TANDBERG – API (Dataport User Guide)

Software version E4/B9

TANDBERG

D11943 Rev 17

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1. Introduction

In addition to the ability to transmit audio and video over ISDN and other networks, the TANDBERG 500-8000, from now on only called TANDBERG, supports data transmission (for example the transmission of text files or control sequences to equipment at the remote side of a videoconference). The TANDBERG supports two methods for data transmission:

- TANDBERG Dynamic Data Channel (DDC) (**not supported over IP**)
- ITU standard data communication Protocol (T.120) **(not supported over IP**)

The API Guide contains guidelines on the use of the TANDBERG'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.
- Remote access to the dataport commands interface by using Telnet.

The TANDBERG 800, 2500-8000 has two dataports, Dataport 1 and Dataport 2, while the TANDBERG 500, 550, 880 and 1000 only have one dataport, and do not have a Dataport 2. The TANDBERG all have a LAN port. Dataport 1 may be used for file/data transfer to another TANDBERG unit or any T.120 compatible unit at the other end of a videoconference (not supported over IP). In addition Dataport 1 may also be used to control the TANDBERG. Dataport 2 provides access for control of the TANDBERG 800, 2500-8000; in addition it is used to control the TANDBERG 2500-8000 Camera Unit or an additional camera such as Sony EVI D30/D31, using the VISCA protocol (not applicable for the TANDBERG 500, 550, 800, 880 and 1000). 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 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 **Modem**, 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

[1] Transmission of data to a remote videoconferencing unit is only possible if the remote unit supports the industry standard T.120 protocol or if the remote unit is another TANDBERG 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.

The T.120 mode will be automatically activated when the TANDBERG connects to a remote unit that supports the T.120 protocol[2]. This is also the recommended mode to use when operating the TANDBERG in conjunction with T.120 PC applications.

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.

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. TANDBERG recommends Microsoft NetMeeting™ version 2.1 for T.120 data-conferencing applications.

Modem and Data modes are used in conjunction with DDC. The T.120 mode essentially operates in the same manner as Modem mode. However, upon connection of the TANDBERG to a remote unit that supports T.120, the T.120 protocol will be used for data transmission.

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] To make use of this feature the TANDBERG must be pre-set to T.120 mode

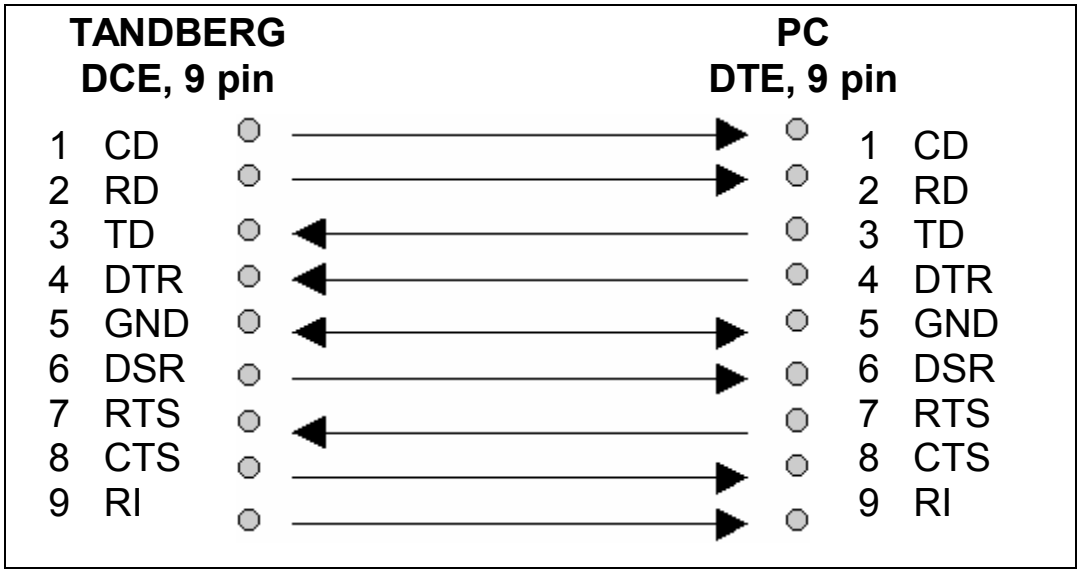
2 Connecting Equipment To The Dataport

2.1 Hardware And Cabling

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 2500-8000 only) to provide power to the standard TANDBERG 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 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 has the following features:

- DTR is ignored[3] (data terminal ready)
- RTS is ignored (ready to send)
- DSR is always set (data set ready)

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

- 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.

2.2 Configuring The Dataports From The Menu

Pressing MENU on the TANDBERG's remote control displays the unit's Main Menu. The Dataports' configuration settings are available through the Terminal Settings menu. Within the Terminal Settings Menu are entries for Dataport 1 and Dataport 2[4].

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 remote control. The auto mode should be used when a TANDBERG camera or a PC is connected to the Dataport.

On the TANDBERG 800 this dataport is used for control only, and for the TANDBERG 550, 880 and 1000 this dataport does not exist.

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, Modem** and **T.120**. 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 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 through the Dataport will be interpreted by the command interface.

When a call is established the TANDBERG automatically provides a transparent data channel and all data sent to the local TANDBERG's Dataport will appear at the remote unit's Dataport[5]. 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.

[4] Dataport 2 is not applicable for the TANDBERG 550, 880 and 1000.
[5] 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.

Control mode:

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

T.120 mode:

When using a T.120 application running on a PC or other device that supports serial communications, select **T.120** 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 through the Dataport will be interpreted by the command interface.

When a call is established the TANDBERG automatically provides a data channel using the T.120 protocol and data sent to the local TANDBERG's Dataport will appear at the remote unit's Dataport[6]. Control over the TANDBERG can be retained by the attached T.120 application.

To make use of the TANDBERG's T.120 ability, it is necessary to use a PC application that supports the T.120 PSTN stack.

2.3 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).
- 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[7].

[6] Provided the remote unit supports the T.120 data communication protocol and both Dataports have matching parameters. Data must be T.120 PSTN stack packets

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

3 TANDBERG Dataport Commands

3.1 Changed, added or removed commands from E3B7 sw[8]:

TYPE OF COMMAND	COMMAND	ALTERATIONS	BACKWARDS COMPATIBLE
Audio Commands	audiomodule	Added DNAM setting	yes
Misc commands	systemname	Changed max length of systemname to 50 characters	yes
	sidebyside	New command	yes
	toggle-sidebyside	New command	yes
	h239	New command	yes
	corpdir	New command	yes
	cammove	New command	yes
	strictpassword	New command	yes
Network Commands	pldownspeed	New command	yes
H.323/H.264 commands	h323nat	Added auto setting	yes

[8] The units are available with different software and network options, which will affect the dataport commands. To find your configuration check the power up and system information.

3.1.1 Comparison between B1 H.243 commands and B2/B3/B4/B5

ITU Defined Command	B1 TANDBERG Command	B2/B3/B4 TANDBERG Command	ITU Defined Commands Used in DVS-G Program
H243 Commands			
MCV	MCV	mcucommand floor <request>	
Cancel-MCV	MCVoff	mcucommand floor <release>	
TIF	TIF	mcucommand floor <request>	TIF
CCA	CCA	mcucommand chair <request>	CCA
CIS	CIS	mcucommand chair <release>	CIS
VCB	VCB <(MCU#,)site#>	mcucommand floor <mcu#,site#>	VCB
cancel-VCB	VCE	mcucommand floor <vs>	cancel-VCB
VCS	VCS <(MCU#,)site#>	mcucommand view <mcu#,site#>	VCS
cancel-VCS	VCSoff	mcucommand view <release>	cancel-VCS
CCD	CCD <(MCU#,)site#>	mcucommand disconnect <site#>	CCD
CCK	CCK	mcucommand disconnect <mcu#>	CCK
TCP	TCP	mcustat terminal*	TCP
TCU	TCU	mcustat terminal*	TCU
Feedback Commands			
MCC	MCC	mcustat state	
cancel-MCC	MCCoff	mcustat state	
TIE	TIE	no feedback on dataport	
MIJ	MIJ	Can receive, not transmit**	
MIZ	MIZ	Can receive, not transmit**	
cancel-MIZ	MIZoff	Can receive, not transmit**	
MIV	MIV	mcustat onair	MIV
cancel-MIV	MIVoff	mcustat onair	cancel-MIV
MIS	MIS	not supported***	
cancel-MIS	MISoff	not supported***	
VCR	VCR	mcustat view, mcustat viewreq	VCR
CIR	CIR	mcustat terminals	CIR
CIT	CIT	mcustat chair granted	CIT
CCR	CCR	mcustat chair	CCR
VIN	VIN <mcu#,site#>	mcustat view	VIN
TIF	TIF <mcu#,site#>	mcustat floor	TIF
TIA	TIA <mcu#,site#>	mcustat self	TIA
TIN	TIN <mcu#,site#>	mcustat terminals	TIN
TID	TID <mcu#,site#>	mcustat terminals	TID
TIL	TIL <mcu#,site#>	mcustat terminals	TIL
???		mcustat state	
CIC, CCA, CIT		mcustat chair****	
MVC, VCB		mcustat floor	
VCS		mcustat viewreq	
TIP	TIP	mcustat terminals	TIP
CIC	CIC	mcustat chair ready	CIC

(*)
The TCP signal does not result in a request (no real signal is sent to the MCU). Instead we assume that the terminal list is correct. And the personal identity string associated with the terminal can be derived from the terminal list (mcustat terminals). The same applies to TCU.

(**)
The B4 software allows the TANDBERG codecs to receive MIJ and MIZ, but not send those signals.

(***)
The TANDBERG MCU does not support secondary-status. On the terminal side, no action is taken when this signal is received.

(****)
Chair control is only supported on the terminal side.

3.2 TANDBERG Dataport Commands

When the Dataport is set up in **Modem** or **T.120** 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 User Commands control most of the functions of the TANDBERG. The TANDBERG 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:

1. **Argument**
   This format requires an argument upon which the TANDBERG will operate.
   e.g. *dial 12345*
   The TANDBERG's response is a simple *OK* if the argument is acceptable or *ERROR* if it is not

2. **Syntax Query**
   This format takes a *?* as the argument or parameter for a command.
   e.g. *dial ?*
   The TANDBERG 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}

3. **Set Parameter**
   This format requires a parameter upon which the TANDBERG will act.
   e.g. *autoans on*
   The TANDBERG 2500-8000 response[9] 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.
4. **Parameter Query**
   This format requires no parameter.

[9] The TANDBERG 2500-8000 will only make a response if the dataport command *feedback* has been set to on.

e.g. *autoans*
The TANDBERG'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 is available with different network configurations, which will affect some of the dataport commands.
To determine your systems configuration, see 'Power Up and System Info' or the system boot-up text.

Dataport Command Reference
All commands are shown with their associated syntax. Valid arguments are shown in **bold**.

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.

3.2.1 Audio Commands

Note! The different products have different number of audio inputs which will influence on some of the dataport commands:
TANDBERG 6000-8000: 6 audio inputs
TANDBERG 800/880/2500: 4 audio inputs
TANDBERG 1000 : 0 audio inputs
TANDBERG 550: 2 audio inputs

Command Usage	Description
alrtvol <1..15/test>	Sets the ringing tone volume as per the following: **0** Volume 0 (off) **15** Volume 15(max.) **test** Plays Ringing tone to test volume Example of feedback from **alrtvol** command: `*P alrtvol 8` *Storage: level 1*
audioagc <a/b/c/rx> <on/off> TANDBERG 500/550/1000 not applicable	Sets the Automatic Gain Control (AGC) for all audio inputs as well as for the received audio. **a** Mic1-3, Audio4 **b** Audio5 **c** Audio6 **rx** Received Audio **TANDBERG 800/880/2500:** **a** Mic1-2 **b** Audio3 **c** Audio4 **rx** Received Audio Example of feedback from **audioagc** command: `*P audioagc a on` `*P audioagc b on` `*P audioagc c on` `*P audioagc rx on` *Storage: level 1*
audiofeedback <on/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 800 and TANDBERG 2500), 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*
audioin [1/2/3/4/5/6] <on/off> **audioin [6] <on/off/auto>**	Selects which of the audio inputs should be active inputs[10]. **1** Microphone 1 (XLR connector) **2** Microphone 2 (XLR connector)

[10] A set of active inputs will be stored with each system preset. Selecting a pre-stored preset may affect the ON/OFF status of the audio inputs.

or for TANDBERG 800/880/2500: **audioin [4] <on/off/auto>** TANDBERG 500/550/1000 not applicable	**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 800/880/2500: **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 from audioin command: `*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*
audiolevel <i1..i6/o1..o3><1..16> TANDBERG 500/550/1000 not applicable	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 800/880/2500:** **i1** Microphone 1 (XLR connector) **i2** Microphone 2 (XLR connector) **i3** Audio3 **i4** Audio4 **o1** Output1 (Not supported by TANDBERG 880) **o2** Output2 (Not supported by TANDBERG 880) **o3** Output3 (Not supported by TANDBERG 880)

	Example of feedback from **audiolevel** command: `Command: audiolevel i1` `*P audiolevel i1 5` `Command: audiolevel o1` `*P audiolevel o1 10` *Storage: level 1*
audiomix <fixed/auto> TANDBERG 500/550/1000 not applicable	Selects fixed or automatic audio mixing. **fixed** When 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 audio inputs 1-4, TANDBERG 800-2500 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 from **audiomix** command: `*P audiomix auto` *Storage: level 1*
audioout [1/2/3] <on/off> or for the TANDBERG 880 **audioout [1/2] <on/off>** TANDBERG 500/550/1000 not applicable	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 from **audioout** command: `*P audioout 1 on` `*P audioout 2 on` `*P audioout 3 on` *Storage: level 1*
audioqual <auto/normal/high>	Selects normal, auto or high audio quality in a call. Complements the "*mode"* command. **auto** The system will automatically try to use G722 audio for bandwidths above 4B channels, G722.1 32 kb on 3 and 4B channels and G722.1 24kb on 1 and 2B channels. **normal** The system will try to use G728 audio. **high** The system will try to use G722 audio. Example of feedback from **audioqual** command: `*P audioqual auto` *Storage: level 1*
echoctrl [1/2/3/4] <on/off/nr> or **echoctrl roomsize <1-15>**	**TANDBERG 6000-8000:** Selects the echo control mode for each of the first four audio inputs.

echoctrl motion <1-15>	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**[11] Noise reduction (reduces low frequency and background noise) [default]. **roomsize** Small rooms should be set to 0-7. Medium room should be set to 8-11. Large room should be set to 12-15. **motion** If you experience echo by movements in the room, you should increase this setting. For more information about roomsize and motion, please refer to the TANDBERG user manual. **TANDBERG 800/880/2500:** 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**[12] Noise reduction (reduces low frequency and background noise) [default]. **roomsize** Small rooms should be set to 0-7. Medium room should be set to 8-11. Large room should be set to 12-15. **motion** If you experience echo by movements in the room, you should increase this setting. For more information about roomsize and motion, please refer to the TANDBERG user manual. **TANDBERG 500/550/1000:** **nr** Echo control and noise reduction on the audio input enabled. Noise reduction reduces low frequency and background noise (default). Nr 1 is the mic input and nr 2 is the aux input on the T550. **off** Echo control disabled. **The following commands do not apply to TANDBERG 1000:**

[11] In addition to the engaging the noise reduction the setting 'nr' also turns echo control ON
[12] In addition to the engaging the noise reduction the setting 'nr' also turns echo control ON

	roomsize Small rooms should be set to 0-7. Medium room should be set to 8-11. Large room should be set to 12-15. **motion** If you experience echo by movements in the room, you should increase this setting. Example of feedback from **echoctrl** command: `*P echoctrl 1 nr` `*P echoctrl 2 nr` `*P echoctrl 3 nr` `*P echoctrl 4 nr` `*P echoctrl roomsize 12` `*P echoctrl motion 0` For more information about roomsize and motion, please refer to the TANDBERG user manual. *Storage: level 1*
automute<on/off>	When set to on the, the mic will be turned off automatically at boot and at end of calls. Example of feedback from **automute** command `*P automute on` *Storage: level 3*
mic <on/off>	Mutes and un-mutes the mic. inputs. Example of feedback from **mic** command: `*P mic on` When far end turn mic on or off: **F mute on* **F mute off* *Storage: level 0*
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 from **vidtone** command: `*P vidtone c`

	Storage: level 1
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 **Note!** The TANDBERG 500/550/1000 does not support this command. Example of feedback from **teltone** command : `*P teltone d` *Storage: level 1*
vol <0..15>	Selects the volume level output. **0** Volume 0 (off) **15** Volume 15(max.) Example of feedback from **vol** command: `*P vol 11` *Storage: level 1*
spkr <on/off>	Sets the internal alert speaker to either ON or OFF. Example of feedback from **spkr** command: `*P spkr on` *Storage: level 1*
audiomodule <0/1/2/3> TANDBERG 550-2500 not applicable	Audiomodule is used to select between the different TANDBERG Audio Modules that can be attached to the TANDBERG 6000-8000. **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 Example of feedback from the **audiomodule** command: `*P audiomodule 2` *Storage: level 3*

3.2.2 Video Commands

The different products have different number of video inputs and outputs which will influence on some of the dataport commands:

TANDBERG 800, 2500-8000: 5 video inputs and 5 video outputs
TANDBERG 880 5 video inputs and 4 video outputs
TANDBERG 1000 : 1 video inputs (2 if PP is installed) , and 0 video outputs
TANDBERG 550: 2 video inputs (3 if PP is installed) and 2 video outputs

Command Usage	Description
monstat <monitorid>	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 from the **monstat** command: `*S monstat 1 tv 0` `*S monstat 2 pc 0` *Storage: level 3*
monformat<pc/tv> <formatid>	Valid only for T7000. Used to specify the picture format for tv and PC. 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 from the monformat command: `*P monformat pc 0` `*P monformat tv 0` *Storage: level 3*
vgamon <loop/first/second> or for the TANDBERG 880 **vgamon <first/second/off>** or for the TANDBERG 550 **vgamon <first/off>**	Select VGA output source: **loop** VGA output equals VGA input (Not available for the TANDBERG 880 and 550). **first** VGA output will work as the main monitor. When this is the case, video output number 1 and 3 will display a black image with the TANDBERG logo or the user defined startup logo. **second** VGA output will work as the dual monitor. When this is the case, video output number 2 and 4 will display a black image with the TANDBERG logo or the user defined startup logo.

TANDBERG 500/1000 not applicable	**off** The TANDBERG 880/550 will display an image, but it will be out of proportion. It must be set to first or second to display a proper image. By connecting a VGA monitor, you will obtain a much sharper and clearer picture when using 4*CIF (Digital Clarity), VGA resolutions and still images than what a normal TV screen is able to provide. The output resolution will be set by the "*vgaout*" command. Example of **vgamon** feedback: **P vgamon loop*. *Storage: level 1*
vgaout <vga/svga/xga> TANDBERG 500/1000 not applicable	Sets VGA out videoformat to 640*480 (VGA), 800*600 (SVGA) or 1024*768 (XGA)[13]. See also **vgamon** command. Example of feedback from **vgaout** command: `*P vgaout vga` *Storage: level 1*
vidfeature <tv> <auto/off/384/512/768/1152/1472/1536/1920> or **vidfeature pc <auto/off>** or **vidfeature h264<auto/off>** **tv** – enables natural video (iCIF, interlaced) **pc** – enable pc video (VGA, custom formats) quality TANDBERG 500/550/1000 not applicable	Enables receive of Natural Video (TV quality), enables PC (VGA) formats and turn h264 off and on. Can be switched off if interoperability issues are present. Also used to set Natural Video (iCIF) threshold/ bandwidth where the unit should start transmitting Natural Video. **tv** 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**" **pc** enable pc video (VGA, custom formats) quality **h264** enables or disables the h264 video feature. Example of feedback from **vidfeature** command: `*P vidfeature tv auto` `*P vidfeature pc auto` `*P vidfeature h264 auto` *Storage: level 1*
vidin <1/2/3/4/5> or for the TANDBERG 500/550/1000: **vidin <1/2/pc>**	Selects the active video input source **Note!** Video input number 5 is the VGA/VNC input. The PC argument is only valid if the Presenter Package is installed. *Storage: level 1*
vidname <1/2/3/4/5> <name> TANDBERG 500/550/1000 not applicable	Records a name in the video source menu to be associated with the identified physical video input. To remove a name, use:

[13] Only applicable for systems running E software.

	vidname <1/2/3/4/5> " " Example of feedback from **vidname** command: `*P vidname 1 main` `*P vidname 2 aux` `*P vidname 3 doc` `*P vidname 4 vcr` `*P vidname 5 pc` *Storage: level 1*
vidqual <m/a/s> TANDBERG 500/550/1000 not applicable	Biases the video compression mechanism used by the Codec. **m** Motion maintains fluid motion – may reduce image clarity slightly. Using Natural Video (ICIF)on high BW if available **a** Auto maintains optimum balance between clarity and motion [default]. Using Digital Clarity (4*CIF) for document camera or VGA input if available. **s** Sharpness maintains image clarity – may reduce fluidity of motion slightly. Constantly using Digital Clarity if available. The effects of "vidqual" are more obvious at lower bandwidths. Example of feedback from **vidqual** command: `*P vidqual a` *Storage: level 1*
vnc <ipaddress:display-number> [password] **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 match the displaynumber of the VNC server. **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 from **vnc** command: `*S vnc idle` `*P vnc 10.0.2.180:0 rogerpc` **Note!** This command is only available with systems with Natural Presenter Package or Presenter Package installed.

	Storage: level 3
pressource <c/1/2/3/4/5> TANDBERG 500/550/1000 not applicable	Defines from which video source the TANDBERG 800-8000 will send a graphics image or DuoVideo. **c** Current [default]. – the current video source image will be sent either as Duo Video or as still image. **1/../5** Video source – the specified video source will default be used when DuoVideo is opened, or a still image is sent **Note!** Video input number 5 is the VGA input**.** Example of feedback from **pressource** command: `*P pressource 4` *Storage: level 1*
autopip <on/off> TANDBERG 500/550/1000 not applicable	Automatically produces a PIP on the monitor whenever the Main Camera is operated or whenever a new video source is selected. Example of feedback from **autopip** command: `*P autopip on` *Storage: level 1*
autostill <on/off> TANDBERG 500/550/1000 not applicable	**on** Automatically displays a still image from a remote videoconferencing unit whenever it is received. The resolution of the received image will default to the highest available based on the video algorithm being used and the capability of the remote system. **off** The still image will be stored in memory. Press the selfview button several times to display the image. Example of feedback from **autostill** command: `*P autostill on` *Storage: level 1*
dualmon <on/off> TANDBERG 500/550/1000 not applicable	Sets the codec's monitor mode. When set to **ON** the codec will provide a video output of received/sent still images and duo video on outputs 2 & 4. The video signal on these 2 outputs can be toggled between Selfview and Graphics view by pressing the Selfview key on the remote control, or by issuing the KEY command (see later in this document). Example of feedback from **dualmon** command: `*P dualmon on` *Storage: level 1*
imagefilter <on/off>	Filters a received still image to stabilize and remove flicker.

TANDBERG 500/550/1000 not applicable	Example of feedback from **imagefilter** command: `*P imagefilter on` *Storage: level 3*
pip <on/off>	Turns the PIP (Picture In Picture) on or off. Example of feedback from **pip** command: `*P pip on` *Storage: level 0*
presmode <n/p> TANDBERG 500/550/1000 not applicable	Sets the presentation mode to be used: **n** Normal – a still image will be sent immediately the snapshot key is pressed [default]. **p** Presentation – the image to be sent will first be displayed on the dual monitor (video outputs 2 & 4) and will not be sent as a still image until the snapshot key is pressed for a second time. Example of feedback from **presmode** command: `*P presmode n` *Storage: level 1*
screensaver <on/off/enable/enable60/enable180/disable>	**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 from **screensaver** command: **S screensaver off* **P screensaver enable* *Storage: level 0*
selfview <on/off>	Sets selfview on or off Example of feedback from **selfview** command: `*P selfview on`

	Storage: level 0
still <send [n]/req [n]/on/off>	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[14]. 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 string** 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*
streaming enable <on/off> or **streaming address <ipaddress>** or **streaming port <n>** or **streaming hops <n>** or **streaming vrate <16/32/64/128/192/256/320>** or **streaming <on/off>** or **streaming announcement <on/off>** or **streaming password**	Configures streaming parameters. Streaming will only work outside a call for the TANDBERG 500/550/1000. It is not possible to stream inside a Duo Video call or an MCU call for the TANDBERG 800, 880, 2500-8000. 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 or a 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.

[14] The codec 2500, 6000 and TANDBERG 800/880 supports 5 video sources for sending still images. The TANDBERG 500/550/1000 supports video in 1,2 and PC (if Presenter Package is installed). When communicating with a non-Tandberg system it may not be possible to request a still image and if it is, *n* may be limited to less than 5

<table>
<tr>
<td><password>
or
streaming source <auto,local, remote>

Streaming source is not valid for the TANDBERG 500/550/1000</td>
<td>
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 <on/off> Turn on or off Streaming Announcement Protocol (SAP) which is used by Cisco IP TV.
password Set streaming password. This password and the ip password will give access to the streaming page in the internal web browser. By using this password the more sensitive ip password can be reserved to the administrator.
source Select streaming source as local, remote or auto. In auto mode the streaming will be voice switched. The site currently speaking will be streamed.

Example of feedback:
<pre>*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</pre>
Storage: level 3
</td>
</tr>
<tr>
<td>campos get
or
campos set [<pan=n> <tilt=n> <zoom=n> <focus=n></td>
<td>
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 1664 = Maximum left
0 = Centre
-1664 = Maximum right

tilt 197 = Upper most position
0……= Centre
-512 = Lower most position

zoom 0 = No zoom
1023 = Maximum zoom

focus 4096 = Maximum far sighted
40960 = Maximum near sighted

For the TANDBERG 550/880 the following numbers are valid:

pan 1295 = Maximum left
647 = Centre
</td>
</tr>
</table>

	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 24576 = Maximum near sighted Example of feedback from **campos get** command: `*S campos pan=23 tilt=-164 zoom=431 focus=40960` *Storage: level 1*
monitor brightness <0..16>	Set monitor brightness. **Note!** Only available for the TANDBERG 1000. *Storage: level 1*
vidmap pc <5/vnc> or **vidmap doccam <2/3>** TANDBERG 500/550/1000 not applicable	Sets the pc button on the remote control to either select the VGA input or VNC. **pc** If set to 5, the vga video input will be activated when the PC button on the remotecontrol is used. The system will make a VNC connection to the specified VNC source if set to vnc. **Doc** Selects which of the video inputs the document camera is connected to, 2 or 3. This way you're able to connect it to either a composite input or a S-VHS input, and still use the Doc. Cam. button on the remote control to activate the document camera. Example of feedback: **P vidmap doccam 3* **P vidmap pc vnc* Example of feedback: `*P vidmap pc vnc` *Storage: level 1*
autoreqfloor <on/off>	Gives the user the option to disable "Automatic Request Floor" when PC or DocCam is pushed in a multisite. Example of feedback from **autoreqfloor** command: `*P autoreqfloor on` *Storage: level 1*

3.2.3 TCP/IP Configuration Commands

Command Usage	Description
ipaddress <s/m/g> or **ipaddress active**	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.xamples:** **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 from **ipaddress** command: `*P ipaddress s 192.9.222.12` `*P ipaddress m 255.255.255.0` `*P ipaddress g 192.9.200.21` Example of feedback from **ipaddress active** command: `*S ipadress active 192.0.2.9 255.255.0.0 10.2.3.10` *Storage: persistant*
ipassignment <dhcp/static> or **ipassignment speed <auto/full10/half10/full100/half 100>**	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 from **ipassignment** command: `*P ipassignment dhcp` `*P ipassignment speed auto` **Note!** The codec needs to reboot before the change will apply**.** *Storage: persistant*
ippassword <password>	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. The password must be 8 characters long and have a mix of alphabetic and other symbols. To use simpler password, set "**strictpassword off**" *Storage: persistant*
ipstat	Shows LAN interface information Example: **ipstat**. *IP status:* *Assignment method used ..... DHCP* *MAC address ..... 00:50:60:00:1a:a3* *Active IP address ..... 192.9.200.90* *Active subnet mask ..... 255.255.255.0* *Active gateway address ..... 192.9.200.21* *LINK status: UP, 100MB, half duplex* *ETHERNET ABILITIES OWN LINK* *Auto negotiation able ..... Yes Yes* *Next page able ..... No No* *100BASE-T4 able ..... No No* *100BASE-TX full duplex able ..... Yes No* *100BASE-TX half duplex able ..... Yes Yes* *10BASE-T full duplex able ..... Yes No*

	10BASE-T half duplex able ..... Yes Yes *IEEE-802.3 compliant ..... Yes Yes*
ipconflictcheck	Checks the system for an ip 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)`
services <telnet/ftp/http/h323/remote-software> <enable/disable> or **services <snmp> <read-only/enable/disable>** or **services <telnetchallenge> <enable/diable>[port]**	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 set, the codec will prompt the user for a "challenge" before opening up a session to the codec. The "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 from **services** command: `*P services telnet enable` `*P services ftp enable` `*P services http enable` `*P services h323 enable` `*P services remote-software enable` `*P services remote-parameter enable` `*P services snmp enable` `*P services telnetchallenge enable` *Storage: level 1*
snmp <cn/sc/sl/> <name> or **snmp <hi> <host ip address>**	Configure SNMP parameters: **cn** Communityname. The SNMP host must match this parameter to query SNMP data from the codec. **sc** System contact **sl** System location These 3 parameters are ASCII strings used for SNMP messages.

	hi Host IP address Example of feedback: `snmp:` `*P snmp hi 10.0.255.255` `*P snmp sl` `*P snmp sc` `*P snmp cn public` **Note!** For more information about SNMP please read the TANDBERG SNMP application note. *Storage: level 3*
pccard [name/manuf]	**name** Returns the name of the PC card. **manuf** Returns the manufacture ID Example of feedback: `*S pccard name Compaq WL110 PC Card` `*S manfid 0156:0002` **Note!** Only valid for TANDBERG 550/880/1000
wlan mode <managed/adhoc> or **wlan ssid <name>** or **wlan community <name>** or **wlan key <1-4> <hex key>** or **wlan usekey <1-4>** or **wlan encryption <64/128/off>**	**mode** Select Adhoc when a peer to peer connection is required. Adhoc is used when no wireless accesspoint is available Managed is used when communication is done thru a "base station". A base station works as a bridge between the wireless and the wired (ethernet) network. The base station must be configured with the same SSID and the same encryption setup as the clients. **ssid** Also known as: ESSID (Extended SSID), Network name,Network ID. Defines a local network id, much like an NT-domain (or NIS domain for Unix servers) for this wireless region. Usually an ordinary text string, often in capital letters. Must be the same for all end points and the base station. An endpoint will find the basestation if the SSID is correct, however if the encryption key is faulty it will not transmit any data. This can mean that the Codec can see the access point, and still not function properly if the encryption is misconfigured. **community** Optional settings. Can be used to connect to a specific base station with the same community name. Example: "Building 4". **key** Used to put in the 4 different keys available for encryption. The key for 64 bits encryption can be entered as 10 hexadecimal numbers, or as 5 ASCII characters. The key for 128 bits encryption can be entered as 26 hexadecimal numbers, or 13 ASCII characters If ASCII is used it must be entered with a leading star. Example: **key** *house for 64 bits encryption. **usekey** Select which of the 4 keys available you want to use for

	encryption. If any of the other 3 keys are used for encryption by another device on the network it will be decrypted as long as the key is among the four available **encryption** Turns encryption on or off. Selects between 64kb encryption or 128kb encryption. Example of feedback: `wlan` `*P wlan mode managed` `*P wlan ssid TANDBERG` `*P wlan community LYSAKER` `*P wlan key 1 125678ABC98` `*P wlan key 2 *rough` `*P wlan key 3 *secrethome` `*P wlan key 4 0123456789` `*P wlan usekey 1` `*P wlan encryption 128` **Note: Only valid for TANDBERG 550/880/1000.** *Storage: level 3*

3.2.4 Network Configuration Commands

Note! TANDBERG is available with several network configurations, which will influence the Network Configuration commands available:
TANDBERG 6000-8000: 6 BRI, PRI and external interface
TANDBERG 800,2500 : 3 BRI and external interface.
TANDBERG 550, 880, 1000: 3 BRI interface

Command Usage	Description
nettype <isdn/pri/external/g703/none> TANDBERG 500/550/1000 not applicable	Selects network type. **pri** PRI ISDN **isdn** BRI [default]. **external** External Network (Net connector) **g703** E1/T1 leased line **none** Only IP calls are available Example of feedback from **nettype** command: `*P nettype isdn` *Storage: level 1*
netisdn <ni/att/euro/fetex/1tr6/ japan/ australia/fetex/italy> or **netisdn sendcomplete <on/off>** **netisdn restart <on/off>** **netisdn alert<on/off>** **netisdn hlc<on/off>** **netisdn sub <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 . **netisdn sub** **on** : .When dialing the format 1234545678∗123, 123 will be reported as both the subaddress and TCS-4/TCS-1 address. **off** : When dialing the format 1234545678∗123, 123 will only be reported as the TCS-4/TCS-1 address. TCS-4 can be used together with MCUs and gateways.

	Example of feedback from **netisdn** command: `*P netisdn euro` `*P netisdn sendcomplete off` `*P netisdn restart on` `*P netisdn alert off` `*P netisdn hlc off` `*P netisdn sub on` *Storage: level 3*
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 Start ---* *Destination Gateway Mask If Refct Met Flags* *127.000.000.000 127.000.000.001 255.000.000.000 lo 5 1 up|sil|* *010.000.000.000 010.000.002.205 255.255.000.000 FE 9 1 up|* *010.000.002.205 127.000.000.001 255.255.255.255 lo 0 1 up|gw|hst|* *224.000.000.001 127.000.000.001 255.255.255.255 lo 0 1 up|hst|sil|* *000.000.000.000 010.000.000.001 000.000.000.000 FE 0 1 up|gw|* *--- Routing Table End ---* *Sckt Proto Local address Foreign address TOS State* *[1] tcp 0.0.0.0:21 0.0.0.0:0 0 I:CONNECTING* *[2] tcp 10.0.2.205:23 0.0.0.0:0 0 I:CONNECTING* *[3] tcp 0.0.0.0:80 0.0.0.0:0 0 I:CONNECTING* *[4] udp 0.0.0.0:2245 127.0.0.1:162 0 I:CONNECTING* *[5] udp 0.0.0.0:161 10.0.0.2:2984 0 I:CONNECTING* *[12] tcp 10.0.2.205:23 10.0.2.89:1217 0 Established* *[29] udp 10.0.2.205:1719 0.0.0.0:0 0 I:CONNECTING* *[30] tcp 10.0.2.205:1720 0.0.0.0:0 0 I:CONNECTING*
localdn **[1. . 6] [B1/B2] <number>** or **localdn [1. . 6] [on/off]**	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 <exponent><offset(ms)>	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: $Td = offset + 2^{exponent} / bitrate$,where bitrate is 64 kbit/s, 128 kbit/s etc. Example of feedback from **los-duration** command: `*P los-duration 17 5` **Note!** The TANDBERG 500/550/1000 does not support this command. *Storage: level 1*
los-inhibit <sec> TANDBERG 550/880/1000 not applicable	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 from **los-inhibit** command: `*P los-inhibit 15` *Storage: level 1*
los-initial <sec> TANDBERG 550/880/1000 not applicable	Specifies the maximum number of seconds to wait for H221 frame alignment during call setup before asserting the LOS signal. Example of feedback from **los-initial** command: `*P los-initial 5.` *Storage: level 1*

los-polarity <1/0> TANDBERG 550/880/1000 not applicable	Set LOS pulse polarity Example of feedback from **los-polarity** command: `*P los-polarity 1` *Storage: level 1*
los-retry <sec> TANDBERG 550/880/1000 not applicable	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 from **los-retry** command: `*P los-retry 25` *Storage: level 1*
netctrl <rs366/leased/data /manual> TANDBERG 550/880/1000 not applicable	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 **data** Data triggered mode **manual** Manual control Example of feedback from **netctrl** command: `*P netctrl rs366` *Storage: level 3*
netdtrpulse <on/off> TANDBERG 550/880/1000 not applicable	Configures the DTR signal on the External Network port (V.35). **on** The DTR signal will give a low pulse lasting for 5 seconds **off** The DTR pulse will stay low. Example of feedback from the **netdtrpulse** command: `*P netdtr` *Storage: level 3*
netpri <att/ni/euro/italy>	Selects PRI network type. **ni** National ISDN **att** AT&T **euro** Euro ISDN **italy** Italy switch type Example of feedback from **netpri** command: `*P netpri ni` *Storage: level 3*
netprofile <p1..p6> <prefix> [<name>	Set network profiles. **prefix** is added to every dialed number using the netprofile

[protocol]]	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 "" LAN h323* **P netprofile p4 "" "" auto* **P netprofile p5 "" "" auto* **P netprofile p6 "" "" auto* *Storage: level 3*
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 from **downspeed** command: `*P downspeed on` *Storage: level 2*
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 if a videocall is unsuccessful [default]. **off** The codec will not fallback to telephone if a videocall is unsuccessful. Example of feedback from **fallback** command: `*P fallback on` *Storage: level 2*

telephony incoming <on/off>	Specifies if the unit shall accept incoming telephone calls. *Storage: level 1*
msn <on/off>	Enables/disables the use of MSN (Multiple Subscriber Number). Example of feedback from **msn** command: `*P msn off` *Storage: level 1*
netclock <dual/single> TANDBERG 550/880/1000 not applicable	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 from **netclock** command: `*P netclock dual.` *Storage: level 3*
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 from **pardial** command: `*P pardial on` *Storage: level 1*
sendnum <on/off>	Enables/disables the broadcast of the local unit's number during the set-up of a call[15] Example of feedback from **sendnum** command: `*P sendnum off` *Storage: level 1*
spid [1/2/3/4/5/6] [B1/B2] <number> or **spid auto**	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] “”**

[15] 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 2 endpoints in a call.

	auto triggers automatic line configuration if supported by the switch. Example of feedback from **spid** command: `*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*
sub <subaddress>	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 from **sub** command: `*P sub ""` *Storage: level 1*
pricable [a/b] <1/2/3/4/5/6/7>	**pricable** a - specifies the length of the cable used between this codec's E1/T1 port 1 and the CSU (or previous codec). **pricable b** - specifies the length of the cable used between this codec's E1/T1 port 2 and the next codec's E1/T1 port 1. **a** PRI/T1 1 interface **b** PRI/T1 2 interface **1** 0-115ft (0- 35m) **2** 80-215ft (25- 65m) **3** 180-310ft (55- 95m) **4** 280-410ft (85-125m) **5** 375-510ft (115-155m) **6** 475-605ft (145-185m) **7** 575-690ft (175-210m)

	Example of feedback from **pricable** command: `*P pricable a 1` `*P pricable b 1` *Storage: level 3*
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 from **prihighch** command: `*P prihighch 23` *Storage: level 3*
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 from **prilowch** command: `*P prilowch 1` *Storage: level 3*
primaxchan <2/4/6/8/12/18/23/30>	Sets a limit on the number of channels that will be available for incoming and outgoing calls. Example of feedback from **primaxchan** command: `*P primaxchan 12` *Storage: level 3*

prinsf <t/v> <0,…,31>	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 from **prinsf** command: `*P prinsf t 0` `*P prinsf v 6` *Storage: level 3*
prinumber <number>	Specifies the phone number of the PRI line that you wish to associate with this system.

	Example of feedback from **prinumber** command: `*P prinumber 7448235` *Storage: level 3*
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*
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 from **pricrc4** command: `*P pricrc4 on` *Storage: level 3*
g703settings <maxchan> <1..30> or **g703settings <startchan> <1..30>** or **g703settings <e1/t1>** or **g703settings linecoding <B8ZS/B8ZSrestrict>** **g703settings<callcontrol> <manual/auto>**	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. **B8ZSrestrict/ B8ZS** Select if the leased line PRI is a 56kb network, or a 64kb network. **callcontrol/** Selects if the call control should be set to manual or automatic. Example of feedback from **g703settings** command: `*P g703settings maxchan 24` `*P g703settings startchan 1` `*P g703settings t1` `*P g703settings linecoding B8ZS` `*P g703settings callcontrol manual` *Storage: level 3*
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*
iplr <transmit> <enable/disable>	For demonstration purposes the IPLR algorithm can be turned on or off with the dataport command **iplr transmit <enable/disable>** *Storage: level 1*
pldownspeed <auto/off>	Enables or diables automatic packetloss based downspeeding

	mechanism. Only valid for IP calls. *Storage: level 3*

3.2.5 Dial Commands

Note! TANDBERG is available with several network configurations, which will influence on the Dial Commands.
TANDBERG 6000-8000: Supports speeds up to 3Mb over IP and 2MB over ISDN.
TANDBERG 2500: Supports speeds up to 1.5Mb over IP and 384kb over ISDN
TANDBERG 990: Supports speeds up to 2Mb over IP and 384kb over ISDN.
TANDBERG 880: Supports speeds up to 1152kb over IP and 384kb over ISDN
TANDBERG 550,770,1000: Supports speeds up to 768kb over IP and 384kb over ISDN.
Check the power up and system information to find out your network configuration.

Command Usage	Description
ansdelay<1…50>	Specifies the time before the call is answered if autoanswer is set to on. Values supported are from 1 to 50. 1 = 0,1 second 50 = 5,0 seconds Example of feedback: `*P ansdelay 40` *Storage: level 1*
bondingtimer<normal/relaxed>	Relaxed bonding timing should be used with applications where the B-channels use some additional time before they become transparent. This can be used i.e. when external encryption devices etc are used, and need longer time for bonding. **normal** = normal bonding timing is applied. **relaxed** = relaxed bonding timing is applied. *Storage: level 3*
dial <ipaddress|number> [2ndnumber] [*sub] [calltype[r]] [p<n>]** or **dial <l/g/m><entry>**	Dial number with specified call type, or dial using the specified directory entry. If calltype is not given, the value is taken from the default call type setting. **ipaddress** = numeric IP address **number** = number ***sub** = subaddress **calltype** = {**tlph, 1xh221, 2xh221, 1b, 2b, 3b4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, H0, auto, max**} **max** will give the highest possible bandwidth available on the given network. See point 3.2.5. **r** = restricted call **p<n>** = call number using network profile. **<n>** = **{1,2,3,…6} p1** is default. **p1, p2, p3** is hard coded to be **p1** = auto, **p2** = H320 and **p3** = H323 See command **netprofile** for more information **l** = dial using local directory entry "number". 0 is last number dialled.

	g = dial using global directory entry "number" **m** = dial using multisite directory entry "number" **Note!** When calling an IP-address and gatekeeper registration is active the gatekeeper will normally refuse the call. However some gatekeepers could be configured to accept calling IP-addresses directly. **Example: dial 123456 tlph.** This example will place a telephone call to the number 123456. **Example: dial 10.0.2.229 max.** This example will place an H.323 call to the above IP address at maximum speed. For the TANDBERG 6000-8000 the speed will be 3mbps and for the TANDBERG 800-2500 the speed will be 768kbps **Example: dial 99808 6b p3.** This example will place an H.323 call to the number 99808 on 6b channels. Networkprofile **p3** is set up from factory to be H.323. **Example: dial m1.** This example will dial the multisite directory entry number 1. **Note! While in a call, subsequent calls may be triggered if the MCU option is installed (not valid for the TANDBERG 500/550/1000)** the codec will then start acting as an MCU. The *calltype* argument is not allowed for the second or subsequent calls, since it must be the same as for the first call.
disc [callid]	Disconnect with argument callid which is the same ID as in callstatus and statin.
autoans <on/off/mute>	Specifies whether the codec should automatically answer an incoming call[16]. **on** Incoming call is answered after 1 ring **off** Incoming call must be manually answered by user [default] **mute** Incoming call is answered after 1 ring with microphone muted Example of feedback from **autoans** command: `*P autoans mute` *Storage: level 1*
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

[16] 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.

	the handheld remote control. Example of feedback from **donotdist** command: `*P donotdist off` *Storage: level 0*
defcall <calltype/netprofile>	Sets the default call type to be used. **calltype = tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b ,12b, 18b, 23b, 30b, 3m**, **H0, auto, max** **tlph** = telephone **netprofile = p1, p2, p3, p4, p5, p6** (Hint: **p1** = auto, **p2** = H.320 ISDN, **p3**= H.323 LAN) 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 from **defcall** command: `*P defcall auto` `*P defcall P1` *Storage: level 1*
duovideo open [number] [qual] or **duovideo close** or **duovideo vidqual <m/a/s>** or **duovideo source <c/1/2/../5>** or **duovideo auto <on/off>** or **duovideo number <auto/manual>** TANDBERG 500/550/1000 not applicable	Opens a second videostream[17]. **open [number]** Opens another videocall (not mcu) to the specified number. **This argument is only applicable for systems with the Natural Presenter Package installed.** **[qual]** 1xh221, 2xh221 , 1b, 2b ,3b ,4b, 5b, 6b, 8b, 12b, 18b, 23b. Qual is used together with open to specify the requested bandwidth to be used for the second video call. **close** Disconnects second videocall **vidqual <m/a/s>** Set the duovideo quality to either motion (cif), auto (4*cif when PC or Doc. Cam is selected) or sharpness (4*cif). **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. **number** If set to manual, a number prompt is displayed when duovideo is tried to be opened during a call with another system not supporting duovideo. **Examples:** **duovideo open 12345678 4b**

[17] The DuoVideo call will not transmit audio. Natural Presenter Package must be installed to use Duo Video.

	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 from **duovideo** command (remote unit does not support duovideo): `*S duovideo none` `*P duovideo vidqual a` `*P duovideo auto off` `*P duovideo source c` `*P duovideo number auto` Example of feedback from **duovideo** command (remote unit supports duovideo): `*S duovideo ready` `*P duovideo vidqual a` `*P duovideo auto off` `*P duovideo source c` `*P duovideo number auto` Example of feedback from **duovideo** command (duovideo call active): `*S duovideo open` `*P duovideo vidqual a` `*P duovideo auto off` `*P duovideo source c` `*P duovideo number auto` **Note!** To set the DuoVideo source use the command pressource. *Storage: level 1*
multisite incoming <on/off> **multisite cp <on/off>** TANDBERG 500/550/1000	Turn incoming multisite calls either on or off. Select between the multisite conference modes voice switched and continuous presence.

not applicable	Example of feedback from **multisite** command: `*P multisite incoming on` `*P multisite cp on` *Storage: level 1*
maxcall <0.999>	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*
rnumber [callid]	Returns remote number for last call...Callid **2/3/4** 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** **callid:** **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 **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 from the **rnumber** command: `*S rnumber 1 10.0.6.1 "" ""` `*S rnumber 2 10.0.2.83 "" ""` `*S rnumber 3 "" "" ""` `*S rnumber 4 "" "" ""` *Storage: level 0*

3.2.6 Camera Control Commands

Command Usage	Description
camsettings [n] <brightness> <auto/manual> [level]	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 <on/off> TANDBERG 1000 not applicable	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*
camtrack <on/off> [slow/norm/fast] TANDBERG 1000 not applicable	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 when close-ups are preferred to overview images. Example of feedback from **camtrack** command:

	`*P camtrack off fast` **Note! On the TANDBERG 550, 800, 880 and 2500 only P7 and P8 are used, since they have only two microphone inputs.** *Storage: level 1*
camcenter <on/off>	Camcenter on is the default setting. If camera tracking, based on multiple microphones is on, the algorithm will try to incorporate all the speakers in the picture. If camcenter is off the centering algorithm is disabled. The camera will never try to cover more than one speaker. `*P camcenter on` *Storage: level 1*
extcam <on/off> [pres=n] [source=n] TANDBERG 550/800/880/1000 not applicable	Enables or disables the external camera mode. From B4 software **extcam on** or **off** will no longer be saved and restored after a reboot. 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[18]. 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

[18] See the 'preset-act' and 'preset-store' commands later in this document

	`*C le stop` Other feedback movements are: `ri up do f+ f- z+ z-` **NOTE:** 1. If "extcam" is 'on' the "vidin" command is not 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 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 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 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 camera alongside other cameras and maintain FECC control. *Storage: level 0*
extcap <n> [p/t/z/f/m/s] TANDBERG 550/800/880/1000 not applicable	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 from **extcap** command: `*P extcap 1 ptzfms` `*P extcap 2 ms` `*P extcap 3 ms`

	`*P extcap 4 ms` `*P extcap 5 ms` *Storage: level 0*
extname <n> <name> TANDBERG 550/800/880/1000 not applicable	Defines the name associated with each external video source. **extname <n> <name>** **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 from **extname** command: `*P extname 1 video1` `*P extname 2 video2` `*P extname 3 video3` `*P extname 4 video4` `*P extname 5 video5` *Storage: level 0*
extswitch <n> TANDBERG 550/800/880/1000 not applicable	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. *Storage: level 0*
fecc <on/off/le/ri/up/do/z+/z-/f+/f-/vs n/pa n/ps n/se 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[19] **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

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

	vs *n* Select far end video source number *n* **pa *n*** Select far end preset number *n* **ps *n*** Store far end preset ***n***[20] **se [*n*]** Request far end stillimage [from source ***n***]
feinfo	Returns information identifying a remote system's far end camera control capabilities and the currently active video source. Example of feedback from **feinfo** command: `*F capstart` `*F cappres 15` `*F capvid "main" ptzms` `*F capend`
fevidsrc	Returns information identifying the current active video source of a remotely connected codec. Example: **fevidsrc** *F vidsrc 1.
preset-activate <p0..p14>	Selects one of the fifteen presets[21] (audio & video combinations). *Storage: level 0*
preset-store <p0..p14>	Stores the current audio and video selections to one of the fifteen preset positions.
cammove <camera> <in/out/left/right/up/down/stop>	Camera control command

[20] 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.
[21] Although only 10 presets (0 to 9) are available via the handheld remote control, the Codec is actually capable of storing up to 15 video/audio source, combination presets. The other 5 is accessible through the dataport or the TANDBERG Tracker.

3.2.7 H.323 Related Commands

Command Usage	Description
h323alias e164 <e164alias> or **h323alias id <h323id>**	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 Technical Support"` *Storage: level 1*
h323gatekeeper <off/auto> or **h323gatekeeper manual <gatekeeper ipaddress>** or **h323gatekeeper <gatekeeper ipaddress>**	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*
H323callmanager <on/off> or **H323callmanager address <callmanager ip address>**	Assuming the h323gatekeeper is set to "off", 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 <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 from the **h323mtu** command: `*P h323mtu 1400` *Storage: level 1*
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: `*S h323nat off` `*P h323nat 127.0.0.1` *Storage: level 1*
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 from **h323prefix** command: `*P h323prefix 99` *Storage: level 3*
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 from h323ports command: `*P h323ports static` *Storage: level 3*
h323qos prec <type> <precedence> or **h323qos diffs <type> <diffserv>** or **h323qos mode <ip-precedence/diffserve/off>** or **h323qos tos <TypeOf Service>** or **h323qos rsvp <auto/off>**	**type** Enables you to set custom diffserv or ip precedence values to the following type of H.323 traffic: **audio** **video** **data** **sign** H.323 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 from **h323qos** command: `*P h323qos prec audio auto` `*P h323qos prec video auto` `*P h323qos prec data auto` `*P h323qos prec sign auto` `*P h323qos diffs audio 0` `*P h323qos diffs video 0` `*P h323qos diffs data 0` `*P h323qos diffs sign 0` `*P h323qos tos off` `*P h323qos rsvp off` `*P h323qos mode ip-precedence`

	Storage: level 3
h323stat	This will display gatekeeper 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 of an H.323 MCU call: *H.323 status:* *Gatekeeper configuration ..... Registered* *Gatekeeper IP address ..... 10.0.0.37* *Gatekeeper RAS port ..... 1719* *Call 0: to TEL:97790 at 768 Kbps* *Channel 0: Incoming audio (64 Kbps) (0 %loss)* *Channel 1: Incoming video (78 Kbps) (0 %loss)* *Channel 2: Incoming data (0 Kbps) (0 %loss)* *Channel 4: Outgoing audio (64 Kbps) (0 %loss)* *Channel 5: Outgoing video (485 Kbps) (0 %loss)* *Channel 7: Outgoing data (0 Kbps) (0 %loss)*
h323rate txvideo <16..3072>	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 3072` *Storage: level 1*

3.2.8 Debug Commands

Command Usage	Description
dumph221 [0/1/2/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 Representative for more information
eventlog [n\all]	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.
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.
mcustat [terminals]	See section 6, "Mcucommand and mcustat"

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 550-2500 is only available with 3 BRIs, hence arguments regarding PRI and BRI 4 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.
loopback <local/remote/off>	Turn local loopback on or off, or request remote loopback. **local** When set to local the codec will loop back incoming video and make it possible to use it as a loop back number. **remote** The codec will request the far end codec to loop back its own video. This feature could be used for network diagnostics. This feature will only work if the other end supports it. **off** Turns off all loopback. Example of feedback: **Note:** Only supported over ISDN with encryption turned off. `*P loopback off`
test [video/network/all]	Performs a test on different modules on the Codec. The response of **test all** if no faults are present will be: 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`
syslog <on/off>	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.
ping <ipaddress>	Standard ping command. Used to check if a unit on the network is reachable. Example of feedback from **ping** command:

	`ping: 192.168.1.10 is alive (10 ms)`
traceroute <ipaddress>	Standard traceroute command. Used to find out routing information to specified IP address. Example of feedback from **traceroute** command: 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)`

3.2.9 Miscellaneous Commands

Command Usage	Description
aim <on/off>	When set to off the system will not send the AIM (Audio Indicate Mute) command to remote site when local microphone is turned off. Default is set to on. Example of feedback: `*P aim on` *Storage: level 3*
beep	The codec makes a beep.
boot	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`
callstatus [callid]	Returns callstatus of current calls in the format: **Response** callstatus callid direction type status time cause **Callid** 1..4 **Direction** idle/incoming/outgoing **Type** idle/speech/extnet/h221/H0/bonding/ h323/streaming **Status** idle/answering/calling/connected/ disconnecting/disconnected **Cause** causelocation:causecode. The causecode 255 is TANDBERG specific, and will be returned if no other cause code is valid Causelocation will not be reported in an H.323 call. Cause will not be reported if it's normal clearing. If no callid is given the command will display the status for all ongoing calls. Example of feedback: **S callstatus 1 outgoing bonding connected 3871Sec* **S callstatus 2 idle idle idle 0Sec* **S callstatus 3 idle idle idle 0Sec* **S callstatus 4 idle idle idle 0Sec*
custominfo <1/2/3> [string]	Stores 3 strings with 30 characters each.

	Commands are: custominfo1 [string…] custominfo2 custominfo3 Example of feedback: **P custominfo 1 “”* **P custominfo 2 “”* **P custominfo 3 “”* *Storage: level 1*
defvalues set [all/audio/factory]	Restores the factory default settings. **defvalues set [all/audio]** **defvalues set** This command will not affect the network settings or SPID settings. To reset all values to factory defaults you should use the following syntax: **defvalues set all** **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. To reset audio settings to factory default levels use the following syntax (not applicable for the TANDBERG 500/550/1000): **defvalues set audio**
directory <1..99> [number[number]] [calltype[r]] [p<n>] [name]** or **directory add [number[**number]] [calltype] [name]** or **directory all**	Creates an entry in the pre-stored number list. Can also be used to overwrite existing entries. **1..99** Add to directory 1..99 **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** {tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, 2m5, 3m, H0, auto, max}. **[r]** 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*
disable **<symbolic key name>** or **disable <*>** or **disable <menu/startmenu>**	Disables certain functions available via the keys on the codecs remote control, see also the "enable" command. **keycode - 0/1/2/3/4/5/6/7/8/9/#** **maincam** Main camera key **aux** Aux camera key **doc** Doc camera key **vcr** Vcr camera key **pc** PC key **sv** Selfview key **fp** Snapshot/Freeze key **fe** Far End key **pip** Pip key **z+/z-** Zoom key **v+/v-** Volume Up/Down key **mm** Microphone Off key **up** Up key **do** Down key **le** Left key **ri** Right key **ok** OK key **conn** Connect key **disc** Disconnect **di** Directory key **me** Menu key **de** Delete key **st** Store key **preset** Preset key **f1** Softkey 1 **f2** Softkey 2 **f3** Softkey 3 **p0-p14** Preset keys **grab** Remote Control pickup

	***** Disables all keys **menu** Disable on screen menu **startmenu** Disables the startmenu **keytone** Disables the keytones on the remote control *Storage: level 3*
dispparam	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**.
disptxt **<1/2/3> <string> [timeout]**	Displays text in the lower portion of any display device connected to video outputs 1,3 or VGA 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 **<1/2/3>**	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
enable **<symbolic key name>** or **enable <*>** or **enable <menu/startmenu>**	Enables certain functions available via the keys on the codecs remote control, see also the "disable" command. **keycode - 0/1/2/3/4/5/6/7/8/9/#** **maincam** Main camera key **aux** Aux camera key **doc** Doc camera key **vcr** Vcr camera key **pc** PC key **sv** Selfview key **fp** Snapshot/Freeze key **fe** Far End key **pip** Pip key **z+/z-** Zoom key **v+/v-** Volume Up/Down key **mm** Microphone Off key **up** Up key **do** Down key **le** Left key

	ri Right key **ok** OK key **conn** Connect key **disc** Disconnect **di** Directory key **me** Menu key **de** Delete key **st** Store key **preset** Preset key **f1** Softkey 1 **f2** Softkey 2 **f3** Softkey 3 **p0-p14** Preset keys **grab** Remote Control pickup * Enables all keys **menu** Enables the onscreen menu **startmenu** Enables startup menu **keytone** Enables the keytones on the remote control *Storage: level 3*
encmode <des/aes128/auto>	Set 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. **aes128** 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 system will choose automatically which encryption algorithm to use..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 from the **encmode** command: `*P encmode auto` *Storage: level 1*
feedback [f/p/k/s/c/z] <on/off> TANDBERG 500/550/800/880 not applicable	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 when issued from the serial port *Storage: level 0 when issued from telnet*
globdirectory <1..400> [number[number]] [calltype[r]] [p<n>] [name]** or: **globdirectory add <number[**number] [name]>** or: **globdirectory all**	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** {tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, 2m5, 3m, H0, auto, max}. **[r]** To store a number as restict (56kb) 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 *Storage: level 0*
help	Displays the User Command. Typing '?' has the same effect.
irctrl <int> <on/off> TANDBERG 500/550/1000 not applicable	Turns the system IR sensors either ON or OFF. **int** Internal IR sensor mounted in the codec. Example of feedback from **irctrl** command: `*P irctrl int off` *Storage: level 0*
key <symbolic key name>	Emulates key presses from the TANDBERG remote control. All keystrokes possible from the remote control can be emulated using this command. **key [keycode] [keycode] .....** **keycode - 0/1/2/3/4/5/6/7/8/9/*/#** **maincam** Main camera key **aux** Aux camera key **doc** Doc camera key **vcr** Vcr camera key **pc** PC key **sv** Selfview key **fp** Snapshot/Freeze key

	fe Far End key **pip** Pip key **z+/z-** Zoom key **v+/v-** Volume Up/Down key **mm** Microphone Off key **up** Up key **do** Down key **le** Left key **ri** Right key **ok** OK key **conn** Connect key **disc** Disconnect **di** Directory key **me** Menu key **de** Delete key **st** Store key **preset** Preset key **f1** Softkey 1 **f2** Softkey 2 **f3** Softkey 3 **p0-p14** Preset keys **grab** Remote Control pickup
language <english / german / french / norwegian / swedish / spanish / japanese / italian / portuguese / chinese / traditional/ russian >	Selects the language to be used in the on-screen menus. Example of feedback from **language** command: `*P language English` *Storage: level 3*
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 from **layout-keyboard** command: `*P layout-keyboard US`

	Storage: level 1
mcudirectory **<1..16> [calltype[r]] [!<n>] [!<n>] [!<n>] [!<n>] [name]** or **mcudirectory add [calltype[r]] [!<n>] [!<n>] [!<n>] [!<n>] [name]** or **mcudirectory all**	**<1..16>** Add to entry 1..16 **calltype** {tlph, 1xh221, 2xh221, 1b, 2b, 3b, 4b, 5b, 6b, 8b, 12b, 18b, 23b, 30b, 2m5, 3m, H0, auto, max}. **[r]** To store a number as restrict (56kb) 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,..,99} **add** add to next available entry **all** Lists all nonempty mcu directory entries *Storage: level 0*
mculine <on/off/auto>	**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 from **mculine** command: `*P mculine on` *Storage: level 1*
menupassword set **<pin code>**	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 1*
mode [channels] [audio] [video mode] [video resolution]	Selects a combination of the call quality modes (see also the "*vidqual*" command earlier in this document). The codec will only be able to transmit 4*CIF, VGA, SVGA and XGA if the Natural Presenter Package or Presenter Package is installed. It will always be able to receive 4*CIF, VGA, SVGA And XGA **channels** 1B/2B[22] **audio** auoff/G711/G722/G722.1/ G728/auauto **video mode** vidoff/h261/h263/264/vidauto **video resolution** qcif/cif/icif/4cif/resauto **Note:** Icif is only available for network version running 384kb and above. See **vidfeature** command for automatically turn on or turn

[22] Only applicable for H.221 calls

	off Icif. Example of feedback from **mode** command: `*P mode 2b auauto vidauto resauto` *Storage: level 1*
optionkey <optionkey>	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 HSYRUFA* *or* **P optionkey ?* The questionmark indicates that the option key boot menu is active. *Storage: persistant*
preset-list <p0-p14> <audiomask> <videoinput> <pan> <tilt> <zoom> <focus>	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. **audiomask** 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 **videoinput** 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* *Storage: level 1*
protect <on/off> [password]	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*

rinfo <sw/hw/lp/vc/param>	Returns information concerning a remote TANDBERG 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. 0x01 **param** Current parameter set. All menu settings options and info. This command is not available during an H.323 call or while in a multisite call.
sport **<port> [baud] [parity] [databits] [stopbits] [camera/mode]**	Configures the codec's dataports. **Parameter** **Valid arguments** **Port** data1/data2 **Baud** 1200/2400/4800/9600/19200/38400 **Parity** n/o/e {none, odd or even} **Databits** 7/8 **Stopbits** 1/2 **Mode** d/m/c/t/k {data, modem, contro, T.120 (data1only), keyboard (data 1 only)} **v/a** {*visca or auto camera mode (data2 only)}.* **Note!** The keyboard mode is only valid for the TANDBERG 2500-8000. 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 from **sport** command: `*P sport data1 9600 n 8 1 c` `*P sport data2 9600 n 8 1 a` *Storage: level 1*
systemname <systemname>	Sets system name for use with MCU, telnet and the webinterface Example of feedback from **systemname** command: `*P systemname 6000 MTL` *Storage: persistant*
statin [callId]	Returns details of the current call status with respect to incoming information. **statin 2/3/4** is only valid for systems with MultiSite option installed. **statin 1/2/3/4** **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 **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, h.264 **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 from **statin** command: `*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` **Note!** This command is only available with the parameter **1** for the TANDBERG 500, 550 and 1000.
statout [callId]	Returns details of the current call status with respect to outgoing information. **statout 2/3/4** is only valid for systems with MultiSite option installed. **statout 1/2/3/4** **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 **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 1/2/3/4/5/6/7/8/12/18 /23/30B (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, h264 **Vidres** unknown/cif/qcif/sqcif/icif/4cif/sif/ 4sif/isif/vga/svga/xga The Audio, Vidmode and Vidres will be set to unknown when the call drops. Example of feedback from **statout** command: `*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 unknown` **Note!** This command is only available with the parameter **1** for the TANDBERG 550 and 1000.
statformat <b/a>	Determines the format of the call quality status line.. **a** The call quality status line will be set to advanced. **b** The call quality status line will be set to basic.
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).
chanstat [channel]	This command is dependent of what kind of Network Configuration you have installed on your system. The TANDBERG 550-2500 is not available with PRI, hence you should ignore the PRI information below for these systems. 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 [0:16] 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[23].

[23] 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.

	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` 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`
access <on/off> or **access use [code]**	**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 Management Suit. Example of feedback: **P access off* *Storage: level 1 for access on/off* *Storage: level 0 for access use*
dispbox <"title"> <"line1"> ["line 2"] ["line 3"] ["button 1"] ["button 2"] ["button 3"]	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 Quick Keys, max 15 characters per key. 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.
delbox	Deletes a message box drawn by the **dispbox** command
chat send <string> or **chat close**	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.
encrypt <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 when the total bandwidth used does not exceed 768kb **off** Turns off encryption **auto** Encryption will automatically be turned on if remote system supports encryption. Example of feedback: **P encrypt auto* *Storage: level 1*
encstatus [callid]	Used to check encryption status on all channels during a call. Respons is: *encstatus callid incomingstat outgoingstat [check-code]* **callid** 1-4 **incomingstat** off/idle/des/aes128 **outgoingstat** off/idle/des/aes128/negotiate Example of feedback: **S 1 encstatus des des* Check-code is a key that can be manually presented by the participants to confirm secure connection.
welcomescreen <on/off/logo>	Set welcomescreen mode: **on** Set welcomescreen on **off** Set welcomescreen off **logo** A customized logo will be shown instead of the welcomescreen Example of feedback: **P welcomescreen logo*

	Storage: level 1
websnapshots<on/off>	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 3*
sidebyside <on/off>	Turns side-by-side layout on/off. *Storage: level 1*
toggle-sidebyside <on/off>	Defines wether the pip key on the remote will display or hide a pip – or change the local layout on the main monitor between full screen or side-by-side. *Storage: level 1*
h239 <auto/off>	Used to enable/disable h239. *Storage: level 3*
corpdir <on/off> **or: corpdir ipaddress <ipaddress>** **or: corpdir path <path>**	Command for: - enabling/disabling the use of the corporate directory - specifying the ip address and path where the directory is located. *Storage: level 3*
strictpassword <on/off>	Used to determine whether or not a strict password is needed when setting ippassword. *Storage: level 1*

3.3 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.

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.

Escape Code Command

+++ Escape sequence '+++'.
The TANDBERG 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 for at least one second.
- The TANDBERG 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.

Standard Commands

A Answer Immediately, instructs the TANDBERG 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 will remain in Local Command State after call-set-up (the default is to revert directly to the On-Line State). The TANDBERG 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 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.

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 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. B2.0)**

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

2: **Display last change date.**

3: **Display file name (e.g. s07101)**

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: ISDNBw = H.323 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:ISDNBw=1920;LANBw=1920;NTSC=0;NP=1;MCU=1;CP =1;Strm=1;

Qn Result Code Display. This command instructs the TANDBERG 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 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]).

Registers implemented:

Register S0:	Automatic call answering S0=0: OFF [default] S0=1: ON[24] (The number specifies the number of rings that must be received before the TANDBERG 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!**

[24] 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.

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!**

Response only commands

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

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.

Messages output by the TANDBERG 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	

4. Dialling Examples Using The Dataport

Commands typed on the PC are shown in **BOLD**, result messages from the TANDBERG 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

5. 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 B3.0 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.

6. MCU, mcustat and mcucommand

The TANDBERG **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.

6.1 MCU, mcucommand

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

TANDBERG 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 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.

6.2 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 **mcustat** status feedback implemented in the TANDBERG:

TANDBERG 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.

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