Part 4

ANT-20, ANT-20E, ANT-20SE
DominoCOM ANT-20

Broadband Analyzer/Generator Module
(“BAG Module”)

Remote Control Operating Manual
SCPI Command List

Contents

Command reference

Introduction

1 ANT-20, ANT-20E, ANT-20SE

1.1 General information

The following information also applies to the ABT-20.
For “ANT-20”, read “ABT-20”.

1.1.1 Overview

The ANT-20 can be remotely controlled using the

- IEEE 488 (IEC 625) interface, often referred to as GPIB:
  Option BN 3035/92.10, Remote Control GPIB (PCMCIA)

– or –

- V.24/V.28 (RS 232) interface:
  Option BN 3035/91.01, Remote Control V.24

The programming commands are identical, regardless of the type of remote control interface that is used.

The ANT-20 must be switched to remote control mode manually. In remote control mode, manual control of the ANT-20 is not possible.

To set the ANT-20 to remote control mode, follow these steps:

ANT-20, ANT-20E with Windows 3.11:
⇒ Double-click on the “Remote” icon in the “ANT-20” group in the “Program Manager” window.

Windows 95:
1. Enable remote control mode using the taskbar:
   “Start/ANT-20/Remote On”.
2. Double-click on the “ANT-20” icon on the desktop
   – or –
   use the taskbar: “Start/ANT-20/ANT-20”.

To switch back to normal manual control, follow these steps:

ANT-20, ANT-20E with Windows 3.11:
⇒ Double-click on the “Remote Disable” icon in the “ANT-20” group in the “Program Manager” window.

Windows 95:
1. Disable remote control mode using the taskbar:
   “Start/ANT-20/Remote Off”.
2. Double-click on the “ANT-20” icon on the desktop
   – or –
   use the taskbar: “Start/ANT-20/ANT-20”.

From the viewpoint of remote control, each measuring module in the ANT-20 is a fully remote-controllable instrument with its own SCPI command tree, status reporting system and common command set.

The measuring module to be controlled is selected using the command MODule:SELect <module_name> (see Sec. 1.1.2).

The instrument's display shows which measuring modules exist and which one is selected for remote control.

A built-in monitor function can be switched on for debugging purposes (see Sec. 1.1.3).

To change the type of the remote control interface and/or its accompanying configuration parameters, the batch file remote.bat must be edited.

ANT-20, ANT-20E with Windows 3.11:

1. Double-click on the "Remote Configuration" icon in the "ANT-20" group in the "Program Manager" window to edit the remote.bat file.
2. Follow the on-screen instructions.

Windows 95:

1. Click on the "Remote Configuration" icon via taskbar: "Start/ ANT-20/Remote Configuration" to edit the remote.bat file.
2. Follow the on-screen instructions.

1.1.2 Module selection

The remote control interface of the ANT-20 supports multiple internal measuring modules. The module selection provides a mechanism to select one of these measuring modules for remote control.

Keyword	Parameter form	Notes
MODule:SELect	<module_name> [1]	[no query]
1 <module_name>: BASIC | BAG		

Table I-1 Module selection

This command selects the measuring module specified by <module_name> for remote control and deselects all others. All subsequent commands (including commands in subsequent program messages) are passed to the selected measuring module. All other measuring modules are unavailable for programming until selected.

<module_name>:

BASIC: selects BASIC Module
BAG: selects BAG Module (Broadband Analyzer Generator)

Note:
- This command has no query form.
- After power-on, the BASIC measuring module is selected.
- If the MODule:SELect <module_name> command is required in a program message, it must be the first (or the only) command in that program message.

1.1.3 Monitor mode

A monitor function can be switched on or off in remote control mode. If it is switched on, the instrument displays all messages sent to and from the instrument, corresponding to each operating step performed.

1.2 GPIB Remote Control interface

This section describes the GPIB Remote Control interface for applications using the ANT-20 as a remote controlled instrument.

Other applications using the ANT-20 as a GPIB controller for controlling external instruments are also possible (e.g. running the WG CATS Test Executive BN 3045 on the ANT-20 to control the ANT-20 measurement hardware plus external instruments).

To allow both these mutually exclusive operating modes to be used, the GPIB Remote Control interface and installation comprises all the software required for both operating modes.

1.2.1 Items included

The Remote Control GPIB (PCMCIA) Option BN 3035/92.10 comprises:

ANT-20, ANT-20E with Windows 3.11:

- PCMCIA GPIB card including PCMCIA to GPIB cable (2 meters)
- CardWare User's Manual (Award Software Inc.)
- Distribution disk: CardWare Version 2.0 (Award Software Inc.)
- Installation disks:
  ANT-20 PCMCIA System (configured CardWare 2.0),
  ANT-20 GPIB Remote Control (includes NI-488.2)
- ANT-20 GPIB (NI-488.2) for Windows 3.x
- Operating Manual: Remote Control
- Brochure "SCPI and IEEE 488, Programmer's Introduction"

Windows 95:

- PCMCIA GPIB card including PCMCIA to GPIB cable (2 meters)
- Installation disks: ANT-20 GPIB Remote Control for Windows 95 (includes NI-488.2M)
- Operating Manual: Remote Control
- Brochure "SCPI and IEEE 488, Programmer's Introduction"

1.2.2 Installation

1.2.2.1 Overview

The PCMCIA GPIB interface from National Instruments Corp. (NI) is used with the NI-488.2/ NI-488.2M software for GPIB Remote Control.

For ANT-20 with Windows 3.11 only:

- The NI-488.2 software requires standardized PCMCIA system software with Socket and Card Services (version 2.0 or higher) to be installed.
- A software called CardWare (written by Award Software Inc.) is used as PCMCIA system software. It can also be used with a wide variety of other PCMCIA cards.
- The CardWare software contained on the installation disk is already configured for use with the ANT-20.

1.2.2.2 Software installation

Software installation under Windows 3.11

If you ordered the Remote Control GPIB Option BN 3035/92.10 together with your ANT-20, the required software packages are already installed on the ANT-20 and the icons “Remote”, “Remote Disable” and “Remote Configuration” are shown in the “ANT-20” group in the “Program Manager” window.

Note: A release code is required to enable the Remote Control GPIB Option.
For detailed information contact your nearest Wavetek Wandel Goltermann Service Center. The addresses are listed at the end of this manual.
When contacting the Service Center, always quote:
- The serial number of the ANT-20
- The version number of the ANT-20 software package

If you ordered the Remote Control GPIB Option BN 3035/92.10 separately, install the software packages as follows:

Installing the PCMCIA System software

1. Start or return to Windows.
2. Insert the ANT-20 PCMCIA System installation disk into drive A:.
3. Choose “Run ...” from the “File” menu in the “Program Manager” window and type the following command into the dialog box:
   A:\setup
   Confirm with “OK”.
4. After complete installation exit Windows, remove the installation disk from drive A:, and reboot the ANT-20.

Installing the GPIB Remote Control software

1. Start or return to Windows.
2. Insert the ANT-20 GPIB Remote Control installation disk into drive A:.

3. Choose “Run ...” from the “File” menu in the “Program Manager” window and type the following command into the dialog box:
   A:\setup
   Confirm with “OK”.
4. After complete installation exit Windows, remove the installation disk from drive A:, and reboot the ANT-20.

Installing the ANT-20 Remote Control software

1. Start or return to Windows
2. Choose “Run...” from the “File” menu in the “Program Manager” window and type the following command into the dialog box:
   C:\ANT20.SUP\DISK1\setup.exe
   Confirm with “OK”.
3. Follow the on-screen instructions to install the ANT-20 Remote Control.
4. After complete installation exit Windows, and reboot the ANT-20.

After this installation procedure, the ANT-20 can be set to remote control mode by double-clicking on the “Remote” icon in the “ANT-20” group in the “Program Manager” window.

Installing the GPIB (NI-488.2) for Windows 3.x

This software is required for applications that use the ANT-20 as a GPIB controller for controlling external instruments (e.g. for running the WG CATS Test Executive BN 3045 on the ANT-20 to control the ANT-20 measurement hardware plus external instruments).

1. Start or return to Windows.
2. Insert the installation disk ANT-20 GPIB (NI-488.2) for Windows 3.x into drive A:.
3. Choose “Run...” from the “File” menu in the “Program Manager” window and type the following command into the dialog box:
   A:\setup
   Confirm with “OK”.
4. Follow the on-screen instructions to complete the installation.
5. After complete installation exit Windows, remove the installation disk from drive A:, and reboot the ANT-20.

After this installation procedure, you can access the “NI-488.2 PCMCIA GPIB Software” group in the “Program Manager” window.

To view or modify the NI-488.2 software configuration, double-click the “GPIB” icon from the “Control Panel” in the “Main” group of the “Program Manager” window.

Software installation under Windows 95

If you ordered the Remote Control GPIB Option BN 3035/92.10 together with your ANT-20, the required software packages are already installed on the ANT-20 and the icons “Remote On”, “Remote Off” and “Remote Configuration” are shown in the Windows 95 file folder “ANT-20”.

Note: A release code is required to enable the Remote Control GPIB Option.
For detailed information contact your nearest Wavetek Wandel Goltermann Service Center. The addresses are listed at the end of this manual.
When contacting the Service Center, always quote:
- The serial number of the ANT-20
- The version number of the ANT-20 software package

Verify the PCMCIA GPIB card installation as described in section “Verify the PCMCIA GPIB card installation” below.

If you ordered the Remote Control GPIB Option BN 3035/92.10 separately, install the software packages as follows:

Installing the GPIB Remote Control software

1. Start or return to Windows 95.
2. Insert the ANT-20 GPIB Remote Control for Windows 95 installation disk 1 into drive A:.
3. Click the Windows 95 “Start” button, choose “Run ...” and
   type the following command into the dialog box:
   A:\setup
   Confirm with “OK”.
4. Follow the on-screen instructions during the installation procedure and enter
   C:\Tmp\Gpib
   as GPIB distribution directory.
5. After completion, click the Windows 95 “Start” button, choose “Run...” and
   type the following command into the dialog box:
   C:\Tmp\Gpib\gpib9513.exe
   Confirm with “OK”.
6. Follow the on-screen instructions during the setup procedure and use the default selection for components to install (all components selected).
7. After complete installation:
   – Shut down the ANT-20.
   – Remove the installation disk from drive A:.
   – Insert the PCMCIA GPIB card into a free PCMCIA slot.
   – Reboot the ANT-20.

Enable support for DOS applications as described below (by default, DOS support is disabled):

1. Return to Windows 95, click the Windows 95 “Start” button, choose “Settings” and then choose “Control Panel” from the submenu.
   In the “Control Panel” window, double-click the “System” icon.
2. In the “Device Manager” tab of the “System Properties” window,
   choose “View devices by type”,
   click on the “National Instruments GPIB Interfaces” icon in the list and then
   click on the “Properties” button.
3. In the “General” tab in the “National Instruments GPIB Interfaces Properties” window select the checkbox “Enable Support for DOS GPIB Applications” and confirm with “OK”.
4. Reboot the ANT-20.

Verify the PCMCIA GPIB card installation

1. The PCMCIA GPIB card must be in the slot!
2. Click the Windows 95 “Start” button, choose “Settings” and then
   choose “Control Panel” from the submenu.
   In the “Control Panel” window, double-click the “System” icon.
3. In the “Device Manager” tab of the “System Properties” window,
   choose “View devices by type”,
   double-click the “National Instruments GPIB Interfaces” icon in the list and then
   double-click “PCMCIA GPIB” in the sublist.
4. In the “GPIB Settings” tab of the “PCMCIA GPIB Properties” window, the entry for “Interface Name” must be “GPIB0”. If it is not, change it to “GPIB0”.
5. Deactivate the “System Controller” checkbox.
   (All other parameters are properly set by starting the ANT-20 remote control mode after completion of the installation procedure.)
6. Confirm with “OK”.

Installing the ANT-20 Remote Control software

1. Start or return to Windows 95.
2. Click the Windows 95 “Start” button,
   choose “Run...” and type the following command into the dialog box:
   C:\ANT20.SUP\DISK1\setup.exe
   Confirm with “OK”.
3. Follow the on-screen instructions to install the ANT-20 Remote Control and select only the “Remote Control Software” as component to install.

The following patch installation described in steps 4, 5 and 6 is only required for ANT-20 software versions less or equal 7.0. It has no effect on versions greater than 7.0.

4. Insert the ANT-20 GPIB Remote Control for Windows 95 installation disk 3 into drive A:.
5. Click on the Windows 95 “Start” button, choose “Run...” and
   type the following command into the dialog box:
   A:\setup
   Confirm with “OK”.
6. Follow the on-screen instructions.
   After completion, remove the installation disk from drive A:.

Note: Only for ANT-20 software versions less or equal 7.0:
If there is any need to execute C:\ANT20.SUP\DISK1\setup.exe (with the component “Remote Control Software” selected) at a later time again, the above described patch installation (steps 4, 5 and 6) must also be executed again.

7. Exit Windows 95 and reboot the ANT-20.

After this installation procedure, you can enable the remote control mode by using the taskbar:

1. “Start/ANT-20/Remote On”.
2. Then double-click on the “ANT-20” icon on the desktop or
   use the taskbar: “Start/ANT-20/ANT-20”.

1.2.2.3 Hardware installation

1. Insert the PCMCIA GPIB card into a free PCMCIA socket the same way you insert a disk into a floppy drive.
   The PCMCIA GPIB has no jumpers or switches to set, and you do not need to power down the ANT-20 when you insert or remove the card.
2. Connect the PCMCIA GPIB cable to the PCMCIA GPIB card.

1.2.3 Connecting to GPIB

The GPIB Remote Control interface is equipped with a standard 24-way connector conforming to IEEE 488.1.

GPIB cables of various lengths are available for connecting the ANT-20 to other instruments and to the bus controller:

- 1.2 m long: Part number K 420
- 2.0 m long: Part number K 421

Note:
- The total length of GPIB cable must not exceed 2 meters x the number of instruments in the interface system.
- Up to 15 instruments can be connected to the interface system. The maximum cable run used to connect a group of instruments is 20 meters. For more information refer to the IEEE 488.1 standard.
- Longer distances can be bridged using interface couplers (2-wire or 4-wire connections, if necessary with suitable modems).

1.2.4 Device address

Each instrument in the interface system must have a unique address to allow the controller to access each one individually.

The ANT-20 address can be changed by editing the remote.bat batch file.
Any address in the range 0 to 30 can be selected.

ANT-20, ANT-20E with Windows 3.11:

1. Double-click on the “Remote Configuration” icon in the “ANT-20” group in the “Program Manager” window to edit the remote.bat file.
2. Follow the on-screen instructions.

Windows 95:

1. Click on the “Remote Configuration” icon via taskbar: “Start/ ANT-20/Remote Configuration” to edit the remote.bat file.
2. Follow the on-screen instructions.

Note: Make sure that a given address is used only once within the interface system. The controller address is reserved for the controller.

1.2.5 Interface functions

1.2.5.1 Overview

Interface function		Note
SH1	Source Handshake	Complete capability
AH1	Acceptor Handshake	Complete capability
T8	Talker	No Talk Only capability No Serial Poll capability
L4	Listener	No Listen Only capability
SR0	Service Request	No capability
RL0	Remote / Local	No capability
PP0	Parallel Poll	No capability
DC1	Device Clear	Complete capability
DT0	Device Trigger	No capability
C0	Controller	No capability

Table I-2 Interface functions conforming to the IEEE 488.1 standard

1.2.5.2 Device Clear

When the IEEE 488 interface message Device Clear (DCL) or Selected Device Clear (SDC) is sent to the ANT-20, a device clear message is routed to all internal measuring modules, regardless of whether they are selected or deselected.

The device clear message initializes remote control of the instrument and ensures that a subsequently sent program message will be accepted and processed.

No instrument initialization is performed by DCL or SDC. To initialize the instrument, select every measuring module and send the reset command
*RST (MODule:SELect <module_name>; *RST).

1.3 V.24/V.28 (RS 232) Remote Control interface

1.3.1 Items included

The Remote Control V.24/RS 232 Option BN 3035/91.01 consists of

- Remote Control Operating Manual
- Brochure “SCPI and IEEE 488, Programmer’s Introduction”

1.3.2 Installation

For remote control via RS 232 the built-in serial port (COM1) of the embedded PC-AT is used.

1.3.2.1 Software installation

Software installation under Windows 3.11

If you ordered the Remote Control V.24/V.28 (RS 232) Option BN 3035/91.01 together with your ANT-20, the required software package is already installed on the ANT-20 and the icons “Remote”, “Remote Disable” and “Remote Configuration” are shown in the “ANT-20” group in the “Program Manager” window.

Note: A release code is required to enable the Remote Control V.24/V.28 (RS 232) Option. For detailed information contact your nearest Wavetek Wandel Goltermann Service Center. The addresses are listed at the end of this manual.
When contacting the Service Center, always quote:
- The serial number of the ANT-20
- The version number of the ANT-20 software package

If you ordered the Remote Control V.24/V.28 (RS 232) Option BN 3035/91.01 separately, install the software package as follows:

Installing the ANT-20 Remote Control software

1. Start or return to Windows
2. Choose “Run...” from the “File” menu in the “Program Manager” window and type the following command into the dialog box:
   C:\ANT20.SUP\DISK1\setup.exe
   Confirm with “OK”.
3. Follow the on-screen instructions to install the ANT-20 Remote Control.
4. After complete installation exit Windows, and reboot the ANT-20.

After this installation procedure, the ANT-20 can be set to the remote control mode by double-clicking on the “Remote” icon in the “ANT-20” group in the “Program Manager” window.

Software installation under Windows 95

If you ordered the Remote Control V.24/V.28 (RS 232) Option BN 3035/91.01 together with your ANT-20, the required software package is already installed on the ANT-20 and the icons “Remote On”, “Remote Off” and “Remote Configuration” are shown in the Windows 95 file folder “ANT-20”.

Note: A release code is required to enable the Remote Control V.24/V.28 (RS 232) Option. For detailed information contact your nearest Wavetek Wandel Goltermann Service Center. The addresses are listed at the end of this manual.
When contacting the Service Center, always quote:
- The serial number of the ANT-20
- The version number of the ANT-20 software package

If you ordered the Remote Control V.24/V.28 (RS 232) Option BN 3035/91.01 separately, install the software package as follows:

Installing the ANT-20 Remote Control software

1. Start or return to Windows 95.
2. Click the Windows 95 “Start” button,
   choose “Run...” and type the following command into the dialog box:
   C:\ANT20.SUP\DISK1\setup.exe
   Confirm with “OK”.
3. Follow the on-screen instructions to install the ANT-20 Remote Control.
4. After complete installation exit Windows 95, and reboot the ANT-20.

After this installation procedure, you can enable the remote control mode by using the taskbar:

1. “Start/ANT-20/Remote On”.
2. Then double-click on the “ANT-20” icon on the desktop or
   use the taskbar: “Start/ANT-20/ANT-20”.

1.3.3 Connecting to V.24/V.28 (RS 232)

The interface connector (serial port COM1) is a 9-way SUB-D male connector.

Pin	ITU-T V.24	DIN 66 020	EIA/TIA RS 232	Description ITU-T V.24 (RS 232)		Input (I) or Output (O)
3	103	D1	BA	TXD	Transmitted data	O
2	104	D2	BB	RXD	Received data	I
7	105	S2	CA	RTS	Request to send	O
8	106	M2	CB	CTS	Ready for sending/Clear to send	I
6	107	M1	CC	DSR	Data set ready	I
5	102	E2	AB	SGND	Signal ground or common return	-
1	109	M5	CF	DCD	Data channel received line signal detector/Data carrier detect	I
4	108.2	S1.2	CD	DTR	Data terminal ready	O
9	125	M3	CE	RI	Calling indicator/Ring indicator	I

Table I-3 Pinning and signal description

The connection of an ANT-20 to a PC is shown below. Both the ANT-20 and the PC function as Data Terminal Equipment (DTE):

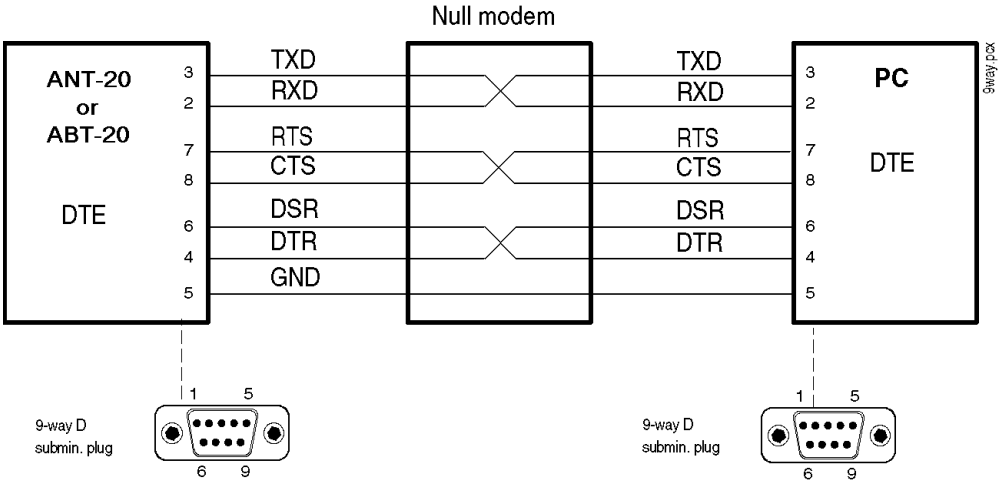

Fig. I-1 9-way connection

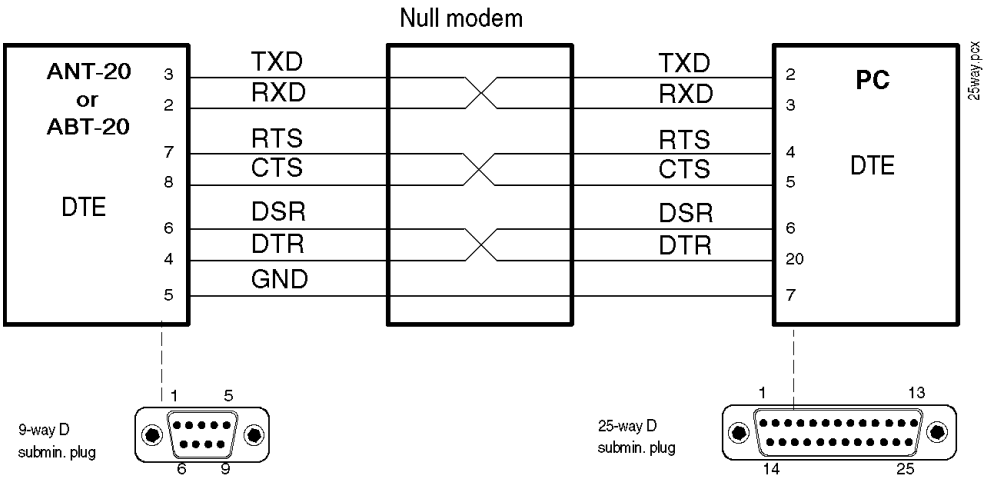

Fig. I-2 25-way connection

An appropriate cable with both 9-way and 25-way SUB-D female connectors on each end is available:

Part number K 764 (3.0 m long)

1.3.4 Transmission parameters

The **baud rate** can be changed by editing the remote.bat batch file.

ANT-20, ANT-20E with Windows 3.11:

1. Double-click on the “Remote Configuration” icon in the “ANT-20” group in the “Program Manager” window to edit the remote.bat file.
2. Follow the on-screen instructions.

Windows 95:

1. Click on the “Remote Configuration” icon via taskbar: “Start/ ANT-20/Remote Configuration” to edit the remote.bat file.
2. Follow the on-screen instructions.

The following baud rates can be selected:

- 1200 bit/s
- 2400 bit/s
- 4800 bit/s
- 9600 bit/s
- 19200 bit/s
- 38400 bit/s
- 57600 bit/s

The interface operates in full-duplex (FDX) mode.

The other transmission parameters are fixed and cannot be changed:

Parameter	Setting
Parity	None
Number of stop bits per character	1
Number of data bits per character	8
Flow control	Hardware handshake by control lines RTS/CTS

Table I-4 Fixed V.24/RS 232 transmission parameters

1.3.5 Interface functions

1.3.5.1 Overview

There is no functional equivalence to the GPIB interface functions Service Request and Serial Poll.

However, the GPIB interface function Device Clear is simulated by a BREAK signal (see Sec. 1.3.5.2, Page I-14).

1.3.5.2 Device Clear

When the BREAK signal is sent to the ANT-20, a device clear message is routed to all internal measuring modules, regardless of whether they are selected or deselected.

BREAK is detected when the RXD input is at positive voltage (i.e. logical 0 or SPACE) for the entire character frame including the stop bit.

The device clear message initializes remote control of the instrument and ensures that a subsequently sent program message will be accepted and processed.

No instrument initialization is performed by the device clear message.

To initialize the instrument, select every measuring module and send the reset command *RST (MODule:SELect <module_name>; *RST).

2 TX/RX SCPI block diagram

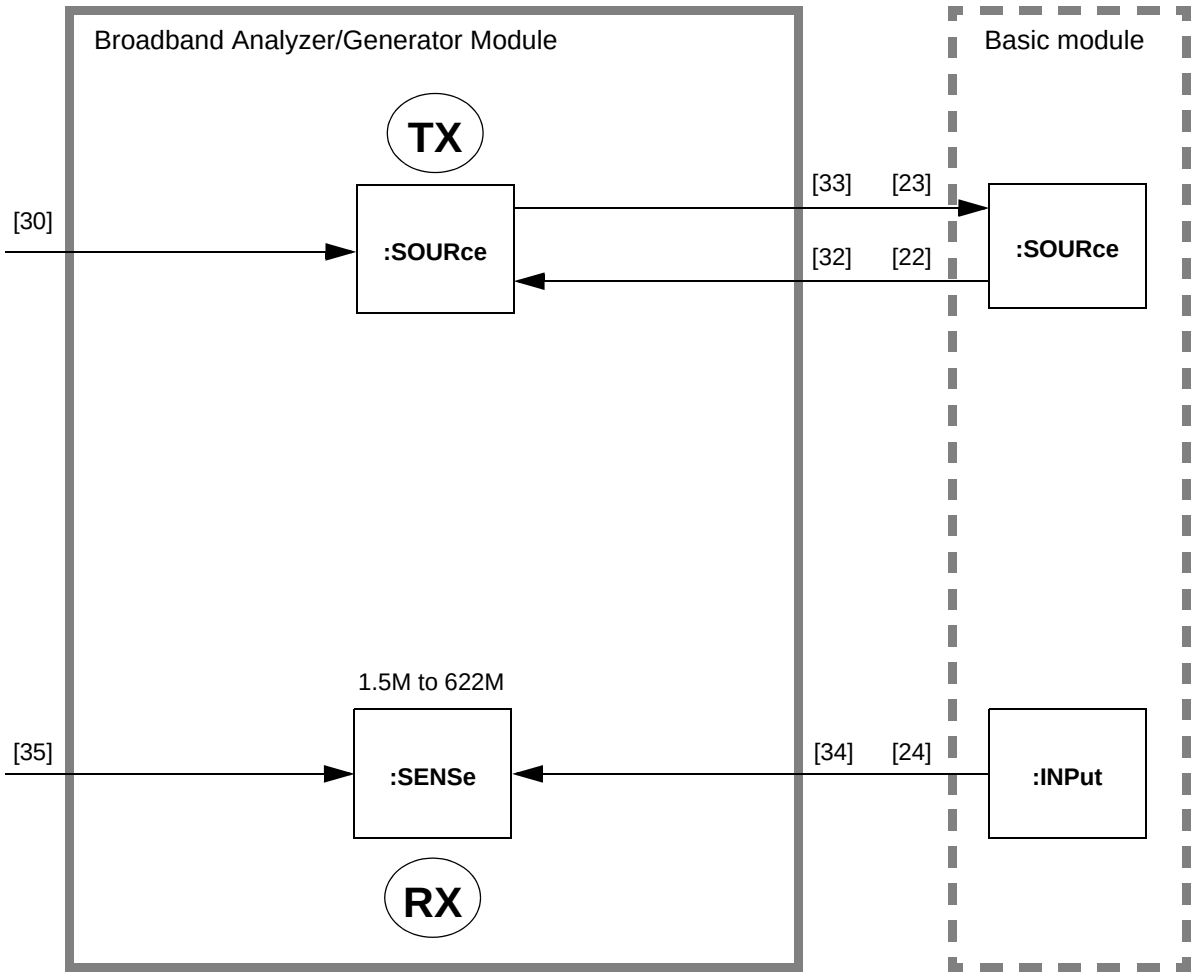

Fig. I-3 TX/RX SCPI block diagram

3 Operating information

This chapter gives the programmer some basic information which should make it easier to program this device.

- Program messages are executed in the order they are received from the controller. However, the execution of any command does not start before the PMT (Program Message Terminator <NL>) or any other sequential command is received. This gives full flexibility in controlling the device without the need to worry about the dependencies between individual commands, because the settings of coupled commands received within a single message are checked after the whole message is received.
- Commands are treated as “overlapped commands” except where otherwise noted. Overlapped commands allow the next command to be executed before the preceding command has finished execution. This gives better performance and makes it possible to change some settings while a measurement is running, for example. You can use the common command *WAI to force sequential operation whenever you need to.
- Any error detected within a program message is written into the error queue. You can read entries out of the error queue using the SYST:ERR? command. Any program message is read from the input buffer and parsed as far as possible to detect potential errors. Nevertheless, the device setting may be undefined after any error.
- Queries are not allowed to have side effects. Thus, queries of commands set in the same program message will return the old command setting.
- Note that using the SCPI short form of the commands (capital letters) will reduce operational overhead and can increase your system performance.
- The input buffer size is 4096 bytes (4 kB).
- The output buffer size is 8192 bytes (8 kB). Requesting a response with more than 8192 bytes would cause a query error.

4 Programming examples

This chapter contains some short sample programs to help you get familiar with the remote control operation of this device.

4.1 Notation

The sample programs are written in C programming language style using the functions “clear”, “write”, “wait” and “read” as placeholders for the different functions used by programmers depending on their programing language.

Note: A “NOEND” as the second parameter of the function “write” indicates that the same program message is continued in the next line without sending a program message terminator (PMT). An “END” indicates that a program message terminator (PMT) should be sent.
Multiple commands can be appended using NOEND to one “big” program message. Checking of coupled parameters and the execution of all commands start after the PMT or any sequential command is received.

4.2 Example 1 (PVC measurement)

This sample program performs a simple STM1 C4 OAM measurement on permanent virtual channels. Note that the default device setting after a *RST command is a 2 Mbit/s framed PDH signal.

```
      // Select base module to talk to (only required for ANT-20,
      // ABT-20 and not for the ANX VXI modules)
write (“MOD:SEL BASIC;”, END);
      // Send device clear to reset input buffer
      // and output queue.
clear ();
      // Initialize communication protocol.
      // Reset device to standard setting.
      // TX and RX will be set to 2 Mbit/s (E1) framed signal (default)
write (“*RST”, END);
write (“*WAI”, END);
      // Clear status register and error queue.
write (“*CLS”, END);
      // Set line code to CMI mode.
write (“:OUTP:LINE:CODE CMI;”, NOEND);
write (“:INP:LINE:CODE CMI;”, NOEND);
      // Set transmitter to SDH mode.
write (“:SOUR:MODE SDH;” ,NOEND);
      // Set transmitter bit rate to STM1/STS3 (default).
write (“:SOUR:DATA:SDH:RATE SDH;”,NOEND);
      // Set C4/STS3CSPE mapping.
write (“:SOUR:DATA:SDH:MAPP C4;”,NOEND);
      // Deactivate PDH 140 Mbit/s MUX chain for transmitter.
write (“:SOUR:DATA:SDH:PAYL:TYPE ATM;”,NOEND);
write (“:SENS:DATA:PDH:RATE M140,M140;”,END);
      // Set transmitter to ATM.
write (“:SENS:DATA:ATM:SENS EXT;”,END);
```

```
      // Set receiver to SDH mode.
write (":SENS:MODE SDH;",NOEND);
      // Set receiver bit rate to STM1 (default).
write (":SENS:DATA:SDH:RATE STM1;",NOEND);
      // Set C4/STS3CSPE mapping.
write (":SENS:DATA:SDH:MAPP C4;",NOEND);
      // Deactivate ATM 140 Mbit/s DEMUX chain for receiver.
write (":SENS:DATA:SDH:PAYL:TYPE ATM;",NOEND);
write (":SENS:DATA:PDH:RATE M140,M140;",END);
      // Set receiver to ATM.
write (":SENS:DATA:ATM:SENS EXT;",END);
      :sour:data:atm:crate?
      // Read RX and TX cell rate of base module
      // (necessary for atm module)
write (":SOUR:DATA:ATM:CRAT?;",END);
      // read and save atm crate to 'sour_crate'
read
write (":SENS:DATA:ATM:CRAT?;",END);
      // read and save atm crate to 'sens_crate'
read
      // Select atm module to talk to (only required for ANT-20,
      // ABT-20 and not for the ANX VXI modules)
write ("MOD:SEL ATM;", END);
      // Reset device to standard setting.
write ("*RST", END);
write ("*WAI", END);
      // Clear status register and error queue.
write ("*CLS", END);

      // Write atm cell rate of base module to atm module
write (":SOUR:DATA:ATM:CRAT sour_crate;",NOEND);
write (":SENS:DATA:ATM:CRAT sens_crate;",NOEND);

      // Setup channels
write (":SENS:DATA:ATM:CHAN1:HEAD:VPI 33;",NOEND);
write (":SENS:DATA:ATM:CHAN1:HEAD:VCI 63;",NOEND);
write (":SENS:DATA:ATM:CHAN1:HEAD:TRAF:CONT:PEAK 1000;",NOEND);
write (":SENS:DATA:ATM:CHAN1:HEAD:TRAF:CONT:CDEF 1;",NOEND);
write (":SENS:DATA:ATM:CHAN1:STAT 1;",NOEND);
write (":SOUR:DATA:ATM:CHAN1:HEAD:VPI 33;",NOEND);
write (":SOUR:DATA:ATM:CHAN1:HEAD:VCI 63;",NOEND);
write (":SOUR:DATA:ATM:CHAN1:TRAF:SOUR:PEAK 1000,0;",NOEND);
write (":SOUR:DATA:ATM:CHAN1:TRAF:CONT:PEAK 1000,0;",NOEND);
write (":SOUR:DATA:ATM:CHAN1:TRAF:CONT CBR,1;",NOEND);
write (":SOUR:DATA:ATM:CHAN1:STAT 1;",NOEND);
      // Activate O191 measurement.
write (":SOUR:DATA:ATM:O191M:STAT 1;",NOEND);
write (":SENS:DATA:ATM:O191M:STAT 1;",END);
      // Switch atm user traffic on.
write (":SOUR:DATA:ATM:GEN:STAT 1;",END);

      //Select desired results.
write (":SENS:FUNC:ON 'CST:ATM1:CHAN1';",END);
write (":SENS:FUNC:ON 'CST:ATM1:CHAN2';",END);
write (":SENS:FUNC:ON 'CST:ATM1:CHAN3';",END);
```

```
write (“:SENS:FUNC:ON ‘CST:ATM1:CHAN4’;”,END);
      // Add more results ...

      // Set measurement duration to 1 hour
write (“:SENS:SWE:ITIM 100;”,END);
write (“:SENS:SWE:TIME 1 hr;”,END);

      // Set atm module as slave for trigger
write (“:TRIG:ESIG OFF;”, END);
write (“:TRIG:SOUR ESIG;”, END);
write (“*WAI”, END)
      // Start measurement of atm module first.
write (“:INIT;”, END);

      // Set base module as master for trigger.
write (“:MOD:SEL BASIC;”, END);
write (“:TRIG:ESIG ON;”, END);
write (“:SENS:SWE:ITIM 100;”,END);
write (“:SENS:SWE:TIME 1 hr;”,END);
write (“*WAI”, END);
      // Start measurement of base module (master).
write (“:INIT;”, END);

      // Wait until measurement complete.
      // ...
wait  (3600);

      // Place results in the output queue.
write (“:SENS:DATA:ACT?;”,END);

      // Read response form device.
read  ();
```

4.3 Example 2 (Channel Explorer measurement)

This sample program scans for ATM virtual channels that use STM1 C4 mapping.

```
      // Select base module to talk to (only required for ANT-20,
      // ABT-20 and not for the ANX VXI modules)
write (":MOD:SEL BASIC;", END);
      // Send device clear to reset input buffer
      // and output queue.
clear ();
      // Initialize communication protocol.
      // Reset device to standard settings.
      // TX and RX set to 2 Mbit/s (E1) framed signal.
write ("*RST", END);
write ("*WAI", END);
      // Clear status register and error queue.
write ("*CLS", END);
      // Use optical interface
write (":DATA:SENS OPT;", NOEND);
write (":OUTP:OPT 1;", NOEND);
write (":SOUR:DATA:SOUR OPT;", NOEND);
      // Set line code to CMI mode
write (":OUTP:LINE:CODE CMI;", NOEND);
write (":INP:LINE:CODE CMI;", NOEND);
      // Set transmitter to SDH mode.
write (":SOUR:MODE SDH;" ,NOEND);
      // Set transmitter bit rate to STM1/STS3 (default).
write (":SOUR:DATA:SDH:RATE SDH;",NOEND);
      // Set C4/STS3CSPE mapping.
write (":SOUR:DATA:SDH:MAPP C4;",NOEND);
      // Included PDH 140 Mbit/s MUX chain
      // deactivated.
write (":SOUR:DATA:SDH:PAYL:TYPE ATM;",NOEND);
write (":SOUR:DATA:PDH:RATE M140,M140;",END);
      // Set transmitter to ATM.
write ":SOUR:DATA:ATM:SOUR EXT;",END)

      // Set receiver to SDH mode.
write (":SENS:MODE SDH;",NOEND);
      // Set receiver bit rate to STM1 (is default).
write (":SENS:DATA:SDH:RATE STM1;",NOEND);
      // Set C4/STS3CSPE mapping.
write (":SENS:DATA:SDH:MAPP C4;",NOEND);
      // Included ATM 140 Mbit/s DEMUX chain
      // deactivated.
write (":SENS:DATA:SDH:PAYL:TYPE ATM;",NOEND);
write (":SENS:DATA:PDH:RATE M140,M140;",END);
write (":SENS:DATA:ATM:SENS EXT;",END)
      :sour:data:atm:crate?
      // read RX and TX cell rate of base module (necessary for atm
      module)
write (":SOUR:DATA:ATM:CRAT?;",END);
      // read and save atm crate to 'sour_crate'
read  ();
write (":SENS:DATA:ATM:CRAT?;",END);
```

```
      // read and save atm crate to ‘sens_crate’
read  ();
      // Select atm module to talk to (only required for ANT-20, ABT-
      20 and not for the ANX VXI modules)
write (“MOD:SEL ATM”, END);
      // Reset device to standard setting.
write (“*RST”, END);
write (“*WAI”, END);
      // Clear status register and error queue.
write (“*CLS”, END);

      // Write atm cell rate of base module to atm module
write (“:SOUR:DATA:ATM:CRAT sour_crate;”,NOEND);
write (“:SENS:DATA:ATM:CRAT sens_crate;”,END);
      // Set atm module as slave for trigger
write (“:TRIG:ESIG OFF;”, NOEND);
write (“:TRIG:SOUR ESIG;”, END);
      // Set measurement mode of receiver
write (“:SENS:DATA:ATM1:SCAN:STAT ON;”, END);
      // Set scan type ACTivity (default)
write (“:SENS:DATA:ATM1:SCAN:TYPE ACT;”, END);
      // Start measurement of channel explorer.
write (“:INIT2;”, END);
      // Wait a few seconds for identifying virtual channels
      // (e.g. 10sec)
wait  (10);
      // Get number of channels that have been found.
write (“*WAI;:FETC:HIST:ATM:SCAN:ACT:NUMB?;”, END);
      // Place results in the output queue (e.g. first 20 channels).
write (“:FETC:HIST:ATM:SCAN:ACT? 0,20;”,END);
      // Stop measurement of channel explorer.
write (“:ABOR2;”, END);
```

Notes:

Command reference

1 Common commands

Instrument behavior is based on:

IEEE Standard Codes, Formats, ANSI/IEEE Std 488.2-1992.

The common commands that are implemented are given below in alphabetical order.

*CAL?

Instrument calibration query.

Note: The instrument does not require calibration at present.

Parameter: None

Comments: Requests the instrument to perform an internal self calibration and to return the result. The response indicates whether or not the instrument completed the calibration without error. A value of 0 indicates that the calibration has been completed successfully.
The instrument signals the need for calibration using the bit 8 of the “questionable status register” (see Status register structure on page R-11).

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: The instrument is set to the reset state (as set by a *RST command) after a *CAL? command.

Response:

0:	Calibration has been completed successfully
-1:	Calibration failed
-2:	Calibration failed (warm-up time not reached)
-3:	Calibration failed (EEPROM write error)
-10:	Calibration failed (calibration currently not possible)

Example:
*CAL?
Response: 0

Related commands: None

*CLS

Note: The instrument is set to the reset state (as set by a *RST command) after a *CAL? command.

Clear Status Command.

Parameter: None

Comments: Clears the data accumulated in the registers. Causes a partial initialization of remote control. The masks contained in the registers (ENABLE Register) are not altered (see also SCPI Syntax and Style Section 4.1.3.2).

The following actions take place:

- Clearing of all EVENT registers in the status register structure.
- Clearing of the error queue and all other queues which affect the status register structure.
- Interruption of an *OPC synchronization possibly underway, without a 1 being entered into bit 0 of the standard event status register.
- Interruption of an *OPC? synchronization possibly underway, without a 1 being entered into the output queue.

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example: *CLS

Related commands: *RST on page R-6

*ESE

*ESE <mask> Standard Event Status Enable Command.

Parameter:

Name	Type	Range	Default
mask	numeric	#H00 - #HFF or #B00000000 - #B11111111 or 0 - 255	0

Comments: Sets the mask for the ESR register.

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example: *ESE 32

Related commands: *ESR? on page R-3
*ESE? on page R-3

*ESE?

Standard Event Status Enable Query.

Parameter: None

Comments: Reads the mask for the ESR register.

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example:
*ESE?
Response: 64

Related commands:
*ESR? on page R-3
*ESE on page R-2

*ESR?

Standard Event Status Register Query.

Parameter: None

Comments: Reads out the status register ESR. Range from 0 - 255.

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example:
*ESR?
Response: 64

Related commands:
*ESE on page R-2

*IDN?

Identification Query.

Parameter: None

Comments: Reads out the instrument identification consisting of 4 fields, separated by ",":
<Manufacturer>,<Instrument name>,<Serial no.>,<Firmware level>
<Manufacturer>:WANDEL&GOLTERMANN
<Instrument name>:ANT-20 / <Keycode no.>
<Serial no.>: X-0050
<Firmware level>:<Software version>/<Product no.>/<Version>/
<VXI code(HEX)>/<Card ID(HEX)>

Example: *IDN?
Response: WANDEL&GOLTERMANN,ANT-20/0A1234500000,X-0078,6.00/3035/31/0C06/1011<NL>

Related commands: None

Note: This command must always be the last query in a programming command (see also IEEE 488.2 Section 10.14.2.2). The response is always terminated with a <NL> (0A HEX).

*OPC

Operation Complete Command.

Parameter: None

Comments: Sets the OPC bit in the standard event status register ESR as soon as the instrument has assumed the idle state. Used to synchronize overlapping commands.
Use of this command makes sense only in conjunction with a service request (SRQ).

See also "WG SCPI and IEEE488 Programmer's Introduction" for more details.

Note: Execution of this command is started after all previously received commands (sequential command).

Example: *OPC?

Related commands: *OPC? on page R-5
*WAI on page R-8

*OPC?

Operation Complete Query.

Parameter: None

Comments: Outputs an ASCII “1” to the output buffer of the instrument as soon as it is in the idle state.
As soon as all settings in the instrument are complete, a “1” is written to the output buffer. Used to synchronize the user and instrument for overlapping commands.

Example:
*OPC?
Response: 0

Related commands:
*OPC on page R-4
*WAI on page R-8

*OPT?

Option Identification Query.

Parameter: None

Comments: Outputs a list of the options available in the instrument.

Note: This command must always be the last query in a programming command (see also IEEE 488.2 Section 10.20.2.2). The response is always terminated with a <NL> (0A HEX).

Example:
*OPT?
Response: 3035/90.80 — ANT-20 with option Broadband Analyzer / Generator.

Related commands: None

*RST

Reset Command.

Parameter: None

Comments: Instrument initialization.
The instrument goes to the STOP state and sets itself to defined default settings. The result memory, event FIFO and list of desired results formed with :SENS:FUNC are cleared! “*RST” does not include the initialization operations which are executed with “*CLS”!

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Execution of this command is started after all previously received commands (sequential command).

Example: *RST

Related commands: *CLS on page R-2

*SRE

*SRE <mask> Service Request Enable Command.

Parameter

Name	Type	Range	Default
mask	numeric	#H00 - #HFF or #B00000000 - #B11111111 or 0 - 255	0

Comments: Sets the mask for service request (SRQ).

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Bit number 6 (MSS) cannot be set and is ignored.

Example: *SRE 128

Related commands: *SRE? on page R-7
*STB? on page R-7

*SRE?

Service Request Enable Query.

Parameter: None

Comments: Reads out the bit mask (0 - 191) for forming the service request (SRQ).

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Bit number 6 (MSS) cannot be set and is always read as 0.

Example:
*SRE?
Response: 128

Related commands:
*SRE on page R-6
*STB? on page R-7

*STB?

Read Status Byte Query.

Parameter: None

Comments: Reads out the status byte register (0 - 255).

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example:
*STB?
Response: 128

Related commands:
*SRE on page R-6
STATUS subsystem on page R-11 ff.

*TST?

Self Test Query.

Parameter: None

Comments: Reads out the result of the power-on self-test.

0 test completed without errors
1 test found errors

Example:
*TST?
Response: 0

Related commands: none

*WAI

Wait to Continue Command.

Parameter: None

Comments: Waits until all previously started commands have finished.

See also “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: This command is started after all previously received commands are executed (sequential command).

Example: *WAI

Related commands:
*OPC on page R-4
*OPC? on page R-5

2 SYSTEM subsystem

:SYST:DATE

:SYSTem:DATE <year>, <month>, <day> sets the current date in the instrument.

Parameter

Name	Type	Range	Default
year	numeric	1970 - 2037	1970
month	numeric	1 - 12	1
day	numeric	1 - 31	1

Note: The setting is synchronized to the next, device-internal complete second. As a result, erroneous values can be read if you do a read-out immediately after a previous setting!
The setting is not changed by a *RST command.

Dependencies None

Example SYST:DATE 1995,5,1 sets the date to May 1, 1995.

Related commands :SYST:TIME on page R-10

:SYST:DATE?

:SYSTem:DATE? provides the current date in the instrument.

Example :SYST:DATE?
Response: 1997,5,1

:SYST:ERR[:NEXT]?

:SYSTem:ERRor[:NEXT]? reads the oldest entry out of the SCPI error queue.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :SYST:ERR?
Response: 0,“No error” if the error queue is empty.

:SYST:TIME

:SYSTem:TIME <hour>, <minute>, <second> sets the current time of day of the instrument.

Parameter

Name	Type	Range	Default
hour	numeric	0 - 23	0
minute	numeric	0 - 59	0
second	numeric	0 - 59	0

Note: The setting is synchronized to the next, device-internal complete second. As a result, erroneous values can be read if you do a read-out immediately after a previous setting!
The setting is not changed by a *RST command.

Dependencies None

Example SYST:TIME 12,10,0 sets the time of day to 12:10:0.

Related commands :SYST:DATE on page R-9

:SYST:TIME?

:SYSTem:TIME? provides the current time of day of the instrument.

Example :SYST:TIME?
Response: 23,50,59

:SYST:VERS?

:SYSTem:VERSion? provides the SCPI version number on which this instrument is based.

Example :SYST:VERS?
Response: 1996.0 for version 1996 release 0.

3 STATUS subsystem

3.1 Status register structure

The status register structure is oriented towards the one issued by the SCPI. The following figure shows the status register structure:

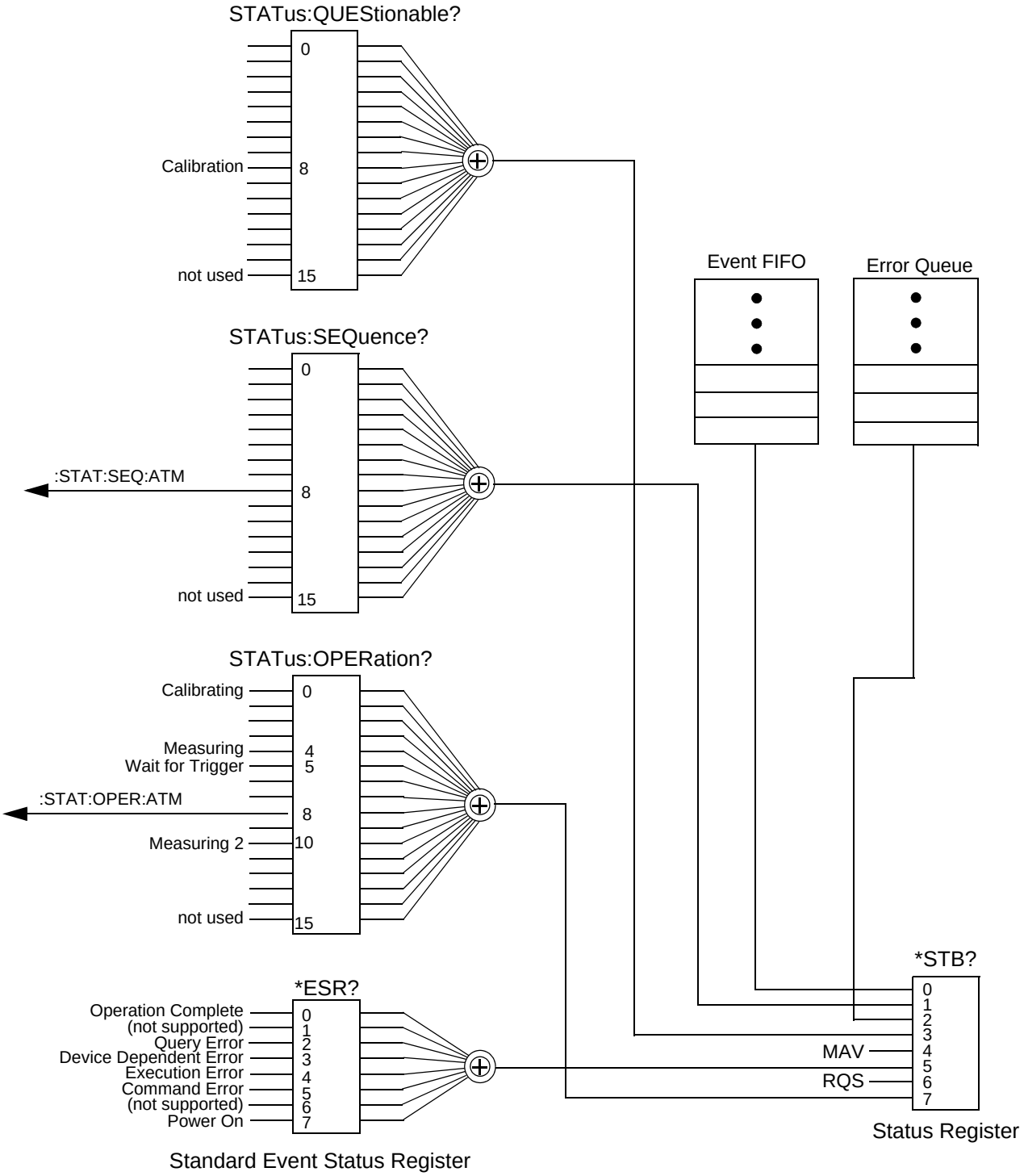

Fig. R-1 Status register structure

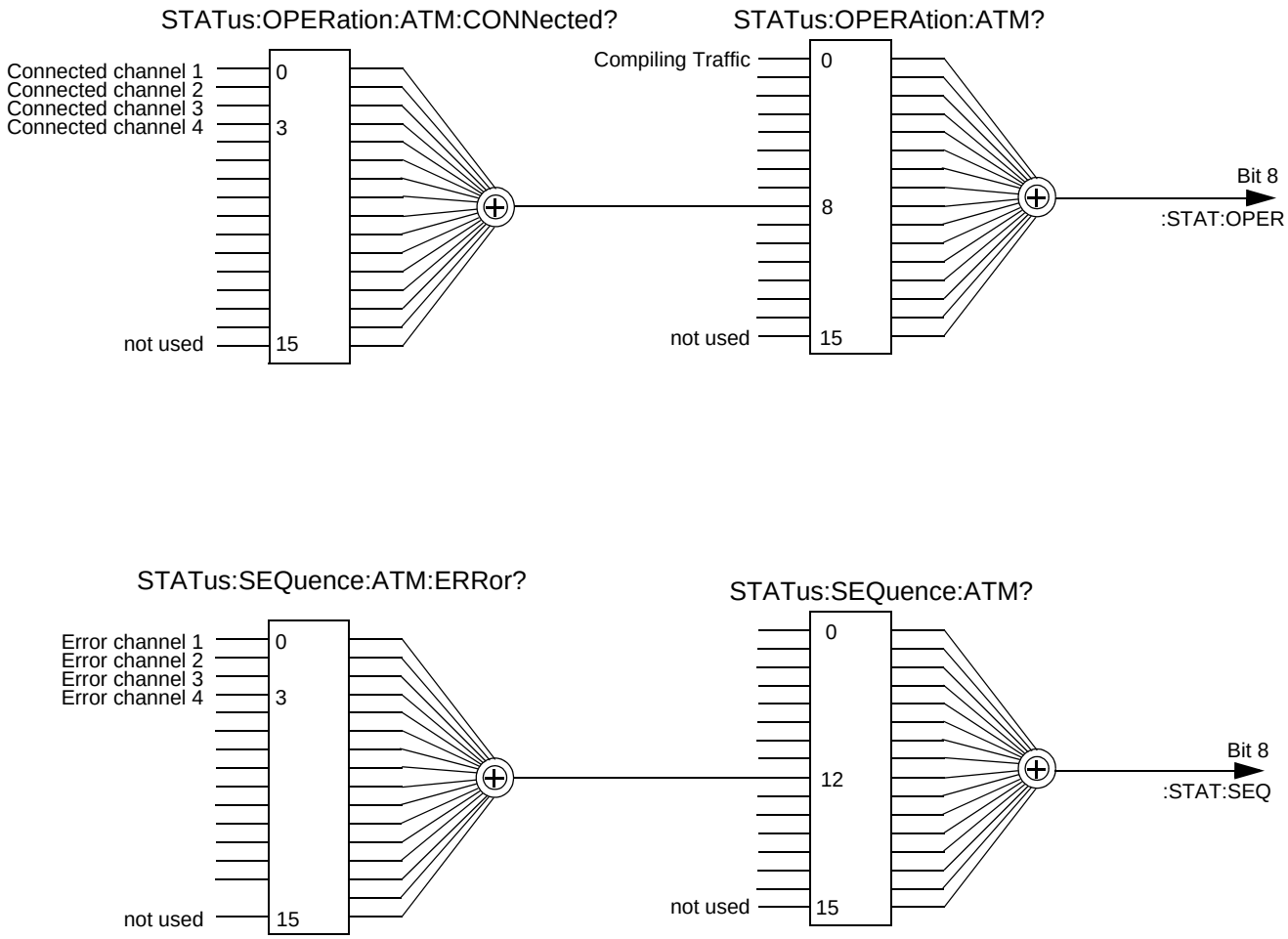

Fig. R-2 Status register structure (continued)

3.2 STATUS commands

:STATus:OPERation register

The OPERation status register contains conditions which are part of the instrument's normal operation.

:STAT:OPER:COND?

:STATus:OPERation:CONDition? provides the current value of the condition register.

Comments

Bit position	Meaning
0	If this bit is set the instrument is currently performing a calibration.
4	If this bit is set the instrument is currently measuring.
5	if this bit is set the instrument is in a "wait for trigger" state of the trigger model (e.g. waiting for the start time during a timer controlled measurement).

See SCPI handbook "Command Reference"
or "WG SCPI and IEEE488 Programmer's Introduction" for more details.

Example

:STAT:OPER:COND?
Response: 0

:STAT:OPER:ENAB

:STATus:OPERation:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:ENAB 16

:STAT:OPER:ENAB?

:STATus:OPERation:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:ENAB?
Response: 0

:STAT:OPER[:EVEN]?

:STATus:OPERation[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example :STAT:OPER?
Response: 16 if a measuring event was detected.

:STAT:OPER:NTR

:STATus:OPERation:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:NTR 16

:STAT:OPER:NTR?

:STATus:OPERation:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:NTR?
Response: 0

:STAT:OPER:PTR

:STATus:OPERation:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:PTR 16

:STAT:OPER:PTR?

:STATus:OPERation:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:PTR?
Response: 0

:STAT:OPER:ATM:COND?

:STATus:OPERation:ATM:CONDition? provides the current value of the condition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Comments Bit 0 and bit 8

Example :STAT:OPER:ATM:COND?
Response: 0

:STAT:OPER:ATM:ENAB

:STATus:OPERation:ATM:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:ATM:ENAB 256

:STAT:OPER:ATM:ENAB?

:STATus:OPERation:ATM:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:ATM:ENAB?
Response: 0

:STAT:OPER:ATM[:EVEN]?

:STATus:OPERation:ATM[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example
:STAT:OPER:ATM?
Response: 256 if a connected event was detected.

:STAT:OPER:ATM:NTR

:STATus:OPERation:ATM:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example
:STAT:OPER:ATM:NTR 256

:STAT:OPER:ATM:NTR?

:STATus:OPERation:ATM:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example
:STAT:OPER:ATM:NTR?
Response: 0

:STAT:OPER:ATM:PTR

:STATus:OPERation:ATM:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:ATM:PTR 256

:STAT:OPER:ATM:PTR?

:STATus:OPERation:ATM:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:ATM:PTR?
Response: 0

:STAT:OPER:ATM:CONN:COND?

:STATus:OPERation:ATM:CONNected:CONDition? provides the current value of the condition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Comments Bit 0 through bit 3

Example :STAT:OPER:ATM:CONNected:COND?
Response: 0

:STAT:OPER:ATM:CONN:ENAB

:STATus:OPERation:ATM:CONNected:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:ATM:ENAB 15

:STAT:OPER:ATM:CONN:ENAB?

:STATus:OPERation:ATM:CONNected:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:ATM:ENAB?
Response: 0

:STAT:OPER:ATM:CONN[:EVEN]?

:STATus:OPERation:ATM:CONNected[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example
:STAT:OPER:ATM:CONNected?
Response: 4 if connected event was detected for channel 3.

:STAT:OPER:ATM:CONN:NTR

:STATus:OPERation:ATM:CONNected:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example
:STAT:OPER:ATM:CONNected:NTR 15

:STAT:OPER:ATM:CONN:NTR?

:STATus:OPERation:ATM:CONNected:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example
:STAT:OPER:ATM:CONNected:NTR?
Response: 0

:STAT:OPER:ATM:CONN:PTR

:STATus:OPERation:ATM:CONNected:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:OPER:ATM:CONNected:PTR 15

:STAT:OPER:ATM:CONN:PTR?

:STATus:OPERation:ATM:CONNected:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:OPER:ATM:CONNected:PTR?
Response: 0

:STAT:PRES

:STATus:PRESet presets of the status register structure.

See SCPI handbook “Command Reference” for more details.

Parameter none

Comments The following actions are taken:

- :STAT:OPER:ENAB is set to all zeros
- :STAT:OPER:ATM:ENAB is set to all zeros
- :STAT:OPER:ATM:CONN:ENAB is set to all zeros
- :STAT:SEQ:ENAB is set to all zeros
- :STAT:SEQ:ATM:ENAB is set to all zeros
- :STAT:SEQ:ATM:ERR:ENAB is set to all zeros
- :STAT:QUES:ENAB is set to all zeros

All positive transition registers (...:PTR) are set to all ones.

Example :STAT:PRES

:STATus:QUEStionable register

The QUEStionable status register set contains bits which give an indication of the quality of various aspects of the signal.

:STAT:QUES:COND?

:STATus:QUEStionable:CONDition? provides the current value of the questionable status register.

Comments

Bit position	Meaning
8	If this bit is set results may be questionable because the module needs a calibration (use the *CAL? query to initiate a calibration).

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example

:STAT:QUES:COND?
Response: 0

:STAT:QUES:ENAB

:STATus:QUEStionable:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example

:STAT:QUES:ENAB 16

:STAT:QUES:ENAB?

:STATus:QUEStionable:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example

:STAT:QUES:ENAB?
Response: 0

:STAT:QUES[:EVEN]?

:STATus:QUEStionable[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example
:STAT:QUES?
Response: 16 if a measuring event was detected.

:STAT:QUES:NTR

:STATus:QUEStionable:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example
:STAT:QUES:NTR 16

:STAT:QUES:NTR?

:STATus:QUEStionable:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example
:STAT:QUES:NTR?
Response: 0

:STAT:QUES:PTR

:STATus:QUEStionable:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:QUES:PTR 16

:STAT:QUES:PTR?

:STATus:QUEStionable:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:QUES:PTR?
Response: 0

:STAT:SEQ register

This status register indicates the states of any dynamic error/alarm/pointer sequence. This indication provides users with control over the state of sequences that are in progress. A bit set to “1” indicates a sequence in progress. A bit set to “0” indicates a finished sequence.

Note: This status register is only accessed in the case of sequences of finite length such as single defect insertions or pointer sequences in “SINGle” mode.

:STAT:SEQ:COND?

:STATus:SEQuence:CONDition?

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Comments Bit position 8

Example :STAT:SEQ:COND?
Response: 0

:STAT:SEQ:ENAB

:STATus:SEQuence:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:SEQ:ENAB 4

:STAT:SEQ:ENAB?

:STATus:SEQuence:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:ENAB?
Response: 0

:STAT:SEQ[:EVEN]?

:STATus:SEQuence[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example :STAT:SEQ?
Response: 0

:STAT:SEQ:NTR

:STATus:SEQuence:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Example :STAT:SEQ:NTR 4

:STAT:SEQ:NTR?

:STATus:SEQuence:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:NTR?
Response: 0

:STAT:SEQ:PTR

:STATus:SEQuence:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:SEQ:PTR 8

:STAT:SEQ:PTR?

:STATus:SEQuence:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:PTR?
Response: 0

:STAT:SEQ:ATM:COND?

:STATus:SEQuence:ATM:CONDition?

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Comments Bit position 12

Example :STAT:SEQ:ATM:COND?
Response: 0

:STAT:SEQ:ATM:ENAB

:STATus:SEQuence:ATM:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:SEQ:ATM:ENAB 4096

:STAT:SEQ:ATM:ENAB?

:STATus:SEQuence:ATM:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:ATM:ENAB?
Response: 0

:STAT:SEQ:ATM[:EVEN]?

:STATus:SEQuence:ATM[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example
:STAT:SEQ:ATM?
Response: 0

:STAT:SEQ:ATM:NTR

:STATus:SEQuence:ATM:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example
:STAT:SEQ:ATM:NTR 15

:STAT:SEQ:ATM:NTR?

:STATus:SEQuence:ATM:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example
:STAT:SEQ:ATM:NTR?
Response: 0

:STAT:SEQ:ATM:PTR

:STATus:SEQuence:ATM:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:SEQ:ATM:PTR 0

:STAT:SEQ:ATM:PTR?

:STATus:SEQuence:ATM:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:ATM:PTR?
Response: 0

:STAT:SEQ:ATM:ERR:COND?

:STATus:SEQuence:ATM:ERRor:CONDition?

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Comments Bit position 0 - 3

Example :STAT:SEQ:ATM:ERRor:COND?
Response: 0

:STAT:SEQ:ATM:ERR:ENAB

:STATus:SEQuence:ATM:ERRor:ENABle <value> specifies the value of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:SEQ:ATM:ERRor:ENAB 15

:STAT:SEQ:ATM:ERR:ENAB?

:STATus:SEQuence:ATM:ERRor:ENABle? provides the current setting of the enable register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:ERR:ENAB?
Response: 0

:STAT:SEQ:ATM:ERR[:EVEN]?

:STATus:SEQuence:ATM:ERRor[:EVENt]? reads the event register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Note: Reading the event register clears its content.

Example
:STAT:SEQ:ATM:ERR?
Response: 0

:STAT:SEQ:ATM:ERR:NTR

:STATus:SEQuence:ATM:ERRor:NTRansition <value> specifies the value of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example
:STAT:SEQ:ATM:ERR:NTR 15

:STAT:SEQ:ATM:ERR:NTR?

:STATus:SEQuence:ATM:ERRor:NTRansition? provides the current setting of the negative transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example
:STAT:SEQ:ATM:ERR:NTR?
Response: 0

:STAT:SEQ:ATM:ERR:PTR

:STATus:SEQuence:ATM:ERRor:PTRansition <value> specifies the value of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Parameter

Name	Type	Range	Default
value	numeric	#H0000 - #H7FFF or #B0000000000000000 - #B0111111111111111 or 0 - 32767	#H0

Note: Bit 15 cannot be set.

Example :STAT:SEQ:ATM:ERR:PTR 15

:STAT:SEQ:ATM:ERR:PTR?

:STATus:SEQuence:ATM:ERRor:PTRansition? provides the current setting of the positive transition register.

See SCPI handbook “Command Reference”
or “WG SCPI and IEEE488 Programmer’s Introduction” for more details.

Example :STAT:SEQ:ATM:ERR:PTR?
Response: 0

4 FETCH subsystem

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT[:UNS]?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity[:UNSorted]? <index> [,<count>] supplies the result lines of the activity scan.

Parameter

Name	Type	Range	Default
index	numeric	0 - 999	none
[count]	numeric	1 - 100	1 (optional)

Dependencies :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:NUMB?

Comments
<index> index of starting line
<count> number of result lines

Example :FETC:HIST:ATM:SCAN:ACT? 500, 100

Response List of result lines structured as described below:

Response name	Response type	Range	Unit
<VPI>	numeric	0 - 255 (UNI) 0 - 4095 (NNI)	none
<VCI>	numeric	0 - 65535	none
<BW_AVE>	decimal	0.0 - 366793.0	cells/s
<CUR_BW>	decimal	0.0 - 366793.0	cells/s
<CLP_BW>	decimal	0.0 - 366793.0	cells/s
<EFCI_BW>	decimal	0.0 - 366793.0	cells/s

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:SORT?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity:SORTed?<index> [,<count>] supplies the result lines of the activity scan sorted according to VPI/VCI.

Comments see also query command:
:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity[:UNSorted]?

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:NUMB?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity:NUMBer? provides the number of available activity result lines.

Parameter None

Comments Use the response of this query as input (maximum <index>) of the :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT[:UNS]? query command.

Example :FETC:HIST:ATM:SCAN:ACT:NUMB?

Response 223 if 223 activity result lines are available.

Response name	Response type	Range	Unit
<byte>	numeric	0 - 999	none

Related commands :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT[:UNS]? on page R-35

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL[:UNS]?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity:AAL[:UNSorted]? <index> [,<count>] supplies the result lines of the AAL analysis during the activity scan.

Parameter

Name	Type	Range	Default
index	numeric	0 - 999	none
[count]	numeric	1 - 250	1 (optional)

Comments <index> index of starting result line
<count> number of result lines

Dependencies :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL:NUMB?

Example :FETC:HIST:ATM:SCAN:ACT:AAL? 0, 100

Response List of result lines structured as described below:

Response name	Response type	Range	Unit
<VPI>	numeric	0 - 255 (UNI) 0 - 4095 (NNI)	none
<VCI>	numeric	0 - 65535	none
<AAL_TYPE>	discrete	NOT_ANALYSED | AAL0 | AAL1 | AAL34 | AAL5	none

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL:SORT?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity:AAL:SORTed? <index> [,<count>] supplies the result lines of the AAL analysis during the activity scan sorted according to VPI/VCI.

Comments see also query command:
:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity:AAL[:UNSorted]?

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL:NUMB?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:ACTivity:AAL:NUMBer? provides the number of available AAL activity result lines.

Parameter None

Comments Use the response of this query as input (maximum <index>) of the :FETC:HIST:ATM:SCAN:ACT:AAL? query command.

Example :FETC:HIST:ATM:SCAN:ACT:AAL:NUMB?

Response 125 if 125 AAL result lines are available.

Response name	Response type	Range	Unit
<byte>	numeric	0 - 999	none

Related commands :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT[:UNS]? on page R-35
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL[:UNS]? on page R-36

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA[:UNS]?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F4OAm[:UNSorted]? <index> [,<count>] supplies the result lines of the F4 trouble scan.

Parameter

Name	Type	Range	Default
index	numeric	0 - 999	none
[count]	numeric	1 - 250	1 (optional)

Dependencies :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA:NUMB?

Comments
<index> index of starting result line
<count> number of result lines

Example :FETC:HIST:ATM:SCAN:TRO:F4OA? 100, 25

Response List of result lines structured as described below:

Response name	Response type	Range	Unit
<VPI>	numeric	0 - 255 (UNI) 0 - 4095 (NNI)	none
<AIS>	discrete	INACTIVE | ACTIVE | WAS_ACTIVE	none
<RDI>	discrete	INACTIVE | ACTIVE | WAS_ACTIVE	none

Related commands :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA:NUMB? on page R-39

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA[:SORT]?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F4OAm[:SORTed]? <index> [,<count>] supplies the result lines of the F4 trouble scan sorted according to VPI/VCI.

Comments see also query command:
:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F4OAm[:UNSorted]?

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA:NUMB?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F4OAm :NUMBer? provides the number of available F4 trouble result lines.

Parameter None

Comments Use the response of this query as input (maximum <index>) of the :FETC:HIST:ATM:SCAN:TRO:F4OA? query command.

Example :FETC:HIST:ATM:SCAN:TRO:F4OA:NUMB?

Response 999 if 1000 F4 trouble scan result lines are available.

Response name	Response type	Range	Unit
<byte>	numeric	0 - 999	none

Related commands :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA[:UNS]? on page R-38

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA[:UNS]?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:TROuble:F5OAm[:UNSorted]? <index> [,<count>] supplies the result lines of the F5 trouble scan.

Parameter

Name	Type	Range	Default
index	numeric	0 - 999	none
[count]	numeric	1 - 250	1 (optional)

Comments

<index> index of starting result line
<count> number of result lines

Dependencies :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA:NUMB?

Example :FETC:HIST:ATM:SCAN:TRO:F5OA? 25, 25

Response List of result lines structured as described below:

Response name	Response type	Range	Unit
<VPI>	numeric	0 - 255 (UNI) 0 - 4095 (NNI)	none
<VCI>	numeric	0 - 65535	none
<AIS>	discrete	INACTIVE | ACTIVE | WAS_ACTIVE	none
<RDI>	discrete	INACTIVE | ACTIVE | WAS_ACTIVE	none

Related commands :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA:NUMB? on page R-41

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA[:SORT]?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F5OAm[:SORTed]? <index> [,<count>] supplies the result lines of the F5 trouble scan sorted according to VPI/VCI.

Comments see also query command:
:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F5OAm[:UNSorted]?

:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA:NUMB?

:FETCh[:ARRay][:DATA][:TEL]:HISTogram:ATM:SCAN:TROuble:F5OAm
:NUMBer? provides the number of available F5 trouble result lines.

Parameter None

Comments Use the response of this query as input (maximum <index>) of the :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA[:UNS]? query command.

Example :FETC:HIST:ATM:SCAN:TRO:F5OA:NUMB?

Response 88 if 88 F5 trouble scan result lines are available.

Response name	Response type	Range	Unit
<byte>	numeric	0 - 999	none

Related commands :FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA[:UNS]? on page R-40

Notes:

5 TRIGGER subsystem

Trigger 1 subsystem

The Trigger 1 subsystem is used for Start/Stop control of measurements (see also [:SENS]:SWE on page R-127)

:ABOR[1]

:ABORt[1] halts a measurement in progress or a timer sequence.

Note: A measurement in progress is halted at the end of the next full second to ensure homogeneous results.
If the results are to be read after ending a measurement with ABORt[1], it is a good idea to insert a *WAI command between the ABORt[1] command and the read command for the results.

Parameter None

Dependencies This command works only if a measurement has been previously activated using :INIT[1][:IMM][:ALL] on page R-43.

Example :ABOR1

Related commands :INIT[1][:IMM][:ALL] on page R-43
:TRIG[:SEQ]:SOUR on page R-45
:TRIG[:SEQ]:STIM on page R-46

:INIT[1][:IMM][:ALL]

:INITiate[1][:IMMediate][:ALL] starts the measurement on the next trigger.

Parameter None

Dependencies None

Comments The measurement is started on the next trigger. This can be when the next full second is reached or, under timer control, by reaching the time preset with :TRIG[:SEQ]:STIM. The trigger condition to be fulfilled is specified using :TRIG[:SEQ]:SOUR.

Example :INIT1

Related commands :ABOR[1] on page R-43
:TRIG[:SEQ]:SOUR on page R-45
:TRIG[:SEQ]:STIM on page R-46

Trigger 2 subsystem

The Trigger 2 subsystem is used for Start/Stop control of the ATM channel explorer. The status of the ATM channel explorer measurement is indicated in the status register (see STATUS subsystem on page R-11 ff.) as follows:

Fig. R-3 Channel explorer measurement

:ABOR2

:ABORt2 halts an ATM channel explorer measurement in progress.

Parameter None

Dependencies This command works only if an ATM channel explorer measurement has been previously activated using :INIT2[:IMM][:ALL] on page R-44.

Example :ABOR2

Related commands :INIT2[:IMM][:ALL] on page R-44

:INIT2[:IMM][:ALL]

:INITiate2[:IMMediate][:ALL] starts the ATM channel explorer measurement.

Parameter None

Example :INIT2

Related commands :ABOR2 on page R-44
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT[:UNS]? on page R-35
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:NUMB? on page R-36
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL[:UNS]? on page R-36
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:ACT:AAL:NUMB? on page R-37
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA[:UNS]? on page R-38
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F4OA:NUMB? on page R-39
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA[:UNS]? on page R-40
:FETC[:ARR][:DATA][:TEL]:HIST:ATM:SCAN:TRO:F5OA:NUMB? on page R-41

:TRIG[:SEQ]:SOUR

:TRIGger[:SEQuence]:SOURce <source> specifies the trigger source for the TRIGGER subsystem.

Parameter

Name	Type	Range	Default
source	discrete	AINTernal | STIMe | IMMediate	AINT

Dependencies None

Comments
- AINTernal: The trigger condition is satisfied when the next complete second is reached.
- STIMe: The trigger condition is satisfied when the start time set with :TRIG[:SEQ]:STIM on page R-46 is reached.
- IMMediate: The trigger condition is satisfied in an asynchronous manner, i.e. at the next possible point in time.

Example
:TRIG[:SEQ]:SOUR STIM
for the timer as a trigger source

Related commands
:INIT[1][:IMM][:ALL] on page R-43
:ABOR[1] on page R-43
:TRIG[:SEQ]:STIM on page R-46

:TRIG[:SEQ]:SOUR?

This query provides the current trigger source setting.

Example
:TRIG[:SEQuence]:SOUR?
Response: AINT
if internal triggering on the next complete second is activated.

:TRIG[:SEQ]:STIM

:TRIGger[:SEQuence]:STIMe <year>,<month>,<day>,<hour>,<minute>,second>
specifies the starting time of a timer-controlled measurement.

Parameter

Name	Type	Range	Default
year	numeric	1994 - 2037	none
month	numeric	1 - 12	none
day	numeric	1 - 31	none
hour	numeric	0 - 23	none
minute	numeric	0 - 59	none
second	numeric	0 - 59	none

Dependencies Effective only if :TRIG[:SEQ]:SOUR STIM.

Comments This command is used to set the point in time at which a timer-controlled measurement is to start.

Example :TRIG:STIM 1996,6,3,18,30,00
sets the measurement start to June 3, 1996 at 18:30:00

Related commands :INIT[1][:IMM][:ALL] on page R-43
:ABOR[1] on page R-43
:TRIG[:SEQ]:SOUR on page R-45

:TRIG[:SEQ]:STIM?

This query provides the current setting of the measurement start time.

Example :TRIG:STIM?
Response: 1995,12,31,23,30,20
for measurement start on December, 31, 1995 at 23:30:20.

6 CONTROL subsystem

This subsystem is used to control the ATM signaling.
All these commands are ignored for permanent virtual circuits (PVC).

Note: Use of the terms “forward” and “backward”:

In the context of SVC testing, the terms “forward” and “backward” are used in the following way:

- “Forward” is the direction from the calling device to the DUT and from the DUT to the called device.
- “Backward” is the direction from the DUT to the calling device and from the called device to the DUT.

Therefore, for a calling device the “forward” address is the address of the called device. The “backward” address is the address of the instrument itself.

For a called device, the “forward” address is the address of the instrument itself. The “backward” address is the address of the calling device.

:CONT:SIGN:ASS[:STATE]

:CONTrol:SIGNaling:ASSociation[:STATE] <state> switches signaling with extended addressing on or off.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Dependencies This function can be activated only if :CONT:SIGN:STAN is Q2931.
Otherwise, this function is deactivated.

Comments
<state> = function
ON | 1: switch on
OFF | 0: switch off

Example :CONTrol:SIGNaling:ASSociation[:STATE] ON activates signaling with extended addressing.

Related commands :CONT:SIGN:STAN on page R-69

:CONT:SIGN:ASS[:STATE]?

:CONTrol:SIGNaling:ASSociation[:STATE]? provides the current setting for signaling with extended addressing.

Example :CONTrol:SIGNaling:ASSociation[:STATE]?
Response: 1 if signaling with extended addressing is switched on.

:CONT:SIGN:CHAN[i]:AAL:BACK[:TYPE]

:CONTrol:SIGNaling:CHANnel[i]:AAL:BACKward[:TYPE] <type> determines the AAL type in the backward channel.

Note: This command is currently not supported.

Parameter

Name	Type	Range	Default
type	discrete	NONE | USER	USER

Comments

<type> = function
NONE: no AAL used
USER: user-defined AAL in use

Example

:CONTrol:SIGNaling:CHANnel[i]:AAL:BACKward[:TYPE] USER
switches the user-defined AAL on.

Related commands

:CONT:SIGN:CHAN[i]:AAL:FORW[:TYPE] on page R-48

:CONT:SIGN:CHAN[i]:AAL:BACK[:TYPE]?

:CONTrol:SIGNaling:CHANnel[i]:AAL:BACKward[:TYPE]? provides the setting of the AAL type.

Example

:CONTrol:SIGNaling:CHANnel[i]:AAL:BACKward[:TYPE]?
Response: NONE if a user-defined AAL is not in use.

:CONT:SIGN:CHAN[i]:AAL:FORW[:TYPE]

:CONTrol:SIGNaling:CHANnel[i]:AAL:FORWard[:TYPE] <type> activates or deactivates the user-defined AAL in the forward channel.

Parameter

Name	Type	Range	Default
type	discrete	NONE | USER	USER

Comments

<type> = function
NONE: no AAL is used
USER: use a user-defined AAL

Example

:CONTrol:SIGNaling:CHANnel[i]:AAL:FORWard[:TYPE] USER switches on the user-defined AAL.

Related commands

:CONT:SIGN:CHAN[i]:AAL:BACK[:TYPE] on page R-48

:CONT:SIGN:CHAN[i]:AAL:FORW[:TYPE]?

:CONTrol:SIGNaling:CHANnel[i]:AAL:FORWard[:TYPE]? provides the setting of the user-defined AAL.

Example :CONTrol:SIGNaling:CHANnel[i]:AAL:FORWard[:TYPE]?
Response: NONE if no AAL is used in the forward channel.

:CONT:SIGN:CHAN[i]:CONN[:ACT]

:CONTrol:SIGNaling:CHANnel[i]:CONNection:[:ACTion] <action> is used to accept or reject an incoming call.

Parameter

Name	Type	Range	Default
action	discrete	NONE | ACCept | REJect	NONE

Dependencies Valid only if the channel is configured for call acceptance (:CONT:SIGN:CHAN[i][:STAT] has the state ACCept).

Comments

<state> =	function
NONE:	default value
ACCept:	accept call
REJect:	refuse call

Example :CONTrol:SIGNaling:CHANnel[i]:CONNection[:ACT] ACC
accepts the incoming call.

Related commands :CONT:SIGN:CHAN[i][:STAT] on page R-53

:CONT:SIGN:CHAN[i]:CONN:PART:SNUM

:CONTrol:SIGNaling:ChANnel[i]:CONNection:PARTy:SNUMber <type>,<plan>,<address> determines the external connection number of the called station.

Parameter

Name	Type	Range	Default
type	discrete	UNKNown | INATional | NATional | NSPecific | SUBscriber | ABBReviated	INAT
plan	discrete	UNKNown | ISDN | NSAP	ISDN
address	string	15 digits 40 HEX digits for NSAP	“” (empty string)

Dependencies

If address <plan> is NSAP:

- The address <type> must be UNKNown, if :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is On
- If :CONT:SIGN:STAN is Q2931, the 1st and 2nd digits of the <address> must be “39”, “47”, “45” or “15”
- If :CONT:SIGN:STAN is UNI30 or UNI31, the 1st and 2nd digits of the <address> must be “39”, “47” or “45”
- The length of the <address> is 40 HEX digits
- The <address> characters may only be “0” to “9”, “A” to “F”

If the address <plan> is not NSAP:

- The maximum length of the <address> is 15 characters
- The <address> characters may only be “0” to “9”
- For :CONT:SIGN:STAN is UNI30 or UNI31, the address type must be INATional

Comments

<type> = type of address
UNKNown: unknown
INATional: international
NATional: national
NSPecific: network-specific
SUBscriber: subscriber-specific
ABBReviated: abbreviated

<plan> = plan
UNKNown: unknown
ISDN: Integrated Services Digital Network
NSAP: Network Service Access Point

Example

```
:CONTrol:SIGNaling:CHANnel[i]:CONNection:PARTy:SNUMber
NAT,ISDN,”07121861”
```

sets the subscriber address of the ANT-20/ABT-20 to 07121861.

Related commands

:CONT:SIGN:CHAN[i]:CONN:PART:SUB[:STAT] on page R-51
:CONT:SIGN:CHAN[i]:CONN:PART:SUB:VAL on page R-52
:CONT:SIGN:STAN on page R-69

:CONT:SIGN:CHAN[i]:CONN:PART:SNUM?

:CONTrol:SIGNaling:CHANnel[i]:CONNection:PARTy:SNUMber? provides the subscriber number of the called station.

Example :CONTrol:SIGNaling:CHANnel[i]:CONNection:PARTy:SNUMber?
Response: NAT,ISDN,“071218700”
if the national ISDN subscriber number of the called station is 071218700.

:CONT:SIGN:CHAN[i]:CONN:PART:SUB[:STAT]

:CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress[:STATe] <state> determines whether the subaddress is used in the signaling in the respective signaling channel.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Comments <state> = function
ON | 1: switch on subaddress
OFF | 0: switch off subaddress

Example :CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress[:STATe] OFF
deactivates subaddressing.

Related commands :CONT:SIGN:CHAN[i]:CONN:PART:SUB[:STAT]? on page R-51

:CONT:SIGN:CHAN[i]:CONN:PART:SUB[:STAT]?

:CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress[:STATe]? provides the current setting of subaddressing.

Example :CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress[:STATe]?
Response: 1 if subaddressing is in use.

:CONT:SIGN:CHAN[i]:CONN:PART:SUB:VAL

:CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress:VALue <type>, <address> determines the subaddress of the device.

Parameter

Name	Type	Range	Default
type	discrete	ENDSystem | NSAP	ENDS
address	string	40 Hex digits for NSAP	"0000000000 00000000000 00000000000 00000000" (40 times "0")

Dependencies

Not taken into account if :CONT:SIGN:SUB[:STATE] is OFF.

- The <type> ENDsystem is possible only if :CONT:SIGN:SNUM is not equal to <type>,NSAP,<address>.
- The type NSAP is possible only if :CONT:SIGN:SNUM is <type>,NSAP,<address>.
- The length of <address> must be 40 characters.

Comments

<type> =	number format
ENDSystem:	type according to terminal
NSAP:	network service access point
<address>	address The allowable characters are "0" to "9" and "A" to "F".

Example

:CONTrol:SIGNaling:CHANnel[i]:CONNection:PARTy:SUBaddress:VALue NSAP, "47000000000000000000000000000000008945"
if the subaddress of the called station is 47000000000000000000000000000000008945 according to the NSAP standard.

Related commands

:CONT:SIGN:CHAN[i]:CONN:PART:SNUM on page R-50
:CONT:SIGN:CHAN[i]:CONN:PART:SUB[:STAT] on page R-51

:CONT:SIGN:CHAN[i]:CONN:PART:SUB:VAL?

:CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress:VALue? provides the current subaddress of the called station.

Example

:CONTrol:SIGNaling:CHANnel:CONNection:PARTy:SUBaddress:VALue?
Response: NSAP,"39000000000000000000000000000000008945"
if the NSAP subaddress is 39000000000000000000000000000000008945.

:CONT:SIGN:CHAN[i][:STAT]

:CONTrol:SIGNaling:CHANnel[i][:STATe] <state> sets the signaling type for the channel.

Parameter

Name	Type	Range	Default
state	discrete	NONE | CALL | ACCept	NONE

Dependencies The connection type is always set to NONE for a permanent virtual connection (PVC).

Comments
<state> = function
NONE: deactivate signaling channel
CALL: enable channel for call generation
ACCept: enable channel for call acceptance

Example
:CONTrol:SIGNaling:CHANnel[i][:STATe] ACC
enables the signaling channel for call acceptance.

Related commands :SOUR:DATA[:TEL]:ATM:CONN:TYPE? on page R-91

:CONT:SIGN:CHAN[i][:STAT]?

:CONTrol:SIGNaling:CHANnel[i][:STATe]? provides the status of the signaling channel.

Example
:CONTrol:SIGNaling:CHANnel[i][:STATe]?
Response: CALL if signaling channel is enabled for call generation.

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:MEAN

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:MEAN <scr>,<mbs>,<cdvt> determines the mean transmission parameters signaled for the backward channel.

Parameter

Name	Type	Range	Default
scr	numeric	0 - 16777215 cells/s	0
mbs	numeric	0 - 16777215 cells	0
cdvt	numeric	0 - 16383 µs	0

Dependencies

Default setting is used if :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] is (CBR,<confdef>),(CDBR, <confdef>) or (VBR,<confdef>).
Default setting is used if :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] is <traffic>,0

Comments

<scr> sustained cell rate
<mbs> maximum burst size
<cdvt> cell delay variation tolerance (for <scr>)

Example

For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:MEAN 10000,1000,50
sets the mean traffic parameters to 10000 cells/s sustained cell rate, 1000 cells maximum burst size, 50 µs cdvt.

Related commands

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] on page R-56

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:MEAN?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:MEAN? provides the mean transmission parameters of the backward channel.

Example

For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:MEAN?
Response: 10000,1000,50
if the mean cell rate may equal 10000 cells/s, the maximum burst size 1000 cells and the cdvt 50 µs.

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:PEAK

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:PEAK <pcr>,<cdvt> determines the limits signaled for the backward channel.

Parameter

Name	Type	Range	Default
pcr	numeric	0 - 16777215 cells/s	0
cdvt	numeric	0 - 16383 µs	0

Dependencies This command is only considered if :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] is not equal to <traffic>,0

Comments
<pcr> peak cell rate
<cdvt> cell delay variation tolerance (for <pcr>)

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:PEAK 50000,20
specifies that the maximum cell rate is equal to 50000 cells/s and the cdvt to 20 µs.

Related commands :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] on page R-56

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:PEAK?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:PEAK? provides the limits of the traffic contract in the backward channel.

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:PEAK?
Response: 50000,20
if the maximum cell rate is equal to 50000 cells/s and the cdvt is 20 µs.

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:QOS

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:QOS <class> determines the quality of service class signaled for the backward channel.

Parameter

Name	Type	Range	Default
class	discrete	0 | 1 | 2 | 3 | 4	0

Comments
<class> = Quality of traffic contract
0: unspecified
1: class 1
2: class 2
3: class 3
4: class 4

Example :CONTrol:SIGNaling:CHANnel:TRAFfic:BACKward:CONTract:QOS 1
sets the quality of service to 1.

Related commands :SOUR:DATA[:TEL]:ATM:CONN on page R-91

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:QOS?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:QOS? provides the traffic contract quality of service in the backward channel.

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract:QOS?
Response: 1 if the traffic contract quality of service is 1.

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE]

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract [:TYPE] <traffic>,<confdef> determines the type of the traffic parameters signaled for the backward channel.

Parameter

Name	Type	Range	Default
traffic	discrete	CBR | VBRRT | VBRNRT | UBR | DBR | SBR	CBR
confdef		0 | 1 | 2 | 3 | 4	1

Comments

<traffic> = traffic type
CBR: constant bit rate
VBRRT: variable bit rate, real time
VBRNRT: variable bit rate, non real time
UBR: unspecified bit rate
DBR: deterministic bit rate
SBR: statistical bit rate

<confdef> = conformance definition
0: none - only if PVC
1: with CBR and UBR traffic
2: with DBR traffic
1, 2: with VBRRT, VBRNRT and SBR traffic
3, 4: not yet available

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract [:TYPE] VBRRT,1
sets a variable bit rate (real time) in the backward signaling channel.
The conformance definition is equal to 1.

Related commands :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:MEAN on page R-54
:CONT:SIGN:CHAN[i]:TRAF:BACK:SHAP[:STAT] on page R-57

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE]?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract[:TYPE]? provides the setting of the traffic contract.

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:CONTract [:TYPE]?
Response: VBRRT,1
if signaling traffic with a variable bit rate (real time) is generated in the backward channel. The conformance definition is equal to 1.

:CONT:SIGN:CHAN[i]:TRAF:BACK:SHAP[:STAT]

:CONTrol:SIGNaling:CHANnel:TRAFfic:BACKward:SHAPer [:STATe] <shaper> signals the shaper on or off in the backward channel.

Note: Currently not supported.

Parameter

Name	Type	Range	Default
shaper	boolean	OFF | ON | 0 | 1	OFF

Dependencies This command is only considered if :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] is not equal to <traffic>,0

Comments
<shaper> = function
ON | 1: switch on shaper
OFF | 0: switch off shaper

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SHAPer [:STATe] OFF causes value off to be signaled for the shaper in the backward channel.

Related commands :CONT:SIGN:CHAN[i]:TRAF:BACK:CONT[:TYPE] on page R-56

:CONT:SIGN:CHAN[i]:TRAF:BACK:SHAP[:STAT]?

:CONTrol:SIGNaling:CHANnel:TRAFfic:BACKward:SHAPer[:STATe]? provides the state of the shaper in the backward channel.

Example
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SHAPer [:STATe]?
Response: OFF if the shaper in the backward channel is switched off.

:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR:MEAN

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:MEAN <scr>,<bs > determines the mean traffic parameters signaled for the backward channel.

Note: Currently not supported.

Parameter

Name	Type	Range	Default
scr	numeric	0 - 366792 cells/s	0
bs	numeric	0 - 1000000 µs	0

Dependencies Default setting is used if :CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR[:TYPE] is CONStant.

Comments
<scr> sustained cell rate
<bs> burst size

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:MEAN 8000,1500 causes a mean cell rate of 8000 cells/s to be signaled for the backward channel. The burst size is 1500 µs.

Related commands :CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR[:TYPE] on page R-59

:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR:MEAN?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:MEAN? provides the mean source parameters of the backward channel.

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:MEAN?
Response: 8000,1500
Bursty user traffic with a mean cell rate of 8000 cells/s was signaled for the backward channel. The burst size is 1500 µs.

:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR:PEAK

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:PEAK <pcr>,<jitter> determines the maximum source parameters signaled for the backward channel.

Note: Currently not supported.

Parameter

Name	Type	Range	Default
pcr	numeric	0 - 366792 cells/s	0
jitter	numeric	0 - 1000000 µs	0

Comments
<pcr> peak cell rate
<jitter> fluctuation width of peak cell rate (jitter)

Example
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:PEAK 45000,10 causes a maximum cell rate of 45000 cells/s and the fluctuation width of 10 µs to be signaled for the backward channel.

:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR:PEAK?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:PEAK? provides the maximum source parameters in the backward channel.

Example
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce:PEAK?
Response: 45000, 10
if the maximum cell rate of 45000 cells/s and the fluctuation width of 10 µs was signaled for the backward channel.

:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR[:TYPE]

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce[:TYPE] <type> determines the source behavior signaled for the backward channel.

Parameter

Name	Type	Range	Default
type	discrete	CONStant | ONOFf	CONS

Comments
<type> = source behavior
CONStant: constant user traffic
ONOFf: bursty user traffic

Example
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce [:TYPE] CONS sets constant traffic in the backward channel.

Related commands
:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR:MEAN on page R-58
:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR:PEAK on page R-59

:CONT:SIGN:CHAN[i]:TRAF:BACK:SOUR[:TYPE]?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce [:TYPE]? provides the type of user traffic in the backward channel.

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:BACKward:SOURce [:TYPE?]
Response: CONS if constant user traffic is generated in the backward channel.

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:MEAN

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:MEAN <scr>, <mbs>,<cdvt> determines the mean transmission parameters signaled for the forward channel.

Parameter

Name	Type	Range	Default
scr	numeric	0 - 16777215 cells/s	0
mbs	numeric	0 - 16777215 cells	0
cdvt	numeric	0 - 16383 µs	0

Dependencies Default setting is used if :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] is (CBR,<confdef>), (DBR,<confdef>) or (UBR,<confdef>).

Default setting is used if :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] is <traffic>,0.

Comments
<scr> = sustained cell rate
<mbs> = maximum burst size
<cdvt> = cell delay variation tolerance (for <scr>)

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:MEAN 10000,100,50
sets the mean traffic parameters to 10000 cells/s sustained cell rate, 1000 cells maximum burst size and 50 µs cdvt.

Related commands :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] on page R-63

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:MEAN?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:MEAN? provides the mean transmission parameters of the forward channel.

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:MEAN?
Response: 10000,1000,50
if the mean cell rate may equal 10000 cells/s, the maximum burst size 1000 cells and the cdvt 50 µs.

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:PEAK

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:PEAK <pcr>, <cdvt> determines the limits of the traffic signaled for the forward channel.

Parameter

Name	Type	Range	Default
pcr	numeric	0 - 16777215 cells/s	0
cdvt	numeric	0 - 16383 µs	0

Dependencies This command is only considered if :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] is not equal <traffic>,0

Comments <pcr value> = peak cell rate
<cdvt value> = cell delay variation tolerance (for <pcr>)

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:PEAK 50000,20
specifies that the maximum cell rate is 50000 cells/s and the cdvt 20 µs.

Related commands :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] on page R-63

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:PEAK?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:PEAK? provides the limits of the traffic in the forward channel.

Example For STM-1:
:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:PEAK?
Response: 50000,20
if the maximum cell rate is 50000 cells/s and the maximum delay time is 20 µs in the forward channel.

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:QOS

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORward:CONTract:QOS <class> determines the quality of service class signaled for the forward channel.

Parameter

Name	Type	Range	Default
class	discrete	0 | 1 | 2 | 3 | 4	0

Comments

class> = quality of service
0: unspecified
1: class 1
2: class 2
3: class 3
4: class 4

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:QOS 0 sets quality of service 0 in the forward channel.

Related commands :SOUR:DATA[:TEL]:ATM:CONN on page R-91

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:QOS?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:QOS? provides the quality of service setting in the forward channel.

Example :CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract:QOS?
Response: 2 if the quality of service setting is 2.

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE]

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract [:TYPE] <traffic>,<confdef> determines the traffic parameters signaled for the forward channel.

Parameter

Name	Type	Range	Default
traffic	discrete	CBR | VBRRT | VBRNRT | UBR | DBR | SBR	CBR
confdef	discrete	0 | 1 | 2 | 3 | 4	1

Comments

<traffic> = traffic type
CBR: constant bit rate
VBRRT: variable bit rate, real time
VBRNRT: variable bit rate, non real time
UBR: unspecified bit rate
DBR: deterministic bit rate
SBR: statistical bit rate

<confdef> = conformance definition
0: none - only if PVC
1: with CBR and UBR traffic
2: with DBR traffic
1, 2: with VBRRT, VBRNRT and SBR traffic
3, 4: not yet available

Example

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract [:TYPE] CBR,1 determines that traffic with a constant bit rate is generated. The conformance definition in the forward channel is 1.

Related commands

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT:MEAN on page R-60
:CONT:SIGN:CHAN[i]:TRAF:FORW:SHAP[:STAT] on page R-64

:CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE]?

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract[:TYPE]? provides the traffic type and conformance definition in the forward channel.

Example

:CONTrol:SIGNaling:CHANnel[i]:TRAFfic:FORWard:CONTract[:TYPE]?
Response: CBR
if traffic type CBR (constant bit rate) is set in the forward channel. The conformance definition in the forward channel is 1.

:CONT:SIGN:CHAN[i]:TRAF:FORW:SHAP[:STAT]

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SHAPer [:STATe] <shaper> signals the shaper on or off for the forward channel.

Note: Currently not supported.

Parameter

Name	Type	Range	Default
shaper	boolean	OFF | ON | 0 | 1	OFF

Dependencies This command is not considered if :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] is not equal <traffic>,0

Comments
<shaper> = function
ON | 1: switch on shaper
OFF | 0: switch off shaper

Example :CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SHAPer [:STATe] OFF causes the value off to be signaled for the shaper in the forward channel.

Related commands :CONT:SIGN:CHAN[i]:TRAF:FORW:CONT[:TYPE] on page R-63

:CONT:SIGN:CHAN[i]:TRAF:FORW:SHAP[:STAT]?

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SHAPer[:STATe]? provides the state of the shaper in the forward channel.

Example :CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SHAPer[:STATe]?
Response: OFF if the shaper in the forward channel is switched off.

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR:MEAN

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:MEAN <scr>,<bs> determines the mean traffic parameters signaled for the forward channel.

Note: Currently not supported.

Parameter

Name	Type	Range	Default
scr	numeric	0 - 366792 cells/s	0
bs	numeric	0 - 1000000 µs	0

Dependencies Default setting is used if :CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR[:TYPE] is CONStant.

Comments <scr> = sustained cell rate
<bs> = burst size

Example For STM-1:
:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:MEAN 8000,1500
causes a mean cell rate of 8000 cells/s to be signaled for the forward channel and the burst size to equal 1500 µs.

Related commands :CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR[:TYPE] on page R-67

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR:MEAN?

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:MEAN? provides the mean source parameters of the forward signaling channel.

Example For STM-1:
:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:MEAN?
Response: 8000,1500
Bursty signaling traffic with a mean cell rate of 8000 cells/s was signaled for the forward channel. The burst size is 1500 µs.

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR:PEAK

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:PEAK <pcr>,<jitter> determines the maximum source parameters signaled for the forward channel.

Note: Currently not supported.

Parameter

Name	Type	Range	Default
pcr	numeric	0 - 366792 cells/s	0
jitter	numeric	0 - 1000000 µs	0

Comments

<pcr> = peak cell rate
<jitter> = fluctuation bandwidth of peak cell rate

Example

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:PEAK 45000,10 causes a maximum cell rate of 45000 cells/s and a fluctuation width of 10 µs to be signaled for the forward channel.

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR:PEAK?

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:PEAK? provides the maximum source parameters in the forward channel.

Example

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce:PEAK?
Response: 45000,10
if the maximum cell rate of 45000 cells/s and the fluctuation width of 10 µs was signaled for the forward channel.

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR[:TYPE]

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce[:TYPE] <type> determines the source behavior signaled for the forward channel.

Parameter

Name	Type	Range	Default
type	discrete	CONStant | ONOFf	CONS

Comments

<type> = source behavior
CONStant: constant traffic
ONOFf: bursty traffic

Example

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce [:TYPE] ONOFf
sets bursty signaling traffic in the forward channel.

Related commands

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR:MEAN on page R-65
:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR:PEAK on page R-66

:CONT:SIGN:CHAN[i]:TRAF:FORW:SOUR[:TYPE]?

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWward:SOURce [:TYPE]? provides the type of traffic in the forward channel.

Example

:CONTrol:SIGNaling:CHANnel:TRAFfic:FORWard:SOURce[:TYPE]?
Response: CONS if constant traffic is generated in the forward channel.

:CONT:SIGN:SNUM

:CONTrol:SIGNaling:SNUMber <type>,<plan> and <address> determines the (local) subscriber number of the ANT-20/ABT-20.

Parameter

Name	Type	Range	Default
type	discrete	UNKNown | INATional | NATional | NSPecific | SUBscriber | ABBReviated	INAT
plan	discrete	UNKNown | ISDN | NSAP	ISDN
address	string	40 HEX digits for NSAP, otherwise maximum 15 decimal digits	“” (empty string)

Dependencies

If address <plan> is NSAP:

- The address <type> must be UNKNown
- If :CONT:SIGN:STAN is Q2931, the 1st and 2nd digits of the <address> must be “39”, “47”, “45” or “15”
- If :CONT:SIGN:STAN is UNI30 or UNI31, the 1st and 2nd digits of the <address> must be “39”, “47” or “45”
- The length of the <address> is 40 HEX digits
- The <address> characters may only be “0” to “9”, “A” to “F”

If the address <plan> is not NSAP:

- The maximum length of the <address> is 15 characters
- The <address> characters may only be “0 ” to “9”
- If :CONT:SIGN:STAN is UNI30 or UNI31, the address <type> must be INATional

Comments

<type> = type of address
UNKNown: unknown
INATional: international
NATional: national
NSPecific: network-specific
SUBscriber: subscriber-specific
ABBReviated: abbreviated

<plan> = plan
UNKNown: unknown
ISDN: Integrated Services Digital Network
NSAP: Network Service Access Point

<address> = subscriber number

Example

:CONTrol:SIGNaling:SNUMber NAT,ISDN,07121861
sets the subscriber number of the ANT-20/ABT-20 to 07121861.

Related commands

:CONT:SIGN:STAN on page R-69
:CONT:SIGN:SUB:VAL on page R-71

:CONT:SIGN:SNUM?

:CONTrol:SIGNaling:SNUMber? supplies the current subscriber number of the ANT-20/ABT-20.

Example :CONTrol:SIGNaling:SNUMber?
Response: NAT,ISDN,07121861
if the subscriber number of the ANT-20/ABT-20 is 07121861.

:CONT:SIGN:STAN

:CONTrol:SIGNaling:STANdard <standard> determines the signaling standard used for the signaling.

Parameter

Name	Type	Range	Default
standard	discrete	UNI30 | UNI31 | Q2931	UNI31

Dependencies
standard: signaling standard
UNI30: UNI3.0
UNI31: UNI3.1
Q2931: ITU Q.2931 (based on ISDN)

Example :CONTrol:SIGNaling:STANdard Q2931 determines that the signaling standard ITU Q.2931 is used.

Related commands :CONT:SIGN:ASS[:STATE] on page R-47

:CONT:SIGN:STAN?

:CONTrol:SIGNaling:STANdard? provides the currently set signaling standard.

Example :CONTrol:SIGNaling:STANdard?
Response: Q2931 if signaling standard ITU Q.2931 is in use.

:CONT:SIGN:SUB[:STATE]

:CONTrol:SIGNaling:SUBaddress [:STATE] <state> determines whether the subaddress is used in signaling.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Comments

<state> = function
ON | 1: use subaddressing
OFF | 0: don't use subaddressing

Example

:CONTrol:SIGNaling:SUBaddress [:STATE] ON
causes subaddressing to be used in signaling.

Related commands

:CONT:SIGN:SUB:VAL on page R-71

:CONT:SIGN:SUB[:STATE]?

:CONTrol:SIGNaling:SUBaddress[:STATE]? provides the current setting for whether subaddressing is used in signaling or not.

Example

:CONTrol:SIGNaling:SUBaddress [:STATE]
Response: 1 if subaddressing is activated.

:CONT:SIGN:SUB:VAL

:CONTrol:SIGNaling:SUBaddress:VALue <type>,<address> sets the subaddress for the signaling.

Parameter

Name	Type	Range	Default
type	discrete	ENDSystem | NSAP	NSAP
address	string	40 HEX digits (NSAP)	“0000000000 00000000000 00000000000 00000000” (40 times “0”)

Dependencies

Not taken into account if :CONT:SIGN:SUB[:STATE] is OFF.

- The <type> ENDsystem is possible only if :CONT:SIGN:SNUM is not <type>,NSAP,<address>.
- The <type> NSAP is possible only if :CONT:SIGN:SNUM is <type>,NSAP,<address>.
- The length of <address> must be 40 characters.

Comments

<type> =	number format
ENDSystem:	according to terminal
NSAP:	network service access point
<address>	address The allowable characters are “0”-“9” and “A”-“F”.

Example

:CONTrol:SIGNaling:SUBaddress:VALue NSAP,
“450000000000000000000000000000000000321”
sets the subaddress to 450000000000000000000000000000000000321.

Related commands

:CONT:SIGN:SNUM on page R-68
:CONT:SIGN:SUB[:STATE] on page R-70

:CONT:SIGN:SUB:VAL?

:CONTrol:SIGNaling:SUBaddress:VALue? supplies the current subaddress.

Example

:CONTrol:SIGNaling:SUBaddress:VALue?
Response: ENDS,”450000000000000000000000000000000078991”
if the current subaddress is 450000000000000000000000000000000078991.

:CONT:SIGN:VCI

:CONTrol:SIGNaling:VCI <value> determines the VCI field for the signaling.

Parameter

Name	Type	Range	Default
value	decimal	0 - 65535	5

Example :CONTrol:SIGNaling:VCI 5 sets the VCI to 5.

:CONT:SIGN:VCI?

:CONTrol:SIGNaling:VCI? provides the current setting of the VCI field for the signaling.

Example :CONTrol:SIGNaling:VCI?
Response: 5 if VCI 5 is set.

:CONT:SIGN:VPI

:CONTrol:SIGNaling:VPI <value> determines the VPI field for signaling.

Parameter

Name	Type	Range	Default
value	numeric	0 - 255	0

Example :CONTrol:SIGNaling:VPI 0 sets the VPI to 0.

:CONT:SIGN:VPI?

:CONTrol:SIGNaling:VPI? provides the current setting of the VPI field for signaling.

Example :CONTrol:SIGNaling:VPI?
Response: 0 if VPI 0 is set.

7 SOURCE subsystem

This subsystem is used to control the ATM generator.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VCA[:MODE]

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:ALARm:VCAis[:MODE] <mode> determines VC-AIS alarm insertion in the virtual test channel (end to end transmission of F5 OAM cell carrying AIS).

Parameter

Name	Type	Range	Default
mode	boolean	NONE | CONTinuous	NONE

Dependencies

An alarm <mode> cannot be CONTinuous if

- :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON
- :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is OFF

Comments

<mode> = alarm mode
NONE: Switch alarm off
CONTinuous: Generate alarm continuously

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:ALARm:VCAis[:MODE] CONT causes an AIS alarm to be generated in the test channel.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-81
:SOUR:DATA[:TEL]:ATM:GEN[:STAT] on page R-93

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VCA[:MODE]?

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VCAis[:MODE]? provides the setting of alarm insertion in the TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VCAis[:MODE]?
Response: CONT if the alarm is generated continuously.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VCRD[:MODE]

:SOURce:DATA[:TELecom]:ATM:CHAN[i]:ALARm:VCRDi[:MODE] <mode> determines VC-RDI alarm insertion in the virtual test channel (end to end transmission of F5 OAM cell carrying RDI).

Parameter

Name	Type	Range	Default
mode	boolean	NONE | CONTinuous	NONE

Dependencies

An alarm <mode> cannot be CONTinuous if

- :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON
- :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is OFF

Comments

<mode> = alarm mode
NONE: Switch alarm off
CONTinuous: Generate alarm continuously

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:ALARm:VCRDi[:MODE] CONT causes a VC-RDI alarm to be generated.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-81
:SOUR:DATA[:TEL]:ATM:GEN[:STAT] on page R-93

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VCRD[:MODE]?

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VCRDi[:MODE]? provides the setting of alarm insertion in the TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VCRDi[:MODE]?
Response: CONT if the alarm is generated continuously.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VPA[:MODE]

:SOURce:DATA[:TELecom]:ATM:CHAN[i]:ALARm:VPAis[:MODE] <mode> determines VP-AIS alarm insertion in the virtual test channel (end to end transmission of F4 OAM cell carrying AIS).

Parameter

Name	Type	Range	Default
mode	boolean	NONE | CONTinuous	NONE

Dependencies

An alarm <mode> cannot be CONTinuous if

- :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON
- :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is OFF

Comments

<mode> = alarm mode
NONE: Switch alarm off
CONTinuous: Generate alarm continuously

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:ALARm:VPAis[:MODE] CONT causes a VP-AIS alarm to be generated in the test channel.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-81
:SOUR:DATA[:TEL]:ATM:GEN[:STAT] on page R-93

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VPA[:MODE]?

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VPAis[:MODE]? provides the setting of alarm insertion in the TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VPAis[:MODE]?
Response: CONT if the alarm is generated continuously.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VPRD[:MODE]

:SOURce:DATA[:TELecom]:ATM:CHAN[i]:ALARm:VPRDi[:MODE] <mode> determines VP-RDI alarm insertion in the virtual test channel (end to end transmission of F4 OAM cell carrying RDI).

Parameter

Name	Type	Range	Default
mode	boolean	NONE | CONTinuous	NONE

Dependencies

An alarm cannot be generated if

- :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON
- :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is OFF

Comments

<mode> = alarm mode
NONE: Switch alarm off
CONTinuous: Generate alarm continuously

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:ALARm:VPRDi[:MODE] CONT causes a VP-RDI alarm to be generated in the test channel.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-81
:SOUR:DATA[:TEL]:ATM:GEN[:STAT] on page R-93

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VPRD[:MODE]?

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VPRDi[:MODE]? provides the setting of alarm insertion in the TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel:ALARm:VPRDi[:MODE]?
Response: CONT if the alarm is generated continuously.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:CLP

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:CLP <clp> determines the CLP field (cell loss priority) in the cell header of the test channel.

Parameter

Name	Type	Range	Default
clp	discrete	LOW | HIGH | 0 | 1	LOW

Comments

<clp> = cell loss priority
HIGH | 1: High priority
LOW | 0: Low priority

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:CLP LOW sets the CLP field to 0.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:CLP?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:CLP? provides the current setting of the CLP field in the cell header of the test channel.

Example
:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:CLP?
Response: 0 if CLP 0 is set.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:GFC

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:GFC <value> sets the GFC field in the cell header of the TX channel.

Parameter

Name	Type	Range	Default
value	numeric	0 - 15	0

Dependencies
The GFC <value> is not taken into account if :SOUR:DATA[:TEL]:ATM:NINT is NNI. Default setting used if :SOUR:DATA[:TEL]:ATM:CONN is NNI.

Example
:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:GFC 6
sets the GFC field to 6.

Related commands
:SOUR:DATA[:TEL]:ATM:CONN on page R-91
:SOUR:DATA[:TEL]:ATM:NINT on page R-94

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:GFC?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:GFC? provides the current setting of the GFC field in the cell header of the test channel.

Example
:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:GFC?
Response: 6 if GFC 6 is set.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:PT

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:PT <value> determines the PT field (payload type) in the cell header of the test channel.

Parameter

Name	Type	Range	Default
value	numeric	0 - 7	0

Example
:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:PT 5
sets the payload type to 5.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:PT?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:PT? provides the current setting of the PT field in the cell header of the test channel.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:PT?
Response: 5 if payload type 5 is set.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI <value> determines the VCI field (Virtual Channel Identifier) in the cell header of the TX channel.

Parameter

Name	Type	Range	Default
value	numeric	0 - 65535	32

Dependencies Two TX channels enabled with :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] equal to ON cannot have identical :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI and :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI
if :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON and
:SOUR:DATA[:TEL]:ATM:CONN is not SVC.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI 15 sets the VCI to 15.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-79

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI? provides the current setting of the VCI field in the cell header of the test channel.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI?
Response: 15 if VCI 15 is set.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI <value> determines the VPI field (Virtual Path Identifier) in the cell header of the TX channel.

Parameter

Name	Type	Range	Default
value	numeric	0 - 255 (for UNI) 0 - 4095 (for NNI)	0

Dependencies

Two TX channels enabled with :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] equal to ON cannot have identical :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI and :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI
if :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON and
:SOUR:DATA[:TEL]:ATM:CONN is not SVC.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI 32 sets the VPI to 32.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-78
:SOUR:DATA[:TEL]:ATM:NINT on page R-94

:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI? provides the current setting of the VPI field in the cell header of the TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI?
Response: 32 if VPI 32 is set.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:O191M:ERR:[MODE]

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:O191Measure:ERRor[:MODE] <error>,<mode> determines error insertion in the test channel during performance measurements (single errors).

Parameter

Name	Type	Range	Default
error	discrete	HCORrect | HUNCorrect | CERRor | CLOSs | CMISinsert | SECB	CERR
mode	discrete	NONE | ONCE	NONE

Dependencies

<mode> equal to ONCE cannot be generated if

- :SOUR:DATA[:TEL]:ATM:O191M:STAT is OFF or
- :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is switched to OFF or
- :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is OFF.

Comments

<error> = error type
HCOR: Correctable header error
HUNC: Uncorrectable header error
CERR: Cell error
CLOS: Cell loss
CMIS: Misinserted cell
SECB: Severely errored cell block

<mode> = error mode
NONE: No error insertion
ONCE: Single error inserted

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:O191Measure:ERRor[:MODE] HCOR,ONCE causes a HCOR error to be generated.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VCA[:MODE] on page R-73
:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VCRD[:MODE] on page R-74
:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VPA[:MODE] on page R-75
:SOUR:DATA[:TEL]:ATM:CHAN[i]:ALAR:VPRD[:MODE] on page R-76
:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-81
:SOUR:DATA[:TEL]:ATM:GEN[:STAT] on page R-93

:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT]

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:[STATe] <state> switches the TX channel on or off.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Dependencies

Can only be switched ON if :SOUR:DATA[:TEL]:ATM:CRAT > 0.0.
If :SOUR:DATA[:TEL]:ATM:CRAT changes to 0.0, channel <state> can only be switched on if the link bandwidth of all TX channels is lower than or equal to :SOUR:DATA[:TEL]:ATM:CRAT.

Calculation of link bandwidth:

for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] is CONStant:

$$\sum_{n=0}^{n} (\text{:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK.PCR x chanstat[i]}) + \text{mcr\_sig} \leq \text{:SOUR:DATA[:TEL]:ATM:CRAT x } (1 - \frac{\text{HWOffset}}{1E8})$$

for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] is ONOFf:

$$\sum_{n=0}^{n} (\text{:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN.SCR x chanstat[i]}) + \text{mcr\_sig} \leq \text{:SOUR:DATA[:TEL]:ATM:CRAT x } (1 - \frac{\text{HWOffset}}{1E6})$$

mcr_sig = 150 cps if :SOUR:DATA[:TEL]:ATM:CONN is SVC
mcr_sig = 0 cps if :SOUR:DATA[:TEL]:ATM:CONN is PVC

chanstat[i] = 1 if :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is ON
chanstat[i] = 0 if :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is OFF

HWOffset = 2000 ppm

Comments

<state> = function
OFF | 0: Switch off channel
ON | 1: Switch on channel

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:[STATe] OFF
switches the TX channel off.

Related commands

:SENS:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-111

:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT]?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:[STATe]? provides the setting of the corresponding TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:[STATe]?
Response: 0 if the TX channel is deactivated.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:MEAN

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:MEAN <scr>,<bt>,<cdvt> determines the sustained cell rate, burst tolerance and cell delay variation tolerance for the traffic contract of the TX channel.

Parameter

Name	Type	Range	Default
scr	numeric	0 - 366792 cells/s	0
bt	numeric	0 - 1000000 µs	0
cdvt	numeric	0 - 16383 µs	0

Dependencies

Default setting is made

- if :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] is <traffic>,0
- if :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] is (CBR,<confdef>) or (DBR,<confdef>) or (UBR,<confdef>)

Comments

<scr> = sustained cell rate
<bt> = burst tolerance
<cdvt> = cell delay variation tolerance for <scr>

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[1]:TRAFfic:CONTract:MEAN 10000,2000,50
for TX channel 1.

The following traffic parameters are specified:
Sustained cell rate is 10000 cps,
burst tolerance is 2000 µs,
cdvt is 50 µs

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:MEAN?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:MEAN? provides the current mean parameters in the traffic contract per TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:MEAN?
Response: 10000,2000,50
if the mean cell rate is 10000 cells/s, the burst tolerance 2000 µs and the associated cdvt 50 µs.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:PEAK

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:PEAK <pcr>,<cdvt> determines the peak cell rate and its cell delay variation tolerance for the traffic contract of the channel.

Parameter

Name	Type	Range	Default
pcr	numeric	0 - 366792 cells/s	0
cdvt	numeric	0 - 16383 µs	0

Dependencies

Not considered for
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] is <traffic>,0.
Default setting is used if
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] is <traffic>,0.

Comments

<pcr> = peak cell rate
<cdvt> = cell delay variation tolerance for <pcr>

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:PEAK 50000,20
sets the peak cell rate to 50000 cps and the cdvt to 20 µs.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] on page R-85

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:PEAK?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:PEAK? provides the current peak parameters of the traffic contract per TX channel.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:PEAK?
Response: 50000,20
if the peak cell rate is 50000 cells/s and the associated cdvt is 20 µs.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:QOS

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:QOS <class> determines the quality of service class of the traffic contract for the TX channel.

Parameter

Name	Type	Range	Default
class	discrete	0 | 1 | 2 | 3 | 4	0

Dependencies

For :SOUR:DATA[:TEL]:ATM:CONN equal to PVC, QoS <class> 1, 2, 3 and 4 are not allowed.
QoS <class> is set to 0 if :SOUR:DATA[:TEL]:ATM:CONN changes to PVC.

Comments

<class> = quality of service
0: Unspecified
1: Cass 1
2: Class 2
3: Class 3
4: Class 4

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:QOS 2
sets the quality of service to 2.

Related commands

:SOUR:DATA[:TEL]:ATM:CONN on page R-91

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:QOS?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:QOS? provides for each TX channel the quality of service within the traffic contract.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:QOS?
Response: 0 if the quality of service of the TX channel is undetermined.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE]

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract [:TYPE] <traffic>,<confdef> determines the traffic parameters for the TX channel.

Parameter

Name	Type	Range	Default
traffic	discrete	CBR | VBRRT | VBRNRT | UBR | DBR | SBR	CBR
confdef	numeric	0 | 1 | 2 | 3 | 4	1

Dependencies

If the conformance definition is set to 0, the activated TX shaper is switched off.
If the connection type is changed to SVC and the conformance definition is currently 0, the conformance definition is set to 1 (or 2 for DBR).

Comments

<traffic> = traffic type
CBR: Constant bit rate
VBRRT: Variable bit rate, real time
VBRNRT: Variable bit rate, non real time
UBR: Unspecified bit rate
DBR: Deterministic bit rate
SBR: Statistical bit rate

<confdef> = conformance definition
0: None - only if PVC
1: With CBR and UBR traffic
2: With DBR traffic
1, 2: With VBRRT, VBRNRT and SBR traffic
3, 4: Not yet available

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract[:TYPE] CBR,0 defines a traffic contract with constant bit rate (CBR) and conformance definition 0.

Related commands

:SOUR:DATA[:TEL]:ATM:CONN on page R-91

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE]?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract [:TYPE]? provides the current setting of the traffic type & conformance definition.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract [:TYPE]?
Response: CBR,0
if the traffic contract contains a constant bit rate (CBR) and a conformance definition of 0.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:DCEL?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:DCELls? <value> provides the number of dropped cells that violated the traffic contract (dropped cells count).

Parameter

Name	Type	Range	Default
value	numerical	0 - 366792 cells	0

Dependencies If the shaper is switched off, this value will usually be 0.

Comments Query only. With permanent virtual connections (PVC), this information can also be queried outside the measurement.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:DCELls?
Response: 483 if 483 cells were dropped.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SHAP[:STAT] on page R-87

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:NCC?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:NCC? <value> provides the number of cells not conforming to the traffic contract (non conforming cells count). The cells are not dropped.

Parameter

Name	Type	Range	Default
value	numerical	0 - 366792 cells	0

Dependencies If the shaper is switched on, this value will be 0.

Comments Query only. With permanent virtual connections (PVC), this information can also be queried outside the measurement.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:NCC?
Response: 837 if 837 cells violated the traffic contract.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SHAP[:STAT] on page R-87

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SHAP[:STAT]

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SHAPer [:STATe] <shaper> determines the setting of the shaper in the TX channel.

Parameter

Name	Type	Range	Default
shaper	boolean	OFF | ON | 0 | 1	OFF

Dependencies The <shaper> cannot be switched on if :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] is <traffic>,0.

Comments
<shaper> = shaper function
ON | 1: Switch on TX shaper
OFF | 0: Switch off TX shaper

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SHAPer [:STATe] ON switches on the shaper in the TX channel.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] on page R-85

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SHAP[:STAT]?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SHAPer [:STATe]? provides the current setting of the shaper in the TX channel.

Example
:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SHAPer [:STATe]?
Response: 1 if the shaper is switched on in the TX channel.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:MEAN <scr>,<bs> determines the mean cell rate of the TX channel and the burst size for bursty cell generation.

Parameter

Name	Type	Range	Default
scr	numeric	0 - 366792 cells/s	0
bs	numeric	0 - 1000000 µs	0

Dependencies

Not considered with constant source behavior.
Default setting is used if the source behavior is set to CONStant (constant peak cell rate chosen). The maximum value of <bs> will be calculated anew

- if :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] is ONOFf and
- if :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK<scr> is greater than 0 and
- if :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] or :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN<scr> or :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK<pcr> are changing value.

Calculation of <bs>:

$$<bs> \leq T_{seq} \times \frac{:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN<scr>}{:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK<pcr>}$$

T_{seq} = 1.00663 s for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK < (< 2.5 x 1000000/8 x 53,<Jitter>)

T_{seq} = 83.886 ms for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK ≥ (< 2.5 x 1000000/8 x 53,<Jitter>)

Comments

<scr> = sustained cell rate
<bs> = burst size

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:MEAN 8000,1500 sets the mean cell rate of the TX channel to 8000 cells/s. The burst size is 1500 µs.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK on page R-89
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] on page R-90
:SOUR:DATA[:TEL]:ATM:CRAT on page R-92

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:MEAN? provides the mean cell rate of the TX channel and the burst size for bursty source behavior.

Example

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:MEAN?
Response: 8000,1500
if the mean cell rate of the TX channel is 8000 cells/s. The burst size (i.e. time with PCR) will not exceed 1500 µs.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:PEAK <pcr>,<jitter> determines the peak cell rate of the TX channel.

Parameter

Name	Type	Range	Default
pcr	numeric	0 - 366792 cells/s	0
jitter	numeric	0 - 1000000 µs	0

Dependencies

The maximum value of <jitter> will be calculated anew

- if:SOUR:DATA[:TEL]:ATM:CRAT is greater than 0.0 and
- if :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is ON and
- if :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] or
  :SOUR:DATA[:TEL]:ATM:CRAT or
  :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK<pcr> or
  :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN<bs> or
  :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] are changing value.

Calculation of <jitter>
for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] is CONStant:

$$<\text{jitter}> \leq T_{seq}\left(1 - \frac{:\text{SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK<pcr>}}{:\text{SOUR:DATA[:TEL]:ATM:CRAT}}\right)$$

for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] is ONOFf:

$$<\text{jitter}> \leq :\text{SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN<bs>} \times \left(1 - \frac{:\text{SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK<pcr>}}{:\text{SOUR:DATA[:TEL]:ATM:CRAT}}\right)$$

T_{seq} = 1.00663 s for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK < (< 2.5 x 1000000/8 x 53,<Jitter>)

T_{seq} = 83.886 ms for :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK ≥ (< 2.5 x 1000000/8 x 53,<Jitter>)

Comments

<pcr> = peak cell rate
<jitter> = fluctuation width of the peak cell rate (jitter)

Example

:SOURce:DATA[:TELecom]:ATM:CHANel[i]:TRAFfic:SOURce:PEAK 45000,10 sets the peak cell rate of the TX channel to 45000 cells/s. The fluctuation width is 10 µs.

Related commands

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN on page R-88
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] on page R-90
:SOUR:DATA[:TEL]:ATM:CRAT on page R-92

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:PEAK? provides the peak cell rate of the TX channel.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce:PEAK?
Response: 45000,10
if the peak cell rate of the generator is 45000 cells/s and the fluctuation width is 10 µs.

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE]

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce [:TYPE] <type> determines the source behavior in the respective TX channel.

Parameter

Name	Type	Range	Default
type	discrete	CONStant | ONOFf	CONS

Comments <type> = type of data source
CONStant: Cell stream with constant peak cell rate
ONOFf: Bursty cell stream at maximum rate (on/off)

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce [:TYPE] CONStant causes a constant cell stream to be generated by the corresponding TX channel.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN on page R-88
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK on page R-89
:SOUR:DATA[:TEL]:ATM:CRAT on page R-92

:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE]?

:SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce [:TYPE]? provides the source behavior of the corresponding TX channel.

Example :SOURce:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:SOURce [:TYPE]?
Response: CONS if a constant cell stream is generated in the TX channel.

:SOUR:DATA[:TEL]:ATM:CONN

:SOURce:DATA[:TELecom]:ATM:CONNection <type> determines the connection type of the transmitter.

Parameter

Name	Type	Range	Default
type	discrete	PVC | SVC	PVC

Dependencies

If <type> changes to PVC, :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:QOS is set to 0.
For <type> = SVC, :SOUR:DATA[:TEL]:ATM:NINT is UNI.
If connection <type> changes, :SENS:DATA[:TEL]:ATM:CONN is set to connection <type>. Connection <type> cannot be unequal to :SENS:DATA[:TEL]:ATM:CONN.

Comments

<type> = connection type
PVC: Permanent virtual connection
SVC: Switched virtual connection

Example

:SOURce:DATA[:TELecom]:ATM:CONNection SVC
sets the connection type to SVC.

Related commands

:CONT:SIGN:CHAN[i]:TRAF:BACK:CONT:QOS on page R-55
:CONT:SIGN:VPI on page R-72
:CONT:SIGN:VCI on page R-72
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-78
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-79
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:QOS on page R-84
:SOUR:DATA[:TEL]:ATM:CONN:TYPE? on page R-91
:SOUR:DATA[:TEL]:ATM:NINT on page R-94
:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-110
:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-110
:SENS:DATA[:TEL]:ATM:CONN on page R-113
:SENS:DATA[:TEL]:ATM:SCAN[:STAT] on page R-117

:SOUR:DATA[:TEL]:ATM:CONN:TYPE?

:SOURce:DATA[:TELecom]:ATM:CONNection:TYPE? provides the current setting for the connection type.

Example

:SOURce:DATA[:TELecom]:ATM:CONNection:TYPE?
Response: PVC if the connection type is PVC.

:SOUR:DATA[:TEL]:ATM:CRAT

:SOURce:DATA[:TELecom]:ATM:CRATe <value> determines the maximum physical link bit rate in the TX channel.

Parameter

Name	Type	Range	Default
value	float	0 - 366793.0 cells/s	366793.0

Dependencies This value must always be greater than the composite bandwidth of all TX channels (PCR or SCR, depending on source type).

Example For STM-1:
:SOURce:DATA[:TELecom]:ATM:CRATe 353208.0
specifies 353208.0 cells/s as the maximum physical link cell rate.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:MEAN on page R-88
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR:PEAK on page R-89
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:SOUR[:TYPE] on page R-90

:SOUR:DATA[:TEL]:ATM:CRAT?

:SOURce:DATA[:TELecom]:ATM:CRATe? provides the maximum physical link bit rate of the TX channel.

Example :SOURENSe:DATA[:TELecom]:ATM:CRATe?
Response: 353208.0
if the max. physical link bit rate of the TX channel is 353208.0 cells/s.

:SOUR:DATA[:TEL]:ATM:GEN[:STAT]

:SOURce:DATA[:TELecom]:ATM:GENerator:STATe <state> enables generation of load cells.

Note: Load cells will only be generated during measurement (when the connection is established).

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Dependencies

The generator <state> cannot be set to ON:

- if :SOUR:DATA[:TEL]:ATM:CRAT is 0.0
- if :SENS:DATA[:TEL]:ATM:SCAN[:STAT] is ON
- if two or more enabled TX channels (:SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] is ON) have identical :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI and :SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI, when :SOUR:DATA[:TEL]:ATM:CONN is PVC
- if two or more enabled RX channels (:SENS:DATA[:TEL]:ATM:CHAN[i][:STAT] is ON) have identical :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI and :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI, when :SENS:DATA[:TEL]:ATM:CONN is PVC

Comments

<state> = function
ON | 1: Generation enabled
OFF | 0: Generation disabled

Example

:SOURce:DATA[:TELecom]:ATM:GENerator[:STATe] ON
causes generation of ATM load cells to be enabled.

Related commands

:CONT:SIGN:VPI on page R-72
:CONT:SIGN:VCI on page R-72
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-78
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-79
:SOUR:DATA[:TEL]:ATM:CONN:TYPE? on page R-91
:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-110
:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-110
:SENS:DATA[:TEL]:ATM:SCAN[:STAT] on page R-117

:SOUR:DATA[:TEL]:ATM:GEN[:STAT]?

:SOURce:DATA[:TELecom]:ATM:GENerator:STATe? indicates whether the ATM generator is enabled or not.

Example

:SOURce:DATA[:TELecom]:ATM:GENerator[:STATe]?
Response: 1 if the ATM generator is enabled.

:SOUR:DATA[:TEL]:ATM:NINT

:SOURce:DATA[:TELecom]:ATM:NINTerface <type> determines the network interface of the generator.

Parameter

Name	Type	Range	Default
type	discrete	UNI | NNI	UNI

Dependencies

The interface type cannot be NNI if the connection type of the generator is SVC.

If the network interface is set to NNI, the GFC field in the cell header is set to 0 and the maximum/minimum value for VPI is altered.

Comments

<type> = network interface
UNI: User network interface
NNI: Network node interface

Example

:SOURce:DATA[:TELecom]:ATM:NINTerface NNI
sets the network interface to NNI.

Related commands

:CONT:SIGN:VPI on page R-72
:CONT:SIGN:VCI on page R-72
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:GFC on page R-77
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-78
:SOUR:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-79
:SOUR:DATA[:TEL]:ATM:CONN:TYPE? on page R-91
:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-110
:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-110
:SENS:DATA[:TEL]:ATM:SCAN[:STAT] on page R-117

:SOUR:DATA[:TEL]:ATM:NINT?

:SOURce:DATA[:TELecom]:ATM:NINTerface? provides the type of the network interface.

Example

:SOURce:DATA[:TELecom]:ATM:NINTerface?
Response: UNI if the network interface is set to UNI (user network interface).

:SOUR:DATA[:TEL]:ATM:O191M:STAT

:SOURce:DATA[:TELecom]:ATM:O191Measure[:STATe] <state> switches O.191 measurement of the ATM generator on or off.

Parameter

Name	Type	Range	Default
state	discrete	OFF | ON | 0 | 1	OFF

Dependencies :SOUR:DATA[:TEL]:ATM:O191M:STAT cannot be ON if :SENS:DATA[:TEL]:ATM:SCAN[:STAT] is ON.

Comments
<state> = measurement
ON | 1: Service measurement to O.191 switched on
OFF | 0: Service measurement to O.191 switched off

Example :SOURce:DATA[:TELecom]:ATM:O191M:STAT ON
switches service measurements to O.191 on.

Related commands :SENS:DATA[:TEL]:ATM:O191M:STAT on page R-115

:SOUR:DATA[:TEL]:ATM:O191M[:STAT]?

:SOURce:DATA[:TELecom]:ATM:O191M[:STATe]? provides the current generator test mode.

Example :SOURce:DATA[:TELecom]:ATM:O191M:STAT?
Response: 1 if O.191 measurement is switched on.

:SOUR:DATA[:TEL]:ATM:SIGN:BAND?

:SOURce:DATA[:TELecom]:ATM:SIGNaling:BANDwidth? provides the current signaling bandwidth (cell/s) of the signaling channel.

Comments Query only.

Example For STM-1:
:SOURce:DATA[:TELecom]:ATM:SIGNaling:BANDwidth?
Response: 150
if the bandwidth of the signaling channel is 150 cell/s.

:SOUR:DATA[:TEL]:ATM:TRAF:BAND?

:SOURce:DATA[:TELecom]:ATM:TRAFfic:BANDwidth? provides the current computed composite bandwidth for all switched-on TX channels (cell/s).

Comments

Query only.
With permanent virtual connections (PVC), this information can be queried outside the measurement.

Example

For STM-1:
:SOURce:DATA[:TELecom]:ATM:TRAFfic:BANDwidth?
Response: 353208
if the computed composite bandwidth of the TX channels is 353208.

8 SENSE subsystem

This subsystem is used to control the ATM receiver.

[:SENS]:DATA:ACT?

[:SENSe]:DATA:ACTual? [<id>{[, <id>]}*] reads **current** results.

Parameter

Name	Type	Range	Default
id	string	e.g. “COUN:ATM:PHYS”	none

Dependencies

Linked to: [:SENS]:FUNC[:ON]
Valid results are only available if a measurement was previously initiated (except status results (“CST”) or other results which are continuously taken).

Comments

The result(s) designated with <id>s are read out, or (if there is no <id> parameter) all results which were previously selected with [:SENS]:FUNC[:ON] on page R-120. The list of available results is found under Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121.

Note: Current and final results are identical once the measurement has finished.

Example

See [:SENS]:DATA:FIN? on page R-98
DATA:ACT? “CST”
Response: 40,2

Meaning:

40	response code “CST”
2	value of bit field indicating [:SENS]:SWE

Related commands

:INIT[1][:IMM][:ALL] on page R-43
[:SENS]:DATA:FIN? on page R-98
[:SENS]:FUNC[:ON] on page R-120
Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121

[:SENS]:DATA:FIN?

[:SENSe]:DATA:FINal? [<id>{[, <id>]}*] reads **final** measurement results.

Parameter

Name	Type	Range	Default
id	string	e.g. “COUN:ATM:PHYS” for ...	none

Dependencies

Linked to [:SENS]:FUNC[:ON]
Valid final results are only available if a measurement was previously initiated and has finished.
Valid final results are not available for results taken continuously.

Comments

The result(s) designated with <id>s are read out, or (if there is no <id> parameter) all results which were previously selected with [:SENS]:FUNC[:ON] on page R-120. The list of available results is found under Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121.

Response

The table below shows the response if multiple results are selected

Response name	Response type
response code (1st result)	numeric response code ID
result value (1st result)	response type as described in Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121
response code (2nd result)	numeric response code ID
result value (2nd result)	response type 2nd result
…	…
response code (last result)	numeric response code ID
result value (last result)	response type last result

Note: If a result is invalid for any reason, the corresponding response code is inverted and the result value is set to NAN (not a number = 9.91E37).

Related commands

:ABOR[1] on page R-43
:INIT[1][:IMM][:ALL] on page R-43
[:SENS]:DATA:ACT? on page R-97
[:SENS]:FUNC[:ON] on page R-120
Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121
[:SENS]:SWE:TIME on page R-128

[:SENS]:DATA:EVEN?

[:SENSe]:DATA:EVENt? <number> reads the “number” of accumulated events from the event FIFO.

Parameter

Name	Type	Range	Default
number	numeric	1 - 200	1

Dependencies

FIFO entries are only available if a measurement was previously initiated.

Comments

Events are stored in an event FIFO (First In First Out), where they can be extracted with this command.
The data are extracted as in a normal FIFO structure, i.e. the oldest entry first, then the second oldest, etc.
You can determine whether an event has occurred by monitoring the status register (Status register structure on page R-11).
The FIFO content is cleared by initiating a new measurement or by a *RST command.

Each event (error or alarm) causes at least 2 entries in the FIFO:
1st entry: the time stamp (response code = 10)
2nd entry: event or an alarm entry

If more than one event occurs between 2 time stamps, the first entry contains the time stamp and following entries contain the events pertaining to the same time stamp.

Note: The FIFO can contain up to 400 entries. If the FIFO is not read in time, an overflow entry (response code = 1) is appended to the FIFO.

Response

Each entry in the FIFO has the following structure:

Response name	Response type
response code	numeric (the response code)
value	numerical value

Example

:DATA:EVEN? 2 supplies 2 events from the FIFO.
Response: 10,0.1930400E7,12620,17348

Meaning:

10	ID 1st event (the time stamp).
0.1930400E7	ms since 1970/1/1.
12620	ID 2nd event (CEV:ATM1:CHAN2:FCEL)
17348	17348 cells were analyzed in channel 2.

Related commands

[:SENS]:DATA:EVEN:NUMB? on page R-100

[:SENS]:DATA:EVEN:NUMB?

[:SENSe]:DATA:EVENt:NUMBer? supplies the number of entries available in the event FIFO.

Parameter none

Example :DATA:EVEN:NUMB?
Response: 88 for 88 available events.

Related commands [:SENS]:DATA:EVEN? on page R-99

Codes for the event memory

Note: The alarm alternation events are collected into bit fields (32 bits) where each individual alarm can be found at a specified bit position. A logical “1” at the respective bit position indicates an active alarm, and a logical “0” an inactive alarm. For a description of these bit fields, see:
[:SENS]:SWE on page R-127.
The term <i> is not optional. The range is 1 to 4.

Name	Response code	Response type	Event description	Units
CEVent:ATM1:CHANnel1:FCELls CEVent:ATM1:CHANnel2:FCELls CEVent:ATM1:CHANnel3:FCELls CEVent:ATM1:CHANnel4:FCELls	11620, 12620, 13620, 14620	count	Filtered cells (test channel)	cells
CEVent:ATM1:CHANnel<i> :CAISseconds	11621, 12621,...	count	VC-AIS defect seconds	s
CEVent:ATM1:CHANnel<i> :CD:MAXimum	11630, 12630,...	count	Maximum cell delay	µs
CEVent:ATM1:CHANnel<i> :CD:MEAN	11632, 12632,...	count	Mean cell delay	µs
CEVent:ATM1:CHANnel<i> :CD:MINimum	11634, 12634,...	count	Minimum cell delay	µs
CEVent:ATM1:CHANnel<i>:CDV	11636, 12636,...	count	Cell delay variation	µs
CEVent:ATM1:CHANnel<i> :CRDIseconds	11640, 12640,...	count	VC-RDI defect seconds	s
CEVent:ATM1:CHANnel<i> :LPACseconds	11641, 12641,...	count	Loss of Performance Assessment Capability seconds	s
COUNt:ATM1:CHANnel<i> :PAISseconds	11643, 12643,...	count	VP-AIS defect seconds	s
CEVent:ATM1:CHANnel<i> :PRDIseconds	11644, 12644,...	count	VP-RDI defect seconds	s
CEVent:ATM1:CHANnel<i>:ERRCells	11650, 12650,...	count	Errored cells	cells
CEVent:ATM1:CHANnel<i>:LOSCells	11660, 12660,...	count	Lost cells	cells
CEVent:ATM1:CHANnel<i>:MISCells	11670, 12670,...	count	Misinserted cells	cells
CEVent:ATM1:CHANnel<i>:SECB	11680, 12680,...	count	Severely errored cell blocks	cell blocks

Table R-1 Event IDs for the event memory

Name	Response code	Response type	Event description	Units
SEVent:SIGN1:CHANnel<i> :CONNection	11510, 12510,...	bit field	Status change for signaling	none
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:TYPE:TRAFfic	11511, 12511,...	int	Traffic type in backward channel	none
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:TYPE:CONFdef	11512, 12512,...	int	Conformance definition in backward channel	none
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:MEAN:SCR	11513, 12513,...	long	Sustained cell rate in backward channel	cps cells/s
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:MEAN:MBS	11514, 12514,...	long	Maximum burst size in backward channel	cells
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:MEAN:CDVT	11515, 12515,...	long	Cell delay variation tolerance in backward channel (mean)	µs
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:PEAK:PCR	11516, 12516,...	long	Peak cell rate in backward channel	cps cells/s
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract:PEAK:CDVT	11517, 12517,...	long	Cell delay variation tolerance in backward channel (peak)	µs
SEVent:SIGN1:CHANnel<i> :BACKward:SOURce:TYPE	11518, 12518,...	int	Source type in backward channel	none
SEVent:SIGN1:CHANnel<i> :BACKward:SNUMber:TYPE	11520, 12520,...	int	Address type of called station	none
SEVent:SIGN1:CHANnel<i> :BACKward:SNUMber:PLAN	11521, 12521,...	int	Address plan of called station	none
SEVent:SIGN1:CHANnel<i> :BACKward:SNUMber:ADDR	11522, 12522,...	string	Connection number of called station (address)	none
SEVent:SIGN1:CHANnel<i> :BACKward:SUBaddr:TYPE	11523, 12523,...	int	Subaddress of called station (type)	none
SEVent:SIGN1:CHANnel<i> :BACKward:SUBaddr:ADDR	11524, 12524,...	string	Subaddress of called station (address)	none
SEVent:SIGN1:CHANnel<i> :BACKward:SNUMber:VCI	11525, 12525,...	long	VCI in backward channel	none
SEVent:SIGN1:CHANnel<i> :BACKward:SNUMber:VPI	11526, 12526,...	int	VPI in backward channel	none
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:TYPE:TRAFfic	11551, 12551,...	int	Traffic type in forward channel	none
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:TYPE:CONFdef	11552, 12552,...	int	Conformance definition in forward channel	none
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:MEAN:SCR	11553, 12553,...	long	Sustained cell rate in forward channel	cps cells/s
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:MEAN:MBS	11554, 12554,...	long	Maximum burst size in forward channel	cells

Table R-2 Signaling event IDs for the event memory

Name	Response code	Response type	Event description	Units
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:MEAN:CDVT	11555, 12555,...	long	Cell delay variation tolerance in forward channel (mean)	µs
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:PEAK:PCR	11556, 12556,...	long	Peak cell rate in forward channel	cps cells/s
SEVent:SIGN1:CHANnel<i> :FORward:CONTract:PEAK:CDVT	11557, 12557,...	long	Cell delay variation tolerance in forward channel (peak)	µs
SEVent:SIGN1:CHANnel<i> :FORward:SOURce:TYPE	11558, 12558,...	int	Source type in forward channel	none
SEVent:SIGN1:CHANnel<i> :FORward:SNUMber:TYPE	11560, 12560,...	int	Station number of calling station (type)	none
SEVent:SIGN1:CHANnel<i> :FORward:SNUMber:PLAN	11561, 12561,...	int	Station number of calling station (plan)	none
SEVent:SIGN1:CHANnel<i> :FORward:SNUMber:ADDR	11562, 12562,...	string	Station number of calling station (device address)	none
SEVent:SIGN1:CHANnel<i> :FORward:SUBaddr:TYPE	11563, 12563,...	int	Subaddress of calling station (type)	none
SEVent:SIGN1:CHANnel<i> :FORward:SUBaddr:ADDR	11564, 12564,...	string	Subaddress of calling station (address)	none
SEVent:SIGN1:CHANnel<i> :FORward:SNUMber:VCI	11565, 12565,...	long	VCI in forward channel	none
SEVent:FORward:CHANnel<i> :FORward:SNUMber:VPI	11566, 12566,...	int	VPI in forward channel	none

Table R-2 Signaling event IDs for the event memory *(continued)*

Name	Response code	Response type	Event description	Units
AEVent	600	bit field	Alarm change for measurement	none
AEVent:ATM	10600	bit field	Alarm change for the ATM measurement	none
AEVent:ATM1:CHANnel1 AEVent:ATM1:CHANnel2 AEVent:ATM1:CHANnel3 AEVent:ATM1:CHANnel4	11500, 12500, 13500, 14500	bit field	Event in the ATM channel alarm bit field	none
REVent:ATM1:CHANnel<i> :ERRCells	11651, 12651,...	ratio	Cell error ratio = ERAT:ATM1:CHAN<i>:ERRC/ COUNt:ATM1:CHAN<i>:FCEL	none
REVent:ATM1:CHANnel<i> :LOSCells	11661, 12661,...	ratio	Cell loss ratio = ERAT:ATM1:CHAN<i>:LOSC/ COUNt:ATM1:CHAN<i>:FCEL	none
REVent:ATM1:CHANnel<i> :MISCells	11671, 12671,...	rate	Cell misinsertion rate = ERAT:ATM1:CHAN<i>:MISC over time	none
REVent:ATM1:CHANnel<i> :SECB	11681, 12681,...	ratio	Severely errored cell block ratio	none

Table R-3 Ratio event IDs for the event memory

Alarm bit field “CSTatus:ATM”/“HSTatus:ATM”

Bit position	Alarm name
0 (LSB)	Reserved
1	PL-ALARM (physical layer alarm)
2 to 31	Reserved

Table R-4 Alarm field “CSTatus:ATM”

Alarm bit field “CSTatus:ATM:CHANnel<i>”/ “HSTatus:ATM:CHANel<i>”

Bit position	Alarm name
0 (LSB)	No connection
1	VP-AIS: end-to-end virtual path AIS
2	VP-RDI: end-to-end virtual path RDI
3	VC-AIS: end-to-end virtual channel AIS
4	VC-RDI: end-to-end virtual channel RDI
5	LPAC: loss of performance assessment capability
6 to 31	Reserved

Table R-5 Alarm field “CSTatus:ATM:CHANnel<i>”

Alarm bit field “SEVent:SIGN:CHANnel<i>”

Bit position	Alarm name	
0 (LSB)	Bit 0 status	(see Tab. R-7)
1	Bit 1 status	
2 to 15	Reserved	-
16	Bit 0 location	(see Tab. R-8)
17	Bit 1 location	
18	Bit 2 location	
19	Bit 3 location	
20	Bit 4 location	
21	Bit 5 location	
22	Bit 6 location	
23	Bit 7 location	
24	Bit 0 cause	(see Tab. R-9)
25	Bit 1 cause	
26	Bit 2 cause	
27	Bit 3 cause	
28	Bit 4 cause	
29	Bit 5 cause	
30	Bit 6 cause	
31 (MSB)	Bit 7 cause	

Table R-6 Alarm field “SEVent:SIGNaling:CHANnel<i>”

Bits 0 to 1 of status	Description
0	Disconnected
1	Connecting
2	Connected
3	Error

Table R-7 Description of signaling status

Bits 0 to 7 of location	Description
0	User
1	Private network serving local user
2	Public network serving local user
3	Transit network
4	Public network serving remote user
5	Private network serving remote user
7	International network
10	Network beyond interworking point
100	Restart vpc
101	Restart link

Table R-8 Description of location

Bits 0 to 7 of cause	Description
0	Invalid cause value - proprietary
1	Unallocated (unassigned) number
2	No route to transit network
3	No route to destination
10	UNI 3.0: VPI/VCI unacceptable
16	UNI 3.1: normal call clearing
17	User busy
18	No user response
19	No answer from user
21	Call rejected
22	Number changed
23	User rejects all calls with CLIR
27	Destination out of order
28	Invalid number format
30	Response to STATUS ENQUIRY
31	Normal unspecified
32	PNNI: Too many pending add party requests
34	PNNI: Call cleared due to change in PGL

Table R-9 Description of cause, when location is less than 100

Bits 0 to 7 of cause	Description
35	Requested VPI/VCI unavailable
36	UNI 3.1: VPI/VCI assignment failure
37	UNI 3.1: user cell rate unavailable
38	Network out of order
41	Temporary failure
43	Access info discarded
45	No VPI/VCI unavailable
47	Resources unavailable, unspecified
49	Quality of Service unavailable
51	UNI 3.0: user cell rate unavailable
53	PNNI: Requested called party soft PVPC/PVCC not available
57	Bearer capability not authorized
58	Bearer capability not available
63	Service or option unavailable
65	Bearer capability not implemented
73	Unsupported comb. of traffic parameters
78	UNI 3.1: AAL parameters not supported
81	Invalid call reference
82	Identified channel does not exist
88	Incompatible destination
89	Invalid endpoint reference
91	Invalid transit network selection
92	Too many add party requests
93	UNI 3.0: ALL parameters not supported
96	Mandatory info element missing
97	Message type not implemented
99	Info element not implemented
100	Invalid info element
101	Message type not compatible with call station
102	Recovery on timer expiry
104	Incorrect message length
111	Protocol error, unspecified

Table R-9 Description of cause, when location is less than 100 *(continued)*

Bits 0 to 7 of cause	Description
127	Optional info element content error - proprietary
128	Next node unreachable
160	DTL transit not my node ID

Table R-9 Description of cause, when location is less than 100 *(continued)*

:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI <value> determines the VCI field (Virtual Channel Identifier) in the cell header of the receiver.

Parameter

Name	Type	Range	Default
value	numeric	0 - 65535	32

Dependencies Two enabled RX channels with :SENS:DATA[:TEL]:ATM:CHAN[i][:STAT] equal to ON cannot be equal in :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI and :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI if :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON and :SOUR:DATA[:TEL]:ATM:CONN is not SVC.

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI 32
sets the VCI to 32.

Related commands :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI on page R-110

:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI?

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI? provides the current setting of the VCI field in the cell header of the receiver.

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VCI?
Response: 32 if VCI 32 is set.

:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI <value> determines the VPI field (Virtual Path Identifier) in the cell header of the receiver.

Parameter

Name	Type	Range	Default
value	numeric	0 - 4095 (for NNI) 0 - 255 (for UNI)	0

Dependencies Two enabled RX channels with :SENS:DATA[:TEL]:ATM:CHAN[i][:STAT] equal to ON cannot be equal in :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI and :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI if :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON and :SOUR:DATA[:TEL]:ATM:CONN is not SVC.

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI 15 sets VPI to 15.

Related commands :SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VCI on page R-110
:SENS:DATA[:TEL]:ATM:NINT on page R-114

:SENS:DATA[:TEL]:ATM:CHAN[i]:HEAD:VPI?

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI? provides the current setting of the VPI field in the cell header of the receiver.

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i]:HEADer:VPI?
Response: 15 if VPI 15 is set.

:SENS:DATA[:TEL]:ATM:CHAN[i][:STAT]

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:[STATe] <state> switches evaluation of ATM cells in the RX channel on or off.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Comments <state> = function
ON | 1: switch on channel
OFF | 0: switch off channel

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i][:STATe] OFF
disables evaluation of ATM cells in the RX channel.

Related commands :SOUR:DATA[:TEL]:ATM:CHAN[i][:STAT] on page R-81

:SENS:DATA[:TEL]:ATM:CHAN[i][:STAT]?

:SENSe:DATA[:TELecom]:ATM:CHANnel[i][:STATe]? provides the status of ATM cell evaluation in the RX channel.

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i][:STATe]?
Response: 0 if evaluation of ATM cells in the RX channel is disabled.

:SENS:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:CDEF

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAF:CONT:CDEF <value> determines the conformance definition of the receiver.

Parameter

Name	Type	Range	Default
confdef	discrete	0 | 1 | 2 | 3 | 4	1

Comments <confdef> =
0 none - only if PVC
1, 2, 3, 4 conformance definition selected

Example :SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAF:CONT:CDEF 1
sets CDEF to 1.

:SENS:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:CDEF?

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:CDEF? provides the current conformance definition.

Example
:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:CDEF?
Response: 1 if CDEF 1 is set.

:SENS:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:PEAK

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAF:CONT:PEAK <value> determines the peak cell rate of the receiver.

Parameter

Name	Type	Range	Default
value	numeric	0 - 366792 cells/s	0

Dependencies
Not considered if
:SOUR:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT[:TYPE] is <traffic>,0.

Example
For STM-1:
:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAF:CONT:PEAK 50000
sets the peak cell rate to 50000 cells/s.

Related commands
:SENS:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:CDEF on page R-111

:SENS:DATA[:TEL]:ATM:CHAN[i]:TRAF:CONT:PEAK?

:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:PEAK? provides the peak cell rate of the traffic contract in the RX channel.

Example
:SENSe:DATA[:TELecom]:ATM:CHANnel[i]:TRAFfic:CONTract:PEAK?
Response: 50000 if a peak cell rate of 50000 cells/s is set.

:SENS:DATA[:TEL]:ATM:CONN

:SENSe:DATA[:TELecom]:ATM:CONNection <type> determines the connection type of the receiver.

Parameter

Name	Type	Range	Default
type	discrete	PVC | SVC	PVC

Dependencies
If :SOUR:DATA[:TEL]:ATM:CONN changes, connection <type> is set to :SOUR:DATA[:TEL]:ATM:CONN.
Connection <type> cannot be not equal to :SOUR:DATA[:TEL]:ATM:CONN.

Comments
<type> = connection type
PVC: permanent virtual connection
SVC: switched virtual connection

Example
:SENSe:DATA[:TELecom]:ATM:CONNection PVC sets the PVC connection type.

Related commands
:SOUR:DATA[:TEL]:ATM:CONN on page R-91
:SENS:DATA[:TEL]:ATM:NINT on page R-114

:SENS:DATA[:TEL]:ATM:CONN?

:SENSe:DATA[:TELecom]:ATM:CONNection? provides the current connection type of the receiver.

Example
:SENSe:DATA[:TELecom]:ATM:CONNection?
Response: PVC if PVC is the connection type of the receiver.

:SENS:DATA[:TEL]:ATM:CRAT

:SENSe:DATA[:TELecom]:ATM:CRATe <value> determines the maximum physical link bit rate of the receiver.

Parameter

Name	Type	Range	Default
value	floating	0 - 366793.0 cells/s	366793.0

Dependencies
:SENS:DATA[:TEL]:ATM:SCAN[:STAT] cannot be ON if :SENS:DATA[:TEL]:ATM:CRAT is equal to 0.0

Example
For STM-1:
:SENSe:DATA[:TELecom]:ATM:CRATe 353208.0
specifies 353208.0 cells/s as the maximum physical link bit rate.

:SENS:DATA[:TEL]:ATM:CRAT?

:SENSe:DATA[:TELecom]:ATM:CRATe? provides the maximum physical link bit rate of the receiver.

Example
For STM-1:
:SENSe:DATA[:TELecom]:ATM:CRATe?
Response: 353208.0
if the max. physical link bit rate of the receiver is 353208.0 cells/s.

:SENS:DATA[:TEL]:ATM:NINT

:SENSe:DATA[:TELecom]:ATM:NINTerface <type> determines the network interface of the receiver.

Parameter

Name	Type	Range	Default
type	discrete	UNI | NNI	UNI

Dependencies
The interface <type> cannot be NNI if :SENS:DATA[:TEL]:ATM:CONN is SVC.

Comments
<type> = network interface
UNI: user network interface
NNI: network node interface

Example
:SENSe:DATA[:TELecom]:ATM:NINTerface UNI
sets the network interface of the receiver to UNI.

Related commands
:SOUR:DATA[:TEL]:ATM:NINT on page R-94
:SENS:DATA[:TEL]:ATM:CONN on page R-113

:SENS:DATA[:TEL]:ATM:NINT?

:SENSe:DATA[:TELecom]:ATM:NINTerface? provides the setting of the network interface of the receiver.

Example
:SENSe:DATA[:TELecom]:ATM:NINTerface?
Response: UNI if the UNI interface is set.

:SENS:DATA[:TEL]:ATM:O191M:STAT

:SENSe:DATA[:TELecom]:ATM:O191Measure[:STATe] <state> switches O.191 measurement of the ATM receiver on or off.

Parameter

Name	Type	Range	Default
state	discrete	OFF | ON | 0 | 1	OFF

Dependencies :SENS:DATA[:TEL]:ATM:O191M:STAT cannot be ON if :SENS:DATA[:TEL]:ATM:SCAN[:STAT] is ON.

Comments
<state> = measurement
OFF | 0: O.191 Quality of Service measurement switched off
ON | 1: O.191 Quality of Service measurement switched on

Example :SENSE:DATA[:TELecom]:ATM:O191M:STAT ON
switches O.191 Quality of Service measurement on.

:SENS:DATA[:TEL]:ATM:O191M[:STAT]?

:SENSe:DATA[:TELecom]:ATM:O191M[:STATe]? provides the current test mode of the receiver.

Example :SENSe:DATA[:TELecom]:ATM:O191M:STAT?
Response: 1 if O.191 measurement is switched on.

:SENS:DATA[:TEL]:ATM:SCAN:AAL[:STAT]

:SENSe:DATA[:TELecom]:ATM:SCAN:AAL[:STATe] <state> switches the AAL analysis function of the scanner on or off.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Dependencies AAL analysis <state> can only be ON if :SENS:DATA[:TEL]:ATM:SCAN:TYPE is ACT.

Comments
<state> = function
ON | 1: switch on AAL analysis
OFF | 0: switch off AAL analysis

Example :SENSe:DATA[:TELecom]:ATM:SCAN:AAL:STATe ON
switches on the AAL analysis function of the scanner.

Related commands :SENS:DATA[:TEL]:ATM:SCAN:TYPE on page R-118

:SENS:DATA[:TEL]:ATM:SCAN:AAL[:STAT]?

:SENSe:DATA[:TELecom]:ATM:SCAN:AAL[:STATe]? provides the current setting of the AAL analysis function of the scanner.

Example :SENSe:DATA[:TELecom]:ATM:SCAN:AAL:STATe?
Response: 1 if AAL analysis is switched on during the activity scan.

:SENS:DATA[:TEL]:ATM:SCAN:AGIN

:SENSe:DATA[:TELecom]:ATM:SCAN:AGINg <state> switches the aging function of the scanner on or off. Inactive channels or cleared down connections are removed from the result list after 30 seconds if the aging function is switched on.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Comments
<state> = function
ON | 1: switch on scanner aging
OFF | 0: switch off scanner aging

Example :SENSe:DATA[:TELecom]:ATM:SCAN:AGINg ON
switches on scanner aging.

:SENS:DATA[:TEL]:ATM:SCAN:AGIN?

:SENSe:DATA[:TELecom]:ATM:SCAN:AGINg? provides the current setting of the aging function of the scanner.

Example :SENSe:DATA[:TELecom]:ATM:SCAN:AGINg?
Response: 1 if the aging function of the scanner is switched on.

:SENS:DATA[:TEL]:ATM:SCAN:NINT

:SENSe:DATA[:TELecom]:ATM:SCAN:NINTerface <type> determines interpretation of the VPI in the cell header by the scanner.

Parameter

Name	Type	Range	Default
type	discrete	UNI | NNI	UNI

Comments
<type> = network interface
UNI: user network interface
NNI: network node interface

Example :SENSe:DATA[:TELecom]:ATM:SCAN:INTerface UNI
specifies that the ATM cells are to be interpreted as UNI cells during the scan.

:SENS:DATA[:TEL]:ATM:SCAN:NINT?

:SENSe:DATA[:TELecom]:ATM:SCAN:NINTerface? provides the interpretation form of the ATM cells during the scan procedure.

Example :SENSe:DATA[:TELecom]:ATM:SCAN:INTerface?
Response: UNI if the ATM cells are interpreted as UNI cells.

:SENS:DATA[:TEL]:ATM:SCAN[:STAT]

:SENSe:DATA[:TELecom]:ATM:SCAN[:STATe] <state> starts or stops sampling of ATM cells in the scanner.

Parameter

Name	Type	Range	Default
state	boolean	OFF | ON | 0 | 1	OFF

Dependencies The channel explorer <state> cannot be switched to ON:

- if :SENS:DATA[:TEL]:ATM:CRAT is 0.0
- if a measurement is under way
- if :SOUR:DATA[:TEL]:ATM:GEN[:STAT] is ON
- if :SENS:DATA[:TEL]:ATM:O191M:STAT is ON

Comments <state> = switch scanner function
ON | 1: on
OFF | 0: off

Example :SENSe:DATA[:TELecom]:ATM:SCAN[:STATe] OFF
stops the scanner.

Related commands :SOUR:DATA[:TEL]:ATM:GEN[:STAT] on page R-93
:SENS:DATA[:TEL]:ATM:O191M:STAT on page R-115

:SENS:DATA[:TEL]:ATM:SCAN[:STAT]?

:SENSe:DATA[:TELecom]:ATM:SCAN[:STATe]? provides the status of the scanner.

Example :SENSe:DATA[:TELecom]:ATM:SCAN[:STATe]?
Response: 0 if the scanner is stopped.

:SENS:DATA[:TEL]:ATM:SCAN:TYPE

:SENSe:DATA[:TELecom]:ATM:SCAN:TYPE <type> determines the scanner search type.

Parameter

Name	Type	Range	Default
type	discrete	ACTivity | TROuble	ACT

Comments

<type> = search type
ACTivity: activity scan
TROuble: trouble scan

Example :SENSe:DATA[:TELecom]:ATM:SCAN:TYPE TRO sets search type TROuble.

Related commands :SENS:DATA[:TEL]:ATM:SCAN:AAL[:STAT] on page R-115

:SENS:DATA[:TEL]:ATM:SCAN:TYPE?

:SENSe:DATA[:TELecom]:ATM:SCAN:TYPE? provides the current scanner search type.

Example :SENSe:DATA[:TELecom]:ATM:SCAN:TYPE?
Response: TRO if search type TROuble is set.

[:SENS]:FUNC:OFF

[:SENSe]:FUNCtion:OFF <id>{[, <id>]}* deletes one or more result elements from the list of results to be determined.

Parameter — For the entire list of results see Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121.

Dependencies — none

Example — :COUN:ATM:CHAN2:NSEC
NSEC (not connected seconds) is determined in test channel 2.

Related commands — [:SENS]:DATA:FIN? on page R-98
[:SENS]:FUNC:OFF:ALL on page R-119
[:SENS]:FUNC[:ON] on page R-120

[:SENS]:FUNC:OFF:ALL

[:SENSe]:FUNCtion:OFF:ALL deletes all result elements from the list of results to be determined.

Parameter — none

Dependencies — none

Comments — There is no query for this command.

Example — :FUNC:OFF:ALL deletes the entire list.

Related commands — [:SENS]:DATA:FIN? on page R-98
[:SENS]:FUNC:OFF on page R-119
[:SENS]:FUNC[:ON] on page R-120

[:SENS]:FUNC[:ON]

[:SENSe]:FUNCtion[:ON] <id>{[, <id>]}* specifies the list of results to be determined.

Parameter

For the entire list of results, see Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121.

Name	Type	Range	Default
id	string	e.g. “ECO:ATM:PHYS” for ...	no result selected

Dependencies

Only results previously activated with this command can be read by [:SENS]:DATA:FIN? or [:SENS]:DATA:ACT?
(except results continuously taken).

Comments

The list of results to be determined can be very long (parameters separated by a blank). The complete list does not have to be specified in a single command; several successive commands can be used.
The results can then be read with [:SENS]:DATA:FIN? or [:SENS]:DATA:ACT?.

Example

:FUNC “ECO:ATM:LCDS”,“ECO:ATM:PHYS”
LCDS and PHYS are measured.

Related commands

[:SENS]:DATA:ACT? on page R-97
[:SENS]:DATA:FIN? on page R-98
[:SENS]:FUNC:OFF on page R-119
[:SENS]:FUNC:OFF:ALL on page R-119

[:SENS]:FUNC[:ON]?

[:SENSe]:FUNCtion[:ON]? provides the list of all currently selected interval end results.

Example

:FUNC?
Response: “ECO:ATM:LCDS”,“ECO:ATM:PHYS”

Result IDs for :SENS:DATA and :SENS:FUNC commands

The result IDs listed below are used to identify the requested results for the following commands:
[:SENS]:FUNC[:ON] on page R-120
[:SENS]:FUNC:OFF on page R-119
[:SENS]:DATA:FIN? on page R-98
[:SENS]:DATA:ACT? on page R-97

Note: The ID strings listed below show the ID names in a long form. This simplifies understanding of the command syntax.
The device only accepts SCPI **short form upper case (capital letter)** commands to speed up the response time of the device (e.g. “CSTATUS” is not accepted, use “CST” instead).
The SCPI short form is indicated by the capital letters in the commands below.

Result memory ID strings

ID string	Response code	Response type	Response description	Units
ATIMe	20	long	Actual time of day in milliseconds since 1/1/1970	ms
ETIMe	21	long	Milliseconds since measurement start	ms
STIMe	22	long	Starting time of measurement in milliseconds since 1/1/1970	ms

Table R-10 ID strings for general results

ID string	Response code	Response type	Response description	Units
CSTatus	100	bit field	Current status as a bit field	none
CSTatus:ATM1	10100	bit field	Current status of ATM module as a bit field	none
CSTatus:ATM1:CHANnel1 CSTatus:ATM1:CHANnel2 CSTatus:ATM1:CHANnel3 CSTatus:ATM1:CHANnel4	11001, 12001, 13001, 14001	bit field	Current status of ATM channel as a bit field	none
HSTatus	101	bit field	History status analogous to current status (CSTatus)	none
HSTatus:ATM1	10101	bit field	History status analogous to current status (CSTatus:ATM)	none
HSTatus:ATM1:CHANnel1 HSTatus:ATM1:CHANnel2 HSTatus:ATM1:CHANnel3 HSTatus:ATM1:CHANnel4	11001, 12001, 13001, 14001	bit field	History status analogous to current status (CSTatus:ATM1:CHANnel<i>)	none

Table R-11 ID strings for other results

ID string	Response code	Response type	Response description	Units
ECOunt:ATM1:HCORrected	10000	count	Correctable header errors	none
ECOunt:ATM1:HUNCorrected	10010	count	Uncorrectable header errors	none
ECOunt:ATM1:CHANnel1 :ERRCells ECOunt:ATM1:CHANnel2 :ERRCells ECOunt:ATM1:CHANnel3 :ERRCells ECOunt:ATM1:CHANnel4 :ERRCells	11150, 12150, 13150, 14150	count	Errored cells	none
ECOunt:ATM1:CHANnel<i> :ERRCells:INTermediate	11152, 12152,...	count	Errored cells in intermediate interval	none
ECOunt:ATM1:CHANnel<i> :LOSCells	11160, 12160,...	count	Lost cells	none
ECOunt:ATM1:CHANnel<i> :LOSCells:INTermediate	11162, 12162,...	count	Lost cells in intermediate interval	none
ECOunt:ATM1:CHANnel<i> :MISCells	11170, 12170,...	count	Misinserted cells	none
ECOunt:ATM1:CHANnel<i> :MISCells:INTermediate	11172, 12172,...	count	Misinserted cells in intermediate interval	none
ECOunt:ATM1:CHANnel<i> :SECB	11180, 12180,...	count	Severely errored cell blocks	none
ECOunt:ATM1:CHANnel<i> :SECB:INTermediate	11190, 12190,...	count	Severely errored cell blocks in intermediate interval	none
ERATio:ATM1:CHANnel<i> :ERRCells	11151, 12151,...	ratio	Cell error ratio = ERAT:ATM1:CHAN<i>:ERRC/ COUN:ATM1:CHAN<i>:FCEL	none
ERATio:ATM1:CHANnel<i> :ERRCells:INTermediate	11153, 12153,...	ratio	Cell error ratio in intermediate interval = ERAT:ATM1:CHAN<i>:ERRC:INT/ COUN:ATM1:CHAN<i>:FCEL:INT	none
ERATio:ATM1:CHANnel<i> :LOSCells	11161, 12161,...	ratio	Cell loss ratio = ERAT:ATM1:CHAN<i>:LOSC/ COUN:ATM1:CHAN<i>:FCEL	none
ERATio:ATM1:CHANnel<i> :LOSCells:INTermediate	11163, 12163,...	ratio	Cell loss ratio in intermediate interval = ERAT:ATM1:CHAN<i>:LOSC:INT/ COUN:ATM1:CHAN<i>:FCEL:INT	none
ERATio:ATM1:CHANnel<i> :MISCells	11171, 12171,...	rate	Cell misinsertion rate = ERAT:ATM1:CHAN<i>:MISC over time	none
ERATio:ATM1:CHANnel<i>:MIS Cells :INTermediate	11173, 12173,...	rate	Cell misinsertion rate in intermediate interval = ERAT:ATM1:CHAN<i>:MISC over time	none

Table R-12 ID strings for the signaling results

ID string	Response code	Response type	Response description	Units
ERATio:ATM1:CHANnel<i> :SECB	11181, 12181,...	ratio	Severely errored cell block ratio = ERAT:ATM1:CHAN<i>:SECB/ measuring time	none
ERATio:ATM1:CHANnel<i> :SECB:INTermediate	11191, 12191,...	ratio	Severely errored cell block ratio in intermediate interval = ERAT:ATM1:CHAN<i>:SECB/ intermediate interval	none
COUNt:ATM1:LCDSeconds	10020	count	Loss of cell delineation defect seconds	s
COUNt:ATM1:PHYSeconds	10021	count	Physical layer defect seconds	s
COUNt:ATM1:RECeiver :BANDwidth:INTermediate	10030	count	Total RX bandwidth intermediate interval	cps cells/s
COUNt:ATM1:RECeiver :LUTilisation:INTermediate	10031	count	Total RX link utilization in intermediate interval	%
COUNt:ATM1:TRANsmitter :BANDwidth:INTermediate	10040	count	Total TX bandwidth in intermediate interval	cps cells/s
COUNt:ATM1:CHANnel1:FCELls COUNt:ATM1:CHANnel2:FCELls COUNt:ATM1:CHANnel3:FCELls COUNt:ATM1:CHANnel4:FCELls	11120, 12120, 13120, 14120	count	Filtered cells (test channel)	cells
COUNt:ATM1:CHANnel<i> :CAISseconds	11121, 12121,...	count	VC-AIS defect seconds	s
COUNt:ATM1:CHANnel<i> :CD:MAXimum	11130, 12130,...	count	Maximum cell delay	µs
COUNt:ATM1:CHANnel<i> :CD:MAXimum:INTermediate	11131, 12131,...	count	Maximum cell delay in intermediate interval	µs
COUNt:ATM1:CHANnel<i> :CD:MEAN	11132, 12132,...	count	Mean cell delay	µs
COUNt:ATM1:CHANnel<i> :CD:MEAN:INTermediate	11133, 12133,...	count	Mean cell delay in intermediate interval	µs
COUNt:ATM1:CHANnel<i> :CD:MINimum	11134, 12134,...	count	Minimum cell delay	µs
COUNt:ATM1:CHANnel<i> :CD:MINimum:INTermediate	11135, 12135,...	count	Minimum cell delay in intermediate interval	µs
COUNt:ATM1:CHANnel<i> :CDV	11136, 12136,...	count	Cell delay variation	µs
COUNt:ATM1:CHANnel<i> :CDV:INTermediate	11137, 12137,...	count	Cell delay variation in intermediate interval	µs
COUNt:ATM1:CHANnel<i> :CRDIseconds	11140, 12140,...	count	VC-RDI defect seconds	s
COUNt:ATM1:CHANnel<i> :LPACseconds	11141, 12141,...	count	Loss of performance assessment capability	s

Table R-12 ID strings for the signaling results *(continued)*

ID string	Response code	Response type	Response description	Units
COUNt:ATM1:CHANnel<i> :NCSseconds	11142, 12142,...	count	Not connected seconds	s
COUNt:ATM1:CHANnel<i> :PAISseconds	11143, 12143,...	count	VP-AIS defect seconds	s
COUNt:ATM1:CHANnel<i> :PRDIseconds	11144, 12144,...	count	VP-RDI defect seconds	s
CSTatus:SIGN1:CHANnel<i> :CONNection	11010, 12010,...	bit field	Status change for signaling	none
CSTatus:SIGN1:CHANnel<i> :BACKward:CONTract :TYPE:TRAFfic	11011, 12011,...	int	Traffic type in backward channel	none
CSTatus:SIGN1:CHANnel<i> :BACKward:CONTract :TYPE:CONFdef	11012, 12012,...	int	Conformance definition in backward channel	none
CSTatus:SIGN1:CHANnel<i> :BACKward:CONTract :MEAN:SCR	11013, 12013,...	long	Sustained cell rate in backward channel	cps cells/s
SEVent:SIGN1:CHANnel<i> :BACKward:CONTract :MEAN:MBS	11014, 12014,...	long	Maximum burst size in backward channel	cells
CSTatus:SIGN1:CHANnel<i> :BACKward:CONTract :MEAN:CDVT	11015, 12015,...	long	Cell delay variation tolerance in backward channel (mean)	µs
CSTatus:SIGN1:CHANnel<i> :BACKward:CONTract :PEAK:PCR	11016, 12016,...	long	Peak cell rate in backward channel	cps cells/s
CSTatus:SIGN1:CHANnel<i> :BACKward:CONTract :PEAK:CDVT	11017, 12017,...	long	Cell delay variation tolerance in backward channel (peak)	µs
CSTatus:SIGN1:CHANnel<i> :BACKward:SOURce:TYPE	11018, 12018,...	int	Source type in backward channel	none
CSTatus:SIGN1:CHANnel<i> :BACKward:SNUMber:TYPE	11020, 12020,...	int	Address type of called station	none
CSTatus:SIGN1:CHANnel<i> :BACKward:SNUMber:PLAN	11021, 12021,...	int	Address plan of called station	none
CSTatus:SIGN1:CHANnel<i> :BACKward:SNUMber:ADDR	11022, 12022,...	string	Connection number of called station (address)	none
CSTatus:SIGN1:CHANnel<i> :BACKward:SUBaddr:TYPE	11023, 12023,...	int	Subaddress of called station (type)	none
CSTatus:SIGN1:CHANnel<i> :BACKward:SUBaddr:ADDR	11024, 12024,...	string	Subaddress of called station (address)	none
CSTatus:SIGN1:CHANnel<i> :BACKward:SNUMber:VCI	11025, 12025,...	long	VCI in backward channel	none

Table R-12 ID strings for the signaling results *(continued)*

ID string	Response code	Response type	Response description	Units
CSTatus:SIGN1:CHANnel<i> :BACKward:SNUMber:VPI	11026, 12026,...	int	VPI in backward channel	none
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract :TYPE:TRAFfic	11051, 12051,...	int	Traffic type in forward channel	none
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract :TYPE:CONFdef	11052, 12052,...	int	Conformance definition in forward channel	none
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract:MEAN:SCR	11053, 12053,...	long	Sustained cell rate in forward channel	cps cells/s
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract :MEAN:MBS	11054, 12054,...	long	Maximum burst size in forward channel	cells
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract :MEAN:CDVT	11055, 12055,...	long	Cell delay variation tolerance in forward channel (mean)	µs
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract:PEAK:PCR	11056, 12056,...	long	Peak cell rate in forward channel	cps cells/s
CSTatus:SIGN1:CHANnel<i> :FORward:CONTract :PEAK:CDVT	11057, 12057,...	long	Cell delay variation tolerance in forward channel (peak)	µs
CSTatus:SIGN1:CHANnel<i> :FORward:SOURce:TYPE	11058, 12058,...	int	Source type in forward channel	none
CSTatus:SIGN1:CHANnel<i> :FORward:SNUMber:TYPE	11060, 12060,...	int	Station number of calling station (type)	none
CSTatus:SIGN1:CHANnel<i> :FORward:SNUMber:PLAN	11061, 12061,...	int	Station number of calling station (plan)	none
CSTatus:SIGN1:CHANnel<i> :FORward:SNUMber:ADDR	11062, 12062,...	string	Station number of calling station (device address)	none
CSTatus:SIGN1:CHANnel<i> :FORward:SUBaddr:TYPE	11063, 12063,...	int	Subaddress of calling station (type)	none
CSTatus:SIGN1:CHANnel<i> :FORward:SUBaddr:ADDR	11064, 12064,...	string	Subaddress of calling station (address)	none
CSTatus:SIGN1:CHANnel<i> :FORward:SNUMber:VCI	11065, 12065,...	long	VCI in forward channel	none
CSTatus:SIGN1:CHANnel<i> :FORward:SNUMber:VPI	11066, 12066,...	int	VPI in forward channel	none
Response codes of ATM channels are increased by 10000 (e.g. 11065 for channel1, 12065 for channel2, 13065 for channel3 and 14065 for channel4).				

Table R-12 ID strings for the signaling results *(continued)*

Alarm bit field “SEVent:SIGN:CHANnel<i>”

Bit position	Alarm name
0 (LSB)	Power Fail
1 to 31	Reserved

Table R-13 Alarm field “SEVent:SIGNaling:CHANnel<i>”

[:SENS]:SWE

[:SENSe]:SWEep commands determine the type and duration of the measurement to be performed. Measurements are started using the Trigger 1 subsystem on page R-43 ff.

[:SENS]:SWE:ITIM

[:SENSe]:SWEep:ITIMe <duration><suffix> determines the duration of the intermediate measurement intervals (all results ending in ":INTermediate" --> see Result IDs for :SENS:DATA and :SENS:FUNC commands on page R-121).

Parameter

Name	Type	Range	Default
duration	numeric	1 - 60	10
suffix	discrete	[s] | min	s

Dependencies The intermediate interval duration must be less than or equal to the measurement interval (see also [:SENS]:SWE:TIME on page R-128).

Comments <suffix> = s seconds (standard)
<suffix> = min minutes
Intermediate intervals can range from 1 second to 60 minutes.

Example :SWE:ITIM 1 min
Intermediate measurement interval of 1 minute.
:SWE:ITIM 30
Intermediate measurement interval of 30 seconds.

Related commands [:SENS]:SWE:TIME on page R-128

[:SENS]:SWE:ITIM?

[:SENSe]:SWEep:ITIMe? provides the current setting for the interval duration for intermediate results in seconds.

Example :SWE:ITIM?
Response: 180 180 seconds measurement interval duration (= 3 minutes).

[:SENS]:SWE:TIME

[:SENSe]:SWEep:TIME <duration><suffix> determines the duration of a measurement.

Parameter

Name	Type	Range	Default
duration	numeric	1 - 99	1
suffix	discrete	[s] | min | hr | d	hr

Dependencies none

Comments
<suffix> = s seconds (standard)
<suffix> = min minutes
<suffix> = hr hours
<suffix> = d days
Measurement intervals can range from 1 second to 99 days.

Example :SWE:TIME1d measurement interval of 1 day

Related commands see TRIGGER subsystem on page R-43

[:SENS]:SWE:TIME?

[:SENSe]:SWEep:TIME? provides the current setting for the measurement duration in seconds.

Example :SWE:TIME?
Response: 180 180 seconds measurement interval duration (= 3 minutes).