch[12]	usage: extswitch <external video source number>	Informs a remotely connected codec that a new video source has been selected and is now the active source. **n** the number of the video source, defined using the extcam command, that is now the active source. **NOTE:** The "*extswitch*" command ensures that the remote codec will use the predefined capabilities associated with the identified video source. This command has no feedback.

[12] Available from F1.2

4.2.4 H323 Settings

Command	Usage	Description
h323alias	usage: h323alias [e164 <e164alias>] [id <h323id>] - <e164alias> = "" - delete <h323id> = "" - delete	Set E.164 alias or ID for registration to an H.323 gatekeeper. **e164** Set the E.164 number the unit will use when registering to a GateKeeper (GK). When registered to a GK with an E.164 number the unit can reached by using ordinary ISDN numbers on your IP network. Maximum number of digits of the E.164 number is 30. Valid arguments are digits from 0-9 and the characters * and #. **id** Set the H.323id for registration to a GK. Once registered the unit can be reached by using an alphanumeric string on your IP network. Maximum length of the id is 40 characters. Example of feedback: *P h323alias e164 "99779" *P h323alias ID " TANDBERG MXP Technical " *Storage: level 1*
h323gatekeeper	usage: h323gatekeeper <off/auto> h323gatekeeper [manual] <ipaddr> - note: h323alias e164 needs to be set before using a gatekeeper.	This will enable/disable registration to an H.323 gatekeeper. This will enable/disable registration to an H.323 gatekeeper. **off** Gatekeeper registration is turned off. In this mode you must call using an IP address. **auto** The unit will automatically search for a gatekeeper in the network and register to the first one, which grant it access. **manual** The unit will only register to the gatekeeper with the given IP address. If the gatekeeper is behind a router or other device, which does not pass by broadcast messages this modus must be used. You should also use manual if you want to make sure the unit register to a specific gatekeeper. If only gatekeeper IP address is given, the gatekeeper manual IP address will change. This will cause a re-registration if gatekeeper is set to manual settings. Example of feedback: *P h323gatekeeper auto 10.0.2.229 *P h323gatekeeper 127.0.0.1 *Storage: level 1*

Command	Usage	Description
h323callmanager	usage: h323callmanager <on/off> or: h323callmanager address <ipaddress> - ipaddress - (format n.n.n.n, where n is 0..255)	The h323callmanager-command can be used to set the IP-adress to the CallManager that are to be used for routing of the calls. h323callmanager and h323gatekeeper, is mutually excluding, and only one can be active. NB: h323gatekeeper must be set to off before you can set the h323callmanager to on. **off** The endpoint will not search for a callmanager address. **on** the endpoint will search and register to the callmanager at the ip adresse provided in the command h323callmanager address. Example of feedback: *P h323callmanager address 10.0.2.105 *Storage: level 1*
h323mtu	usage: h323mtu <500..1400>	Set maximum IP packet size to be used for H.323 calls. It can be useful to reduce the packet size when packets are transmitted over links, which add overlay (like VPN). Reducing the size of the packet will then prevent it from being defragmented. Example of feedback: *P h323mtu 1400 Storage: level 1
h323nat	usage: h323nat <ipaddress> or: h323nat <on/off/auto>	Configuration of NAT (Network Address Translation) router. **ipaddress** The IP address of the NAT router. **on** All IP packets sent from the system will be forwarded to the NAT router. **off** No address translation is active. **auto** Automatic NAT configuration. Example of feedback: *P h323nat off *P h323nat 127.0.0.1 *Storage: level 1*

Command	Usage	Description
h323ports	usage: h323ports <static/dynamic>	When opening a TCP connection for H323 the use of static h323 ports results in the use of ports 5555 or 5556 for Q931 and H245 respectively. When setting the h323 ports to dynamic the operating system will allocate which ports to use. **static** ports 5555 for Q931 and 5556 for H245. **dynamic** ports are allocated by the operating system. Example of feedback: *P h323ports static *Storage: level 1*
h323prefix	usage: h323prefix <prefix>	Set prefix of numbers that will trigger an H.323 call when the call profile's network selection is auto. This is useful if an H.323 numbering plan is used and all H.323 numbers are starting with the same number. Example: h323prefix 99 This will cause the unit to place an H.323 call for all numbers starting with 99 (e.g. 99200) as long as network type is set to auto. Example of feedback: *P h323prefix 99 *Storage: level 3*
h323rate	usage: h323rate txvideo <16..4096>	Used to set the maximum outgoing bitrate on H.323 regardless of the calltype used when making the call. This is useful if asymmetric callrate is wanted. Please use this command carefully since the system will not provide any indication that it's on. Example of feedback: *P h323rate txvideo 4096 *Storage: level 1*
h323stat	usage: h323status	This will display gatekeeper, callmanager and other H.323 related settings in the same manner as *ipstat*. This command will also give you information about bitrates and packet loss for each channel. Example of feedback: Gatekeeper configuration .....… registered Gatekeeper IP address ..... 10.0.0.30 Gatekeeper RAS port ..... 1719 CallManager configuration ..... Off

Command	Usage	Description
h323qos	usage: h323qos prectlph <audio> <precvalue> or: h323qos diffstlph <audio> <diffsvalue> or: h323qos precvtlph <audio/video/data/signalling> <precvalue> or: h323qos diffsvtlph <audio/video/data/signalling> <diffsvalue> or: h323qos mode <precedence/diffserv/off> or: h323qos tos <delay/throughput/reliable/cost/off> or: h323qos rsvp <auto/off> - precvalue - 1/2/3/4/5/6/7/auto/off diffsvalue - 0..63	Sets different IP quality services. Used to set custom diffserv or ip precedence values to the following type of H.323 traffic: **audio** **video** **data** **signalling** **precedence** Set Quality-of-Service parameters for H.323 IP traffic. This will allow prioritised traffic through IP routers configured to allow prioritisation. IP precedence is used by some routers (Cisco) to further prioritise traffic. Valid values are from **1** to **7**. Recommended values from Cisco, is to use **4** for audio/video and **6** for signalling. **diffserv** Do the same as IP Precedence but you have 63 values instead of 7. This enables you to classify up to 64 different classes with different prioritation.. Valid values are from **0** to **63**. **tos** Set type of service to one of the following valid arguments: **delay** Minimize delay. **troughput** Maximize throughput. **reliable** Maximize reliability. **cost** Minimize monetary cost. **off** Default. Cisco routers use the tos argument to help getting the best quality of service, but the argument used to accomplish this will vary from network to network. Ask the IT administrator of your network, which one is best to use for video. **rsvp** When set to auto, ReSerVation Protocol (RSVP) is used for bandwidth reservation in H.323 calls if RSVP is supported by all routers between the two endpoints. Example of feedback: *P h323qos prectlph audio auto *P h323qos diffstlph audio 0 *P h323qos precvtlph audio auto *P h323qos precvtlph signalling auto *P h323qos precvtlph video auto *P h323qos precvtlph data auto *P h323qos diffsvtlph audio 0 *P h323qos diffsvtlph signalling 0 *P h323qos diffsvtlph video 0 *P h323qos diffsvtlph data 0 *P h323qos mode precedence *P h323qos tos off *P h323qos rsvp off *P h323qos prec auto *P h323qos tos off *Storage: level 3*

4.2.5 H320 Settings

Command	Usage	Description
aim	usage: aim <on/off>	Setting aim to off prevents the codec from sending AIM (Audio Indicate Mute) to remote site when local microphone is turned off. Default is on. Example of feedback: *P aim on *Storage: level 3*
g703settings	usage: g703settings <maxchan> <1..30> or: g703settings <startchan> <1..30> or: g703settings <e1/t1> or: g703settings <linecoding> <B8ZS/B8ZSrestrict>	Configures PRI leased line parameters. **maxchan** Set maximum channels to be used. **startchan** Set the channel from where to start the call. **e1/t1** Select if the leased line is a E1 or T1. **B8ZS /B8ZSrestrict** Select if the leased line PRI is a 56kb network, or a 64kb network. Example of feedback: *P g703settings maxchan 24 *P g703settings startchan 1 *P g703settings t1 *P g703settings linecoding B8ZS *Storage: level 3*
h331mode	usage: h331mode <on/off>	Turns broadcast mode on or off. When set to on it's possible to make an outgoing call without any capability exchange. Could be used to make a broadcast over satellite. *Storage: level 1*

Command	Usage	Description
localdn	usage: localdn [1..6] [b1/b2] <number> or: localdn [1..6] [on/off] - <number> = "" – delete or for TANDBERG 770-3000 MXP: usage: localdn [1..4] [b1/b2] <number> or: localdn [1..4] [on/off] - <number> = "" – delete	Stores the local directory number for the associated ISDN line. **1. . 6** Identifies the BRI **B1/B2** Identifies the channel **number** The number associated with the specified channel or "" to delete or **[1/2/3/4/5/6]** <on/off> **on** Enables an ISDN line **off** Disables an ISDN line Example of feedback: *P localdn 1 b1 780 *P localdn 1 b2 780 *P localdn 2 b1 767 *P localdn 2 b2 767 *P localdn 3 b1 769 *P localdn 3 b2 769 *P localdn 4 b1 761 *P localdn 4 b2 761 *P localdn 5 b1 763 *P localdn 5 b2 763 *P localdn 6 b1 764 *P localdn 6 b2 764 *Storage: level 3*
los-duration	usage: los-duration <exponent> <offset> - The duration of the los-pulse is calculated as duration = offset + (2**exponent)/(bitrate) where exponent - valid range is 10 - 30 offset - number of milliseconds, valid range is 0 - 65535 bitrate - current bitrate in bits per second	This command controls the duration of the LOS pulse. It takes two arguments. The first argument is an **exponent** value. The second argument is an **offset** in milliseconds. The width of the pulse will be calculated as: $Td = offset + 2^{ezponent} / bitrate$, where bitrate is 64 kbit/s, 128 kbit/s etc. Example of feedback: *P los-duration 17 5 **Note: Only available on endpoints with NET interface** *Storage: level 1*
los-inhibit	usage: los-inhibit <sec>	Specifies the number of seconds to wait before issuing a new LOS pulse if the codec regains and subsequently loses H221 frame alignment. Example of feedback: *P los-inhibit 15 **Note: Only available on endpoints with NET interface** *Storage: level 1*

Command	Usage	Description
los-initial	usage: los-initial <sec>	Specifies the maximum number of seconds to wait for H221 frame alignment during call setup before asserting the LOS signal. Example of feedback: *P los-initial 5. **Note: Only available on endpoints with NET interface** *Storage: level 1*
los-polarity	usage: los-polarity <1/0>	Set LOS pulse polarity. Example of feedback: *P los-polarity 1 **Note: Only available on endpoints with NET interface** *Storage: level 1*
los-retry	usage: los-retry <sec>	Specifies the number of seconds to wait before issuing a new LOS pulse in case the codec does not regain H221 frame alignment. Example of feedback: *P los-retry 25 **Note: Only available on endpoints with NET interface** *Storage: level 1*
msn	usage: msn <on/off>	Enables/disables the use of MSN (Multiple Subscriber Number). Example of feedback: *P msn off *Storage: level 1*
netclock	usage: netclock <dual/single> - dual - RS449/V35 Compatible single - X21 Compatible	Specifies the external network clocking type to be used when operating in External Network mode. **dual** V35/RS449 compatible **single** X21 compatible Example of feedback: *P netclock dual. **Note: Only available on endpoints with NET interface** *Storage: level 3*

Command	Usage	Description
netctrl	usage: netctrl <rs366/leased/manual>	Specifies the external network control type to be used when operating in External Network mode. **rs366** RS-366 call control protocol **leased** Leased line signalling **manual** Manual control Example of feedback: *P netctrl rs366 **Note: Only available on endpoints with NET interface** *Storage: level 3*
netdtrpulse	usage: netdtrpulse <on/off>	Configures the DTR signal on the External Network port (V.35). Indicates how the dtr signal on the extnet port (V35) behaves. 'On' indicates low pulse in 5 seconds.'Off' means the dtr pulse stays low. **on** The DTR signal will give a low pulse lasting for 5 seconds **off** The DTR pulse will stay low. Example of feedback: *P netdtrpulse off **Note: Only available on endpoints with NET interface** *Storage: level 2*

Command	Usage	Description
netisdn	usage: netisdn <ni/att/euro/1tr6/japan/australia/fetex/italy> or: netisdn sendcomplete <on/off> or: netisdn restart <on/off> or: netisdn alert <on/off> or: netisdn hlc <on/off>	Specifies the ISDN switch type to be used when the unit is operating in ISDN mode. Sending complete can be turned off. This is only applicable for some Australian switches, which stop outgoing calls when the message "send complete" is sent to the switch. **netisdn restart** enables or disables initial restart procedure. **netisdn alert** **on** The ISDN protocol responds with an alert message to all incomming setup messages. (unless the call is rejected). Includes setups for additional channels. **off** The ISDN protocol does only respond with an alert message to the incoming setup message related to the initial channel. (Unless call is rejected. **netisdn hlc** **on** The ISDN protocol sends HLC if defined for this switch type. **off** The ISDN protocol does not send HLC information element in setup message, video calls only . Example of feedback: *P netisdn ni *P netisdn sendcomplete off *Storage: level 3*
netpri	usage: netpri <att/ni/euro/italy> - (note : select PRI switch protocol)	Selects PRI network type. **ni** National ISDN **att** AT&T **euro** Euro ISDN **italy** Italy switch type Example of feedback: *P netpri ni **Note: Only available on endpoints with PRI interface** *Storage: level 3*

Command	Usage	Description
pardial	usage: pardial <on/off>	Sets parallel dial mode for use in BONDING calls. If *pardial* is set to OFF the codec will set-up BONDING calls by dialling all channels in a sequential manner, i.e. the system will wait for a connection on the current channel before attempting to connect the next. Example of feedback: *P pardial on *Storage: level 1*
pricable	usage: pricable [PRI interface] <cablelength> - PRI interface - a cablelength - 1/2/3/4/5 (note: 1 - 0-133 ft (0 - 40 m) 2 - 133-266 ft (40 - 81 m) 3 - 266-399 ft (81 - 122 m) 4 - 399-533 ft (122 - 162 m) 5 - 533-655 ft (162 - 200 m))	Specifies the length of the cable used between this codec's E1/T1 port 1 and the CSU (or previous codec). **a** PRI/T1 1 interface Example of feedback: *P pricable a 1 **Note: Only available on endpoints with PRI interface** *Storage: level 3*
pricrc4	usage: pricrc4 <on/off>	Enables or disables the crc check if the PRI protocol is E1. CRC is default on, and should stay on in most cases. Example of feedback: *P pricrc4 on **Note: Only available on endpoints with PRI interface** *Storage: level 3*
prihighch	usage: prihighch <1,2,3...31>	Used together with prilowch to define line-hunting strategy. The codec will search for available channels between "*prilowch"* and "*prihighch"*. This way other devices can reserve the channels outside "*prilowch"* and "*prihighch"*. When the system is set to E1 the range is from 1-31, for T1 the range is 1-23. When there is no value specified by *prilowch* and *prihighch* they automatically use their default values 1 (*prilowch*) and 23 (*prihighch*) for T1 and 31 (*prihighch)* for E1. Channel 16 on E1 is used as D channel, hence when using 16 as an argument channel 17 or 15 will be selected instead. Example of feedback: *P prihighch 23 **Note: Only available on endpoints with PRI interface** *Storage: level 3*

Command	Usage	Description
prilowch	usage: prilowch <1,2,3...31>	Used together with "*prihighch"* to define line hunting strategy. The codec will search for available channels between "*prilowch"* and "*prihighch"*. This way other devices can reserve the channels outside "*prilowch"* and "*prihighch"*. When the system is set to E1 the range is from 1-31, for T1 the range is 1-23. When there is no value specified by *prilowch* and *prihighch* they automatically use their default values 1 (*prilowch*) and 23 (*prihighch*) for T1 and 31 (*prihighch)* for E1. Channel 16 on E1 is used as D channel, hence when using 16 as an argument channel 17 or 15 will be selected instead. Example of feedback: *P prilowch 1 **Note: Only available on endpoints with PRI interface** *Storage: level 3*
primaxch	usage: primaxchan <number> - number : 0..30 or max	Sets a limit on the number of channels that will be available for incoming and outgoing calls. Example of feedback: *P primaxchan 12 **Note: Only available on endpoints with PRI interface** *Storage: level 3*

Command	Usage	Description
prinsf	usage: prinsf <t/v> <number> - t – telephony v – videophony number - 0..31 (use "" to delete number)	Selects Network Service Facility for videophony or telephony on PRI-T1. The NSF can be configured as blank/no value (NSF not used - default) or any value between 0-31 to describe the service facility on your PRI-T1 line. To enter the NSF value you must know the service profile used for your line. Below is a list of some of the profiles: <u>Service profiles for AT&T (ref.1):</u> NSF Service 0 Disable 1 SDN (including GSDN) 2 Toll Free Megacom (800) 3 Megacom 6 ACCUNET Switched Digital Service (including Switched Digital International) 7 Long Distance Service (including AT&T World Connect) 8 International Toll Free Service (I800) 16 AT&T MultiQuest 23 Call Redirection Service <u>Service profiles for Sprint (ref. 2):</u> NSF Service 0 Reserved 1 Private 2 Inwatts 3 Outwatts 4 FX 5 TieTrunk <u>Service profiles for MCI (ref. 3):</u> NSF Service 1 VNET/Vision 2 800 3 PRISM1, PRISMII, WATS 4 900 5 DAL You might have to contact your T1 provider to get the correct value if any is needed. Example of feedback: *P prinsf t 0 *P prinsf v 6 **Note: Only available on endpoints with PRI interface** *Storage: level 1*
prinumber	usage: prinumber<number> - <number> = “” - delete	Specifies the phone number of the PRI line that you wish to associate with this system. Example of feedback: *P prinumber 7448235 **Note: Only available on endpoints with PRI interface** *Storage: level 3*

Command	Usage	Description
prinumbrange	usage: prinumbrange <lowest number> <highest number>	Sets pri number range. **Note: Only available on endpoints with PRI interface** *Storage: level 3*
prisearch	usage: prisearch <high/low>	Specifies the search strategy the codec should use when searching for available channels. Uses the initial limit set by prilowch or prihighch . Example of feedback from **prisearch** command: *P prisearch high *Storage: level 3*
sendnum	usage: sendnum <on/off>	Enables/disables the broadcast of the local unit s number during the set-up of a call. [13] Example of feedback: *P sendnum off **Note: Only available on endpoints with PRI interface** *Storage: level 1*

[13] The transfer of the local number to a remote codec or the prevention thereof is dependent on the feature set supported by the network or networks used to establish a connection between the two endpoints in a call.

Command	Usage	Description
spid	usage: spid [1..6] [b1/b2] <number> or: spid auto - <number> = "" - delete note: auto - trigger auto spid	Stores the spid number associated with each ISDN channel. Only valid for North American networks. To remove a SPID number, enter: **spid <1/2/3/4/5/6> [B1/B2] “”** **auto** triggers automatic line configuration if supported by the switch. Example of feedback: *P spid 1 b1 514555823500 *P spid 1 b2 514555257700 *P spid 2 b1 514555057800 *P spid 2 b2 514555058200 *P spid 3 b1 514555060400 *P spid 3 b2 514555060700 *P spid 4 b1 514555061400 *P spid 4 b2 514555062900 *P spid 5 b1 514555050900 *P spid 5 b2 514555051200 *P spid 6 b1 514555051300 *P spid 6 b2 514555051800 *Storage: level 3*

4.2.6 Other Settings

Command	Usage	Description
access	usage: access <on/off> or: access use [code] - (note: code - max. 16 characters)	Turns access control on/off. **on** Turns access control on **off** Turns access control off **use** Reports a specific access code to the system. If an access code list is present in the codec, the code used must match one of the codes in the list to be able to dial out. If no access list is present in the codec, the code used will only be reported in a SNMP trap for use with accounting. A valid access code must be entered before a call is made when accounting is turned on. When the call is ended a new valid access code has to be entered before next call is made. All valid access codes are kept in a file (account.txt) in the user directory of the internal FTP server of the system. A valid code consist of up to 16 characters. To add or delete codes, the file must be downloaded via FTP from the codec and edited in a text editor before it is transferred back to the system. The valid access code entered will be sent out as a SNMP trap for use with accounting, and TANDBERG MXP Management Suit. Example of feedback: *P access off *Storage: level 1*
ansdelay	Usage: ansdelay <1...50> - (note: 1 = 0,1 second, 50 = 5,0 seconds)	Specifies the time before the call is autoanswered if autoanswer is set to on. **1** 0,1 second **50** 5,0 seconds Example of feedback: *P ansdelay 40 *Storage: level 1*
autoans	usage: autoans <off/on/mute> - (note: off - no autoanswer on - autoanswer mute - autoanswer with microphone off)	Specifies whether the codec should automatically answer an incoming call.[14] *Storage: level 1*

[14] This command only operates for the first inbound call and will not autoanswer any subsequent incoming MultiSite calls. This command acts independently of the ATS0 setting described in the Hayes compatible section of this user guide.

Command	Usage	Description
autopip	usage: autopip <on/off/auto>	Automatically produces a PIP on the monitor whenever the Main Camera is operated or whenever a new video source is selected. Example of feedback: *P autopip on *Storage: level 1*
bondingtimer	usage: bondingtimer <normal/relaxed>	Relaxed bonding timing should be used with applications where the B-channels use some additional time before they become transparent, like external encryption devices etc. **normal** normal bonding timing is applied. **relaxed** relaxed bonding timing is applied. *Storage: level 3*
custominfo	usage: custominfo [<1/2/3> [string]] - string - textstring of max 30 characters (note: if string is "", delete text)	Stores 3 strings with 30 characters each. Example of feedback: *P custominfo 1 “” *P custominfo 2 “” *P custominfo 3 “” *Storage: level 1*
defcall	usage: defcall <calltype/netprofile> - calltype = {tlph,1xh221,2xh221,1b,2b,3b,4b,5b,6b,8b,12b,18b,23b,30b,auto,max} netprofile = {p1,p2,p3,p4,p5,p6) Hint: p1=auto p2=H320 ISDN p3=H323 LAN	Sets the default call type to be used. **calltype** tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b,12b, 23b, 30b, 2m5, 3m, H0, auto, max **tlph** telephone **netprofile** p1, p2, p3, p4, p5, p6 When calltype is set to auto, the system will automatically try to make a 6b call if ISDN is selected, or a 12b call if IP is selected. Example of feedback: *P defcall auto *Storage: level 1*

Command	Usage	Description
disable	usage: disable <keycode> <keycode> ... or: disable <keytone> or: disable <menu/startmenu> or: disable * - keycodes 1 2 3 4 5 6 7 8 9 0 * # lay z- z+ v- v+ mm up do le ri ok conn disc pb me de present sv grab	Disables certain functions available via the keys on the codecs remote control, see also the enable command. *Storage: level 3*
donotdist	usage: donotdist <on/off>	When do not disturb is set to on, the codec will not alert the user to incoming calls. The calling side will receive a busy signal when trying to call the codec. Do not disturb will be turned off if the codec receives any IR signal from the handheld remote control. Example of feedback: *P donotdist off *Storage: level 0*

Command	Usage	Description
downspeed	usage: downspeed <on/off>	Selects downspeed mode. When set to ON “downspeed” will allow the Codec to automatically adjust the bandwidth of a call depending on the available number of ISDN channels and the capabilities of the remote system. The “downspeed” feature is effective both during call set-up and during a call and will even allow fallback to a voice only call if the dialled number is that of an analogue telephony device. Example of feedback: *P downspeed on *Storage: level 2*
enable	usage: enable <keycode> <keycode> ... or: enable <keytone> or: enable <menu/startmenu> or: enable * - keycodes: 1 2 3 4 5 6 7 8 9 0 * # lay z- z+ v- v+ mm up do le ri ok conn disc pb me de present sv grab	Enables certain functions available via the keys on the codecs remote control, see also the disable command. *Storage: level 3*

Command	Usage	Description
encmode	usage: encmode <des/aes128/auto>	Sets encryption algorithm. **des** The Data Encryption Standard (DES) will be used as default encryption algorithm. If the other end does not support DES, the system will connect without using encryption. **aes** The Advanced Encryption Standard (AES) will be used as default encryption algorithm. AES provides higher security then DES by using a 128-bit encryption key instead of 56, which is used by DES. AES is an option and must be installed; otherwise the system will only use DES. AES is not supported over IP. If the other end does not support AES, the system will connect without using encryption. **auto** The TANDBERG MXP system will choose automatically which encryption algorithm to use. In an H.320 call the system will try to use AES. In an H.323 call the system will try to use DES. It will try to use the most secure encryption standard supported by the other end. If no encryption is supported the system will not use encryption. Example of feedback: *P encmode auto *Storage: level 3*
encrypt	usage: encrypt <on/off/auto>	Set encryption to off or auto. When encryption is set to auto the call is encrypted with a 56 bit key using the DES (Data Encryption Standard) algorithm, or with a 128 bit key using the AES (Advanced Encryption Standard) algorithm. Encryption will only work in point to point / Duo Video calls with speeds up to 768kb. The AES standard is also supported over ISDN **on** Turns on encryption **off** Turns off encryption **auto** Encryption will automatically be turned on if remote system supports encryption. Example of feedback: *P encrypt auto *Storage: level 3*

Command	Usage	Description
extcap	usage: extcap <n> [p/t/z/f/m/s] - p-pan, t-tilt z-zoom, f-focus m-motion, s-still	Specifies the capabilities to be associated with the external video sources **n** the number of the video source, defined using the extcam command, to which the following capabilities apply. **caps** **p**=pan, **t**=tilt, **z**=zoom, **f**=focus, **m**=motion video, **s**=still video E.g.: Command: **extcap 1 ptzfms** Defines capabilities for external camera source 1 Command: **extcap 2 ms** Defines capabilities for external camera source 2 "*extcap*" provides parameter query type feedback. If the video source is omitted in the parameter query, feedback will be provided for all sources. If "*extcam*" is set 'off' an "*extcap*" parameter query will return the caps associated with the 5 physical video inputs on the codec. Example of feedback: *P extcap 1 ptzfms *P extcap 2 ms *P extcap 3 ms *P extcap 4 ms *P extcap 5 ms *Storage: level 0*
extname	usage: extname <n> <name>	Defines the name associated with each external video source. **n** the number of the video source, defined using the extcam command, to which the following name applies. **name** max. 16 characters. **NOTE**: Encapsulate the name with "" if it contains spaces. "extname" provides parameter query type feedback. If the video source is omitted in the parameter query, feedback will be provided for all sources. If "*extcam*" is set OFF an "*extname*" parameter query will return the names associated with the 5 physical video inputs on the codec**.** Example of feedback: *P extname 1 "" *P extname 2 "" *P extname 3 "" *P extname 4 "" *P extname 5 "" *Storage: level 0*

Command	Usage	Description
fallback	usage: fallback <on/off>	Enables or disables fallback to telephony. This command should be used for faultfinding only. Disabling fallback to telephony will allow the ISDN cause code to be seen in the event that a videocall is unsuccessful. With fallback enabled the codec will switch to telephone call mode and overwrite the ISDN cause code. **on** The codec will fallback to telephone I f a videocall is unsuccessful [default]. **off** The codec will not fallback to telephone if a videocall is unsuccessful. Example of feedback: *P fallback on *Storage: level 2*
fecc	usage: fecc <on/off/le/ri/up/do/z+/z-/f+/f-/vs n/pa n/ps n/se [n]> - on/off - enable/disable far end control le/ri/up/do - move far end camera z+/z- - zoom far end camera f+/f- - focus far end camera vs n - change far end video source to n pa n - activate far end preset n ps n - store far end preset n se [n] - request far end still image [from source n]	Sends far end camera control commands to a remotely connected codec. **on** Enables remote unit to control local camera **off** Disables far end control of local camera[15] **le** Moves far end camera left **ri** Moves far end camera right **up** Moves far end camera up **do** Moves far end camera down **z+/** Zooms far end camera in/out **f+/-** Focuses far end camera in/out **vs *n*** Select far end video source number *n* **pa *n*** Select far end preset number *n* **ps *n*** Store far end preset ***n***[16] **se *n*** Request far end stillimage [from source ***n***

[15] Local unit is still able to control remote camera provided this feature is supported and has not been turned off as well

[16] Although the command to "store" presets on the far end system is supported by TANDBERG systems a remote TANDBERG system will not accept an FECC request to store a preset.

Command	Usage	Description
ipaddress	usage: ipaddress <s/m/g> <addr> or: ipaddress active s/m/g - static IP address, subnet mask or gateway address addr - format n.n.n.n, where n is 0..255 use "" to remove entry active - feedback on active IP, mask and gateway adress	Configure LAN interface when static IP address allocation is used. **s** Sets the static IP address **m** Sets the IP subnetmask **g** Sets the IP address to the gateway **active** Issue this command to get feedback about thecurrent active IP address, subnet mask and gateway. **NOTE:** This command is only applicable when static IP address allocation is used. Use the command ipassignment to select between DHCP and Static IP address allocation. **The codec needs to reboot before the changes will apply** **examples:** **ipaddress s 192.9.222.12** This example sets the static IP address to 192.9.222.12. **ipaddress m 255.255.255.0** The ***m*** variable defines the class of network. If the setting is 255.255.255.0 the local network will support up to 256 nodes, denoting a class C network. If the setting is 255.255.0.0 the local network is a class B network with 65536 addressable nodes. **ipaddress g 192.9.200.21** If a gateway is located on the LAN and the codec needs to reach nodes through this gateway, the gateway address can be set using the ***g*** variable (the IP address of the gateway will be set automatically if the codec is in DHCP mode) **ipaddress s "”** deletes the static IP address Example of feedback: *P ipaddress s 192.9.222.12 *P ipaddress m 255.255.255.0 *P ipaddress g 192.9.200.21 *S ipadress active 192.0.2.9 255.255.0.0 10.2.3.10 *Storage: persistant*

Command	Usage	Description
ipassignment	usage: ipassignment <dhcp/static> or: ipassignment speed <auto/10half/10full/100half/100full>	Selects DHCP (Dynamic Host Configuration Protocol) or static IP address allocation. **dhcp** Selects DHCP [default]. **static** Selects static IP addressing. **speed** Select LAN port speed either to auto, or manually from 10mb half duplex to 100mb full duplex. When set to auto the codec will auto negotiate with the network and use the best available setting. When DHCP is selected the codec will automatically receive all the necessary information from the DHCP server. This function should be used when the codec is connected to a LAN using DHCP. When using this mode IP-address and IP-subnet mask are not used because the DHCP server supplies these parameters. Example of feedback: *P ipassignment dhcp *P ipassignment speed auto **Note!** The codec needs to reboot before the change will apply**.** *Storag: persistant*
iplr	usage: iplr <transmit> <enable/disable>	Intelligent packet lost recovry. When the transmitter (encoder) is enabled, iplr will work as normal. If it is disabled iplr will not try to recover lost packets. *Storage: level 1*
ippassword	usage: ippassword [LAN interface] <password> - LAN interface - 1 password - (max 16 characters - use "" to remove at least 8 and a mix of alphabetic and other symbols are required (note: to use simpler password, set "strictpassword off"	Sets a password to restrict access to the codec s webbrowser, telnet and ftp resources. If the password is forgotten it can only be deleted using the command ippassword “” through the RS232 port. Example: **ippassword** ‘TANDBERG’ Sets the IP password to TANDBERG **ippassword “”** Deletes the IP password. **Note:** The password is case sensitive. *Storage: persistant*
strcitpassword	usage: strictpassword <on/off>	Sets strcitpassword to on or off. *Storage: level 1*

Command	Usage	Description
irctrl	usage: irctrl [int] <on/off> - int - internal IR control	Turns the system IR sensors either ON or OFF. **int** Internal IR sensor mounted in the codec. Example of feedback: *P irctrl int off *Storage: level 0*
language	usage: language <english/german/norwegian/french/swedish/spanish/japanese/chinese/traditional/russian/italian/portuguese/korean>	Selects the language to be used in the on-screen menus. Example of feedback: *P language English *Storage: level 3*
layout-keyboard	usage: layout-keyboard <eng/us/de/fr/no/se/user>	Set the keyboard layout used for chatting on dataport 1. By connecting a keyboard directly to dataport 1 and set the dataport to keyboard, you're able to chat with a system in the other end without using the **chat** command on the dataport or the chat functionality of the embedded web server. If another keyboard then the currently supported must be connected, you must contact TANDERG to receive the correct "key.map" file. This file must be copied into the "user" directory of the embedded FTP server. Once this is done the **user** layout has to be selected. If **user** is selected but no "key.map" file is present, the system will default to **us** keyboard layout. Eksample of feedback: *P layout-keyboard US *Storage: level 1*
maxcall	usage: maxcall <0...999> - (Note: 0 = off (no maximum call length) numbers given in minutes)	Sets the maximum call length from 0 = off to 999 minutes. This function can be used to prevent that a call is up and running over night by accident. The command is valid for both incoming and outgoing calls. *Storage: level 1*

Command	Usage	Description
mculine	usage: mculine <on/off/auto>	Enables pr disables display of the MCU status line. **on** Enables display of the MCU status line. **off** Disables display of the MCU status line **auto** This setting will time out the MCU / DuoVideo indicators. They will disappear from the screen, but will reappear as soon as anyone picks up the remotecontrol. Example of feedback: *P mculine on *Storage: level 1*
menupassword	usage: menupassword set <code> - code - max. 5 digits	This command is used to limit the access to the menu from the remote control. The pin code can maximum contain 5 digits and will be erased by executing the command using an empty string. e.g. **menupassword set “”** *Storage: level 3*
mic	usage: mic <on/off>	Mutes and un-mutes the mic. Example of feedback: *P mic on When far end turn mic on or off: *F mute on *F mute off *Storage: level 0*
multisite	usage: multisite incoming <on/off> or: multisite cp <cp4/on/off>	Turn incoming multisite calls either on or off. Select between the multisite conference modes voice switched and continuous presence. Example of feedback: *P multisite incoming on *P multisite cp on *Storage: level 1*

Command	Usage	Description
netprofile	usage: netprofile <profile number> <call prefix> [profile name] [network] - profile number - p1/p2/p3/p4/p5/p6 network – auto/h320/h323	Set network profiles. **prefix** is added to every dialed number using the netprofile associated with the prefix. **name** is the profile name. **protocol** can be **H.320**, **H.323** or **auto.** The profile name and protocol for p1 to p3 is set from factory: **p1** is named auto and the protocol is auto **p2** is named ISDN and the protocol is H.320 **p3** is named LAN and the protocol is H.323 For these three profile names the protocol is silently ignored. Example of feedback: *P netprofile p1 "" Auto auto *P netprofile p2 "" ISDN h320 *P netprofile p3 "" H323 h323 *P netprofile p4 "" "" auto *P netprofile p5 "" "" auto *P netprofile p6 "" "" auto *Storage: level 3*
nettype	usage: nettype <isdn/pri/external/g703/none>	Selects network type. **pri** PRI ISDN **isdn** BRI [default]. **external** External Network (Net connector) **g703** E1/T1 leased line Example of feedback: *P nettype isdn *Storage: level 3*

Command	Usage	Description
optionkey	usage: optionkey <key> - key - (16 characters [0-9])	Optionkey is a key of 7 characters that will enable software options. **optionkey none** Disables the option key boot menu which normally will be active when no optionkey has been entered, and the user has not turned it off with the remote control. Example of feedback: *P optionkey 3921024337479553 or *P optionkey ? The questionmark indicates that the option key boot menu is active. *Storage: persistant*
pldownspeed	usage: pldownspeed <auto/off>	Enables or diables automatic packetloss based downspeeding mechanism. Only valid for IP dalls. *Storage: level 3*
preset-store	usage: preset-store <p0-p14>	Stores the current audio and video selections to one of the fifteen preset positions.
pressource	usage: pressource <c/1/2/3/4/5> - presentation Source c - current Video Source presentation Source 1 - Video Source 1 presentation Source 2 - Video Source 2 presentation Source 3 - Video Source 3 presentation Source 4 - Video Source 4 presentation Source 5 - Video Source 5	Defines from which video source the TANDBERG MXP will send a graphics image or DuoVideo. *Storage: level 1*
protect	usage: protect <on/off> [password] - password - textstring of max 16 characters	Protects the system's network settings, when "protect" is set to **on**. These settings will remain inaccessible (both via the Dataport and via the on screen menu system) until "*protect*" is set to **off**. If a password is used when setting "protect" to **on**, the same password must be used in order to set "protect" to **off**. Using the **'defvalues set all'** command will <u>not</u> affect the current setting for "protect" *Storage: level 3*

Command	Usage	Description
screensaver	usage: screensaver <on/off/enable/enable60/enable180/disable> - on/off - Turn screensaver on or off immediately. enable - Enable time controlled screensaver. enable60 - Turn screensaver on for 60 minutes immediately enable180 - Turn screensaver on for 180 minutes immediately disable - Disable screensaver functionality. (note: CAUTION: use with care on plasma screens..)	Set screensaver modus. **on** Turn screensaver on immediately. **off** Turn screensaver off immediately. **enable** Enable time controlled screensaver. When enabled the videoutput from the systems will give a black output after 10 minutes. **enable60** Screensaver is delayed by 60 minutes. **enable180** Screensaver is delayed by 180 minutes **disable** Disable screensaver. This command must be used with care when operating with plasma screens. The screensaver settings will not be stored during a boot. Example of feedback**:** *S screensaver off *P screensaver enable *Storage: level 0*
selfview	usage: selfview <on/off>	Sets selfview on or off Example of feedback: *P selfview on *Storage: level 0*

Command	Usage	Description
services	usage: services telnet <enable/disable> or: services telnetchallenge <enable/disable> [port] or: services http <enable/disable> or: services https <enable/disable> or: services h323 <enable/disable> or: services snmp <enable/disable/read-only/traps-only> or: services ftp <enable/disable> or: services remote-parameter <enable/disable> - port - 23 or 57 (note: port 23 used with telnetchallenge will inhibit normal telnet changes become effective after reboot)	Set what services of the system that will be available. **telnet** Enable or disable embedded telnet server **ftp** Enable or disable embedded ftp server **http** Enable or disable embedded web server **h323** Enable or disable video over IP **remote-software** Enable or disable remote software upgrades over ISDN. **remote-parameters** Enable or disable the possibility to retrieve all system settings remotely over ISDN **snmp** Set read only, full access or disable the snmp functionality of the system. **Telnetchallenge** The telnetchallenge service allows for a more secure management. When it is set, the codec will prompt the user for a "challenge" before opening up a session to the codec. That is and "MD5 Challenge" is enabled on the port specified. Note: if enabled on port 23 telnetchallenge will inhibit a normal telnet session. Changes becomes effective after reboot. Example of feedback: *P services telnet enable *P services telnetchallenge enable 57 *P services http enable *P services https disable *P services h323 enable *P services snmp enable *P services ftp enable *P services remote-parameter disable *Storage: level 1*

Command	Usage	Description
snmp	usage: snmp <cn/sc/sl> <name> or: snmp <hi> <host ip address> [host ip addr] [host ip addr] - cn - Community Name sc - System Contact sl - System Location (note: the same host ip address can not be set twice)	Configure SNMP parameters. **cn** Communityname. The SNMP host must match this parameter to query SNMP data from the codec. **sc** System contact **sl** Systemlocation These 3 parameters are ASCII strings used for SNMP messages. **hi** Host IP address Example of feedback: *P snmp hi 10.0.255.255 *P snmp sl Meetingroom *P snmp sc Receiption *P snmp cn public **Note!** For more information about SNMP please read the TANDBERG MXP SNMP application note. *Storage: level 3*
spkr	usage: spkr <on/off>	Sets the internal alert speaker to either **on** or **off**. Example of feedback: *P spkr on *Storage: level 1*

Command	Usage	Description
sport	usage: sport <port> [baud] [parity] [databits] [stopbits] [camera/mode] - port - data1/data2 baud - 1200/2400/4800/9600/19200/38400/57600/115200 parity - n/o/e none, odd or even parity databits - 7/8 7 or 8 databits stopbits - 1/2 1 or 2 stopbits camera - v/a visca or auto camera mode (data2 only) mode - d/m/c/k data channel, modem, control mode (data1 only) or keyboard	Configures the codec s dataports. Parameter Valid arguments **port** data1/data2 **baud** 1200/2400/4800/9600/19200/38400 57600/115200 **Pprity** n/o/e {none, odd or even} **databits** 7/8 **stopbits** 1/2 **mode** d/m/c/t/k {data, modem, control, (data1only), keyboard (data 1 only)} **v/a** {visca or auto camera mode (data2 only)}. **Note!** The keyboard mode is only valid for the TANDBERG 6000-8000. When this mode is active you can connect a keyboard to the dataport 1. The keyboard can then be used directly replacing the need for the chat command. Example of feedback: *P sport data1 9600 n 8 1 c *P sport data2 9600 n 8 1 a *Storage: level 1*

Command	Usage	Description
still	usage: still send [1/2/3/4/5] or: still req [n] or: still <on/off> - send - sends a high quality still image from source req - request a high quality still image on - view still image off - view normal n - still image input source (1..15)	Controls the transmission, reception and display of graphics images. Controls the transmission, reception and display of graphics images. The resolution of the received image will default to the highest available depending on the video algorithm currently being used and the capability of the remote system. **send** Sends a still graphics image to the remote unit. **req** Requests a still graphics image from the remote unit. **on/off** Displays the last sent/requested graphics image/live video from remote site. **n** An identified video source. If not specified the default source specified by "pressource" will be used. Example of feedback: *P still off If the command feedback is set to on, the following events are reported on the dataport: **Event** **Feedback** Still image received *s still received Still image sent *s still sent Still image reception aborted *s still receive abort Still image transfer aborted *s still send abort Still image sent error *s still sent error Still image received error *s still received error Still image receive started *s still receive started *Storage: level 0*

Command	Usage	Description
streaming	usage: streaming enable <on/off> or: streaming port <n> or: streaming hops <n> or: streaming address <ip-address> or: streaming vrate <16/32/64/128/192/256/320> or: streaming announcements <on/off> or: streaming <on/off> or: streaming source <auto/local/remote> or: streaming password <password>	Configures streaming parameters. It is not possible to stream inside a Duo Video call or an MCU call. When streaming is activated Duo Video and MCU functionality is disabled. **enable on** Enables remote start of streaming. This command is only available through the RS-232 port and not from Telnet. **enable off** Disable remote start of streaming. Streaming cannot be started from the Web or Telnet. **address** The address, which you want the codec to stream to. This address could be a multicast address, broadcast address ora unicast address. **port** With this command you can specify the port, which the codec shall stream to. This is useful if you want to stream two different applications to the same IP address. **hops** Number of router hops you want the codec to stream to. The default value 1 will normally allow the streaming data to pass one router. **vrate** Selects the video rate in kbps to stream out on the network. **on** The codec starts to stream with the specified parameters. **off** Turns off streaming. **announcement** Turn on or off Streaming Announcement Protocol **<on/off>** (SAP) which is used by Cisco IP TV. **Password** Sstreaming password. This password and the ip password will give access to the streaming page in he internal web browser. By using this password the more sensitive ip password can be reserved to the administrator. **source** Select streaming source as local, emote or auto. In auto mode the treaming will be voice switched. he s ite currently speaking will be streamed. Example of feedback: *S streaming off *P streaming enable off *P streaming port 22232 *P streaming hops 1 *P streaming address 224.2.26.136 *P streaming vrate 64 *P streaming announcements on *P streaming source auto *Storage: level 3*

Command	Usage	Description
sub	usage: sub <subaddress> - subaddress - subaddress, "" = delete	Specifies an ISDN subaddress for the codec. The subaddress will be the same for all ISDN channels. To remove the subaddress use **sub “”** Example of feedback: *P sub "" *Storage: level 1*
systemname	usage: systemname <new system name> - (note: max 50 characters)	Sets system name for use with MCU, telnet and the webinterface. Example of feedback: *P systemname 6000 MTL *Storage: persistant*
telephony	usage: telephony incoming <on/off>	Specifies if the unit shall accept incoming telephone calls. *Storage: level 1*
teltone	usage: teltone <a/b/c/d/e/f/test>	Selects the ringing tone used to indicate when a telephone call is received. **A** Standard tone **B** Tone B **C** Tone C **D** Tone D **E** Tone E **F** Tone F **test** Test tone *Storage: level 1*
vol	usage: vol <0..15>	Selects the volume level output. **0** Volume 0 (off) **15** Volume 15(max.) Example of feedback *P vol 11 *Storage: level 1*
websnapshots	usage: websnapshots <on/off> - (note: enables or disables the ability to send snapshots)	Enables or disables the possibility to send snapshots. Only valid for local ports (menu and serial port). **on** set websnapshots on **off** set websnapshots off *Storage: level 1*

4.3 F1 Status Commands

Command	Usage	Description
chanstat	usage: chanstat [channel] Response: chanstat channel channel-status calling-number connection-time(Sec.) channel - call status on one channel (1/2..etc.) - no argument, call status on all channels	Displays the channel status of all channels in use by the Codec. When External Network is selected the status of NET is displayed. When PRI is selected the status of B-channels 1-30 is displayed. When ISDN is selected the status of BRI 1 (channels 1 &2), BRI 2 (channels 3&4) , BRI 3 (channels 5&6) BRI 4 (channels 7&8), BRI 5 (channels 9&10) and BRI 6 (channels 11&12) is displayed. Example (ISDN): chanstat <1…../30> PRI interface chanstat <1…../12> BRI interface If no channel argument is specified, call status will be provided for all available channels. Response to the command is: *s chanstat {Channel-Id}{Channel-status}{Calling-number/Called-number}{Connection-Time} *Channel-Id* values are from 1 to 12. When calling or answering the Channel-id will be the BRI id, where 1/2 is BRI 1, 3/4 is BRI 2, 5/6 is BRI 3, 7/8 is BRI 4, 9/10 is BRI 5 and 11/12 is BRI 6 *chanstat 1/2 calling/answering 1234 0Sec* *chanstat 3/4 calling/answering 1236 0Sec* *chanstat 5/6 calling/answering 1238 0Sec* *chanstat 7/8 calling/answering 1240 0Sec* *chanstat 9/10 calling/answering 1242 0Sec* *chanstat 11/12 calling/answering 12440Sec* *Channel-status* values are: *idle*, *calling*, *answering*, *connect*, *disconnecting* and *disconnected* If channel status is *disconnecting* or *disconnected* an ISDN cause value will be displayed together with channel status. The ISDN cause values will be according to ITU Q.931, where the first number indicates location and second the cause value E.g. chanstat 2 disconnected] 1234 38Sec where 0 identifies the location and 16 the cause value. *Calling-number* will be displayed on outgoing calls, and the number called from will be displayed on incoming calls[17]. *Connection-Time* values are in seconds, and represents the time from channel status connect to channel status disconnected. When a new call starts all channels are set to: "chanstat 1/2/3/4/5/6….12 idle xxx 0Sec". When a call is disconnected the channel status information will be stored until next call starts. E.g.: Command: chanstat 4 Response: *s chanstat 4 disconnected [0:16] 28Sec Chanstat examples: Command: chanstat Response: *s chanstat 1 idle xxx 0Sec *s chanstat 2 connect 1234 10Sec *s chanstat 3/4 calling 1236 0Sec *s chanstat 3/4 calling 1236 0Sec *s chanstat 5 idle xxx 0Sec *s chanstat 5/6 calling 1238 0Sec *s chanstat 7/8 calling 1240 0Sec *s chanstat 9/10 calling 1242 0Sec *s chanstat 11/12 calling 1244 0Sec

[17] Display of the main ISDN number of the system calling into the local unit is dependent on information passed to the local codec by the network during call setup.

Command	Usage	Description
		More Chanstat examples: Command: chanstat 1/2/3/4/5/6/7/8 Response: *s chanstat 1 disconnecting [1:16] 1238 107Sec *s chanstat 2 disconnected [0:16] 1234 145Sec *s chanstat 3 disconnecting [0:16] 1235 142Sec *s chanstat 4 disconnected [0:16] 1236 125Sec *s chanstat 5 idle xxx 0Sec *s chanstat 6 disconnected [0:16] 1237 121Sec *s chanstat 7 disconnected [0:16] 1239 115Sec *s chanstat 8 disconnected [0:16] 1240 112Sec
encstat	usage: encstatus [callid] Response: encstatus callid incomingstat outgoingstat [check-code] - callid -1..11 incomingstat - off/idle/des/aes128 outgoingstat - off/idle/des/aes128/negotiate	Used to check encryption status on all channels during a call. Respons is: *encstatus callid incomingstat outgoingstat [check-code]* **callid** 1-11 i**ncomingstat** off/idle/des/aes128 **outgoingstat** off/idle/des/aes128/negotiate Example of feedback: *S encstatus 1 aes128 aes128 79D624557088AC7E *S encstatus 2 aes128 aes128 8577D2CD2839F20C *S encstatus 3 off off *S encstatus 4 off off *S encstatus 5 off off *S encstatus 6 off off *S encstatus 7 off off *S encstatus 8 off off *S encstatus 9 off off *S encstatus 10 off off *S encstatus 11 off off Check-code is a key that can be manually presented by the participants to confirm secure connection.
feinfo	usage: feinfo	Returns information identifying a remote system s far end camera control capabilities and the currently active video source. Example of feedback: *F capstart *F cappres 15 *F capvid 1 "Main Cam" ptzfms *F capvid 2 "AUX" ms *F capvid 3 "Doc Cam" ms *F capvid 4 "VCR" ms *F capvid 5 "PC" ms *F capvid 6 "VNC" ms *F capend
fevidsrc	usage: fevidsrc	Returns information identifying the current active video source of a remotely connected codec. Example of feedback: *F vidsrc 1.

Command	Usage	Description
ipstat	usage: ipstat	Shows LAN interface information. Example of feedback: ---------- LAN1 (eth0) status: ---------- Assignment method used ..... DHCP Physical address ..... 00:50:60:7F:FA:AA Active IP address ..... 10.47.13.170 Active subnet mask ..... 255.255.248.0 Active gateway address ..... 10.47.8.1 ---------- Ethernet PHY0 status: ---------- Type: ..... TDK78Q2120C, rev 5 Auto-negotiation ..... Enabled Link status ..... 10half ETHERNET ABILITIES OWN PARTNER Auto negotiation able ..... Yes No Next page able ..... No - PAUSE able ..... No - 100BASE-T4 able ..... No - 100BASE-TX full duplex able... Yes - 100BASE-TX half duplex able.. Yes - 10BASE-T full duplex able ..... Yes - 10BASE-T half duplex able ..... Yes - IEEE-802.3 compliant ..... Yes - PHY0 registers: 00: 0x3100, 01: 0x782d, 02: 0x000e, 03: 0x70c5 04: 0x01e1, 05: 0x0000, 06: 0x0000, 16: 0x0940 17: 0x0005, 18: 0x0000, 19: 0x47e1
mcustat	usage: mcustat [terminals]	MCU status information. See section 6 for more details about MCU commands.
netstat	usage: netstat	Provides detailed IP information about ongoing H.323 calls. Information displayed is routing table with destination address, gatewayaddress, subnetmask and metric flags, in addition you get a list of all TCP and UDP connections. Example of feedback --- Routing Table --- Destination Gateway Mask If Refct Met Flags 127.0.0.0 127.0.0.1 255.0.0.0 loop 0 1 up|sil 10.0.0.0 10.0.2.15 255.255.0.0 eth0 43 1 up 10.0.2.15 127.0.0.1 255.255.255.255 loop 196 1 up|gw|hst 224.0.0.1 127.0.0.1 255.255.255.255 loop 0 1 up|hst|sil 0.0.0.0 10.0.0.1 0.0.0.0 eth0 0 1 up|gw --- Open connections --- Sckt Proto Local address Foreign address TOS State [1] tcp 10.0.2.15:21 0.0.0.0:0 00 CONNECTING-BL [2] tcp 10.0.2.15:23 0.0.0.0:0 00 CONNECTING-BL [3] tcp 10.0.2.15:57 0.0.0.0:0 00 CONNECTING-BL [4] udp 10.0.2.15:1719 10.0.0.30:1719 00 CONNECTING-B [5] tcp 10.0.2.15:1720 0.0.0.0:0 00 CONNECTING-BL [6] raw 0.0.0.0:0 0.0.0.0:0 00 CONNECTING-L [7] tcp 10.0.2.15:80 0.0.0.0:0 00 CONNECTING-BL [8] udp 10.0.2.15:962 10.0.0.160:162 00 CONNECTING-B [9] udp 10.0.2.15:161 10.0.0.161:2009 00 CONNECTING-B

		[10] udp 10.0.2.15:5701 127.0.0.1:5700 00 CONNECTING [83] tcp 10.0.2.15:23 10.0.6.106:1308 00 Established [88] tcp 10.0.2.15:5555 10.0.4.49:1720 00 Established [89] tcp 10.0.2.15:5556 10.0.4.49:5555 00 Established [90] udp 10.0.2.15:2326 10.0.4.49:2334 00 CONNECTING-B [91] udp 10.0.2.15:2327 10.0.4.49:2335 00 CONNECTING-B [92] udp 10.0.2.15:2334 10.0.4.49:2326 c0 CONNECTING-B [93] udp 10.0.2.15:2335 10.0.4.49:2327 00 CONNECTING-B [94] udp 10.0.2.15:2328 10.0.4.49:2336 00 CONNECTING-B [95] udp 10.0.2.15:2329 10.0.4.49:2337 00 CONNECTING-B [96] udp 10.0.2.15:2336 10.0.4.49:2328 c0 CONNECTING-B [97] udp 10.0.2.15:2337 10.0.4.49:2329 00 CONNECTING-B [98] udp 10.0.2.15:2332 10.0.4.49:2340 00 CONNECTING-B [99] udp 10.0.2.15:2333 10.0.4.49:2341 00 CONNECTING-B [100]udp 10.0.2.15:2340 10.0.4.49:2332 c0 CONNECTING-B [101]udp 10.0.2.15:2341 10.0.4.49:2333 00 CONNECTING-B

Command	Usage	Description
preset-list	usage: preset-list [<p0-p14> [<audmask> <vidinput>]]	Edit camera presets. This command is mainly used for storing presets while upgrading the system. The audiomask is a binary mask, which can be used to specify which audio inputs are on or off. **audmask** A value between 0 and 127 (TANDBERG 6000). If audioinputs 1,2 and 3 are on and 4,5 and 6 is off you get the binary mask 000111 which again equals the input value 1*1 + 1*2 + 1*4 = 7 **vidinput** Selects videoinput from 1 to 5. Example of feedback: *P preset-list p1 1 1 *P preset-list p2 1 1 *P preset-list p3 8 3
rnumber	usage: rnumber [callid] Response rnumber callid rNo rNo2 rSub - callid –1..11	Returns remote number for last call...Callid **2/3/4/5/6/7/8//9/10/11** is only valid for systems with MultiSite option installed. If the **callid** argument is omitted, the command will return information for all call IDs. **Response format:** *rnumber, callid, rNo, rNo2, rSub* **1** Returns remote number for call number 1 **2** Returns remote number for call number 2 **3** Returns remote number for call number 3 **4** Returns remote number for call number 4 **5** Returns remote number for call number 5 **6** Returns remote number for call number 6 **7** Returns remote number for call number 7 **8** Returns remote number for call number 8 **9** Returns remote number for call number 9 **10** Returns remote number for call number 10 **11** Returns remote number for call number 11 **rNo** Displays the E.164 number or the IP address of the remote unit. **rNo2** Displays the second ISDN number in a H.221 call. **rSub** Displays the ISDN subaddress if present. Example of feedback: *S rnumber 1 067838551 "" "" *S rnumber 2 10.0.2.15 "" "" *S rnumber 3 90449 "" "" *S rnumber 4 "" "" "" *S rnumber 5 "" "" "" *S rnumber 6 "" "" "" *S rnumber 7 "" "" "" *S rnumber 8 "" "" "" *S rnumber 9 "" "" ""

		*S rnumber 10 "" "" "" *S rnumber 11 "" "" ""
sstring	usage: sstring <string>	Used for transferring data from one system to another in a point to point call. The string is limited to 200 characters. To see the string on the other end "**feedback z**" must be turned on. The **sstring** command transfers data using H224. This channel has a bandwidth of 6.4 Kb (4.8 Kb encrypted).

Command	Usage	Description
statin	usage: statin [callId] Response: statin <callid> <call-dir> <call-state> <restrict> <chan> <audio> <vidmode> <vidres> <duores> - callid - 1..11 call-dir - nocall/outgoing/incoming call-state - idle/syncing/capex/unframed/speech/disconn/synced restrict - idle/norestrict/restrict chan - idle/speech/h221-<chan>/bonding-<chan>/h323-<chan>/unknown audio - unknown/idle/g728/g722/g722.1/g711/auoff vidmode - unknown/vidoff/h261/h263 vidres - unknown/cif/qcif/sqcif/4cif/sif/4sif/vga/svga duores - unknown/cif/qcif/sqcif/4cif/sif/4sif/vga/svga	Returns details of the current call status with respect to incoming information. **1** Returns details for call number one **2** Returns details for call number two **3** Returns details for call number three **4** Returns details for call number four Response format: Call ID, Call direction, Call state, Restrict, Channels, Audio, Vidmode, Vidres, Duores Response values: **call ID** 1/2/3/4/5/6/7/8/9/10/11 **call direction** nocall,outgoing,incoming **call-state** idle/syncing/capex/unframed/ speech/disconn/synced **restrict** idle/norestrict/restrict **channels** idle, unknown, speech, h221-1/2B, h221- 384 (H0 call if PRI/BRI ISDN), h221- 128/../768 (transfer rate on external networks), bonding-1/2/3/4/5/6/8/12/18 /23/30 (BONDING on ISDN), h323-64/h323-128…/h323-3m H.323 IP calls). **audio** unknown, g711, g722, g722.1 g728, auoff **vidmode** unknown, vidoff, h261, h263 **vidres** unknown/cif/qcif/sqcif/icif/4cif/ sif/4sif/isif/vga/svga/xga

		duores cif/qcif/sqcif/4cif/sif/4sif/vga/ svga/xga The Audio, Vidmode and Vidres will be set to unknown when the call drops. Example of feedback: *S statin 1 outgoing synced norestrict bonding-4b g722 h263 cif *S statin 2 outgoing synced norestrict bonding-2b auoff h263 4cif *S statin 3 nocall idle idle idle unknown unknown unknown *S statin 4 nocall idle idle idle unknown unknown unknown

Command	Usage	Description
statout	usage: statout [callId] Response: statout <callid> <call-dir> <call-state> <restrict> <chan> <audio> <vidmode> <vidres> <duores> - callid - 1..11 call-dir - nocall/outgoing/incoming call-state - idle/syncing/capex/unframed/speech/disconn/synced restrict - idle/norestrict/restrict chan - idle/speech/h221-<chan>/bonding-<chan>/h323-<chan>/unknown audio - unknown/idle/g728/g722/g722.1/g711/auoff vidmode - unknown/vidoff/h261/h263 vidres - unknown/cif/qcif/sqcif/4cif/sif/4sif/vga/svga duores - unknown/cif/qcif/sqcif/4cif/sif/4sif/vga/svga	Returns details of the current call status with respect to outgoing information. **1** Returns details for call number one **2** Returns details for call number two **3** Returns details for call number three **4** Returns details for call number four Response format: Call ID, Call direction, Call state, Restrict, Channels, Audio, Vidmode, Vidres, Duores Response values: **call ID** 1/2/3/4/5/6/7/8/9/10/11 **call direction** nocall,outgoing,incoming **call-state** idle/syncing/capex/unframed/ speech/disconn/synced **restrict** idle/norestrict/restrict **channels** idle, unknown, speech, h221-1/2B, h221- 384 (H0 call if PRI/BRI ISDN), h221- 128/../768 (transfer rate on external networks), bonding-1/2/3/4/5/6/8/12/18 /23/30 (BONDING on ISDN), h323-64/h323-128…/h323-3m H.323 IP calls). **audio** unknown, g711, g722, g722.1 g728, auoff **vidmode** unknown, vidoff, h261, h263

		vidres unknown/cif/qcif/sqcif/icif/4cif/ sif/4sif/isif/vga/svga/xga **duores** cif/qcif/sqcif/4cif/sif/4sif/vga/ svga/xga The Audio, Vidmode and Vidres will be set to unknown when the call drops. Example of feedback: *S statout 1 outgoing synced norestrict bonding-4b g722 h263 cif *S statout 2 outgoing synced norestrict bonding-2b auoff h263 cif *S statout 3 nocall idle idle idle unknown unknown unknown *S statout 4 nocall idle idle idle unknown unknown

4.4 F1 Debug Commands

Command	Usage	Description
dumph221	usage: dumph221 [0..15 / reset]	Dumps the H.221 log of the last call. Data will be dumped to the dataport to which this command was issued. **0** Dumps the H221 log of a point to point call, or the first call in a MultiSite call. **1** Dumps the H.221 log of the second call in a MultiSite call. **2** Dumps the H.221 log of the third call in a MultiSite call. **reset** Reset the H.221 buffer inside the codec. The buffer will now be filled up with new fresh H221 data. This command is only used in special occasions, since we are normally only interested in the H.221 data produced in the call set up. **Note**: This is a Hex dump that must be decoded to be read. Please contact your TANDBERG MXP Representative for more information
eventlog	usage: eventlog [n/all] - n - (number of lines from end of event log to dump) all - (dump whole event log) (note: if no parameters provided, the whole event log will be dumped)	The eventlog records every reboot done by the system. The log can be used to find out why it is rebooting. The complete eventlog can be downloaded from the embedded FTP server. In addition you can now list all the entries of the file, using this dataport command. **n** Number of lines from the end of the eventlog to dump out on the dataport. **all** List all entries in the eventlog. The eventlog will be deleted when you physically turn of the power of the system.

Command	Usage	Description
isdntrace	usage: isdntrace [1/2/3/4/5/6/pri] <on/off>	The arguments will vary dependent on the number of BRIs installed in your codec. Check the Power up and System info for information about your configuration. The TANDBERG 770-3000 MXP is only available with 4 BRIs, hence arguments regarding PRI and BRI 5 and above, will not be applicable for these systems. Causes D-channel information (layer 2 and 3) for the specified ISDN lines to be output to the dataport to which this command was issued. If no line number is specified and ISDN is the selected network, D-channel information will be output for all ISDN lines simultaneously. If PRI is the selected network, information will be output for all 23 or 30 channels simultaneously. The information will be output with a ✶T prefix, in real time, to the Dataport to which the command was issued.
syslog	usage: syslog <on/off> usage: syslog <loglevel> [call number] loglevel : 1..3 call number : 1..11 or "next" for the next call	Enables a real-time log of Bonding, H.221 and H.323 activity. **Note!** When used for H.323 activity the command must be issued through Telnet.

4.5 F1 Special Commands

Command	Usage	Description
beep	usage: beep	The codec makes a beep.
chat	usage: chat send <string> or : chat close - string - (string to send. Escape character formatted: \n - new line, \d - delete character, \a - alert, \q - quote ", \\ - \)	Used to perform text chat in point to point calls or Duo Video calls over ISDN or IP. When using the chat command, the text will be displayed on the local monitor and the far end monitor. The command will not work outside a call or in a MCU call. **String** String to send, or send escape characters formatted: **\n** Carriage return **\a** Alert far end by let the text box blink in yellow color. **\q** Display a the quote character ’ “’ \\ Displays the character ‘\’ **\d** Deletes last character entered. Eksample: **chat send “This is a test”** “This is a test”will be displayed on the screen. **char send \n** Send line shift.

Command	Usage	Description
dispbox	usage: dispbox <title> <line1> [line2] [line3] [button1] [button2] [button33] - (note: only one dispbox may occur at a time)	Displays a dialog box (message box) on the display device connected to the system. Only the first two arguments are mandatory. **Title** Title of message box (max 40 characters) **line 1-3** Message box text lines, max 40 characters per line. Line 1 is mandatory. **button 1-3** Text associated with the buttons, max 15 charactersperkey. A *R response will be displayed on the dataport when there is response from the dispbox e.g. one of the Quick Keys are pressed: Green Quick Key will produce the response: **R dispbox user 1* Yellow Quick Key will produce the response: **R dispbox user 2* Blue Quick Key will produce the response: **R dispbox user 3* When Menu, Directory, Connect, Disconnect or Store is pressed the following feedback will be produced to notify that the box has been cleared: **R dispbox system 1* If the delbox command is issued the following feedback will be produced: **R dispbox system 3* A snmp trap will be sent when the Quick Keys are pressed.

Command	Usage	Description
disptxt	usage: disptxt [<1/2/3> [string] [timeout]] - 1 - layer 1 2 - layer 2 3 - layer 3 string - textstring of max 38 characters if string is "", delete text timeout - 0...999 (seconds)	Displays text in the lower portion of any display device connected to video outputs 1,3 or SVGA if configured to display main monitor. The text will be displayed as line 1 (layer 1), line 2 (layer 2) and line 3 (layer 3). **1** Layer 1 **2** Layer 2 **3** Layer 3 **string** Text of max. 38 characters. Encapsulate with "" if string contains a "Space". **timeout 0.999** Set timer for the text that is displayed on the system in seconds
dltxt	usage: dltxt <1/2/3> - 1 - layer 1 2 - layer 2 3 – layer 3	Removes text that has been displayed using the disptxt command. The system will also accept deltxt as a valid command. **1** Layer 1 **2** Layer 2 **3** Layer 3
directory	usage: directory <1..200> [number[**number]] [calltype[r]] [p<n>] [name] or: directory add number[**number] ["name"] or: directory all - <1..200> "" - delete entry <1..200> - select entry 1..200 add - add to next available entry p<n> - call profile number <n>, <n>={1,..,6} all - lists all nonempty directory entries calltype = {tlph,1xh221,2xh221,1b,2b,3b,4b,5b,6b,8b,12b,18b,23b,30b,2m5,3m,4m,h0,auto,max}	Creates an entry in the pre-stored number list. Can also be used to overwrite existing entries. **1..200** Add to directory 1..200 **add** Add to next available entry **number** The number to be stored. If the destination is a unit using H221, you can store two different numbers by putting two "*" between the numbers. **calltype[r]** {tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, 2m5, 3m, H0, auto, max To store a number as resrtict (56 kb) simply put an "r" behind the calltype argument. The calltype is dependent on the Network Configuration of your codec. Check Power Up and System Info for information about your configuration. H0 is only available for systems with PRI installed. **p<n>** Select call profile, where n is a number between 1 and 6. See the netprofile command for more information **all** lists all nonempty directory entries To remove an entry from the directory list use: **directory <id>""** To retrieve a directory entry to the dataport use: directory <id> **Note!** If you put in a name, which contains spaces, the name has to be embraced by quotes e.g.: "John Johnsen". *Storage: level 1*

Command	Usage	Description
dispparam	usage: dispparam - lists all system parameters	Displays the parameters currently set in the local codec, but will not display **sport** information (*P sport1…) when the dataport is connected to a serial port on a PC. The file all.prm, which can be grabbed from the codec, will list all parameters including **sport**.
feedback	usage: feedback [f/p/s/c/k/z/m] <on/off> - (note: f = farend *F p = parameter *P s = status *S c = chanstat *S k = key *S z = sstring *Z m = menu statline *S)	Provides feedback via the dataport identifying changes that occur to the current state of the codec **f** Feedback about far end system is reported. This feedback will have the prefix *F **p** Feedback about parameters are reported (local settings). This feedback will have the prefix *P **k** Feedback about every key pressed on the remote control. This feedback will have the prefix * S. If all other feedback is set to on, **feedback k on** will be reported as: **P feedback on* **P feedback key on* **s** Feedback about status is reported (channel information etc). This feedback will have the prefix *S. **feedback s on/off** will turn on/off both **s** and **c**. **c** Feedback about channel status. Every time status changes occur on one of the ISDN ports, this will be reported. This feedback will have the prefix *S. Please also take a look at the **chanstat** command. **z** Feedback about string received from another end issuing the command **sstring**. For more information look at the **sstring** command in this document. Feedback will be reported as: *z sstring <string> The string sent from the other end can be maximum 200 characters long. **m** Feedback about menu output on the status line. Feedback will be reported as: *S <priority> <text>, where text on the menu has a priority. Priority 0 is the highest and can overwrite texts with lower priority. This feedback can be useful when the menu system is not used or turned off. The system messages can be displayed on e.g. a touch panel. Example of feedback: *S statline 15 "Press CONNECT to start call" or *S statline 8 "Could not connect more calls" or *S statline 5 "Strong Encryption On. Call secure" or *S statline 10 "Connecting VNC…" **feedback on** will turn on **f**, **p**, **s** and **c**. **feedback off** will turn off all feedback. The **f**, **p**, **s** filtering can be used separately or in any combination. Feedback via the Dataport will always be prefixed with a * and a letter signifying the type of feedback. *C Camera control information (see extcam/extcap command). *F farend feedback information is: *F still sent started (Indicates that a still image is being sent) *F fecc error (farend operation not possible on the menu) *F fecc abort (cannot control this camera on the menu) *Storage: level 1 on both serial ports interfsces and on the first telnet interface.* *Storage: level 0 on the rest of the telnet interfaces.*

Command	Usage	Description
globdirectory	usage: globdirectory <1..400> [number[**number]] [calltype[r]] [p<n>] [name] or: globdirectory add <number[**number] ["name"]> or: globdirectory all - <1..400> "" - delete entry <1..400> - select entry 1..400 add - add to next available entry (will not be stored after restart) p<n> - call profile number <n>, <n>={1,..,6} all - lists all nonempty directory entries calltype = {tlph,1xh221,2xh221,1b,2b,3b,4b,5b,6b,8b,12b,18b,23b,30b,2m5,3m,4m5,h0,auto,max}	Creates an entry in the global directory list. Can also be used to overwrite existing entries. **1..400** Add to directory 1..400 **add** Add to next available entry **number** The number to be stored. If the destination is an unit using H221, you can store two different numbers by putting two "*" between the numbers. **calltype[r]** {tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, 2m5, 3m, H0, auto, max To store a number as resrtict (56 kb) simply put an "r" behind the calltype argument. The calltype is dependent on the Network Configuration of your codec. Check Power Up and System Info for information about your configuration. H0 is only available for systems with PRI installed. **p<n>** Select call profile, where n is a number between 1 and 6. See the netprofile command for more information **all** lists all nonempty globdirectory entries To remove an entry from the globdirectory list use: **globdirectory <id>""** To retrieve a globdirectory entry to the dataport use: globdirectory <id> **Note!** If you put in a name, which contains spaces, the name has to be embraced by quotes e.g.: "John Johnsen". *Storage: level 0*
mcudirectory	usage: mcudirectory <add/1..50> [!<n>] ... [!<n>] [name] or: mcudirectory all or: mcudirectory delete <1..50> - add - (add to next available entry) all - (lists all nonempty entries) delete - (deletes specified entry) n - 1..200 (directory entry)	Creates an entry in the multisite directory list. **<1..50>** Add to entry 1..50 **calltype[r]** {tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, 2m5, 3m, H0, auto, max To store a number as resrtict (56 kb) simply put an "r" behind the calltype argument. The calltype is dependent on the Network Configuration of your codec. Check Power Up and System Info for information about your configuration. H0 is only available for systems with PRI installed. **<!n>** index number in directory <!n>, <!n>={1,..,200} **add** add to next available entry **all** Lists all nonempty mcudirectory entries *Storage: level 1*

Command	Usage	Description
key	usage: key <keycode> <keycode> ... keycodes: 1 2 3 4 5 6 7 8 9 0 * # present - Presentation z- - Zoom out z+ - Zoom in v- - Volume down v+ - Volume up mm - Mic off up - Up do - Down le - Left ri - Right ok - OK conn - Connect disc - Disconnect sv - Selfview lay - Layout cancel - Cancel pb - Phonebook grab - Grab	Emulates key presses from the TANDBERG MXP remote control. All keystrokes possible from the remote control can be emulated using this command. **key [keycode] [keycode] .....** **keycodes:** **1** **2** **3** **4** **5** **6** **7** **8** **9** **0** * # **present** Presentation **z-** Zoom out **z+** Zoom in **v-** Volume down **v+** Volume up **mm** Mic off **up** Up **do** Down **le** Left **ri** Right **ok** OK **conn** Connect **disc** Disconnect **sv** Selfview **lay** Layout **cancel** Cancel **pb** Phonebook **grab** Grab
ping	usage: ping <ipaddress>	Standard ping command. Used to check if a unit on the network is reachable. Example of feedback: ping: 192.168.1.10 is alive (10 ms)
test	usage: test [video/network/all]	Performs a test on different modules on the Codec. Example of feedback: Current video format is PAL Line1 is active Line2 is active Line3 is active Line4 is active Line5 is active Line6 is active OK Camera ID: TT0d0063

Command	Usage	Description
traceroute	usage: traceroute <ipaddress>	Standard traceroute command. Used to find out routing information to specified IP address. Example of feedback: traceroute to 12.35.161.100, 30 hops max: 1 193.212.161.81 (10 ms) 2 193.212.161.65 (20 ms) 3 194.248.135.61 (70 ms) 4 130.67.126.49 (70 ms) 5 148.122.66.177 (70 ms) 6 148.122.65.74 (70 ms) 7 148.122.65.14 (130 ms) 8 144.232.172.25 (130 ms) 9 144.232.7.81 (140 ms) 10 144.232.7.125 (140 ms) 11 12.122.5.193 (150 ms) 12 144.232.18.26 (160 ms) 13 144.232.9.90 (170 ms) 14 12.123.9.50 (170 ms) 15 12.123.194.33 (160 ms) 16 12.124.232.138 (170 ms)
ipconflictcheck	usage: ipconflictcheck	Checks the system for an op conflict. If there is an ip conflict a warning is given. Example of feedback in case of an ip conflict: NET : IP address (10.47.8.24) conflict with other host (00:50:60:80:30:b8)

5 Hayes Standard AT Commands

All Hayes Standard AT Commands must begin with the two letters **AT**. The *AT* prefix may be followed by one or more commands. The string of commands is limited to 80 characters including the **AT** prefix and any control characters. The commands may be entered in either upper or lower case and should be terminated with a carriage return. The command syntax is as follows:

AT<command(s)><CR>

The only exception is the 'Repeat Last' command and the 'escape code' command, in both cases the AT prefix is not used.

5.1 Repeat Last Command

A/ Repeat the previously entered command (without <Carriage return>).
The command is most frequently used to automatically redial a number that was reported as busy.

5.2 Escape Code Command

+++ Escape sequence '+++'.
The TANDBERG MXP will only recognise this command when it is in the **On-Line State**, i.e. once a call has been established. This command is used to change from the On-Line State to the Local Command State without interrupting the call. The command is valid only when the following conditions are fulfilled:

- No data must be sent from the DTE to the TANDBERG MXP for at least one second.
- The TANDBERG MXP must receive three '+' escape characters within the next second.
- Another second must then elapse before any data is sent from the DTE to the TANDBERG.

The 2 seconds of delay surrounding the escape sequence is known as the guard time and its purpose is to protect the escape characters. The length of the guard time and the ASCII value of the escape characters can be changed using registers S2 and S12.

5.3 Standard Commands

A Answer Immediately, instructs the TANDBERG MXP to go off hook. If the command is issued when there is no incoming call an ERROR result code will be returned. This command may be used to answer an incoming call. If the command string containing this command is terminated with a **';'** character prior to the carriage return, the TANDBERG MXP will remain in Local Command State after call-set-up (the default is to revert directly to the On-Line State). The TANDBERG MXP ignores all commands following this command in the same command string.

D xx Set up call to remote terminal with subscriber number xx. The number is transferred as a parameter. If a semicolon (;) suffixes the D command the TANDBERG MXP will not go to the On-Line State after call set-up but will remain in Local Command State. Commands that follow in the same command string are ignored.

5.4 Dial commands

Commands associated with the Dial Commands are summarised in the table below. With the exception of the semicolon they do not elicit any action and are only included to accommodate Hayes Smartcom™ Software.

Command Description

, **Pause.**

; **Return to Command mode after dialling. The command is always placed at the end of a string of commands. Example: ATD76767373; <CR>**

R **Reverse mode. Used to call an "originate only modem" such as an acoustic coupler. The command is always placed at the end of a string of commands. Example: ATD 04 878700 R <CR>.**

T **Forces touch-tone dialling.**

P **Forces pulse dialling.**

In the following list, all values shown in parenthesis are the default settings:

En Echo mode

This command instructs the TANDBERG MXP whether or not to echo those characters received from the DTE when in the Local Command State.

0: **no echo**

(1): **echo mode enabled [default].**

H In Local Command State: clear a connected call. [default]
Commands that follow this command in the same command string are ignored.

O Return to the On-Line State during a call. [default]
Commands, which follow this command in the same command string, are ignored

In Product Identification. This command reports the product code.

(0): **Display software version number and software ID[default] (e.g. F1.0 PAL)**

1: **Displays codec version and options installed**

2: **Display last change date.**

3: **Display software name (e.g. s50000)**

4: **Display HW serial number of the TANDBERG**

5: **Main board, boot sw release and additional board information**

6: **Print out a hardware configuration string in format: HWcfg: BRI= number of BRIs; PRI = number of PRIs; Ext = numext; VGA = has VGA; Settop = is settop; AudiIn = number of audio inputs; DPrt = number of dataports.**

Example:
HWCfg: BRI=6;PRI=2;Ext=1;VGA=1;Settop=0;AudIn=6;DPrt=2;

7: Print out software configuration string in format: SWCfg: TotalBw = Total MultiSite bandwidth; ISDNBw = H.320 bandwidth; LANBw = H.323 bandwidth; NTSC = is NTSC; NP = has Natural Presenter package installed; MCU = has MultiSite; CP = has Continuous Presence; Strm = has atstreaming

Example:
SWCfg:
TotalBw=6144;ISDNBw=1920;LANBw=4096;NTSC=0;NP=1;MCU=1;CP=0;Strm=1;

Qn Result Code Display. This command instructs the TANDBERG MXP whether or not to send result codes to the DTE.

(0): result messages sent to the connected DTE [default].

1: no result messages sent.

Vn Result Code Form. This command instructs the TANDBERG MXP which result code format to use, either words (default) or numbers.

0: messages in numerical form.

(1): messages in plain language [default].

Xn Result Code Set/Call Progress. This command enables various result code sets.

(0): Incoming Call ID displayed together with RING. Baudrate is not displayed together with CONNECT [default]

1: Incoming Call ID is not displayed. Baudrate is not displayed together with CONNECT.

2: Incoming Call ID is displayed together with RING. Baudrate is displayed together with CONNECT.

3: Incoming Call ID is not displayed. Baudrate is displayed together with CONNECT.

4: Same as 3.

5: An incoming call will be presented with "RING DID:nnnn" where the nnnn is the called number.

6: Shows incoming call ID, called number or if set, the redirect number. Otherwise DID is shown as with atx5
Example I:
Incoming Call ID = 8712
Called number = 8756

RING 8712 DID:8756

Example II
Incoming Call ID = 8712
Redirect = 114

RING 8712 DID:114

7: Shows incoming call ID, called number and the redirect number:

Example 1:
Incoming Call ID = 8712
Called number = 8756
Redirect = 114

RING 8712 called:8756
redirect:114

Z Recall Factory Settings. This command resets the configuration of the AT Command Interface to factory settings.

? Display AT Hayes Command list.

S**r**? Output register **r** in decimal form. (r = [1..16, 88])

S**r**=**n** Change register **r** to value **n**. (r = [1..16, 88], n = [0..255]).

5.5 Registers implemented:

Register S0: Automatic call answering
S0=0: OFF [default]
S0=1: ON[18] (The number specifies the number of rings that must be received before the TANDBERG MXP will answer.)
Register S1: Ring count.
Register S2: Escape code sequence character [default: ASCII '+'= 043]
Register S3: Carriage Return character [default: ASCII <CR>=013]
Register S4: Line feed character [default: ASCII <LF>=010]
Register S5: Backspace character [default: ASCII <BS>=008]
Register S6: Wait time for dial tone [default: seconds 2]. **NOT USED!**
Register S7: Time between sending of a message connection request and the reply from the remote DTE. [default: seconds 30). **NOT USED!**
Register S8: Pause time [default: seconds 2]. **NOT USED!**
Register S9: Carrier detector response time. **NOT USED!**
Register S10: Hang up delay time [default: seconds 1]. **NOT USED!**
Register S11: DTMF dialling speed [default: ms 100]. **NOT USED!**
Register S12: Escape code time [default: 1/50 seconds * 50]
Register S13: UART Status. Bit Oriented Register: **NOT USED!**
Register S14: Option Register. Bit oriented Register: **NOT USED!**
Register S15: Flag Register **NOT USED!**
Register S16: Loop Back Test **NOT USED!**
Register S88: Detailed Result Code **NOT USED!**

5.6 Response only commands

The following commands will be accepted by the TANDBERG MXP and **OK** will be returned to the DTE. These commands do not elicit any action and are included to accommodate Hayes Smartcom™ Communication Software.

[18] The setting of ATS0 acts independently of the TANDBERG's autoanswer function. Even if autoans is set to Off having ATS0=1 will cause TANDBERG to automatically answer a call.

Bn Bell/CCITT Mode Selection
Wn Enable ISDN carrier and PROTOCOL Result Codes.
Ln Speaker Volume.
Mn Speaker Control
Fn Set Communication Mode: (half-duplex/full duplex)
Cn Carrier Signal Control
P Pulse tone dial
T Touch tone dial
&Gn Guard Tone selection
&Jn Telephone Jack Selection
&Ln Line Selection
&Pn Make/Break Pulse Ratio
&Sn Data Set Ready options
&Xn Synchronous Mode Transmit Clock
&Kn Flow Control
&Mn Async/Sync Mode Selection
&Yn Profile Selection
&Z Store Telephone Number
&F Fetch S register from EPROM for factory default
&Tn Deactivate test Loop
&Cn Data Carrier Detect Options
&Dn Data Terminal Ready Options
&Rn RTS-CTS
&V List configuration both active and stored.

5.7 Messages output by the TANDBERG MXP to a connected DTE:

Text	Numerical	Description
OK	0	Valid command
CONNECT	1	Call is set up.
RING xx	2	Incoming call from remote terminal with number xx
NO CARRIER	3	Carrier was not detected or was lost.
ERROR	4	Invalid command
✳2ND DIAL	5	
✳2ND REJECT	6	
✳2ND OK	7	

6 Dialling Examples Using The Dataport

Commands typed on the PC are shown in **BOLD**, result messages from the TANDBERG MXP are shown in *Italic*. Comments are {enclosed in brackets}.

Example of dialling out

dial 12345678 {by default a 6B, Bonding call }

OK

CONNECT

Example of dialling out with IP address:

dial 10.0.2.229 (by default a 768 call)

OK

CONNECT

The call has been connected. (In case of message *NO CARRIER,* the terminal did not achieve a successful connection with the called party or the called party did not answer)

Dialling to a Videophone with two different numbers

dial 12345678901234567891 2xh221** {the call type will be H.221}

OK

CONNECT

Your call has been connected.

To disconnect the call, send the disconnect command from the PC.

Note: Default mode for Dataport 1 is modem, hence you'll need to type '+++' first to enter control mode!

disc

OK

NO CARRIER

The call has been disconnected.

Example of incoming call attempt

RING	Somebody is calling the unit.
CONNECT	The call has been answered and is connected.

Example of dialling with a sub address or TCS-4 address

The sub address = 123.

dial 12345678*123

7 Accessing The Command Interface Using Telnet

The Telnet client within the codec provides access to the dataport command interface through a 10/100 base T network interface supporting the TCP/IP protocol.

To access the Telnet client

Start a MS-DOS session on your computer and type:

telnet <ipaddress/name>

If the codec has a name defined by a DNS server this name can be used in place of an IP address e.g.

telnet TANDBERG_6000 or

telnet 192.9.200.245

Once connected to the codec a connect message similar to the following will be received:

```
Welcome to 'Systemname'
TANDBERG Codec Release F1.0 PAL
```

You are now connected to the telnet client. Type 'help' or '?' to view the list of available dataport commands.

NOTE:

If the codec is protected by an IP password you will be prompted to enter this password before you can access the command interface.

8 MCU, mcustat and mcucommand

The TANDBERG MXP **mcustat** and **mcucommand** commands can be used to control and monitor an MCU conference.

These commands should, if the action they request is implemented in the host MCU, allow considerable control throughout a multipoint conference.

8.1 MCU, mcucommand

The list below defines the TANDBERG MXP **mcucommand** implemented in the TANDBERG MXP Dataport command set:

TANDBERG MXP Command	ITU defined Command	Command Description
mcucommand floor [request]	MCV	*Multipoint command visualisation-forcing* – Transmitted by a terminal to force an associated MCU to broadcast its video signal used to transmit the picture of a chairman or VIP, alternatively to hold a picture source during the transmission of graphics. **Note!** The terminal requesting MCV must be the one holding the chair. If the **mcucommand floor request** is issued without beeing the chairman, the command will only work as a request, and work as the ITU defined command TIF*.
mcucommand floor [release]	Cancel-MCV	*Multipoint command visualisation-forcing* – Transmitted by a terminal broadcasting its video signal to release the broadcast. The MCU wil return to voice switched or continous presence.
mcucommand floor [request]	TIF*	*Terminal Indicate Floor-request* – Transmitted by a terminal to its MCU. The terminal requests to come on air. If the chair is not taken and no other terminal have the floor, the terminal will get on air with a full image.
mcucommand chair [request]	CCA	*Chair Command Acquire* – Transmitted by a terminal or MCU to claim a chair-control token.
mcucommand chair [release]	CIS	*Chair Indicate Stopped-using-token* – Transmitted by a terminal holding the chair token to release it.
mcucommand floor [mcu#, site#]	VCB*	*Video Command Broadcast* – Transmitted by a chair-control terminal or an MCU to an MCU to cause broadcasting of the video from the terminal whose identity number follows VCB.
mcucommand floor [vs]	Cancel-VCB	*Cancel Video Command Broadcasting* – Returns the conference to voice-activated video switching.
mcucommand viewrequest [mcu#, site#]	VCS*	*Video Command Select* – Transmitted by a terminal to an MCU to cause transmission to itself of the video from the terminal whose identity number follows VCS, if this requirement does not conflict with a VCB requirement.
mcucommand viewrequest [release]	Cancel-VCS	Transmitted by a terminal to return to automatic video switching at the MCU.
mcucommand disconnect [site#]	CCD*	*Chair Command Disconnect* – Transmitted by a chair-control terminal to an MCU to cause dropping of the terminal whose identity number follows;

mcucommand disconnect [mcu#]	CCK	*Chair Command Kill* – Transmitted by a chair-control terminal to drop all terminals from the conference.
mcucommand password <password>	TCS-1	*If a MCU requires a password this must be supplied by the endpoint to be able to join the conference. If wrong password is supplied a reconnection must be done to the MCU to provide a new password.*
mcucommand id <id>	TCS-3	*If a MCU requires a conference ID this must be supplied by the endpoint to be able to join the correct conference.*

TANDBERG MXP commands that take arguments use the *terminal identity number* format, which is used to identify a participant by a combination of their MCU number and site number. The *terminal identity number* has the following format:

[mcu#,site#]

The **mcu#** portion of the argument is used to specify an individual participant on an MCU other than the one the codec issuing the command is connected to.

site#

Identifies the number of that particular participants site on the specified MCU, or the local MCU if no **mcu#** is given.

8.2 MCU, mcustat command

MCU feedback is provided both in response to the issue of the commands listed above and also as a result of some actions initiated by the MCU itself.

The following list identifies the feedback that is available on the Dataport if the command **feedback** is set to on or if the **mcustat** command is issued.

Example of feedback from the **mcustat** command:

**S mcustat state multisite*

**S mcustat terminals 85,1 SUPPORT LAB*

**S mcustat terminals 85,2 Boardroom T8000*

**S mcustat onair off*

**S mcustat chair unsupported*

**S mcustat floor off*

**S mcustat view 85,2*

**S mcustat viewreq off*

**S mcustat self 85,1*

**S mcustat chair requested*

**S mcustat chair granted*

**S mcustat chair ready*

**S mcustat password requested*

**S mcustat id requested*

Example of feedback from the **mcustat terminals** command:

**S mcustat terminals 85,1 SUPPORT LAB*

**S mcustat terminals 85,2 Boardroom T8000*

The list below defines the TANDBERG MXP **mcustat** status feedback implemented in the TANDBERG:

TANDBERG MXP Feedback	ITU defined Command	Feedback Description
mcustat state <off/multisite/ multisiteslave/ multisitemaster /external>		Off – Not part of a conference. Multisite – This site is an MCU. Multisite slave - This site is a slave in a cascaded MCU. Multisite master - This site is a master in a cascaded MCU. External – terminal connected to an external MCU.
mcustat terminals mcu#,site# terminalname	TIN	*Terminal Indicate Number* – Used to pass information concerning terminal number to another MCU or to a terminal. Lists the members of a conference. Terminalnames listed if given.
mcustat onair <on/off>	MIV	*Multipoint Indication Visualisation* – Transmitted by an MCU to indicate to a terminal whether its video signal is being seen by other terminals.
mcustat chair <unsupported/ ready/ requested/ granted>	CIC CCA CIT	Unsupported – The MCU does not support Chair Control. Ready – *Chair Indicate Capability* received. Chair-control supported. Requested – *Chair Command Acquire* sent, awaiting response. Granted – *Chair Indicate Token* received. Used by an MCU to pass the chair-control token.
mcustat floor <off/requested/ mcu#,site#>	MCV VCB	Off – No floor requests issued. Requested – *Multipoint Command Visualisation-forcing* sent. Request to broadcast own video. mcu#,site# – *Video Command Broadcast* sent. Request to broadcast the given site.
mcustat view mcu#,site#	VIN	*Video Indicate Number* – Transmitted by an MCU to indicate the source (terminal identity number) of the video in the signal.
mcustat viewreq <mcu#,site#/ off>	VCS	Off – No viewrequests issued. Mcu#,site# - *Video Command Select* sent to the MCU to request the video of the given site.
mcustat self mcu#,site#	TIA	*Terminal Indicate Assignment* - Own ID in the conference.