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ASA 312/NAA I SCPI COMMAND REFERENCE GUIDE

OCTOBER 2000

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Technical Support

Technical Support is available by calling toll free **1.877.929.HELP (4357)** or **1.800.548.9283** 24 hours/day 7 days/week.

Return Shipping Instructions

If it is necessary to return the unit, obtain a **Return Material Authorization (RMA) number** and **Return Shipping Address** by contacting Technical Support between 8:30 a.m. and 6:30 p.m. EST, Monday through Friday.

Please enclose a letter that briefly describes the reason for returning the unit and include the following information:

- Unit Serial Number
- Customer Name and Shipping Address
- Customer Contact Name and Telephone Number
- Secondary Customer Contact Name and Telephone Number
- Customer Supplied Purchase Order Number (if applicable)

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If the original shipping container (box) is available, place the unit (and letter that describes the reason for the return) into the canvas carry bag, and pack it into the original Digital Lightwave, Inc. shipping container. **Do not include personal items such as jumper cords or connectors. Digital Lightwave, Inc. will not be responsible for these items.** Use the original foam inserts to protect all six sides of the unit.

Securely seal the shipping container, and mark **FRAGILE** on the container to ensure careful handling.

Include the **RMA number** on the outside of the shipping container.

If the original shipping container is not available, pack the unit (and letter that describes the reason for the return) into the canvas carry bag, and use the following general instructions to repack the unit using commercially available materials:

- Use a strong shipping container, similar to the original ASA 312 shipping box. Verify that the substitute container is rated at **350 lbs. per square inch** pressure durable.
- Make sure that the unit is satisfactorily protected by using a layer of ESD Protected short absorbing foam material. The foam padding must be 3- to 4-inches in thickness (70- to 100-mm) and applied to all six sides of the unit to provide adequate protection. Make sure that the canvas bag and unit cannot move or shift within the container.
- Securely seal the shipping container, and mark **FRAGILE** on the container to ensure careful handling.
- Include the **RMA number** on the outside of the shipping container.

Contact Technical Support for the Repair Department's Return Shipping Address.

When service is complete, your unit will be returned to you postage paid if the shipment is within the United States. You are responsible for paying all shipping charges, duties, taxes, and other charges for products returned to Digital Lightwave, Inc. from any location within or outside of the United States.

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GENERAL SAFETY GUIDELINES

The following safety precautions are provided to avoid injury and prevent damage to this product or any products connected to it during normal operation. Only qualified maintenance personnel should perform service procedures.

Use Proper Power Cord

To avoid fire hazard, use only the power cord specified for this instrument.

Avoid Electric Overload

This unit is designed to be powered from 90–132 and 180–260 VAC, 47-63 Hz, 60 watts. To avoid electric shock, fire hazard, or damage to the instrument, do not apply a higher voltage.

Ground the Instrument

The ASA 312 is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the instrument, ensure that the product is properly grounded.

Do Not Operate in Hazardous Conditions

To avoid injury or fire hazard, do not operate this instrument in wet, damp, or other hazardous condition. Do not operate this instrument in an explosive atmosphere.

Eye Protection

There is the potential danger from the laser light source and certain precautions should be followed. Users should never stare into unterminated connectors or broken fibers. In addition, fiber cables and interfaces should always be handled as if they were emitting laser light. Always leave protective covers on optical connectors to prevent damage and prevent laser emissions.

CAUTION

Use of controls or adjustments or procedures other than those specified herein may result in hazardous radiation exposure. ◄

Replacing the Battery

The ASA 312 uses a lithium battery located in the service access area not accessible to customers. To avoid damaging the unit, do not under any circumstances attempt to replace the lithium battery. Return the unit to Digital Lightwave, Inc. for battery replacement.

WARNING

Danger of explosion exists if the battery is replaced incorrectly. Do not, under any circumstances, attempt to replace the lithium battery. ◄

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1 Introducing SCPI Commands

Overview

The ASA 312 and NAA I units support automated programming and remote control using the **Standard Commands for Programmable Instruments** (SCPI) protocol. This protocol consists of standard and extended SCPI commands which are listed in this reference guide.

SCPI commands can be issued to the unit over a variety of hardware interfaces such as GPIB, RS-232 modem, direct connection, and PC Card modem, and software interfaces such as Ethernet and internal text files.

This reference guide lists standard and extended SCPI commands, error codes and register definitions supported by the ASA 312 and NAA I units.

SCPI Command Menu Hierarchy

The following is a hierarchal view of the SCPI command menu.

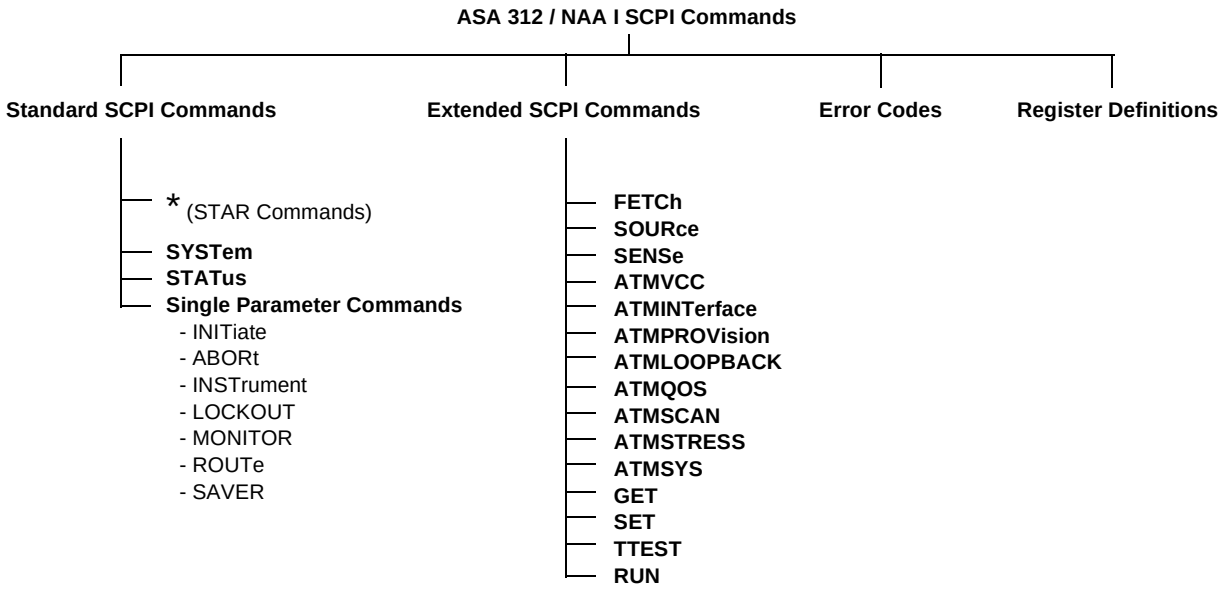


Figure 1-1. SCPI Command Menu Hierarchy

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Configuring the ASA 312 for SCPI Command Mode

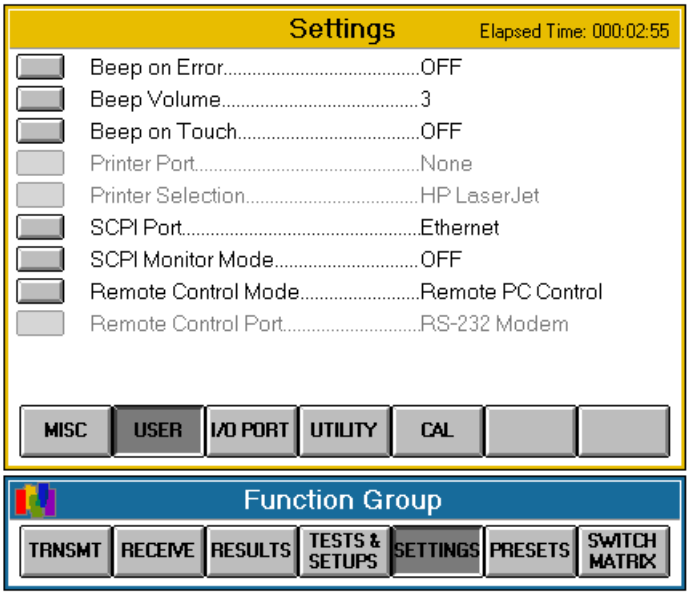
Before you can issue SCPI commands to the ASA 312, you must first decide on a hardware or software interface to use, and then configure the ASA 312 for that interface.

The following procedures describe how to configure the ASA 312 for SCPI Command mode.

1. From any of the four protocol processors, press the Settings button located in the Function Group button row.



2. Press the User button.



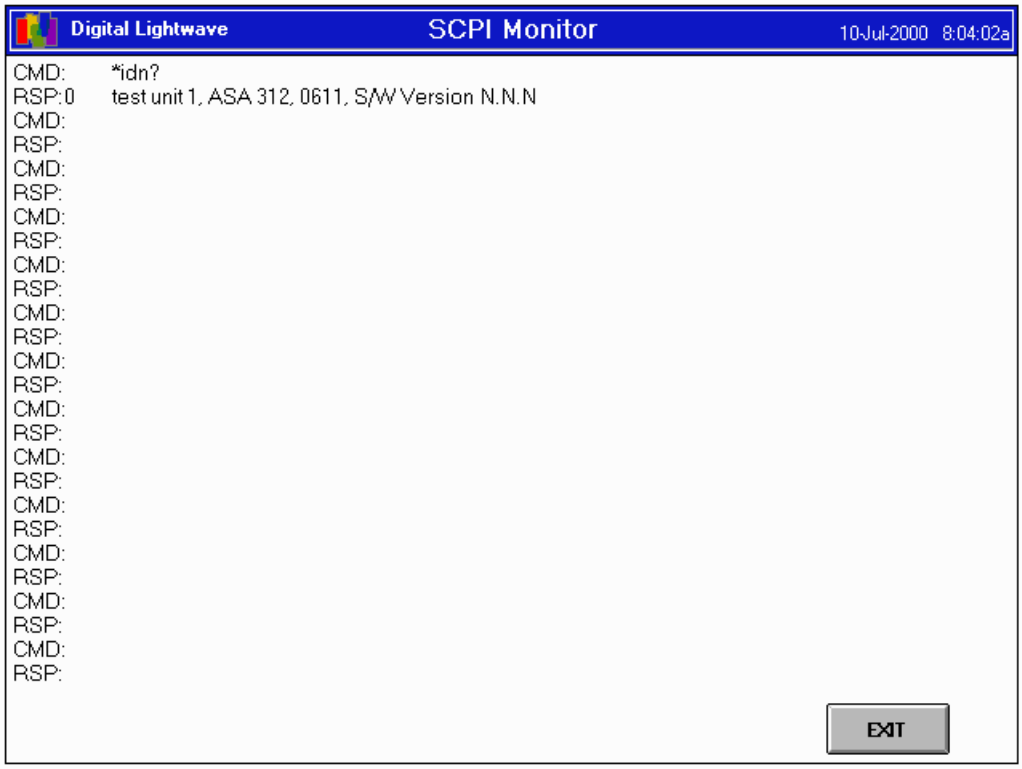
   The User commands appear.

3. Press the SCPI Port button.

   The SCPI Port options appear. Select your connection port method.

4. Press the SCPI Monitor Mode button (optional).

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The SCPI Monitor displays on the ASA 312 touch screen. The monitor allows you to view both commands issued to and responses returned from the ASA 312.

5. Verify connectivity by sending the *IDN? command (Identification) to the ASA 312. This command queries the ASA 312 for its identification sequence:

   Type: **`*IDN?`**

   Press: Enter

   The following information appears:

   - Licensed user
   - Model number
   - Serial number
   - Software version number

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Long and Short SCPI Command Formats

SCPI commands for the ASA 312 are not case sensitive and can be entered using all upper-case characters, all lower-case characters, or a mixture of both.

SCPI commands can be issued using either the long-character format or the short-character format. In this reference guide:

- Upper-case characters indicate the minimum number of characters required for a successful command.
- Lower-case characters are optional.
- Colons (:) are used to separate command parameters.

The following examples show how the SYSTem:VERSion query command is issued in both long-character and short-character formats.

To enter the **long-character** format of this command, type:

SYSTEM:VERSION?

The response `SCPI 1995.0` appears.

The same command can be entered using any of the following **short-character** formats:

SYST:VERS?
SYST:VERSI?
SYST:VERSIO?
SYST:VERSION?
SYSTEM:VERS?
SYSTEM:VERSI?
SYSTEM:VERSIO?

Query and Set SCPI Commands

A SCPI command has two basic functions. It can query (or interrogate) the test unit for the current value of the issued SCPI command. There are two basic types of SCPI commands: Query and Set. A Query command interrogates the unit for the current value of issued SCPI commands. It is terminated with a question mark (?) and does not require a colon after the last parameter.

For example, to query the ASA 312 for the current selected protocol processor, type:

INST?

A Set command changes a commands value. The new command value is appended to the end of the command string. For example, to change the ASA 312 to the DS1 protocol processor, type:

INST:DS1

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2 Standard SCPI Commands

Overview

The ASA 312 supports automated programming and remote control using the Standard Commands for Programmable Instruments (SCPI) protocol. This protocol consists of standard and extended SCPI commands which are listed in this reference guide. SCPI commands can be issued over a variety of hardware interfaces, such as GPIB, RS-232 modem, direct connection, and PC Card modem, and software interfaces, such as Ethernet and internal text file.

This chapter lists the Standard SCPI commands supported by the ASA 312 and NAA I test units.

Standard SCPI Commands

These commands are from the Standard Commands for Programmable Instruments (SCPI) standard. SCPI commands for the ASA 312 are not case sensitive, therefore, both upper and lower cases can be used for the short version of a command.

For example, the System Error Query command can be sent to the register queue by typing any of the following formats:

SYSTEM:ERROR?

SYST:ERR?

SYST:ERROR?

SYSTEM:ERRO?

Integers for SCPI commands can be entered in hexadecimal using the #H prefix. For example,

Type: ATMVCC:TXPAT:USER #HF

"STAR" Commands

The "Star" Commands are standard SCPI commands that are used to set or query a device's Status Byte Register.

The following commands are supported by the ASA 312:

"Star" Command	Description
*CLS (Protocol supported: All protocols)	Clear Clears the Event register in the Status Byte. The Status Byte is Bit 6 of the Status Register.

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"Star" Command	Description
*ESR? (Protocol supported: All protocols)	Standard Event Status Register. Queries the Standard Event Status Register. Uses the immediate text output queue. Refer to Chapter 5, *Register Definitions* for a list of *ESR bits.
*ESE:*X* (Protocol supported: All protocols)	Standard Event Status Enable Register. Sets the value of the Standard Event Status Register. Refer to Chapter 5, *Register Definitions* for a list of *ESR bits.
*IDN? (Protocol supported: All protocols)	Identification Sequence. Queries the IEEE standard identification sequence of the instrument. Each field, in order, is: Company Name Model Number Serial Number ASA 312 Software Version Number
*OPC? (Protocol supported: All protocols)	Operation Complete Query. Queries the OPC event bit.
*OPC (Protocol supported: All protocols)	Operation Complete. Sets the OPC event bit in the Event Status Register (ESR).
* RST (Protocol supported: All protocols)	Reset. Resets the unit and returns several ASA 312 commands and functions to a specific default state.
*SRE? (Protocol supported: All protocols)	Service Request Enable Register Query. Queries the value of the Service Request Event Register (SRE).
*SRE:*X* (Protocol supported: All protocols)	Service Request Enable Register. Sets the value of the SRE Register. X is a decimal value that represents an 8-bit binary value.
*STB? (Protocol supported: All protocols)	Status Byte Register Query. Queries the Status Byte Register. The contents of the Status Byte Register appear as a single numeric response that ranges from 0 to 255.
*TST? (Protocol supported: All protocols)	Self Test Query. Starts an internal self test and displays the self-test's state.
*WAI (Protocol supported: All protocols)	Wait to Continue. Waits for an OPC command.

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SYSTem Branch

The System Branch commands allow you to query and set basic system items such as the time and date. The following is a list of supported System Branch commands.

SYSTem Command	Description
SYSTem:COMMunicate:ETHERnet:ADDRess? (Protocol supported: All protocols)	Queries the system for the value of the IP Address command.
SYSTem:COMMunicate:ETHERnet:ADDRess: *X.X.X.X* (Protocol supported: All protocols)	Sets the IP Address for the Ethernet function. X represents the IP Address; for example: 100.143.30.2
SYSTem:COMMunicate:ETHERnet:DOMAIN? (Protocol supported: All protocols)	Queries the value of the Domain Name command. This command is valid for the DS1, DS3, SONET, and ATM protocol processors.
SYSTem:COMMunicate:ETHERnet:DOMAIN:*X* (Protocol supported: All protocols)	Sets the Domain Name for the Ethernet function. X represents the Domain Name; for example: lightwave.com
SYSTem:COMMunicate:ETHERnet:HOSTname? (Protocol supported: All protocols)	Queries the value of the Host Name command.
SYSTem:COMMunicate:ETHERnet:HOSTname:*X* (Protocol supported: All protocols)	Sets the Host Name for the Ethernet function. X represents the Host Name; for example: asa312
SYSTem:COMMunicate:ETHERnet:NAMEserver: TYPE? (Protocol supported: All protocols)	Queries the value of the Name Server Type command.
SYSTem:COMMunicate:ETHERnet:NAMEserver: TYPE:*X* (Protocol supported: All protocols)	Sets the Name Server Type for the Ethernet function. X is: **DNS** — Domain Name System **NIS** — Network Information Service
SYSTem:COMMunicate:ETHERnet:NAMEserver: ADDR*X*? (Protocol supported: All protocols)	Queries the value of the Name Server Address *X* command, X is: **1** — Name Server Address 1 **2** — Name Server Address 2 **3** — Name Server Address 3
SYSTem:COMMunicate:ETHERnet:NAMEserver: ADDR*X:Y* (Protocol supported: All protocols)	Sets the value of the Name Server Address *X* command. X is: **1** — Name Server Address 1 **2** — Name Server Address 2 **3** — Name Server Address 3 Y is: the Name Server Address; for example 10.10.10.10
SYSTem:COMMunicate:ETHERnet:ROUTer? (Protocol supported: All protocols)	Queries the value of the Router command.
SYSTem:COMMunicate:ETHERnet:ROUTer:*X* (Protocol supported: All protocols)	Sets the Router address for the Ethernet function. X represents the Router address; for example: 255.255.255.1

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SYSTem Command	Description
SYSTem:COMMunicate:ETHERnet:SUBnet? (Protocol supported: All protocols)	Queries the value of the Subnet Mask command.
SYSTem:COMMunicate:ETHERnet:SUBnet:*X* (Protocol supported: All protocols)	Sets the Subnet address for the Ethernet function. X represents the Subnet address; for example: 255.255.255.2
SYSTem:COMMunicate:GPIB:ADDRess? (Protocol supported: All protocols)	Queries the value of the Primary Address command for the GPIB function.
SYSTem:COMMunicate:GPIB:ADDRess:*X* (Protocol supported: All protocols)	Sets the Primary Address for the GPIB function. X is a value from **0** to **31**. The default address is 10.
SYSTem:COMMunicate:PCMCIAmodem:BAUD? (Protocol supported: All protocols)	Queries the value of the Baud Rate command for the PCMCIA function.
SYSTem:COMMunicate:PCMCIAmodem:BAUD:*X* (Protocol supported: All protocols)	Sets the baud rate for the PCMCIA COM Port interface. X is: **9600** — 9.6 Kbps **4800** — 4.8 Kbps
SYSTem:COMMunicate:PCMCIAmodem:BITS? (Protocol supported: All protocols)	Queries the value of the Stop Bits parameter for the PCMCIA COM Port interface.
SYSTem:COMMunicate:PCMCIAmodem:BITS:*X* (Protocol supported: All protocols)	Sets the value of the Stop Bits parameter for the PCMCIA COM Port interface. X is: **8** — 8 data bits **7** — 7 data bits
SYSTem:COMMunicate:PCMCIAmodem:PARity? (Protocol supported: All protocols)	Queries the value of the Parity parameter for the PCMCIA COM Port interface.
SYSTem:COMMunicate:PCMCIAmodem:PARity:*X* (Protocol supported: All protocols)	Sets the value of the Parity parameter for the PCMCIA COM Port interface. X is: **NONE** — No parity **ODD** — Odd parity **EVEN** — Even parity
SYSTem:COMMunicate:PCMCIAmodem:SBITs? (Protocol supported: All protocols)	Queries the value of the Stop Bits parameter for the PCMCIA COM Port interface.
SYSTem:COMMunicate:PCMCIAmodem:SBITs:*X* (Protocol supported: All protocols)	Sets the value of the Stop Bits parameter for the PCMCIA COM Port interface. X is: **1** — 1 stop bit **2** — 2 stop bits
SYSTem:COMMunicate:SERial:BAUD? (Protocol supported: All protocols)	Queries the value of the Baud Rate command for the Serial Port function.

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SYSTem Command	Description
SYSTem:COMMunicate:SERial:BAUD:*X* (Protocol supported: All protocols)	Sets the baud rate for the Serial Port interface. X is: **115200** — 115.2 Kbps **57600** — 57.6 Kbps **38400** — 38.4 Kbps **28800** — 28.8 Kbps **19200** — 19.2 Kbps **14400** — 14.4 Kbps **9600** — 9.6 Kbps **4800** — 4.8 Kbps **2400** — 2.4 Kbps **1200** — 1.2 Kbps
SYSTem:COMMunicate:SERial:BITS? (Protocol supported: All protocols)	Queries the value of the Stop Bits parameter for the Serial Port interface.
SYSTem:COMMunicate:SERial:BITS:*X* (Protocol supported: All protocols)	Sets the value of the Stop Bits parameter for the Serial Port interface. X is: **8** — 8 data bits **7** — 7 data bits
SYSTem:COMMunicate:SERial:PARity? (Protocol supported: All protocols)	Queries the value of the Parity parameter for the Serial Port interface.
SYSTem:COMMunicate:SERial:PARity:*X* (Protocol supported: All protocols)	Sets the value of the Parity parameter for the Serial Port interface. X is: **NONE** — No parity **ODD** — Odd parity **EVEN** — Even parity
SYSTem:COMMunicate:SERial:SBITs? (Protocol supported: All protocols)	Queries the value of the Stop Bits parameter for the Serial Port interface.
SYSTem:COMMunicate:SERial:SBITs:*X* (Protocol supported: All protocols)	Sets the value of the Stop Bits parameter for the Serial Port interface. X is: **1** — 1 stop bit **2** — 2 stop bits
SYSTem:DATE? (Protocol supported: All protocols)	Queries the system for the current date.
SYSTem:DATE:*MM,DD,YYYY* (Protocol supported: All protocols)	Sets the system date. **MM** —two-digit month **DD** — two-digit day **YYYY** — four-digit year (four digits are required)
SYSTem:ENABLE1? (Protocol supported: DS1, E1)	Queries the ASA 312 or NAA I to determine if the DS1 protocol processor is enabled or if the E1 protocol processor is enabled.

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SYSTem Command	Description
SYSTem:ENABLE1:*X* (Protocol supported: DS1, E1)	Enables and restarts the selected protocol processor for either E1 mode or DS1 mode. **Note:** The DS1/E1 hardware must be installed in your unit to use this command X is: **E1** — Enables and restarts the E1 protocol processor. (The DS1 protocol processor is not available.) **DS1** — Enables and restarts the DS1 protocol processor. (The E1 protocol processor is not available.)
SYSTem:ERRor? and SYSTem:ERRor:CODE? and SYSTem:ERRor:CODE:NEXT? and SYSTem:ERRor:NEXT? (Protocol supported: All protocols)	Queries the first error waiting in the Error queue. This command also removes that error from the Error queue.
SYSTem:ERRor:CODE:LAST? (Protocol supported: All protocols)	Queries the last error waiting in the Error queue. This command also empties the Error queue.
SYSTem:ERRor:COUNt? (Protocol supported: All protocols)	Queries the number of errors waiting in the Error queue. The response is a value from **0** to **79**.
SYSTem:FILE:TRANSFER (Protocol supported: All protocols)	Configures the ASA 312 for File Transfer mode. The unit will not accept SCPI commands until File Transfer mode is disabled using the EXIT command. If SCPI commands are sent using an RS232 connection or Modem connection, then the >>> prompt appears.
SYSTem:PORT:FILEtransfer? (Protocol supported: All protocols)	Queries the unit for the value of the File Transfer Port command. The result indicates which communications port is used for file transfers.
SYSTem:PORT:FILEtransfer:*X* (Protocol supported: All protocols)	Sets the ASA 312 communications port used for file transfers and enables File Transfer mode. X is: **232DIRECT** — RS-232 Direct connection **232MODEM** — Modem connection **PCMCIA** — PC Card modem connection
SYSTem:PORT:PRINTer? (Protocol supported: All protocols)	Queries the value of the Printer Port command. This indicates which port (parallel or serial) is configured for an attached printer.
SYSTem:PORT:PRINTer:*X* (Protocol supported: All protocols)	Enables a specific port on the ASA 312 for use with an external printer. X is: **PARALLEL** — Enables the parallel port. **RS232** — Enables the RS-232 serial port. **NONE** — Disables printer port operation.
SYSTem:PORT:SCPI? (Protocol supported: All protocols)	Queries the value of the SCPI Port command. this indicates how the unit is configured to accept SCPI commands.

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SYSTem Command	Description
SYSTem:PORT:SCPI:*X* (Protocol supported: All protocols)	Enables a specific port on the ASA 312 as the SCPI command interface. **NOTE:** This command will disconnect the current connection to the unit. You must reconnect using the new port selected for the SCPI command interface. X is: **GPIB** — Uses the GPIB connector as the SCPI command interface. **232DIRECT** — Uses a direct RS-232 connection for the SCPI command interface. **232MODEM** — Uses a modem connection for the SCPI command interface. **PCMCIA** — Uses a PC Card modem for the SCPI command interface. **ETHERNET** — Uses the ETHERNET connector as the SCPI command interface. **NONE** — Disables the SCPI command interface.
SYSTem:PRINTertype? (Protocol supported: All protocols)	Queries the value of the Printer Selection command. This indicates if one of the pre-configured printers is set as the default printer.
SYSTem:PRINTertype:*X* (Protocol supported: All protocols)	Selects one of the pre-configured printers as the default printer. X is: **LASERJET** (supports HP LaserJet and HP DeskJet printers) **ASCII** (supports plain text printer or communications software programs) **THINKJET** (supports HP ThinkJet printer) **EPSON** (supports Epson FX printer) **PROPRINTER** **SEIKO** (supports Seike DPU-411 printer)
SYSTem:REBOOT (Protocol supported: All protocols)	Reboots the unit.
SYSTem:RESPonse:*X* (Protocol supported: All protocols)	Determines if SCPI commands echo a response. X is: **ALWAYS** — all SCPI commands to return a response (+0) or an error message (error#). **STANDARD** — SCPI commands do not return a response to a valid or incorrect SCPI command. (**Note:** Standard is the default setting.)

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SYSTem Command	Description
SYSTem:TIME? (Protocol supported: All protocols)	Queries the system for the current time.
SYSTem:TIME: *HH,MM,SS* (Protocol supported: All protocols)	Sets the system time. Enter the time using 24-hour, military time format. **HH** — two-digit hour **MM** — two-digit minute **SS** — two-digit second
SYSTem:VERSion? (Protocol supported: All protocols)	Queries the system for the SCPI version. The response is always 1995.0.

STATus Branch

The Status Branch commands allow you to query and set commands for functions in the OPERation and QUEStionable registers.

The following is a list of supported Status Branch commands. **The contents of these registers are described in Chapter 5, *Register Definitions*.**

STATus Command	Description
STATus:OPERation:CONDition? STATus:OPERation:EVENt? STATus:OPERation? (Protocol supported: All protocols)	Queries the standard SCPI **OPERation** Register. Refer to Chapter 5, *Register Definitions*, for a list of Operation Register bits. **Note:** The bits of the Operation register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:OPER:ENABle:*X* command.
STATus:OPERation:ENABle? (Protocol supported: All protocols)	Queries the value of the Operations register. If 0 is returned, the register's mask is disabled.
STATus:OPERation:ENABle:*X* (Protocol supported: All protocols)	Sets the Operation register. **Note:** To enable at least one bit in this register, X must be a value other than 0.
STATus:OPERation:TCON? STATus:OPERation:TELECOM? STATus:OPERation:TELECOM:EVENt? STATus:OPERation:TELECOM:CONDition? (Protocol supported: All protocols)	Queries the Telecom Configuration register. Refer to Chapter 5, *Register Definitions*, for a list of TCON Operation register bits. **Note:** The bits of the Telecom Configuration register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:OPERation:TELECOM:ENABle:*X* command.
STATus:OPERation:TELECOM:ENABle? (Protocol supported: All protocols)	Queries the value of the TCON Operation register. If 0 is returned, the register's mask is disabled.
STATus:OPERation:TELECOM:ENABle:*X* (Protocol supported: All protocols)	Sets the TCON Operation register. **Note:** To enable at least one bit in this register, X must be a value other than 0.

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STATus Command	Description
STATus:QUEStionable? STATus:QUEStionable:EVENt? STATus:QUEStionable:CONDition? (Protocol supported: All protocols)	Queries a latched version of the standard SCPI QUEStionable register. The register definition is the same as unlatched; latched bits are cleared when INIT command is sent. Refer to Chapter 5, *Register Definitions*, for a list of Questionable Register bits. **Note:** The bits of the Questionable register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:QUEStionable:ENABle:*X* command.
STATus:QUEStionable:ENABle? (Protocol supported: All protocols)	Queries the QUEStionable register mask. If 0 is returned, the register's mask is disabled.
STATus:QUEStionable:ENABle:*X* (Protocol supported: All protocols)	Sets the QUEStionable register mask. **Note:** To enable at least one bit in this register, X must be a value other than 0.
STATus:QUEStionable:ALARm1? STATus:QUEStionable:ALARm1:EVENt? STATus:QUEStionable:ALARm1:CONDition? (Protocol supported: DS1)	Queries a latched version of the ALARm1 register. The register definition is the same as unlatched; latched bits are cleared when INIT command is sent. The register definitions are listed in Chapter 5. **Note:** The bits of the Alarm 1 register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:QUEStionable:ALARm1:ENABle:*X* command.
STATus:QUEStionable:ALARm1:ENABle? (Protocol supported: DS1)	Queries the ALARm1 register mask state. If 0 is returned, the register's mask is disabled.
STATus:QUEStionable:ALARm1:ENABle:*X* (Protocol supported: DS1)	Sets the ALARm1 register mask. **Note:** To enable at least one bit in this register, X must be a value other than 0.
STATus:QUEStionable:ALARm2? STATus:QUEStionable:ALARm2:EVENt? STATus:QUEStionable:ALARm2:CONDition? (Protocol supported: DS3)	Queries a latched version of the ALARm2 register. The register definition is the same as unlatched; latched bits are cleared when INIT command is sent. The register definitions are listed in Chapter 5. **Note:** The bits of the Alarm 2 register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:QUEStionable:ALARm2:ENABle:*X* command.
STATus:QUEStionable:ALARm2:ENABle? (Protocol supported: DS3)	Queries the ALARm2 register. If 0 is returned, the register's mask is disabled.
STATus:QUEStionable:ALARm2:ENABle:*X* (Protocol supported: DS3)	Sets the ALARm2 register mask. **Note:** To enable at least one bit in this register, X must be a value other than 0.
STATus:QUEStionable:ALARm3? STATus:QUEStionable:ALARm3:EVENt? STATus:QUEStionable:ALARm3:CONDition? (Protocol supported: SONET)	Queries a latched version of the ALARm3 register. The register definition is the same as unlatched; latched bits are cleared when INIT command is sent. The register definitions are listed in Chapter 5. **Note:** The bits of the Alarm 3 register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:QUEStionable:ALARm3:ENABle:*X* command.

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STATus Command	Description
STATus:QUEStionable:ALARm3:ENABle? (Protocol supported: SONET)	Queries the ALARm3 register. If 0 is returned, the register's mask is disabled.
STATus:QUEStionable:ALARm3:ENABle:*X* (Protocol supported: SONET)	Sets the ALARm3 register mask. **Note:** To enable at least one bit in this register, X must be a value other than 0.
STATus:QUEStionable:ALARm4? STATus:QUEStionable:ALARm4:EVENt? STATus:QUEStionable:ALARm4:CONDition? (Protocol supported: ATM)	Queries a latched version of the ALARm4 register. The register definition is the same as unlatched; latched bits are cleared when INIT command is sent. The register definitions are listed in Chapter 5. **Note:** The bits of the Alarm 4 register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:QUEStionable:ALARm4:ENABle:*X* command.
STATus:QUEStionable:ALARm4:ENABle? (Protocol supported: ATM)	Queries the ALARm4 register. If 0 is returned, the register's mask is disabled.
STATus:QUEStionable:ALARm4:ENABle:*X* (Protocol supported: ATM)	Sets the ALARm4 register mask. **Note:** To enable at least one bit in this register, X must be a value other than 0.
STATus:QUEStionable:ALARm5? STATus:QUEStionable:ALARm5:EVENt? STATus:QUEStionable:ALARm5:CONDition? (Protocol supported: E1)	Queries a latched version of the ALARm5 register. The register definition is the same as unlatched; latched bits are cleared when INIT command is sent. The register definitions are listed in Chapter 5. **Note:** The bits of the Alarm 5 register are blocked (or masked) be default. Before using this command, the register must be enabled as described in the STATus:QUEStionable:ALARm5:ENABle:*X* command.
STATus:QUEStionable:ALARm5:ENABle? (Protocol supported: E1)	Queries the ALARm5 register. If 0 is returned, the register's mask is disabled.
STATus:QUEStionable:ALARm5:ENABle:*X* (Protocol supported: E1)	Sets the ALARm5 register. **Note:** To enable at least one bit in this register, X must be a value other than 0.

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INITiate, ABORt, INSTrument and ROUTe Branches

The following commands can start and stop basic ASA 312 functionality. In addition, these commands perform a number of miscellaneous commands that control ASA 312 settings. The following commands are supported by the ASA 312.

Command	Description
ABORt:*X* (Protocol supported: All protocols)	Stops data acquisition for any protocol processor. (This is the equivalent to selecting the Stop button on the ASA 312.) This command stops the current test that is running on the protocol processor. The test's elapsed time stops and various result values are frozen. X is: **ALL** – Stops data acquisition for all protocol processors. **DS1** – Stops data acquisition of the DS1 protocol processor. **DS3** – Stops data acquisition for the DS3 protocol processor. **ATM** – Stops data acquisition for the ATM protocol processor. **SONET** – Stops data acquisition for the SONET protocol processor. **E1** – Stops data acquisition for the E1 protocol processor.
AUTOCONfig:*X* (Protocol supported: SONET, DS1, DS3, E1)	Automatically configures settings to match the signal being received. X is: **MASTER** – Performs an automatic configuration starting with the SONET protocol processor, the DS3 protocol processor, and then the DS1 protocol processor **SONET** – Configures the SONET protocol processor based on the incoming SONET signal's line rate and mapping **DS3T** – Configures the DS3 protocol processor based on the incoming DS3 signal's mapping, framing, and pattern. If successful, the unit then tries to configure the DS1 tributaries. **DS3** – Configures the DS3 protocol processor based on the incoming DS3 signal's mapping, framing, and pattern. **DS1** – Configures the DS1 protocol processor based on the incoming DS1 signal's line coding, framing, and pattern. **1** to **28** – Configures a specific DS1 tributary. **Note:** The AUTOCONFIG command (using the Master or DS3T parameter) must be issued before using a numeric parameter. **<blank>** – Performs a Master configuration **E1** – Configures the E1 protocol processor based on the incoming E1 signal's mapping, framing, and pattern.

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Command	Description
DELAY (Protocol supported: All protocols)	Indicates the number of milliseconds the ASA 312 waits before processing the next command of a SCPI script.
INITiate:*X* (Protocol supported: All protocols)	Begins running data acquisition for any protocol processor. (This is the equivalent to selecting the Restart button on the ASA 312.) This command starts the current test that is configured for the protocol processor, and clears and resets event counters and timers. X is: **ALL** – Starts data acquisition for all protocol processors. **DS1** – Starts data acquisition of the DS1 Protocol Processor. **DS3** – Starts data acquisition for the DS3 Protocol Processor. **ATM** – Starts data acquisition for the ATM protocol processor. **SONET** – Starts data acquisition for the SONET protocol processor. **E1** – Starts data acquisition for the E1 Protocol Processor.
INSTrument? (Protocol supported: All protocols)	Queries the unit for the currently selected test set.
INSTrument:*X* (Protocol supported: All protocols)	Selects one of four logical test sets. X is: **DS1** – Sets the DS1 protocol processor as the active test set. **DS3** – Sets the DS3 protocol processor as the active test set. **ATM** – Sets the ATM protocol processor as the active test set. **SONET** – Sets the SONET protocol processor as the active test set. **E1** – Sets the E1 protocol processor as the active test set.
LOCKOUT? (Protocol supported: All protocols)	Returns ON or OFF depending whether Screen Lockout mode is turned on or not; see *LOCKOUT:X* command.
LOCKOUT:*X* (Protocol supported: All protocols)	Sets the ASA 312 Screen Lockout mode. X is: **ON** — Enables Lockout mode. **OFF** — Disables Lockout mode. When Lockout mode is enabled, only a message and an EXIT button are active on the screen. Only LED's update during this mode, making it the fastest way to run a series of SCPI commands. Pressing either the EXIT button or issuing the LOCKOUT:OFF command terminates this mode.

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Command	Description
MONITOR:*X* (Protocol supported: All protocols)	Controls SCPI Monitor mode. X is: **ON** — Turns the SCPI Monitor ON. **OFF** — Turns the SCPI Monitor Off. SCPI Monitor mode means that the SCPI settings function displays the SCPI commands, with their responses (if any) and error codes, and a single EXIT button. Up to 9 messages can be displayed in the window. The EXIT button is the only active button on the screen although both instrument LED's and the list of commands update during this mode. Pressing either the EXIT button or issuing the MONITOR:OFF command terminates this mode.
REPORT:PRINT (Protocol supported: All protocols)	Prints the error and alarm results for the current test set. (A test set is selected using the *INSTrument:X* command.)
ROUTe:*X* (Protocol supported: All protocols)	Configures the unit for a preset routing configuration. X is: **DS1S** – SONET DS1 Drop/Insert to protocol processor. Routes a signal between the SONET protocol processor and the DS1 protocol processor. **DS1LS** – SONET DS1 Drop/Insert to Line Interface. Routes a signal between the SONET protocol processor and the DS1 Line Interface. **DS3S** – SONET DS3 Drop/Insert to protocol processor. Routes a signal between the SONET protocol processor and the DS3 protocol processor. **DS3LS** – SONET DS3 Drop/Insert to Line Interface. Routes a signal between the SONET protocol processor and the DS3 Line Interface. **DS1T** – DS1 Test Set. Routes a signal between the DS1 protocol processor and the DS1 Line Interface. **DS3T** – DS3 Test Set. Routes a signal between the DS3 protocol processor and the DS3 Line Interface. **E1T** – E1 Test Set. Routes a signal between the E1 protocol processor and the E1 Line Interface. **M13DS1S** – SONET M13 DS1 **M13DS1LS** – SONET M13 DS1 to Line Interface **M13D1** – M13 DS1 **M13D1L** – M13 DS1 to Line Interface **M13E1S** – SONET M13 E1 **M13E1** – M13 E1 **Note:** An error code of 100 is returned if the routing is invalid for the SONET mode or mapping. For ATM configurations, refer to the SOURce:MAPping and SENSe:MAPping commands.

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Command	Description
SAVER:*X*, (Protocol supported: All protocols)	Determines when the Screen Saver (Display Timeout) starts for the ASA 312. X is: **0,0** — Disables the Screen Saver. **0,15** – Screen saver starts after 15 minutes of inactivity. **0,30** – Screen saver starts after 30 minutes of inactivity. **1,0** – Screen saver starts after 1 hour of inactivity. **2,0** – Screen saver starts after 2 hours of inactivity.
SAVER? (Protocol supported: All protocols)	Queries the value of the Display Timeout command. Results appear as hours and minutes.

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3 Extended SCPI Commands

Overview

The ASA 312 supports automated programming and remote control using the Standard Commands for Programmable Instruments (SCPI) protocol. This protocol consists of standard and extended SCPI commands which are listed in this appendix. SCPI commands can be issued to the ASA 312 over a variety of hardware interfaces, such as GPIB, RS-232 modem, direct connection, and PC Card modem, and software interfaces, such as Ethernet and internal text file.

This chapter lists the Extended SCPI commands supported by the ASA 312 and NAA I units.

Extended ASA 312 SCPI Commands

These commands are extensions to the SCPI command set. These command are adapted to the ASA 312 and are unique to each protocol processor.

FETCh Branch

The FETCh commands are query commands that retrieve and display the value of a specific ASA 312 setting.

For example:

To view the number of seconds a Loss of Signal was present, type:

```
FETCh:LOSSecs?
```

Press: Enter

The following is a list of supported FETCH commands.

FETCh Command	Description
FETCh:AAL? and FETCh:AAL:COUNt? (Protocol supported: ATM)	Queries the number of AAL5 and AAL1 errored counts reported. This command is valid for the ATM protocol processor.
FETCh:AAL:ESecs? (Protocol supported: ATM)	Queries the number of AAL5 and AAL1 errored seconds reported. This command is valid for the ATM protocol processor.
FETCh:AISSecs? (Protocols supported: DS1, DS3, E1)	Queries the number of seconds that an AIS alarm was reported. This command is valid for the DS1, DS3, and E1 protocol processors.
FETCh:ATMALarm:SCNRSecs? (Protocol supported: ATM)	Queries the number of seconds when selected cells were not received. This command is valid for the ATM protocol processor.

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FETCh Command	Description
FETCh:ATMALarm: STASecs? (Protocol supported: ATM)	Queries the number of seconds that a status condition occurred.
FETCh:ATMALarm:PLCPSYNCSecs? (Protocol supported: ATM)	Queries the number of seconds reported for a loss of PLCP frame synchronization.
FETCh:ATMALarm:LOPSSecs? (Protocol supported: ATM)	Queries the number of seconds reported for a Loss of Pattern Sync event.
FETCh:ATMALarm:LOCSS? (Protocol supported: ATM)	Queries the number of seconds reported for a Loss of Cell Sync event.
FETCh:ATMALarm:OVFLWS? (Protocol supported: ATM)	Queries the number of seconds reported for a cell overflow condition.
FETCh:ATMALarm:AISS?:F4 (Protocol supported: ATM)	Queries the number of seconds reported for an ATM AIS F4 alarm.
FETCh:ATMALarm:AISS?:F5 (Protocol supported: ATM)	Queries the number of seconds reported for an ATM AIS F5 alarm.
FETCh:ATMALarm:RDIS?:F4 (Protocol supported: ATM)	Queries the number of seconds reported for an ATM RDI F4 alarm.
FETCh:ATMALarm:RDIS?:F5 (Protocol supported: ATM)	Queries the number of seconds reported for an ATM RDI F5 alarm.
FETCh:B1? and FETCh:B1:COUNt? (Protocol supported: SONET)	Queries the current Section B1 error count or Section Coding Violation (CV) count for the SONET protocol processor. (A Section CV is also known as a Section B1 BIP error.)
FETCh:B1:ERATe? (Protocol supported: SONET)	Queries the received error rate for a Section B1 BIP error for the SONET protocol processor.
FETCh:B1:ESecs? (Protocol supported: SONET)	Queries the number of seconds reported for a Section B1 BIP error for the SONET protocol processor.
FETCh:B2? and FETCh:B2:COUNt? (Protocol supported: SONET)	Queries the current Line B2 BIP error count for the SONET protocol processor.
FETCh:B2:ERATe? (Protocol supported: SONET)	Queries the received error rate for a Line B2 BIP error for the SONET protocol processor.
FETCh:B2:ESecs? (Protocol supported: SONET)	Queries the number of seconds reported for a Line B2 BIP error for the SONET protocol processor.
FETCh:B3? and FETCh:B3:COUNt? (Protocol supported: SONET)	Queries the current Path B3 error count or Path Coding Violation (CV) count for the SONET protocol processor. (A Path CV is also known as a Path B3 error.)
FETCh:B3:ERATe? (Protocol supported: SONET)	Queries the received error rate for a Path B3 error for the SONET protocol processor.
FETCh:B3:ESecs? (Protocol supported: SONET)	Queries the number of seconds reported for a Path B3 error for the SONET protocol processor.
FETCh:BIT? and FETCh:BIT:COUNt? (Protocol supported: SONET)	Queries the current bit error count. This command is valid for All protocol processors.This command is valid for the SONET protocol processor. (SONET must be configured for mapping; for example, STS-3c, STS-12c, or STS-48c.)
FETCh:BIT:ERATe? (Protocol supported: All protocols)	Queries the current bit error rate for the selected protocol processor. This command is valid for the SONET, DS1, DS3, and E1 protocol processors. (SONET must be configured for mapping; for example, STS-3c, STS-12c, or STS-48c.)

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FETCh Command	Description
FETCh:BIT:ESecs? (Protocol supported: All protocols)	Queries the number of bit errored seconds reported for a specific protocol processor. This command is valid for All protocol processors. (SONET must be configured for concatenated mapping; for example, STS-3c, STS-12c, or STS-48c.)
FETCh:BPV? and FETCh:BPV:COUNt? (Protocols supported: SONET, DS1, DS3, E1)	Queries the number of reported bipolar violation (BPV) errors.
FETCh:BPV:ERATe? (Protocol supported: SONET, DS1, DS3, E1)	Queries the current bipolar violation error rate for the selected protocol processor.
FETCh:BPV:ESecs? (Protocols supported: SONET, DS1, DS3, E1)	Queries the number of seconds reported for a Bipolar Violation.
FETCh:CASMFLSecs? (Protocol supported: E1)	Queries the E1 protocol processor for the number of seconds that a CAS Multi-Frame Loss alarm was reported.
FETCh:CPAR? and FETCh:CPAR:COUNt? (Protocol supported: DS3)	Queries the current C-Bit parity error count for the DS3 protocol processor.
FETCh:CPAR:ERATe? (Protocol supported: DS3)	Queries the current C-Bit parity error rate for the DS3 protocol processor.
FETCh:CPAR:ESecs? (Protocol supported: DS3)	Queries the number of seconds there were C-Bit parity errors.
FETCh:CRC? and FETCh:CRC:COUNt? (Protocol supported: DS1, E1)	Queries the current CRC error count.
FETCh:CRC:ERATe? (Protocol supported: DS1, E1)	Queries the current CRC error rate.
FETCh:CRC:ESecs? (Protocol supported: DS1, E1)	Queries the number of seconds there were CRC errors.
FETCh:DS1:DS1HEC:COUNt? (Protocol supported: ATM)	Queries the number of reported ATM HEC errors in DS1.
FETCh:DS1:DS1HEC:RATE? (Protocol supported: ATM)	Queries current error insertion rate of ATM HEC errors in DS1.
FETCh:DS1:DS1HEC:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for an ATM HEC error in DS1.
FETCh:DS1:PLCPBIP:COUNt? (Protocol supported: ATM)	Queries and returns the DS1 PLCP BIP (B1) error count
FETCh:DS1:PLCPBIP:RATE? (Protocol supported: ATM)	Queries the current DS1 PLCP BIP (B1) error rate.
FETCh:DS1:PLCPBIP:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS1 PLCP BIP error.
FETCh:DS1:PLCPFEBE:COUNt? (Protocol supported: ATM)	Queries the number of reported DS1 PLCP Far End Block Errors (FEBE).
FETCh:DS1:PLCPFEBE:RATE? (Protocol supported: ATM)	Queries the received error rate for DS1 PLCP FEBEs.
FETCh:DS1:PLCPFEBE:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS1 PLCP FEBE error.

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FETCh Command	Description
FETCh:DS1:PLCPFRAMING:COUNt? (Protocol supported: ATM)	Queries the number of reported DS1 PLCP A1A2/POI framing errors.
FETCh:DS1:PLCPFRAMING:RATE? (Protocol supported: ATM)	Queries the received error rate for DS1 PLCP A1A2/POI framing errors.
FETCh:DS1:PLCPFRAMING:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS1 PLCP A1A2/POI framing error.
FETCh:DS1:PLCPLOF:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS1 PLCP Loss of Frame alarm.
FETCh:DS1:PLCPOOF:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS1 PLCP Out of Frame alarm.
FETCh:DS1:PLCPYELlow:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS1 PLCP Yellow alarm.
FETCh:DS3:DS3HEC:COUNt? (Protocol supported: ATM)	Queries the number of reported ATM HEC errors in DS3.
FETCh:DS3:DS3HEC:RATE? (Protocol supported: ATM)	Queries the received error rate for ATM HEC errors in DS3.
FETCh:DS3:DS3HEC:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for an ATM HEC error in DS3.
FETCh:DS3:PLCPBIP:COUNt? (Protocol supported: ATM)	Queries and returns the DS3 PLCP BIP (B1) error count
FETCh:DS3:PLCPBIP:RATE? (Protocol supported: ATM)	Queries the current DS3 PLCP BIP (B1) error rate.
FETCh:DS3:PLCPBIP:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS3 PLCP BIP error.
FETCh:DS3:PLCPFEBE:COUNt? (Protocol supported: ATM)	Queries the number of reported DS3 PLCP Far End Block Errors (FEBE).
FETCh:DS3:PLCPFEBE:RATE? (Protocol supported: ATM)	Queries the received error rate for DS3 PLCP FEBEs.
FETCh:DS3:PLCPFEBE:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS3 PLCP FEBE error.
FETCh:DS3:PLCPFRAMING:COUNt? (Protocol supported: ATM)	Queries the number of reported DS3 PLCP A1A2/POI framing errors.
FETCh:DS3:PLCPFRAMING:RATE? (Protocol supported: ATM)	Queries the received error rate for DS3 PLCP A1A2/POI framing errors.
FETCh:DS3:PLCPFRAMING:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS3 PLCP A1A2/POI framing error.
FETCh:DS3:PLCPLOF:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS3 PLCP Loss of Frame alarm.
FETCh:DS3:PLCPOOF:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS3 PLCP Out of Frame alarm.
FETCh:DS3:PLCPYELlow:SECS? (Protocol supported: ATM)	Queries the number of seconds reported for a DS3 PLCP Yellow alarm.
FETCh:EXOSecs? (Protocol supported: DS1)	Queries the number of seconds reported for that Excess Zeros were reported.

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FETCh Command	Description
FETCh:FEBE? and FETCh:FEBE:LINE? and FETCh:FEBE:LINE:COUNt? (Protocol supported: SONET, DS3, E1)	Queries the number of reported Far End Block Errors (FEBE) for the DS3 or E1 protocol processors or the number of FEBE errors reported for the Line layer using the SONET protocol processor.
FETCh:FEBE:LINE:ERATe? (Protocol supported: SONET, DS3, E1)	Queries the current FEBE error rate.
FETCh:FEBE:LINE:ESecs? (Protocol supported: SONET, DS3, E1)	Queries the number of seconds there were Line layer FEBE, DS-3 FEBE, or E1 FEBE errors.
FETCh:FEBE:PATH? and FETCh:FEBE:PATH:COUNt? (Protocol supported: SONET)	Queries the current Path FEBE count.
FETCh:FEBE:PATH:ERATe? (Protocol supported: SONET)	Queries the current path FEBE error rate.
FETCh:FEBE:PATH:ESecs? (Protocol supported: SONET)	Queries the number of seconds there were path FEBE errors.
FETCh:FEBE:VT? and FETCh:FEBE:VT:COUNt? (Protocol supported: SONET)	Queries the current VT FEBE count.
FETCh:FEBE:VT:ERATe? (Protocol supported: SONET)	Queries the current VT FEBE error rate.
FETCh:FEBE:VT:ESecs? (Protocol supported: SONET)	Queries the number of seconds there were VT FEBE errors.
FETCh:FRAM? and FETCh:FRAM:COUNt? (Protocol supported: DS1, DS3, E1)	Queries the current framing error count.
FETCh:FRAM:ERATe? (Protocol supported: DS1, DS3, E1)	Queries the current framing error rate.
FETCh:FRAM:ESecs? (Protocol supported: DS1, DS3, E1)	Queries the number of seconds there were framing errors.
FETCh:HECC? and FETCh:HECC:COUNT? (Protocol supported: ATM)	Queries the number of reported HEC-Correctable errors.
FETCh:HECC:ERATE:AVG? (Protocol supported: ATM)	Queries the average error insertion rate for HEC-Correctable errors.
FETCh:HECC:ERATE:CURRent? (Protocol supported: ATM)	Queries the current error insertion rate of HEC-Correctable errors.
FETCh:HECC:ESecs? (Protocol supported: ATM)	Queries the number of seconds reported for HEC-Correctable errors.
FETCh:HECU? and FETCh:HECU:COUNT? (Protocol supported: ATM)	Queries the number of reported HEC-Uncorrectable errors.
FETCh:HECU:ERATE:AVG? (Protocol supported: ATM)	Queries the average error insertion rate for HEC-Uncorrectable errors.
FETCh:HECU:ERATE:CURRent? (Protocol supported: ATM)	Queries the average error insertion rate for HEC-Uncorrectable errors.
FETCh:HECU:ESecs? (Protocol supported: ATM)	Queries the number of seconds reported for HEC-Uncorrectable errors.
FETCh:IDLSecs? (Protocol supported: DS1, DS3)	Queries the number of seconds that an Idle alarm was reported for the DS1 or DS3 protocol processor.

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FETCh Command	Description
FETCh:LAISecs? (Protocol supported: SONET)	Queries the number of seconds that a Line AIS alarm was reported.
FETCh:LFRSecs? (Protocol supported: SONET)	Queries the number of seconds reported for a Line FERF alarm.
FETCh:LOFSecs? (Protocol supported: All protocols)	Queries the number of seconds reported for a Loss of Frame.
FETCh:LOSSecs? (Protocol supported: All protocols)	Queries the number of seconds reported for a Loss of Signal.
FETCh:LOOPBACKCells? (Protocol supported: ATM)	Queries the number of number of Loopback cells received by the ATM protocol processor.
FETCh:LOPSecs? (Protocol supported: DS1, DS3, E1)	Queries the number of seconds reported for a Loss of Pattern.
FETCh:LPRSecs? (Protocol supported: SONET)	Queries the number of seconds that a Loss of Pointer alarm was reported.
FETCh:OOFEVents? (Protocol supported: DS1)	Queries the number of Out of Frame (OOF) events for the DS1 protocol processor.
FETCh:OOFSecs? (Protocol supported: SONET, DS3)	Out of frame seconds for the current protocol processor.
FETCh:PAISecs? (Protocol supported: SONET)	Queries the number of seconds that a Path AIS alarm was reported.
FETCh:PPAR? and FETCh:PPAR:COUNt? (Protocol supported: DS3)	Queries the current P-Parity error count.
FETCh:PPAR:ERATe? (Protocol supported: DS3)	Queries the current P parity error rate.
FETCh:PPAR:ESecs? (Protocol supported: DS3)	Queries the number of seconds there were P parity errors.
FETCh:PROV:PCR? (Protocol supported: ATM)	Queries the provisioning number of Peak Cell Rate (PCR) received by the ATM protocol processor.
FETCh:PROV:SCR? (Protocol supported: ATM)	Queries the provisioning number of Sustained Cell Rate (SCR) received by the ATM protocol processor.
FETCh:PROV:MBS? (Protocol supported: ATM)	Queries the provisioning number of Maximum Burst Size (MBS) received by the ATM protocol processor.
FETCh:PROV:PDUS? (Protocol supported: ATM)	Queries the provisioning number of Protocol Data Units (PDU) received by the ATM protocol processor.
FETCh:PROV:LOST? (Protocol supported: ATM)	Queries the number of provisioning cells lost.
FETCh:PROV:LOSSRATIO? (Protocol supported: ATM)	Queries the value of the provisioning Cell Loss Ratio for the ATM protocol processor.
FETCh:PUNEQS? (Protocol supported: SONET)	Queries the SONET protocol processor for the number of seconds that a Path Unequipped alarm was reported.
FETCh:QOS:CRCS? (Protocol supported: ATM)	Queries the number of CRC errores received for Quality of Service.
FETCh:QOS:CTD:MIN? (Protocol supported: ATM)	Queries the minimum Cell Transfer Delay (CTD) for Quality of Service (QOS).
FETCh:QOS:CTD:MAX? (Protocol supported: ATM)	Queries the maximum CTD for QOS.

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FETCh Command	Description
FETCh:QOS:CTD:AVG? (Protocol supported: ATM)	Queries the average CTD for QOS.
FETCh:QOS:EARLY:MAX? (Protocol supported: ATM)	Queries the maximum positive (early) cell delay variation for QOS.
FETCh:QOS:EARLY:PCT? (Protocol supported: ATM)	Queries the percent of positive (early) cell delay variation for QOS.
FETCh:QOS:EARLY:AVG? (Protocol supported: ATM)	Queries the average positive (early) cell delay variation for QOS.
FETCh:QOS:LATE:MAX? (Protocol supported: ATM)	Queries the maximum negative (late) cell delay variation for QOS.
FETCh:QOS:LATE:PCT? (Protocol supported: ATM)	Queries the percent of negative (late) cell delay variation for Quality of Service.
FETCh:QOS:LATE:AVG? (Protocol supported: ATM)	Queries the average negative (late) cell delay variation for Quality of Service.
FETCh:QOS:LENERR? (Protocol supported: ATM)	Queries the number of PDU Length errors received for QOS.
FETCh:QOS:LOSTCells:CNT? (Protocol supported: ATM)	Queries the count of lost cells for Quality of Service
FETCh:QOS:LOSTCells:RATIO? (Protocol supported: ATM)	Queries the percentage of cells lost for Quality of Service
FETCh:QOS:RECDCells? (Protocol supported: ATM)	Queries the cells received for Quality of Service
FETCh:RAISecs? (Protocol supported: E1)	Queries the E1 protocol processor for the number of seconds that a Remote Alarm Indicator (a Yellow alarm) was present.
FETCh:RMFAISecs? (Protocol supported: E1)	Queries the E1 protocol processor for the number of seconds that a Remote Multi-Frame Alarm Indication was present.
FETCh:STRESS:COUNT:CELLS? (Protocol supported: ATM)	Queries the number of received Rx test cells.
FETCh:STRESS:COUNT:DISCARDed? (Protocol supported: ATM)	Queries the number of discarded cells received while in Stress Test mode.
FETCh:STRESS:COUNT:IDLE? (Protocol supported: ATM)	Queries the idle cell count of the Stress Test
FETCh:STRESS:COUNTCELLERRORS? (Protocol supported: ATM)	Queries the cell error count of the Stress Test
FETCh:STRESS:RATE:CELLS? (Protocol supported: ATM)	Queries the cell rate count of the Stress Test
FETCh:STRESS:RATE:DISCARDED? (Protocol supported: ATM)	Queries the discarded cell rate for the Stress Test
FETCh:STRESS:RATE:IDLE? (Protocol supported: ATM)	Queries the idle cell rate for the Stress Test
FETCh:STRESS:RATE:CELLERRORS? (Protocol supported: ATM)	Queries the cell error rate for the Stress Test
FETCh:VAISecs? (Protocol supported: ATM)	Queries the number of seconds for a VT AIS alarm.
FETCh:VCC:COUNT:TOTAL? (Protocol supported: ATM)	Queries total monitored VCCs

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FETCh Command	Description
FETCh:VCC:COUNT:DISCarded?: (Protocol supported: ATM)	Queries total discarded cells
FETCh:VCC:COUNT:IDLE?: (Protocol supported: ATM)	Queries total idle cells
FETCh:VCC:COUNT:TRANSMIT? (Protocol supported: ATM)	Queries total monitored VCCs
FETCh:VCC:COUNT:MONITOR? (Protocol supported: ATM)	Queries total transmit VCCs
FETCh:VCC:COUNT:MON/DETail? (Protocol supported: ATM)	Queries total Monitor and Detail VCCs
FETCh:VCC:COUNT:ENTRIES? (Protocol supported: ATM)	Queries total VCC Table Entries
FETCh:VCC:BANDwidth:TOTal? (Protocol supported: ATM)	Queries Percent of bandwidth used for monitored VCCs
FETCh:VCC:BANDwidth:DISCarded? (Protocol supported: ATM)	Queries Percent of bandwidth used for discarded cells
FETCh:VCCDETail:COUNT:IDLE? (Protocol supported: ATM)	Queries Percent of bandwidth used for idle cells
FETCh:VCCDETail:COUNT:CELLS? (Protocol supported: ATM)	Queries the count of cells for the current entry
FETCh:VCCDETail:COUNT:SNPERROR? (Protocol supported: ATM)	Queries the Sequence Number Protection field for error counts for the current entry
FETCh:VCCDETail:COUNT:LOSTCELLS? (Protocol supported: ATM)	Queries the lost cell count for the current entry
FETCh:VCCDETail:COUNT: MISINSERTEDCELLS? (Protocol supported: ATM)	Queries the misinserted cell count for the current entry
FETCh:VCCDETail:COUNT:PDUS? (Protocol supported: ATM)	Queries the count of AAL5 PDU’s for the current entry
FETCh:VCCDETail:COUNT:CRC? (Protocol supported: ATM)	Queries the count of AAL5 CRC errors for the current entry
FETCh:VCCDETail:COUNT:BIT? (Protocol supported: ATM)	Queries the count of bit errors for the current entry
FETCh:VCCDETail:COUNT:LENERR? (Protocol supported: ATM)	Queries the count of AAL5 length errors for the current entry
FETCh:VCCDETail:COUNT:AISS?:xx (Protocol supported: ATM)	Queries AIS seconds (F4 argument for VPI AIS seconds, F5 argument for VCI AIS seconds)
FETCh:VCCDETail:COUNT:RDIS?:xx (Protocol supported: ATM)	Queries RDI seconds (F4 argument for VPI RDI seconds, F5 argument for VCI RDI seconds)

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FETCh Command	Description
FETCh:VCCDETail:RATE:CELLS? (Protocol supported: ATM)	Queries the cell rate for the current entry
FETCh:VCCDETail:RATE:SNPERROR? (Protocol supported: ATM)	Queries the Sequence Number Protection (SNP) field rate for the current entry. This is applicable for AAL1.
FETCh:VCCDETail:RATE:LOSTCELLS? (Protocol supported: ATM)	Queries the lost cell rate for the current entry. This is applicable for AAL1.
FETCh:VCCDETail:RATE: MISINSERTEDCELLS? (Protocol supported: ATM)	Queries the misinserted cell rate for the current entry
FETCh:VCCDETail:RATE:CRC? (Protocol supported: ATM)	Queries the CRC error rate for the current entry
FETCh:VCCDETail:RATE:BIT? (Protocol supported: ATM)	Queries the bit error rate for the current entry
FETCh:VCCDETail:RATE:LENERR? (Protocol supported: ATM)	Queries the Length error rate for the current entry
FETCh:VCCDETail:BW:CELLS? (Protocol supported: ATM)	Queries the bandwidth percent used by cells for the current entry
FETCh:VFRSecs? (Protocol supported: SONET)	Queries the number of seconds for a VT FERF alarm.
FETCh:VLPSecs? (Protocol supported: SONET)	Queries the number of seconds reported for a VT Loss of Pointer alarm.
FETCh:VTB? FETCh:VTB:COUNt? (Protocol supported: SONET)	Queries the current VT Bip-2 or VT CV count.
FETCh:VTB:ESecs? (Protocol supported: SONET)	Queries the number of seconds there were VT CVs.
FETCh:VUNEQS? (Protocol supported: SONET)	Queries the SONET protocol processor for the number of seconds that a VT Path Unequipped alarm was present.
FETCh:XBITSecs? (Protocol supported: DS3)	Seconds for which there was an XBIT alarm.
FETCh:YELSecs? (Protocol supported: SONET, DS1)	Queries the number of seconds that a Yellow alarm was reported.

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SOURce Branch

The Source Branch commands coincide with functionality normally associated with the Trnsmt Function Group button for the DS1, DS3, and SONET protocol processors and the VCC Control Function Group button for the ATM protocol processor.

The following is a list of supported SOURCE commands.

SOURce Command	Description
SOURce:ADJPTRSTS:*X* (Protocol supported: SONET)	Adjusts the Pointer for a STS by either incrementing or decrementing it, rather than assigning it a "new" value, as is done in SOURce:PTRSTS. The following Pointer Adjustments can be made: X is: **1** — increments the Pointer one position **–1** — decrements the Pointer one position **2** to **8** — increments the Pointer in a burst that ranges from 2 to 8 positions **–2** to **–8** — decrements the Pointer in a burst that ranges from 2 to 8 positions
SOURce:ADJPTRVT:*X* (Protocol supported: SONET)	Adjusts the pointer for a VT by either a single increment or a single decrement. X is: **1** — single increment **–1** — single decrement
SOURce:ALarm:DURation? (Protocol supported: ATM)	Queries the ATM test set for the duration of the alarm it is generating.
SOURce:ALarm:DURation:*X* (Protocol supported: ATM)	Sets the duration (in seconds) for the alarm currently configured for the ATM protocol processor. The alarm starts after the duration is entered. The duration ranges from 0 seconds to 32765 seconds.
SOURce:ALarm:DURation:CONTinuous (Protocol supported: ATM)	Generates a continuous alarm for the ATM protocol processor. (**Note:** The unit must be transmitting to generate alarms)
SOURce:ALarm:SCOPE? (Protocol supported: ATM)	Queries the ATM test set for the scope of the alarm it is generating.
SOURce:ALarm:SCOPE:*X* (Protocol supported: ATM)	Sets the scope of the alarm generated by the ATM test set. The following values can be used: X is: **VPI** **VCI**
SOURce:ALarm:TYPE? (Protocol supported: All protocols)	Queries the current protocol processor for the type of alarm generated.
SOURce:ALarm:TYPE:AIS (Protocol supported: DS1, DS3, E1)	Generates an Alarm Indication Signal (AIS) for the DS1, DS3, and E1 protocol processors. (**Note:** For DS3 operation, this command is only valid for C-Bit and M13 framing.)

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SOURce Command	Description
SOURce:ALarm:TYPE:AIS:*X* (Protocol supported: ATM)	Generates an AIS alarm for the ATM protocol processor. The following ATM alarms can be generated: X is: **F4SEG** — generates an AIS over a segment of a VT **F4END** — generates an AIS throughout the VT **F5SEG** — generates an AIS over a segment of a VT **F5END** — generates an AIS throughout the VT
SOURce:ALarm:TYPE:CASMFL (Protocol supported: E1)	Generates a CAS Multi-Frame Loss alarm for the E1 protocol processor.
SOURce:ALarm:TYPE:CELLSYNC (Protocol supported: ATM)	Inserts continuous uncorrectable HEC errors to force the attached ATM equipment to go out of cell sync. This command is valid for the ATM protocol processor.
SOURce:ALarm:TYPE:IDLE (Protocol supported: DS1, DS3)	Generates an Idle Alarm for the DS1 and DS3 protocol processors. (**Note:** For DS1, this command is valid only for C-Bit and M13 framing. For DS3, this command is valid only for ESF and D4 framing.)
SOURce:ALarm:TYPE:LAIS (Protocol supported: SONET)	Generates a Line AIS Alarm for the SONET protocol processor
SOURce:ALarm:TYPE:LFERF (Protocol supported: SONET)	Generates a Line Far End Receive Failure Alarm for the SONET protocol processor.
SOURce:ALarm:TYPE:LOF (Protocol supported: SONET, E1)	Generates an Loss of Frame Alarm. This command is valid for the SONET and E1 protocol processors.
SOURce:ALarm:TYPE:LOPTR (Protocol supported: SONET)	Generates a Loss of Pointer Alarm for the SONET protocol processor.
SOURce:ALarm:TYPE:LOS (Protocol supported: SONET, E1)	Generates a Loss of Signal Alarm.This command is valid for the SONET and E1 protocol processors.
SOURce:ALarm:TYPE:OFF	Stops the alarm that is in progress for the current protocol processor.
SOURce:ALarm:TYPE:PAIS (Protocol supported: SONET)	Generates a Path AIS Alarm for the SONET protocol processor.
SOURce:ALarm:TYPE:PLCPYEL (Protocol supported: ATM)	Generates a Yellow Alarm on the Physical Layer Convergence Protocol (PLCP) for ATM/ DS1 and ATM/DS3 mapping.
SOURce:ALarm:TYPE:RAI (Protocol supported: E1)	Generates a Remote Alarm Indication alarm for the E1 protocol processor.
SOURce:ALarm:TYPE:RDI:*X* (Protocol supported: ATM)	Generates an Remote Defect Indication (RDI) Alarm for the ATM protocol processor. The following ATM alarms can be generated: X is: **F4SEG** — generates an RDI over a segment of a VT **F4END** — generates an RDI throughout the VT **F5SEG** — generates an RDI over a segment of a VT **F5END** — generates an RDI throughout the VT

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SOURce Command	Description
SOURce:ALarm:TYPE:RMFAI (Protocol supported: E1)	Generates a Remote Multi-Frame alarm for the E1 protocol processor.
SOURce:ALarm:TYPE:UNEQ (Protocol supported: SONET)	Generates a Path Unequipped Alarm for the SONET protocol processor.
SOURce:ALarm:TYPE:VLOP (Protocol supported: SONET)	Generates a VT Loss of Pointer Alarm for the SONET protocol processor. This command is only valid when the SONET protocol processor is mapped for VT1.5.
SOURce:ALarm:TYPE:VAIS (Protocol supported: SONET)	Generates a VT AIS Alarm for the SONET protocol processor. This command is only valid when the SONET protocol processor is mapped for VT1.5.
SOURce:ALarm:TYPE:VUNEQ (Protocol supported: SONET)	Generates a VT Unequipped Alarm for the SONET protocol processor. This command is only valid when the SONET protocol processor is mapped for VT1.5.
SOURce:ALarm:TYPE:VYEL (Protocol supported: SONET)	Generates a VT Yellow Alarm for the SONET protocol processor. This command is only valid when the SONET protocol processor is mapped for VT1.5.
SOURce:ALarm:TYPE:XBIT (Protocol supported: DS3)	Generates an XBIT Alarm for the DS3 protocol processor. (**Note:** This command is only valid for C-bit and M13 Framing.)
SOURce:ALarm:TYPE:YELLOW (Protocol supported: SONET, DS1)	Generates a Yellow alarm for the DS1 and SONET protocol processors. (**Note:** For DS1, this command is not available for Unframed transmission. For SONET, a Yellow alarm is generated on the Path layer.)
SOURce:APS:ABORT (Protocol supported: SONET)	Stops the APS protection switch measurements.
SOURce:APS:CRITeria? (Protocol supported: SONET)	Queries the unit to displays the type of event that triggers APS switching.
SOURce:APS:CRITeria:*X* (Protocol supported: SONET)	Sets the event (criteria) that the unit uses to trigger APS switching. X is: **B1** – APS switching occurs if a B1 error is received. **SEF** – APS switching occurs if a Severely Errored Frame is received. **AISL** – APS switching occurs if a Line AIS alarm is received **AISP** – APS switching occurs if a Path AIS alarm is received **PRBS** – APS switching occurs if a PRBS pattern is received.
SOURce:APS:CRITeria:FRAMES? (Protocol supported: SONET)	Queries the unit for the APS protection switch measurement time in frames for the last test performed. A 0 is returned if no APS switching has occurred or if the unit is currently measuring APS activity.

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SOURce Command	Description
SOURce:APS:CRITeria:START (Protocol supported: SONET)	Starts APS protection switch measurements.
SOURce:APS:CRITeria:STATE? (Protocol supported: SONET)	Queries the unit for the current state of APS protection switch measurements. Values returned are **DONE** or **MEASURING**.
SOURce:CLRHIS (Protocol supported: All protocols)	Clears the LED and Status Indicator history.
SOURce:COUPled? (Protocol supported: SONET, DS1, DS3)	Queries the protocol processor to verify if receive and transmit commands are coupled or set independently.
SOURce:COUPled:*X* (Protocol supported: SONET, DS1, DS3)	Sets the current protocol processor to couple the Receive and Transmit commands, or to set the Receive and Transmit commands for independent operation. The following values are supported: **YES** — coupled **NO** — independent This command is valid for the SONET, DS1, and DS3 protocol processors. (**Note:** For DS3, only the Pattern command is coupled.)
SOURCE:DCC? (Protocol supported: SONET)	Queries the SONET protocol processor for the current setting of the DataCom Channel command.
SOURce:DCC:INT (Protocol supported: SONET)	Sets the DataCom Channel command to Internal byte.
SOURce:DCC:SDI (Protocol supported: SONET)	Sets the DataCom Channel command to Section Drop/Insert.
SOURce:DCC:LDI (Protocol supported: SONET)	Sets the DataCom Channel command to Line Drop/Insert.
SOURce:DCC:SPRBS (Protocol supported: SONET)	Sets the DataCom Channel command to Section PRBS test.
SOURce:DCC:LPRBS (Protocol supported: SONET)	Sets the DataCom Channel command to Line PRBS test.
SOURce:DS1LOOPback:AUTO? (Protocol supported: DS1)	Queries the DS1 protocol processor to determine if the Auto Response command is ON or OFF.
SOURce:DS1LOOPback:AUTO:*X* (Protocol supported: DS1)	Sets the Auto Response command to ON or OFF. This command is valid only for the DS1 protocol processor.
SOURce:DS1LOOPback:CODE? (Protocol supported: DS1)	Queries the DS1 protocol processor for the current value of the Loopback Code command.

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SOURce Command	Description
SOURce:DS1LOOPback:CODE:*X* (Protocol supported: DS1)	Sets the value for the Loopback Code command to one of the following values: **PAYLOAD** — valid for Out-of-Band signalling **SMARTJACK** — valid for Out-of-Band signalling **OUTLINE** — valid for Out-of-Band signalling **4BIT** — valid for In-Band signalling **5BIT** — valid for In-Band signalling **INLINE** — valid for In-Band signalling **OCU** — valid for DDS Latching and DDS Non-Latching loopback signals. This value is valid for Fractional T1 mode. **CSU** — valid for DDS Latching and DDS Non-Latching loopback signals. This value is valid for Fractional T1 mode. **DSU** — valid for DDS Latching and DDS Non-Latching loopback signals. This value is valid for Fractional T1 mode. **User-Defined Value** — This is a 16 binary bit value in which the first 8 bits represent the Loop Up code and the second 8 bits represent the Loop Down code. For example, for 0000000011111111, 00000000 is the Loop Up code and 11111111 is the Loop Down code.
SOURce:DS1LOOPback:DOWNcode? (Protocol supported: DS1)	Queries the DS1 protocol processor for the current value of the Loop Down code.
SOURce:DS1LOOPback:LINE? (Protocol supported: DS1)	Queries the DS1 protocol processor for the value of the Tester Line Looped command.
SOURce:DS1LOOPback:LINE:*X* (Protocol supported: DS1)	Sets the value of the Tester Line Looped command to UP or DOWN. This command is valid only for the DS1 protocol processor.
SOURce:DS1LOOPback:PAYload? (Protocol supported: DS1)	Queries the DS1 protocol processor for the current value of the Tester Payload Looped command.
SOURce:DS1LOOPback:PAYload:*X* (Protocol supported: DS1)	Sets the value of the Tester Payload Looped command to UP or DOWN. This command is valid only for the DS1 protocol processor.
SOURce:DS1LOOPback:SEND:*X* (Protocol supported: DS1)	Transmits the selected Loopback Code. Enter UP to transmit the Loop Up code or DOWN to transmit the Loop Down code. This command is valid only for the DS1 protocol processor. (**Note:** For In-Band signalling, it may take several seconds for the command to take effect. The SOUR:DS1LOOP:STAT? command can be used to determine if the command has been issued.)

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SOURce Command	Description
SOURce:DS1LOOPback:STATus? (Protocol supported: DS1)	Queries the status of DS1 Loop Code activity. The following is reported by this command: **Inactive** — No Loop Code activity **Down** — A Loop Down is in progress **Up** — A Loop Up is in progress
SOURce:DS1LOOPback:TYPE? (Protocol supported: DS1)	Queries the DS1 protocol processor for the current value of the Loopback Type command. This command is only valid for the DS1 protocol processor.
SOURce:DS1LOOPback:TYPE:*X* (Protocol supported: DS1)	Sets the Loopback Type command to one of the following: **IN** — In-Band signalling **OUT** — Out-of-Band signalling **DDS-LATCH** — DDS Loop Code. This value is valid for Fractional T1 mode. **DDS-NON-LATCH** — DDS Loop Code. This value is valid for Fractional T1 mode.
SOURce:DS1LOOPback:UPcode? (Protocol supported: DS1)	Queries the DS1 protocol processor for the current value of the Loop Up code.
SOURce:DS3FEAC:CODE? (Protocol supported: DS3)	Queries the DS3 protocol processor for the current value of the TX Alarm/Status Code command for the FEAC Codes.
SOURce:DS3FEAC:CODE:*X* (Protocol supported: DS3)	Sets the value for the TX Alarm/Status Code command to one of the following: X is: **SDS1LOS** — Single DS1 LOS/HBE **MDS1LOS** — Multiple DS1 LOS/HBER **DS1SA** — DS1 Equipment Failure SA **DS1NSA** — DS1 Equipment Failure NSA **DS3SA** — DS3 Equipment Failure SA **DS3NSA** — DS3 Equipment Failure NSA **IDLE** — DS3 Idle Receive **OOF** — DS3 Out of Frame **AIS** — DS3 AIS Receive **LPUP** — DS3 NIU Loop Up **LPDN** — DS3 NIU Loop Down **COMSA** — Com Equipment Failure NSA **000001**; **000010**; **000100**; **000110**; **001000**; **001010**; **001011**; **001100**; **001101**; **010000**; **010001**; **010100**; **010111**; **011000**; **011111**; **100000**; **111101**; **111110**; **111111**
SOURce:DS3FEAC:CYCle? (Protocol supported: DS3)	Queries the DS3 protocol processor for the current value of the TX Burst Cycle command for the FEAC Codes.
SOURce:DS3FEAC:CYCle:*X* (Protocol supported: DS3)	Sets the TX Burst Cycle command to a value from 1 to 16.
SOURce:DS3FEAC:RX:CODE? (Protocol supported: DS3)	Queries the DS3 protocol processor for the last FEAC code received. This command is valid only for the DS3 protocol processor.

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SOURce Command	Description
SOURce:DS3FEAC:RX:SEConds? (Protocol supported: DS3)	Queries the DS3 protocol processor for the number of seconds since the last FEAC code was received.
SOURce:DS3FEAC:TX? (Protocol supported: DS3)	Queries the DS3 protocol processor for the current FEAC transmission activity.
SOURce:DS3FEAC:TX:*X* (Protocol supported: DS3)	Starts or stops the transmission of FEAC alarm or FEAC loopback codes based on the following values: **BURST** — Transmits a burst of FEAC alarms or FEAC loopback codes based on the setting of the TX Burst Cycle command **CONTinuous** — Transmits continuous FEAC alarms or FEAC loopback codes **OFF** — Stops transmission of FEAC alarms or FEAC loopback codes
SOURce:DS3LOOPback:ACTivate:*X* (Protocol supported: DS3)	Starts or stops DS3 Loopback based on the following values: **BURST** — Transmits a burst of FEAC alarms or FEAC loopback codes based on the setting of the TX Burst Cycle command **CONTinuous** — Transmits continuous FEAC alarms or FEAC loopback codes **OFF** — Stops transmission of FEAC alarms or FEAC loopback codes
SOURce:DS3LOOPback:CYCle? (Protocol supported: DS3)	Queries the DS3 protocol processor for the current value of the TX Burst Cycle command.
SOURce:DS3LOOPback:CYCle:*X* (Protocol supported: DS3)	Sets the TX Burst Cycle command to a value from 1 to 16.
SOURce:DS3LOOPbackDEACTivate:*X* (Protocol supported: DS3)	Starts or stops DS3 Loopback based on the following values: **BURST** — Transmits a burst of FEAC alarms or FEAC loopback codes based on the setting of the TX Burst Cycle command **CONTinuous** — Transmits continuous FEAC alarms or FEAC loopback codes **OFF** — Stops transmission of FEAC alarms or FEAC loopback codes
SOURce:DS3LOOPback:LINE? (Protocol supported: DS3)	Queries the DS3 protocol processor for the value of the TX Loopback Line command.
SOURce:DS3LOOPback:LINE:*X* (Protocol supported: DS3)	Sets the value of the TX Loopback Line command. The following values are available: **1** through **28** **LINE** **ALL**
SOURce:DS3LOOPback:RX:LINE? (Protocol supported: DS3)	Queries the DS3 protocol processor for the last loopback value received.
SOURce:DS3LOOPback:RX:SEConds? (Protocol supported: DS3)	Queries the DS3 protocol processor for the number of seconds since a loopback ACTivate or DEACTivate command was received.

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SOURce Command	Description
SOURce:DS3LOOPback:RX:TYPE? (Protocol supported: DS3)	Queries the DS3 protocol processor for the last loopback received.
SOURce:E1LOOPback? (Protocol supported: E1)	Queries the E1 protocol processor for the loopback setting.
SOURce:E1LOOPback:*X* (Protocol supported: E1)	Sets the E1 loopback value. The following values are available: **OFF** **LINE** **PAYLOAD**
SOURce:ERR:BURSTCNT? (Protocol supported: ATM)	Queries the Error Burst Count for the ATM protocol processor.
SOURce:ERR:BURSTCNT:*X* (Protocol supported: ATM)	Sets the ATM error burst count to a value from 1 to 10. (**Note:** This command is valid only for HEC errors.)
SOURce:ERR:DURation? (Protocol supported: ATM)	Queries the duration remaining (in seconds) for the current ATM error type; returns the value Continuous
SOURce:ERR:DURation:*X* (Protocol supported: ATM)	Sets the duration (in seconds) for the current ATM error. The valid duration range is from 0 seconds to 32765 seconds.
SOURce:ERR:DUR:CONTinuous (Protocol supported: ATM)	Generates a continuous error for the ATM protocol processor. (**Note:** To stop the error, issue the following command: **SOUR:ERR:DUR:0**)
SOURce:ERR:ONCE (Protocol supported: All protocols)	Generates one error from the currently selected protocol processor. This command is similar to pressing the Error Insert Action button. The type of error transmitted depends on the error type selected for the protocol processor.
SOURce:ERR:RATE:*X* (Protocol supported: All protocols)	Sets the error insertion rate for the current protocol processor. The rate value is an integer. It is translated into a rate by the formula Error rate = $10^{(-rate)}$. Rate values are checked against the error type, and the range of values allowed when entered via the touch screen, except that DS1 Frame error and CRC error maximum rate is $10^{(-1)}$. A value of 0 turns off error generation for the current error. Example: SOUR:ERR:RATE:5 produces an error rate of $10^{(-5)}$ for the current error.
SOURce:ERR:RATE? (Protocol supported: All protocols)	Queries the selected protocol processor for the current error insertion rate. The response to this command appears in the following format: **9.99e-09**, **0.0**, or **1in*X***, where *X* is a value from 2 through 5.
SOURce:ERR:RATE:CONTinuous (Protocol supported: ATM)	Sets the ATM error insertion rate to continuous. This command is valid only for the ATM protocol processor.
SOURce:ERR:SCOPE? (Protocol supported: ATM)	Queries the ATM protocol processor for the scope of the current error. For Bit errors, the VPI and VCI values appear. For HECC and HECU errors, ALL appears.

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SOURce Command	Description
SOURce:ERR:SCOPE:*X,Y* (Protocol supported: ATM)	Sets the VPI and VCI for the ATM error, where: **X** is the VPI value **Y** is the VCI value
SOURce:ERR:TYPE? (Protocol supported: All protocols)	Queries the error type selected for the current protocol processor.
SOURce:ERR:TYPE:*X* (Protocol supported: All protocols)	Sets the current protocol processor's error type to one of the following: **NONE** — Sets the Error Type to None and stops any errors that are generated by the ASA 312 **B1** — Sets the Error Type to Section B1 (Code Violation) errors for the SONET protocol processor. **B2** — Sets the Error Type to Line B2 (CV) errors for the SONET protocol processor. **B3** — Sets the Error Type to Path B3 errors for the SONET protocol processor. **BIT** — Sets the Error Type to Bit errors for all protocol processors. For SONET, BIT errors are only available for STS-3c, STS-12c, and STS-48c mapping. **BPV** — Sets the Error Type to Bipolar Violations. **FRAM** — Sets the Error Type to Framing for the DS1, DS3, and E1 protocol processors **CRC** — Sets the Error Type to CRC errors for the DS1 and E1 protocol processor **PPAR** — Sets the Error Type to P-parity errors for the DS3 protocol processors **CPAR** — Sets the Error Type to C-bit errors for the DS3 protocol processor **FEBE** — Sets the Error Type to FEBE for the DS3 and E1 protocol processor. **RAND** — Sets the Error Type to Random Errors for the SONET protocol processor **PFEBE** — Sets the Error Type to Path FEBE errors for the SONET protocol processor **LFEBE** — Sets the Error Type to Line FEBE errors for the SONET protocol processor

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SOURce Command	Description
SOURce:ERR:TYPE:*X* (continued) (Protocol supported: All protocols)	**VTRAND** — Sets the Error Type to VT Random errors for the SONET protocol processor **VFEBE** — Sets the Error Type to VT FEBE for the SONET protocol processor **VTCV** — Sets the Error Type to VT Code Violations (VT BIP-2) for the SONET protocol processor **HEC** — Sets the Error Type to HEC errors. This is valid when the unit is configured for DS1/ATM or DS3/ATM mapping. **HECC** — Sets the Error Type to HEC-Correctable errors for the ATM protocol processor. This is valid when the SONET protocol processor is configured for ATM mapping. **HECU** — Sets the Error Type to HEC-Uncorrectable errors for the ATM protocol processor. **PLCPFEBE** — Sets the ATM error type to PLCPFEBE when the unit is configured for DS1 ATM PLCP or DS3 ATM PLCP mapping. **PLCPB1** — Sets the ATM error type to PLCP BIP errors when the unit is configured for DS1 ATM B1 or DS3 ATM B1 mapping. **PLCPA1A2** — Sets the ATM error type to PLCP A1A2 errors when the unit is configured for DS1 ATM A1A2 or DS3 ATM A1A2 mapping **PLCPPOI** — Sets the ATM error type to PLCP Frame (POI) errors when the unit is configured for DS1 ATM or DS3 ATM mapping
SOURce:ERR:URATE? (Protocol supported: All protocols)	Queries the selected protocol processor for the current error insertion rate.
SOURce:ERR:USERATE:*X* (Protocol supported: All protocols)	Sets the user defined error rate. The error rate must be entered using scientific notation. For example, **SOUR:ERR:USERATE:2.5E-7.**
SOURce:FRAC_E1:BGPattern? (Protocol supported: E1)	Queries the E1 protocol processor for the pattern value of the background channel when configured for Fractional E1 mode.
SOURce:FRAC_E1:BGPattern:*X* (Protocol supported: E1)	Allows an 8-bit integer to be used as a pattern for the background channels when the unit is configured for Fractional E1 mode.
SOURce:FRAC_E1:MASK? (Protocol supported: E1)	Queries the E1 protocol processor for the active DS0 channels. Displays the value as a 32-bit integer. A bit set to one (1) indicates that the channel is enabled. A bit set to zero (0) indicates that the channel is idle.

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SOURce Command	Description
SOURce:FRAC_E1:MASK:*X* (Protocol supported: E1)	Sets DS0 channels active so that the selected test pattern is transmitted. For X: Enter a 32-bit integer to represent Channels 32 through 1. A one (1) indicates Active and a zero (0) indicates Idle. The high-order bit is unused and is always 0 (=FAS). Bit 16 is unused (0) if E1 is configured for PCM30 or PCM30CRC framing. Enter the mask as a decimal value ranging from 1 to 2,147,483,647 or as a Hex value ranging from #H1 to #H7FFFFFFF.
SOURce:FRAC_E1:MODE? (Protocol supported: E1)	Queries the E1 protocol processor for the value of the Frac E1 Mode command. Fractional E1 responses are: **OFF ON**
SOURce:FRAC_E1:MODE:*X* (Protocol supported: E1)	Turns on Fractional E1 Mode. X is: **ON** **OFF**
SOURce:FRAC_T1:MODE? (Protocol supported: DS1)	Queries the DS1 protocol processor for the value of the Frac T1 Mode command. Fractional T1 responses are: **OFF 56K 64K**
SOURce:FRAC_T1:MODE:*X* (Protocol supported: DS1)	Sets the Fractional T1 Mode command to one of the following: **OFF** **56K** **64K**
SOURce:FRAC_T1:MASK? (Protocol supported: DS1)	Queries the DS1 protocol processor for the active DS0 channels. Displays the value as a 24-bit integer. Channel 24 is the left-most digit and Channel 1 is the right-most digit. The query response displays as a decimal value ranging from **1** to **16,777,215**.
SOURce:FRAC_T1:MASK:*X* (Protocol supported: DS1)	Sets DS0 channels active so that the selected test pattern is transmitted. For X: Enter a 24-bit integer to represent Channels 24 through 1. A one (1) indicates Active and a zero (0) indicates Idle. Enter the mask as a decimal value ranging from 1 to 16,777,215 or as a Hex value ranging from #H1 to #HFFFFFF.
SOURce:FRAMing? (Protocol supported: DS1, DS3, E1)	Queries the DS1, DS3, or E1 protocol processor's Transmit Framing command for its current value.

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SOURce Command	Description
SOURce:FRAMing:*X* (Protocol supported: DS1, DS3, E1)	Sets the DS1, DS3, or E1 protocol processor's transmitter to one of the following framing types: **D4** — Superframe format for DS1 **ESF** — Extended superframe format for DS1 **UNFRamed** — Unframed for DS1, DS3, or E1 **CBIT** — C-BIT framing for DS3 **M13** — M13 Framing for DS3 **PCM30** — PCM30 framing for E1 **PCM30CRC** — PCM30 with CRC framing for E1 **PCM31** — PCM31 framing for E1 **PCM31CRC** — PCM31 with CRC framing for E1
SOURCE:FREQOFF? (Protocol supported: SONET)	Queries the SONET protocol processor for the Line Frequency Offset value.
SOURce:FREQOFF:*X* (Protocol supported: SONET)	Sets the Line Frequency Offset command for the SONET protocol processor. X is: **-99.9** to **99.9** **0.0** sets the Offset to off
SOURce:LASER? (Protocol supported: SONET)	Queries the setting of the unit's laser. This command returns ON or OFF depending whether laser is on or off.
SOURce:LASER:*X* (Protocol supported: SONET)	Turns the unit's laser ON or OFF.
SOURce:LASERTYPE? (Protocol supported: SONET)	Queries the unit for the type of laser that is currently active.
SOURce:LASERTYPE:*X* (Protocol supported: SONET)	Sets the laser to either 1310nm or 1550nm. The ASA 312 must be properly licensed to use this feature.
SOURce:LCODE? (Protocol supported: DS1, E1)	Queries the DS1 or E1 protocol processor for the value of the Line Code command.
SOURce:LCODE:*X* (Protocol supported: DS1, E1)	Sets the Line Code command for the DS-1 or E1 protocol processor X is: **AMI** — AMI line coding for DS1 or E1 protocol processor **B8ZS** — B8ZS line coding for DS1 protocol processor **HDB3** — HDB3 line coding for E1 protocol processor
SOURce:MAPping? (Protocol supported: SONET, ATM)	Queries the selected protocol processor for its current mapping.

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SOURce Command	Description
SOURce:MAPping:*X* (Protocol supported: SONET, ATM)	Sets the transmitter of the SONET protocol processor to one of the following mappings: X is: **VT** — VT Mapping **VTA** — VT 1.5 Asynchronous Mapping **VTB** — VT 1.5 Byte Sync Mapping **DS3** — DS3 Mapping **STSX1** — STSX-1 Drop/Insert **STS3C** — STS-3C/Pattern **STS12C** — STS12C/Pattern **STS48C** — STS-48c Mapping **ATMSTS1** — ATM/STS-1 Mapping **ATMSTS3C** — ATM/STS-3c Mapping **ATMSTS12C** — ATM/STS-12c Mapping (OC-12 and OC-48) **ATMDS3D** — ATM/DS3 Direct Mapping **ATMDS3P** — ATM/DS3 PLCP Mapping **ATMDS3N** — ATM/DS3 None **ATMDS1D** — ATM/DS1 Direct Mapping **ATMDS1P** — ATM/DS1 PLCP Mapping **ATMDS1N** — ATM/DS1 None
SOURce:M13:INSert? (Protocol supported: DS3)	Queries the DS3 protocol processor for the DS-1 channel or E1 channel inserted on the M13 Mux. Values returned are 1-28 or “All Background” for DS1 channels. Values returned are 1-21 or “All Background” for E1 channels.
SOURce:M13:INSert:*X* (Protocol supported: DS3)	If the DS1 Test Set is available, it sets the DS-1 insert channel to one of the 28 M13 muxed DS-3 channels available. If the E1 Test Set is available, it sets the E1 insert channel to one of the 21 M13 muxed E1 channels available. X is: **1** to **28** — DS1 Channel 1 to DS1 Channel 28 **1** to **21** — E1 Channel 1 to E1 Channel 21 **29** — All Background (DS1 and E1 operation)
SOURce:M13:THRUmode? (Protocol supported: DS3)	Queries the DS3 protocol processor for the current value of the M13 Pass-Thru command. **Note:** If the unit is not licensed for this feature, OFF is returned.
SOURce:M13:THRUmode:*X* (Protocol supported: DS3)	Sets the M13 Mux for Thru-mode or normal operation. X is: **ON** — Sets the M13 Mux into Thru mode. The received DS3 signal is used for the background DS1 or E1 channels. **OFF** — Sets the M13 Mux for normal operation. Patterns are used for the background DS1 or E1 channels.
SOURce:NDF? (Protocol supported: SONET)	Queries the SONET protocol processor for the current value of the NDF on New Pointer command.

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SOURce Command	Description
SOURce:NDF:*X* (Protocol supported: SONET)	Sets the value for the NDF on New Pointer command. X is: **YES** **NO**
SOURce:OC? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Transmit Interface command.
SOURce:OC:*X* (Protocol supported: SONET)	Sets the SONET protocol processor's Transmit Interface command to one of the following: X is: **1** — OC-1 mode **3** — OC-3 mode **12** — OC-12 mode **48** — OC-48 mode **48C** — OC-48c mode **STS1** — STSX-1 mode
SOURce:ORDER? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Orderwire Add/Drop command.
SOURce:ORDER:*X* (Protocol supported: SONET)	Sets the Orderwire Add/Drop command. This command is valid for the SONET protocol processor. X is: **E1** — E1 handset, E2 user defined **E2** — E2 handset, E1 user defined. **USER** — E1 and E2 are user defined.
SOURce:OSTSPATT? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Pattern In Other STS1s command.
SOURce:OSTSPATT:*X* (Protocol supported: SONET)	Sets the pattern used in other STS's on an OC-3 or OC-12 interface. This command is valid for the SONET protocol processor. X is: **VT -AIS** — VT mapped AIS **DS3-IDLE** — DS3 mapped IDLE
SOURce:OSTS12PATT? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Pattern in Other STS12s command. This command is available for OC-48 operation only.
SOURce:OSTS12PATT:*X* (Protocol supported: SONET)	Sets the value for the Pattern in Other STS12s command. X is: **AIS** — Path AIS (All Ones) **UNEQ** — Path Unequipped (All Zeros)
SOURce:OVTPATT? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Pattern in Other VTs command.

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SOURce Command	Description
SOURce:OVTPATT:*X* (Protocol supported: SONET)	Sets the Pattern in Other VTs command to one of the following: X is: **DS1-AIS** — DS1 mapped AIS **NUM** — Numbered 1 to 24
SOURce:PATTern? (Protocol supported: SONET, DS1, DS3, E1)	Queries the current protocol processor for the pattern it is sending.
SOURce:PATTern:*X* (Protocol supported: SONET, DS1, DS3, E1)	Sets the Pattern for the current protocol processor. (**Note:** Pattern names are not case sensitive. Numeric patterns (2^15-1, 2^23-1, and so on) use no spacing Multiple word patterns have one space between words. For the DS3 protocol processor, a USER-defined pattern uses a one byte hex parameter; for example, **SOUR:PATT:USER:#HF3.** For the DS1 and E1 protocol processors, a USER-defined pattern uses a length parameter (3 to 24 bits) and a hex value matching the number of bits; for example, **SOUR:PATT:USER:9:#H1BC.)** X is: **QRSS** — QRSS PRBS pattern (DS1) **2^6-1** — 2^6-1 PRBS pattern (E1, DS1 - Frac T1) **2^6-1 INVERTED** – 2^6-1 Inverted PRBS pattern (E1) **2^9-1** — 2^9-1 PRBS pattern (E1, DS1 - Frac T1) **2^9-1 INVERTED** – 2^9-1 Inverted PRBS pattern (E1) **2^11-1** — 2^11-1 PRBS pattern (E1, DS1 - Frac T1) **2^11-1 INVERTED** — 2^11-1 Inverted PRBS pattern (E1) **2^15-1** — 2^15-1 PRBS pattern (DS1, DS3, E1) **2^15-1 INVERTED** — 2^15-1 Inverted PRBS pattern (E1) **2^20-1** — 2^20-1 PRBS pattern (DS1, DS3, E1) **2^20-1 INVERTED** — 2^20-1 Inverted PRBS pattern (E1) **2^23-1** — 2^23-1 PRBS pattern. (DS1, DS3, E1, SONET OC3c, SONET OC12c, SONET OC48c) **2^23-1 INVERTED** — 2^23-1 Inverted PRBS pattern. (E1 and SONET OC3c, OC12c, OC48) **ALL ONES** — All ones pattern (OC3c, OC12c, OC48c) **3 in 24** — 3 in 24 pattern (DS1 only) **1 in 8** — 1 in 8 pattern (DS1 only) **1010 PATTERN** — 1010 pattern (DS1 only) **BLUE SIG** — 1010 pattern (DS3 only) **DDS-1** — DDS-1 pattern: 11111111 (repeated 100 times) followed by 00000000 (repeated 100 times) continuously (DS1 only)

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SOURce Command	Description
SOURce:PATTern:*X* (continued) (Protocol supported: SONET, DS1, DS3, E1)	**DDS-2** — DDS-2 pattern: 01111110 (repeated 100 times) followed by 00000000 (repeated 100 times) continuously (DS1 only) **DDS-3** — DDS-3 pattern: 01001100 transmitted continuously (DS1 only) **DDS-4** — DDS-4 pattern: 00000010 transmitted continuously. A Yellow alarm is normal if configured for D4 framing (DS1 only) **DDS-5** — DDS-5 pattern: DDS-1 pattern (repeated 4 times); DDS-2 (repeated 4 times); DDS-3 (once); DDS-4 (once) continuously (DS1 only) **DDS-6** — 11111110 (repeated 7 times) followed by 11111111 (once) transmitted continuously (DS1 only) **IDLE (1100)** — 1100 pattern (DS3 only) **ALL ZEROS** — All zeros pattern. (DS1, DS3, and SONET OC3c, OC12c, OC48c) **USER** — Bit image of user-defined pattern **Note:** For the DS3 protocol processor, a USER-defined pattern uses a one byte hex parameter; for example, SOUR:PATT:USER:#HF3. For the DS1 and E1 protocol processors, a USER-defined pattern uses a length parameter (3 to 24 bits) and a hex value matching the number of bits; for example, SOUR:PATT:USER:9:#H1BC.) **55DLY** — 55 Octet Daly pattern (DS1 only) **T1-2** — 96 Octet pattern (DS1 only) **T1-3** — 54 Octet pattern (DS1 only) **T1-4** — 120 Octet pattern (DS1 only) **T1-5** — 53 Octet pattern (DS1 only) **55-OCTET** — 55 Octet Pattern (DS1 only) **BRIDGE TAP** — Transmits 21-different patterns (DS1 only) **MULTI-PATTERN** — Transmits 5-different patterns (DS1 only)
SOURce:PSIGLBL? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Path Signal Label (C2) command.
SOURce:PSIGLBL:*X* (Protocol supported: SONET)	Sets the Path Signal Label (C2) command. This command is valid for the SONET protocol processor. X is: **0** to **255** — a decimal value from 0 to 255 **#H0** to **#HFF** — a HEX value from 0 to FF
SOURce:PTRSTS? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the STS Pointer. This value is associated with the Transmit Pointer Value command when the Pointer Type is set to STS.

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SOURce Command	Description
SOURce:PTRSTS:*X* (Protocol supported: SONET)	Sets a new value for the STS pointer. For all SONET modes except OC-3c and OC-12c, *X* is: **-782** to **-1** — decrements the Pointer by that amount **+1** to **+782** — increments the Pointer by that amount **0** to **782** — sets the Pointer to that value For OC-3c and OC-12c, X is: **-3** to **-1** — decrements the Pointer by that amount. **+3** to **+1** — increments the Pointer by that amount. **78** to **81** — sets the Pointer to the value
SOURce:PTRVT? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the VT Pointer. This value is associated with the Transmit Pointer Value command when the Pointer Type is set to VT.
SOURce:PTRVT:*X* (Protocol supported: SONET)	Sets a new value for the VT pointer. X is: **78** — Sets the Transmit Pointer Value to 78 **81** — Sets the Transmit Pointer Value to 81 **0** to **12** — Sets the Transmit Pointer to a value from 0 to 12 for Byte Sync mode **92** to **103** — Sets the Transmit Pointer to a value from 92 to 103 for Byte Sync mode
SOURce:SIGLEVEL? (Protocol supported: DS1, DS3, E1)	Queries the DS1, E1, or DS3 protocol processor for the signal level it is transmitting
SOURce:SIGLEVEL:*X* (Protocol supported: DS1, DS3, E1)	Sets the Signal Level command for the DS1, DS3, or E1 protocol processor. X is: **0DB** — for 0 dBdsx (DS1 and E1) **-7.5DB** — for -7.5 dBdsx (DS1 and E1) **-15DB** — for -15 dBdsx (DS1 and E1) **DSX-3** — Sets DS3 signal level to 0.48 Vp **DS3 High** — Sets DS3 signal level to 0.95 Vp **DS3 Low** — Sets DS3 signal level to 0.35 Vp

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SOURce Command	Description
SOURce:SOH:*X*? (Protocol supported: SONET)	Queries the specified SONET overhead byte. The OH byte is returned in IEEE 488.2 hex format (#Hxx). Although this command is specific for the SONET protocol processor, it can be issued from any protocol processor. X is, For Section OH bytes: **A1 A2 C1 E1 F1 D1 D2 D3** For Line OH bytes: **K1 K2 D4 D5 D6 D7 D8 D9 D10 D11 D12 Z1 Z2 E2** For Path OH bytes: **J1 C2 G1 F2 Z3 Z4 Z5** For VT Path OH bytes in Byte Sync mode: **J2 Z6 Z7** (**Note:** The J1 trace is returned as a quoted string. A line feed character (hex 0A) in the trace causes the command interface to terminate the string, even if it is inside quotes, thereby returning an incomplete string.)
SOURce:SOH:*X Y* (Protocol supported: SONET)	Sets the value for a specified Transmit SONET overhead byte, where *X* is, For Section OH bytes: **A1 A2 C1 E1 F1 D1 D2 D3** For Line OH bytes: **K1 K2 D4 D5 D6 D7 D8 D9 D10 D11 D12 Z1 Z2 E2** For Path OH bytes: **J1 C2 G1 F2 Z3 Z4 Z5** For VT Path OH bytes in Byte Sync mode: **J2 Z6 Z7** *Y* is a decimal value ranging from 0 to 255 or a HEX value ranging from #H0 to #H255 For example, SOUR:SOH:A1 10 or SOUR:SOH:A1 A
SOURce:SPE:INSert? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the SPE Under Test command.
SOURce:SPE:INSert:*X* (Protocol supported: SONET)	Sets the value of the SPE Under Test command. This command is valid for the SONET protocol processor. X is: **ALL** — All SPEs are inserted **1** to **12** — a specific SPE is inserted
SOURCE:SPEFREQOFF? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the SPE Frequency Offset command.
SOURce:SPEFREQOFF:*X* (Protocol supported: SONET)	Sets the SPE Frequency Offset command for the SONET protocol processor. X is: **-99.9** to **99.9** **0.0** — Off
SOURce:SS? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the SS Bits in H1 Byte command.

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SOURce Command	Description
SOURce:SS *X* (Protocol supported: SONET)	Sets the value of the SS Bits in H1 Byte command. This command is valid for the SONET protocol processor.
SOURce:STS12:INSert? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the STS-12 Under Test command.
SOURce:STS12:INSert:*X* (Protocol supported: SONET)	Sets the value of the STS-12 Under Test command. This command is valid for the SONET protocol processor when configured for OC-48 mode. X is: **ALL** — transmits the foreground channel across all four STS-12s. **1** to **4** — selects a specific STS-12 group to transmit as the foreground channel
SOURce:T1X1ADD:*X* (Protocol supported: SONET)	Initiates a T1X1 Pointer sequence for an STS Pointer Adjustment and set the T1X1 Pointer Sequence Selection command to Periodic Added. The value entered represents milliseconds. X is: **36** to **996** — may be any value from 36 msec to 996 msec in 4 msec graduations. (**Note:** A positive value represents an Adjustment Direction increment and a negative value represents an Adjustment Direction decrement.) **1000** to **10000** — may be any value from 1000 msec to 10,000 msec in 1000 msec graduations. (**Note:** A positive value represents an Adjustment Direction increment, and a negative value represents an Adjustment Direction decrement.) To stop the T1X1 Pointer sequence, issue the **SOUR:T1X1END** command.
SOURce:T1X1BURSTINC (Protocol supported: SONET)	Initiates a T1X1 Pointer sequence for an STS Pointer Adjustment by a burst of 3 increments.
SOURce:T1X1BURSTDEC (Protocol supported: SONET)	Initiates a T1X1 Pointer sequence for an STS Pointer Adjustment by a burst of 3 decrements.

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SOURce Command	Description
SOURce:T1X1CANCEL:*X* (Protocol supported: SONET)	Initiates a T1X1 Pointer sequence for an STS Pointer Adjustment and set the T1X1 Pointer Sequence Selection command to Periodic Canceled. The value entered represents milliseconds. X is: **36** to **996** — may be any value from 36 msec to 996 msec in 4 msec graduations. (**Note:** A positive value represents an Adjustment Direction increment and a negative value represents an Adjustment Direction decrement.) **1000** to **10000** — may be any value from 1000 msec to 10,000 msec in 1000 msec graduations. (**Note:** A positive value represents an Adjustment Direction increment, and a negative value represents an Adjustment Direction decrement.) To stop the T1X1 Pointer sequence, issue the **SOUR:T1X1END** command.
SOURce:T1X1DIR? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Adjustment Direction command. The response to this command indicates that the T1X1 sequence increments (INC) or decrements (DEC).
SOURce:T1X1END (Protocol supported: SONET)	Terminates a T1X1 Pointer sequence.
SOURce:T1X1PERIOD? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Period Between Adjustments command. The response to this command indicates the number of milliseconds between adjustments for a T1X1 sequence. Values returned range from 36 to 10,000.
SOURce:T1X1TYP? (Protocol supported: SONET)	Queries the SONET protocol processor to determine the type of active T1X1 Pointer sequence used. The following responses appear: **NONE** — the T1X1 Pointer is not active **BURST** — the T1X1 Pointer is set for Periodic Bursts **ADD** — the T1X1 Pointer is set for Periodic Added **CANCEL** —the T1X1 Pointer is set for Periodic Cancel
SOURce:TXTOHSTS:*X* (Protocol supported: SONET)	Sets a sts-1# (1-48 for OC-48 mode; 1-12 for OC12/OC12c; 1-3 for OC3/OC3c; otherwise 1) for Transmit Transport Overhead setting and examination. This can be different from the STS-1 being examined on the touch screen.
SOURce:TXTOHSTS? (Protocol supported: SONET)	Queries the SONET protocol processor for the current STS-1 that is used by the Transport Overhead bytes. The response to this command appears as: **1** to **48** for OC-48 mode **1** to **12** for OC-12 mode **1** to **3** for OC-3/OC-3c mode This response can be different from what appears on the ASA 312's touch screen for the Trnsprt OH display.

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SOURce Command	Description
SOURce:UPATTern? (Protocol supported: DS1, DS3, E1)	Queries the DS1, DS3, or E1 protocol processors for the value of the Pattern command.
SOURce:VTINSert:*X* (Protocol supported: SONET)	Sets the value of the VT Under Test command to the following: **ALL** — All channels/groups are inserted **NONE** — No channels/groups are inserted (**Note:** To set VT Channels and VT Groups separately, use the SOUR:VTCH:INS and SOUR:VTGR:INS commands.)
SOURce:VTCHannel:INSert? (Protocol supported: SONET)	Queries the SONET protocol processor for the current VT channel (1-4) inserted.
SOURce:VTCHannel:INSert:*X* (Protocol supported: SONET)	Sets the VT channel (1-4) inserted. This is associated with the VT Under Test command.
SOURce:VTGRoup:INSert? (Protocol supported: SONET)	Queries the SONET protocol processor for the current VT group (1-7) inserted.
SOURce:VTGRoup:INSert:*X* (Protocol supported: SONET)	Sets the VT group (1-7) inserted. This is associated with the VT Under Test command.
SOURce:VTSIGLBL? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the VT Signal Label command.
SOURce:VTSIGLBL:*X* (Protocol supported: SONET)	Sets the value of the VT Signal Label. X is: **0** — sets the VT Signal Label to 000 **1** — sets the VT Signal Label to 001 **2** — sets the VT Signal Label to 010 **3** — sets the VT Signal Label to 011 **4** — sets the VT Signal Label to 100 **5** — sets the VT Signal Label to 101 **6** — sets the VT Signal Label to 110 **7** — sets the VT Signal Label to 111

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SENSe Branch

The Sense Branch commands are associated with functionality normally found under the Receive Function Group button.

The following is a list of supported SENSE commands.

SENSe Command	Description
SENSe:CLOCk? (Protocol supported: SONET, DS1, E1)	Queries the protocol processor for the current setting of the Clock Reference command.
SENSe:CLOCk:*X* (Protocol supported: SONET, DS1, E1)	Sets the value of the Clock Reference command for the DS1, E1, and SONET protocol processors. X is: **INT** — Internal Clock **BITS** — External Bits reference clock input. **LOOPED** — Received DS-1, E1, or SONET signal
SENSe:COUPled? (Protocol supported: SONET, DS1, DS3)	Queries the protocol processor to verify if receive and transmit commands are coupled or set independently.
SENSe:COUPled:*X* (Protocol supported: SONET, DS1, DS3)	Sets the current protocol processor to couple the Receive and Transmit commands, or to set the Receive and Transmit commands for independent operation. The following values are supported: X is: **YES** — coupled **NO** — independent This command is valid for the SONET, DS1, and DS3 protocol processors. (**Note:** For DS3, only the Pattern command is coupled.)
SENSe:DS1ATM? (Protocol supported: ATM)	Queries the protocol processor to determine the setting of DS1/ATM operation.
SENSe:DS1ATM:*X* (Protocol supported: ATM)	Sets the ATM protocol processor to operate over DS1 in either Direct or PLCP mode. (**Note:** DS1 framing must be ESF or D4.) X is: **DIRect** — Direct mode **PLCP** — PLCP mode **NONE** — Disables DS1/ATM operation
SENSe:DS3ATM? (Protocol supported: ATM)	Queries the protocol processor to determine the setting of DS3/ATM operation.
SENSe:DS3ATM:*X* (Protocol supported: ATM)	Sets the ATM protocol processor to operate over DS3 in either Direct or PLCP mode. (**Note:** DS3 framing must be C-BIT or M13.) X is: **DIRect** — Direct mode **PLCP** — PLCP mode **NONE** — Disables DS3/ATM operation

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SENSe Command	Description
SENSe:DS3BIT:*X* (Protocol supported: DS3)	Sets the BIT Error Count function for DS3 error analysis. **Note:** This function requires special licensing to be used with an ASA 312. Under normal conditions, if a Loss of Pattern is detected, the unit will not count BIT errors. As a result, the error counts value will not increment. However, the unit can be is licensed to count BIT errors when a Loss of Pattern is received. The SENSe:DS3BIT command controls whether or not BIT errors are detected and logged by the DS3 protocol processor. X is: **ALWAYS** — The DS3 protocol processor continues to count BIT errors even if a Loss of Pattern is detected. **INHIBIT** — This is the unit's normal mode of operation. If a Loss of Pattern is detected, BIT errors are not counted and are not recorded.
SENSe:DS3BIT? (Protocol supported: DS3)	Queries the DS3 protocol processor for the value of the BIT Error Count function.
SENSe:FRAMing? (Protocol supported: DS1, DS3, E1)	Queries the DS1, DS3, or E1 protocol processor's Receive Framing command for its current value.
SENSe:FRAMing (Protocol supported: DS1, DS3, E1)	Sets the DS1, DS3, or E1 protocol processor's receiver to one of the following framing types: **D4** — Superframe format for DS1 **ESF** — Extended superframe format for DS1 **UNFRamed** — Unframed for DS1, DS3, or E1 **SLC96** — SLC-96 format for DS1 **CBIT** — C-BIT framing for DS3 **M13** — M13 Framing for DS3 **PCM30** — PCM30 framing for E1 **PCM30CRC** — PCM30 with CRC framing for E1 **PCM31** — PCM31 framing for E1 **PCM31CRC** — PCM31 with CRC framing for E1
SENSe:FREQ? (Protocol supported: SONET, DS1, DS3)	Queries the protocol processor for its current line frequency. The value that appears is in MHz.
SENSe:FREQOFF? (Protocol supported: SONET, DS1, DS3)	Queries and returns the current frequency offset measurement for either the DS1, DS3, and SONET protocol processors. The measurement appears as: **X.XXX,Y.YY** where, X is KHz Y is ppm (parts per million)
SENSe:LCODE? (Protocol supported: DS1)	Queries the DS1 protocol processor for the value of the Line Code command.

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SENSe Command	Description
SENSe:M13:BGFRaming? (Protocol supported: DS3)	Queries the DS3 protocol processor for the value of the M13 Background DS1 Framing command.
SENSe:M13:BGFRaming:*X* (Protocol supported: DS3)	Sets the framing used by the M13 Background DS1 Framing command. This command is valid for the DS3 protocol processor. X is: **D4** — SF/D4 Superframe format **ESF** — Extended Superframe format **UNFRamed** — Unframed DS1 format
SENSe:M13:BGPattern? (Protocol supported: DS3)	Queries the DS3 protocol processor for the DS1 or E1 background pattern dropped to the M13 Mux.
SENSe:M13:BGPattern:*X* (Protocol supported: DS3)	Sets the pattern sent over the background DS1 or E1 channels that make up the DS3 signal. This command is valid for the DS3 protocol processor. X is: **QRSS** — QRSS PRBS pattern (DS1 only) **P15** — 2^15-1 PRBS pattern (DS1 only) **P20** — 2^20-1 PRBS pattern (DS1 only) **P23** — 2^23-1 PRBS pattern (DS1 only) **ONES** — All ones pattern (DS1 and E1) **ZEROS** — All zeros pattern (DS1 and E1) **IDLE** — Standard Idle pattern (DS1 only) **BLUE** — 1010 pattern (DS1 only)
SENSe:M13:DROP? (Protocol supported: DS3)	Queries the DS3 protocol processor for the DS1 channel or E1 channel dropped from the M13 Mux. For DS1, values returned are 1-28. For E1, values returned are 1-21.
SENSe:M13:DROP:*X* (Protocol supported: DS3)	If the DS1 Test Set is available, it sets the DS1 drop channel to one of the 28 M13 muxed DS3 channels available. If the E1 Test Set is available, it sets the E1 drop channel to one of the 21 M13 muxed DS3 channels available. X is: **1** to **28** — DS1 Channel 1 to DS1 Channel 28 **1** to **21** — E1 Channel 1 to E1 Channel 21
SENSe:MAPping? (Protocol supported: SONET, ATM)	Queries the selected protocol processor for its current mapping. This command is valid for the SONET and ATM protocol processors.

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SENSe Command	Description
SENSe:MAPping:*X* (Protocol supported: SONET, ATM)	Sets the receiver of the SONET protocol processor to one of the following mappings: **VT** — VT Mapping **DS3** — DS3 Mapping **STSX1** — STSX-1 Drop/Insert **STS3C** — STS-3c/Pattern **STS12C** — STS12C/Pattern **STS48C** — STS-48c Mapping **ATMSTS1** — ATM/STS-1 Mapping **ATMSTS3C** — ATM/STS-3c Mapping **ATMSTS12C** — ATM/STS-12c Mapping (OC-12 and OC-48) **ATMDS3D** — ATM/DS3 Direct Mapping **ATMDS3P** — ATM/DS3 PLCP Mapping **ATMDS3N** — ATM/DS3 None **ATMDS1D** — ATM/DS1 Direct Mapping **ATMDS1P** — ATM/DS1 PLCP Mapping **ATMDS1N** — ATM/DS1 None
SENSe:NDFSTS? (Protocol supported: SONET)	Queries the STS NDF count.
SENSe:NDFVT? (Protocol supported: SONET)	Queries the VT NDF count.
SENSe:OC? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the Receive Interface command.
SENSe:OC:X (Protocol supported: SONET)	Sets the SONET protocol processor's Receive Interface command to one of the following: **1** — OC-1 mode **3** — OC-3 mode **12** — OC-12 mode **48** — OC-48 mode **STS1** — STSX-1 mode
SENSe:OPP? (Protocol supported: SONET)	Queries the SONET protocol processor for the Received Optical Power level. The value that appears is in dBm. This command is not valid for the STSX-1 electrical interface. (**Note:** The SENSe:OPSAMP command must be issued prior to this command. A six second delay is required between the SENSe:OPSAMP and SENSe:OPP? commands.)
SENSe:OPSAMP (Protocol supported: SONET)	Samples the SONET protocol processor for the Received Optical Power level. The value that appears is in dBm. (**Note:** A six second delay is required before the SENSe:OPP? command is issued.)
SENSe:PATTern? (Protocol supported: SONET, DS1, DS3, E1)	Queries the current protocol processor for the pattern it is sending.

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SENSe Command	Description
SENSe:PATTern:*X* (Protocol supported: SONET, DS1, DS3, E1)	Sets the Pattern for the current protocol processor. (**Note:** Pattern names are not case sensitive. Numeric patterns (2^15-1, 2^23-1, and so on) use no spacing Multiple word patterns have one space between words. For the DS3 protocol processor, a USER-defined pattern uses a one byte hex parameter; for example, **SENS:PATT:USER:#HF3.** For the DS1 and E1 protocol processors, a USER-defined pattern uses a length parameter (3 to 24 bits) and a hex value matching the number of bits; for example, **SENS:PATT:USER:9:#H1BC.**) X is: **LIVE** — User data is received; no pattern is used **QRSS** — QRSS PRBS pattern (DS1) **2^6-1** — 2^6-1 PRBS pattern (E1, DS1 - Frac T1) **2^6-1 INVERTED** – 2^6-1 Inverted PRBS pattern (E1) **2^9-1** — 2^9-1 PRBS pattern (E1, DS1 - Frac T1) **2^9-1 INVERTED** – 2^9-1 Inverted PRBS pattern (E1) **2^11-1** — 2^11-1 PRBS pattern (E1, Frac T1) **2^11-1 INVERTED** — 2^11-1 Inverted PRBS pattern (E1) **2^15-1** — 2^15-1 PRBS pattern (E1, DS1, DS3) **2^15-1 INVERTED** — 2^15-1 Inverted PRBS pattern (E1) **2^20-1** — 2^20-1 PRBS pattern (E1, DS1, DS3) **2^20-1 INVERTED** — 2^20-1 Inverted PRBS pattern (E1) **2^23-1** — 2^23-1 PRBS pattern. (E1, DS1, DS3, and SONET OC-3c, OC-12c, OC-48) **2^23-1 INVERTED** — 2^23-1 Inverted PRBS pattern. (E1 and SONET OC-3c, OC-12c, OC-48) **ALL ONES** — All ones pattern (SONET OC-3c, OC-12c, and OC-48) **3 in 24** — 3 in 24 pattern (DS1 only) **1 in 8** — 1 in 8 pattern (DS1 only) **1010 PATTERN** — 1010 pattern (DS1 only) **BLUE SIG** — 1010 pattern (DS3 only) **DDS-1** — DDS-1 pattern: 11111111 (repeated 100 times) followed by 00000000 (repeated 100 times) continuously (DS1 only)

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SENSe Command	Description
SENSe:PATTern:*X* (continued) (Protocol supported: SONET, DS1, DS3, E1)	**DDS-2** — DDS-2 pattern: 01111110 (repeated 100 times) followed by 00000000 (repeated 100 times) continuously (DS1 only) **DDS-3** — DDS-3 pattern: 01001100 transmitted continuously (DS1 only) **DDS-4** — DDS-4 pattern: 00000010 transmitted continuously. A Yellow alarm is normal if configured for D4 framing (DS1 only) **DDS-5** — DDS-5 pattern: DDS-1 pattern (repeated 4 times); DDS-2 (repeated 4 times); DDS-3 (once); DDS-4 (once) continuously (DS1 only) **DDS-6** — 11111110 (repeated 7 times) followed by 11111111 (once) transmitted continuously (DS1 only) **IDLE (1100)** — 1100 pattern (DS3 only) **ALL ZEROS** — All zeros pattern. (DS1, DS3, and SONET OC3c, OC12c, OC48) **USER** — Bit image of user-defined pattern **Note:** For the DS3 protocol processor, a USER-defined pattern uses a one byte hex parameter; for example, SENS:PATT:USER:#HF3. For the DS1 and E1 protocol processors, a USER-defined pattern uses a length parameter (3 to 24 bits) and a hex value matching the number of bits; for example, SENS:PATT:USER:9:#H1BC.) **55DLY** — 55 Octet Daly pattern (DS1 only) **T1-2** — 96 Octet pattern (DS1 only) **T1-3** — 54 Octet pattern (DS1 only) **T1-4** — 120 Octet pattern (DS1 only) **T1-5** — 53 Octet pattern (DS1 only) **55-OCTET** — 55 Octet Pattern (DS1 only) **BRIDGE TAP** — Transmits 21-different patterns (DS1 only) **MULTI-PATTERN** — Transmits 5-different patterns (DS1 only)
SENSe:PNPV? (Protocol supported: SONET, DS1, DS3)	Queries the protocol processor for the Peak Negative Pulse Voltage, in volts, for the SONET (STSX-1 only) DS1, and DS3 protocol processors.
SENSe:PPPV? (Protocol supported: SONET, DS1, DS3)	Queries the protocol processor for the Peak Positive Pulse Voltage, in volts, for the SONET (STSX-1 only), DS1, and DS3 protocol processors.
SENSe:PTRNEGSTS? (Protocol supported: SONET)	Returns the number of negative STS pointer justifications.
SENSe:PTRNEGVT? (Protocol supported: SONET)	Returns the number of negative VT pointer justifications.
SENSe:PTRPOSSTS? (Protocol supported: SONET)	Returns the number of positive STS pointer justifications.

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SENSe Command	Description
SENSe:PTRPOSVT? (Protocol supported: SONET)	Returns the number of positive VT pointer justifications.
SENSe:PTRSTS? (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the receive STS Pointer.
SENSe:PTRVT (Protocol supported: SONET)	Queries the SONET protocol processor for the value of the receive VT Pointer.
SENSe:RXTOHSTS? (Protocol supported: SONET)	Queries the SONET protocol processor for the current STS-1 that is used by the Receive Transport Overhead bytes. The response to this command appears as: **1** to **12** for OC-48 mode **1** to **12** for OC-12 mode **1** to **3** for OC-3/OC-3c mode This response can be different from what appears on the ASA 312's touch screen for the Trnsprt OH display.
SENSe:RXTOHSTS:*X* (Protocol supported: SONET)	Selects a specific STS-1 for the Receive Transport Overhead function to monitor. X is: **1** to **12** for OC-48 mode **1** to **12** for OC-12 mode **1** to **3** for OC-3 mode
SENSe:SPE:DROP? (Protocol supported: SONET)	Queries the current SPE dropped.
SENSe:SPE:DROP:*X* (Protocol supported: SONET)	Sets the SPE drop for the OC-48 interface. X is: **1** to **12** for the specific SPE that is dropped
SENSe:SOH:*X*? (Protocol supported: SONET)	Queries the specified Receive SONET overhead byte. The OH byte is returned in IEEE 488.2 hex format (#Hxx). Although this command is specific for the SONET protocol processor, it can be issued from any protocol processor. X is, For Section OH bytes: **A1 A2 C1 E1 F1 D1 D2 D3** For Line OH bytes: **K1 K2 D4 D5 D6 D7 D8 D9 D10 D11 D12 Z1 Z2 E2** For Path OH bytes: **J1 C2 G1 F2 Z3 Z4 Z5** For VT Path OH bytes in Byte Sync mode: **J2 Z6 Z7** (**Note:** The J1 trace is returned as a quoted string. A line feed character (hex 0A) in the trace causes the command interface to terminate the string, even if it is inside quotes, thereby returning an incomplete string.)

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SENSe Command	Description
SENSe:SOH:*X Y* (Protocol supported: SONET)	Sets the value for a specified Receive SONET overhead byte. X is: For Section OH bytes: **A1 A2 C1 E1 F1 D1 D2 D3** For Line OH bytes: **K1 K2 D4 D5 D6 D7 D8 D9 D10 D11 D12 Z1 Z2 E2** For Path OH bytes: **J1 C2 G1 F2 Z3 Z4 Z5** For VT Path OH bytes in Byte Sync mode: **J2 Z6 Z7** *Y* is a decimal value ranging from **0** to **255** For example, **SENS:SOH:A1 10**
SENSe:STS12:DROP? (Protocol supported: SONET)	Queries the current STS-12 dropped for analysis. This is only valid for OC-48 mode.
SENSe:STS12:DROP:*X* (Protocol supported: SONET)	Sets the STS-12 dropped for analysis. This is valid for OC-48 mode only. X is: **1** to **4** — selects a specific STS-12 group to drop as the foreground channel
SENSe:TERMination? (Protocol supported: SONET, DS1, DS3)	Queries the protocol processor for the value of the Input Termination command. This command is valid for the DS1 and DS3 protocol processors.
SENSe:TERMination:*X* (Protocol supported: SONET, DS1, DS3)	Sets the value of the Line Interface Input Termination command. X is: **TERMinated** (Note: For DS3, Terminated/Monitor are same, if not licensed for Bridged Low) **MONITOR** (Note: For DS3, Terminated/Monitor are same, if not licensed for Bridged Low) **HIGH** (DS3 only, if available in hardware; otherwise, error code -131 is returned) **BRIDGED** **BRIDGEDLOW** (DS3 only, if available in hardware; otherwise, error code 183 is returned) **LOOPED** (Note: Used for the NAA I unit) **UNLOOPED** (Note: SONET only for the NAA I unit)
SENSe:UPATTern? (Protocol supported: SONET, DS1, DS3, E1)	Queries the DS1, DS3, and E1 protocol processors for the value of the Pattern command.
SENSe:VTCHannel:DROP? (Protocol supported: SONET)	Queries the SONET protocol processor for the current VT channel (1-4) dropped.
SENSe:VTCHannel:DROP:*X* (Protocol supported: SONET)	Sets the VT channel (1-4) dropped. This is associated with the VT Under Test command.
SENSe:VTGRoup:DROP? (Protocol supported: SONET)	Queries the SONET protocol processor for the current VT group (1-7) dropped.

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SENSe Command	Description
SENSe:VTGRoup:DROP (Protocol supported: SONET)	Sets the VT group (1-7) dropped. This is associated with the VT Under Test command.

ATMVCC Branch

The ATMVCC Branch contains SCPI commands that control functionality associated with the ATM VCC Table Function Group button.

- Allow you to create and edit VCC Table entries
- Query and change VCC Table entry

Using the ATMVCC Branch Commands

Before you can use an ATMVCC command, you must first select a VCC Table entry. For first-time ATM operation, create a VCC Table entry

1. Issue the ATMINT? command to determine if the ATM protocol processor is configured for NNI or UNI mode. (This determines how you enter the VCC Table header.)
2. To add a VCC Table entry, issue the ATMVCC:TABLE:ADD command.

   For UNI, enter:

   - One digit for the GFC value
   - Two digits for the VPI value
   - Four digits for the VCI value
   - One digit for the PTI value
   - One digit for the CLP value

   an X represents a wildcard character and a single space is required between each value, for example

   ATMVCC:TABLE:ADD x 12 0040 x x

   For NNI, enter:

   - Two digits for the VPI value
   - Four digits for the VCI value
   - One digit for the PTI value
   - One digit for the CLP value

   an X represents a wildcard character and a single space is required between each value, for example

   ATMVCC:TABLE:ADD 21 0050 x x
3. Issue the ATMVCC:TABLE:ENTRY? command to verify that the entry was added to the VCC Table.

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ATMVCC Command	Description
ATMVCC:TABLE:ADD *gfc vpi vci pti clp* (Protocol supported: ATM)	Adds a virtual channel to the VCC Table. Use the following guidelines to enter the VCC Header: **gfc** — a single digit Hex value (0 to F) that represents the Generic Flow Control bit in a VCC Header. The GFC is used only for a UNI interface. It is not required for an NNI interface. **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier. **pti** — a 2 digit binary value (0 or 1) that represents the Payload Type Indicator bits in a VCC Header. Enter values only for the 2nd and 3rd bit position. **clp** — a single digit binary value that represents the Cell Loss Priority bit in a VCC Header. **Note:** Use a space to separate VCC Header parameters. For example, To enter a UNI VCC Header: **ATMVCC:TABLE:ADD F 01 0040 11 0** To enter an NNI VCC Header: **ATMVCC:TABLE:ADD 01 0040 11 X**
ATMVCC:TABLE:ENTRY? (Protocol supported: ATM)	Queries the current VCC Table entry for its VCC Header. For a UNI VCC Header, the query may appear similar to the following: **0 0F 0040 0x0 x** For an NNI VCC Header, the query may appear similar to the following: **00F 0040 0x0 x**
ATMVCC:TABLE:ENTRY *gfc vpi vci pti clp* (Protocol supported: ATM)	Sets the current VCC table entry (for GPIB/SCPI) to the entry specified.The following parameters are available: **gfc** — a single digit Hex value (0 to F) that represents the Generic Flow Control bit in a VCC Header. The GFC is used only for a UNI interface. It is not required for an NNI interface. **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier. **pti** — a 2 digit binary value (0 or 1) that represents the Payload Type Indicator bits in a VCC Header. Enter values only for the 2nd and 3rd bit position. **clp** — a single digit binary value that represents the Cell Loss Priority bit in a VCC Header. **Note:** The entry must exist in the VCC table; this entry is used for changes and deletion. If it does not exist, then the most recent entry added to the VCC Table becomes the editable table.

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ATMVCC Command	Description
ATMVCC:TXPAT? (Protocol supported: ATM)	Queries the current virtual channel (as selected in the VCC Table) for the value of its Transmit Pattern.
ATMVCC:TXPAT:*X* (Protocol supported: ATM)	Sets the value of the ATM Transmit Pattern command. X is: **2^15-1 INVERTED** — Transmits the 2^{15}-1 Inverted PRBS pattern **2^15-1** — Transmits the 2^{15}-1 PRBS pattern **ALL ONES** — Transmits the All Ones pattern **1010** — Transmits the 1010 pattern **USER** — Transmits an 8-bit User Defined pattern. This pattern must be entered using Hexadecimal notation. For example, to transmit the binary pattern 00010001, enter the following: **ATMVCC:TXPAT:USER #HF3**
ATMVCC:RXPAT? (Protocol supported: ATM)	Queries the current virtual channel (as selected in the VCC Table) for the value of its Receive Pattern.
ATMVCC:RXPAT:*X* (Protocol supported: ATM)	Sets the value of the ATM Receive Pattern command. X is: **2^15-1** — Transmits the 2^{15}-1 PRBS pattern **ALL ONES** — Transmits the All Ones pattern **LIVE** — Uses live data traffic instead of a pattern **1010** — Transmits the 1010 pattern **USER** — Transmits an 8-bit User Defined pattern. This pattern must be entered using Hexadecimal notation. For example, to transmit the binary pattern 00010001, enter the following: **ATMVCC:RXPAT:USER #HF3**
ATMVCC:AAL? (Protocol supported: ATM)	Queries the current virtual channel for its AAL value.
ATMVCC:AAL:*X* (Protocol supported: ATM)	Sets the value of the ATM protocol processor's AAL command. This command changes the AAL value for the current virtual channel. X is: **0** — AAL 0 **1** — AAL 1 **5** — AAL 5
ATMVCC:AALPDU? (Protocol supported: ATM)	Queries the current virtual channel for the value of the AAL5 PDU Length command.
ATMVCC:AALPDU:*X* (Protocol supported: ATM)	Sets the value of the AAL5 PDU Length command for the current virtual channel (as selected in the VCC Table). This command is valid for the ATM protocol processor. X is a value from: **1** to **65512**

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ATMVCC Command	Description
ATMVCC:BURST? (Protocol supported: ATM)	Queries and returns the number of single bursts transmitted for the current virtual channel (as selected in the VCCTable). If the virtual channel is configured for AAL 0, then this response indicates the number of cells sent. If the virtual channel is configured for AAL1 or AAL5, then this response indicates the number of PDUs sent.
ATMVCC:BURST:*X* (Protocol supported: ATM)	Sets, and then transmits, a Burst Count. X is a value from: **1** to **1000** **Note:** If the virtual channel is configured for AAL 0, then this command transmits a burst of cells. If the virtual channel is configured for AAL 1 or AAL 5, then this command transmits a burst of PDUs.
ATMVCC:DELETE:DELETE (Protocol supported: ATM)	Deletes the current virtual channel from the VCC Table.
ATMVCC:DELETE:ALL (Protocol supported: ATM)	Deletes all virtual channels from the VCC Table. **Note:** This command deletes the entire VCC Table.
ATMVCC:MBS? (Protocol supported: ATM)	Queries the current virtual channel for the value of the Maximum Burst Size command.
ATMVCC:MBS:*X* (Protocol supported: ATM)	Sets the Maximum Burst Size for the current virtual channel.
ATMVCC:PCR? (Protocol supported: ATM)	Queries the current virtual channel for the value of the Peak Cell Rate command. This command is valid for VBR and CBR traffic shaping.
ATMVCC:PCR:*X* (Protocol supported: ATM)	Sets the Peak Cell Rate for the current virtual channel.
ATMVCC:RX:ALL:*X* (Protocol supported: ATM)	Sets the Receive Enable status for all enabled virtual channels in the VCC Table. X is: **ON** — Starts data traffic monitoring on all enabled virtual channels (as specified by the Monitor or Detail status). **OFF** — Stops data traffic monitoring on all enabled virtual channels.
ATMVCC:RX:STATUS? (Protocol supported: ATM)	Queries the current virtual channel for its Receive Enable status.
ATMVCC:RX:STATUS:*X* (Protocol supported: ATM)	Sets the Receive Enable status of the current virtual channel (as selected in the VCC Table). X is: **MONITOR** — Enables ATM cell monitoring of a specific virtual channel **DETAIL** — Enables detailed ATM cell monitoring of the virtual channel. Detailed Detection mode is valid for a maximum of four virtual channels. **DISABLE** — Disables ATM cell monitoring of a specific virtual channel

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ATMVCC Command	Description
ATMVCC:RX:STATALL:*X* (Protocol supported: ATM)	Sets the Receive Enable status for all virtual channels in the VCC Table. X is: **MONITOR** — Enables ATM cell monitoring for all virtual channels listed in the VCC Table. **DISABLE** — Disables ATM cell monitoring for all virtual channels listed in the VCC Table.
ATMVCC:SCR? (Protocol supported: ATM)	Queries the current virtual channel for the value of the Sustained Cell Rate command. This command is valid for VBR traffic shaping.
ATMVCC:SCR:*X* (Protocol supported: ATM)	Sets the Sustained Cell Rate for the current virtual channel. X is the SCR value which can be represented in units of Bandwidth percentage, Mbps, Kbps, or Cells per second
ATMVCC:SHAPING? (Protocol supported: ATM)	Queries the current virtual channel for the value of the Traffic Shaping command.
ATMVCC:SHAPING:*X* (Protocol supported: ATM)	Sets the traffic shaping for the current virtual channel. X is: **VBR** — Variable Bit Rate traffic shaping **UBR** — Unspecified Bit Rate traffic shaping **CBR** — Constant Bit Rate traffic shaping
ATMVCC:TX:ALL: (Protocol supported: ATM)	Sets the Transmit Enable status for all enabled virtual channels in the VCC Table. X is: **ON** — Starts data traffic monitoring on all enabled virtual channels (as specified by the Monitor or Detail status). **OFF** — Stops data traffic monitoring on all enabled virtual channels.
ATMVCC:TX:STATUS? (Protocol supported: ATM)	Queries the current virtual channel for its Transmit Enable status.
ATMVCC:TX:STATUS:*X* (Protocol supported: ATM)	Sets the Transmit Enable status of the current virtual channel (as selected in the VCC Table). X is: **ENABLE** — Enables ATM cell transmission of a specific virtual channel **DISABLE** — Disables ATM cell transmission of a specific virtual channel
ATMVCC:TX:STATALL (Protocol supported: ATM)	Sets the Transmit Enable status for all virtual channels in the VCC Table. X is: **ENABLE** — Enables ATM cell transmission for all virtual channels listed in the VCC Table. **DISABLE** — Disables ATM cell transmission for all virtual channels listed in the VCC Table.

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ATMVCC Command	Description
ATMVCC:URXPAT? (Protocol supported: ATM)	Queries the current virtual channel for its Receive Pattern value.
ATMVCC:UTXPAT? (Protocol supported: ATM)	Queries the current virtual channel for its Transmit Pattern value.

ATMINTerface Branch

The ATM Interface commands configure the ASA 312 for User-to-Network Interface mode or Network-to-Network Interface mode. The following is a list of supported ATM Interface commands.

ATMINTerface Commands	Description
ATMINTerface? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the ATM Interface command.
ATMINTerface:*X* (Protocol supported: ATM)	Sets the value of the ATM Interface command. X is: **UNI** — User-Network Interface **NNI** — Network-Network Interface

ATMPROVision Branch

The ATM Provision Branch supports commands normally associated with the Provision functions in the ATM Functns Function Group button. The following commands are supported by the ASA 312.

ATMPROVision Commands	Description
ATMPROVision:VCC? (Protocol supported: ATM)	Queries the ATM protocol processor's Provision function for its Transmit VPI and VCI values.
ATMPROVision:VCC:*vpi vci* (Protocol supported: ATM)	Sets the Provision function's VPI and VCI values. Use the following guidelines to enter a VPI and VCI: **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier. **Note:** Use a space to separate the VPI and VCI values when issuing this command. For example, **ATMPROV:VCC:01 0040**
ATMPROVision:PCR? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the Peak Cell Rate (PCR) command. This command applies to the ATM Provision function.

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ATMPROVision Commands	Description
ATMPROVision:PCR:*X* (Protocol supported: ATM)	Sets the Provision function's Peak Cell Rate value. If the value entered is not within the valid range, then an error code (-104) is returned.
ATMPROVision:SCR? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the Sustained Cell Rate command. This command applies to the ATM Provision function.
ATMPROVision:SCR:*X* (Protocol supported: ATM)	Sets the Sustained Cell Rate for Provisioning to the value specified or returns an error code (-104) if the value is not within the valid range.
ATMPROVision:MBS? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the Maximum Burst Size command. This command applies to the ATM Provision function.
ATMPROVision:MBS:*X* (Protocol supported: ATM)	Sets the Maximum Burst Size for Provisioning to the value specified or returns an error code (-104) if the value is not within the valid range
ATMPROVision: PDUS? (Protocol supported: ATM)	Queries the number of 500 cell PDUs sent for Provisioning
ATMPROVision:PDUS:*X* (Protocol supported: ATM)	Sets the number of 500 cell PDUs sent for Provisioning to the value specified
ATMPROVision:START (Protocol supported: ATM)	Starts sending Provisioning PDUs
ATMPROVision:STOP (Protocol supported: ATM)	Stops sending Provisioning PDUs

ATMLOOPBack Branch

The following commands support functionality associated with the ATM Loopback button which is located under the Trnsmt button of the ATM Functns Function Group button.

ATMLOOPBack Commands	Description
ATMLOOPBack:VCCHDR? (Protocol supported: ATM)	Queries the ATM protocol processor's Loopback function for the value of the Loopback VCC Header command.

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ATMLOOPBack Commands	Description
ATMLOOPBack:VCCHDR: *gfc vpi vci pti clp* (Protocol supported: ATM)	Sets the Loopback function's VCC Header values. Use the following guidelines to enter the VCC Header: **gfc** — a single digit Hex value (0 to F) that represents the Generic Flow Control bit in a VCC Header. The GFC is used only for a UNI interface. It is not required for an NNI interface. **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier. **pti** — a 2 digit binary value (0 or 1) that represents the Payload Type Indicator bits in a VCC Header. Enter values only for the 2nd and 3rd bit position. **clp** — a single digit binary value that represents the Cell Loss Priority bit in a VCC Header. **Note:** Use a space to separate VCC Header parameters. For example, to enter a UNI VCC Header: **ATMLOOPB:VCCHDR:F 01 0040 11 0** To enter an NNI VCC Header: **ATMLOOPB:VCCHDR:01 0040 11 X**
ATMLOOPBack:CONNection? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the Loopback Connection Type command.
ATMLOOPBack:CONNection:*X* (Protocol supported: ATM)	Sets the Loopback function's Connection Type command. X is: **SEG** — sends Loopback cells through a segment of the ATM network. **END** — sends Loopback cells to the endpoint of the ATM network.
ATMLOOPBack:RATE? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the Loopback Insertion Rate command.
ATMLOOPBack:RATE:*X* (Protocol supported: ATM)	Sets the Loopback function's Insertion Rate command. X is: **0** — Off **1** — 1 cell per second **2** — 2 cells per second **3** — 3 cells per second **4** — 4 cells per second
ATMLOOPBack:DURation? (Protocol supported: ATM)	Queries the ATM protocol processor for the value of the Loopback Duration of Insertion command. The unit of measure is in seconds.
ATMLOOPBack:DURation:*X* (Protocol supported: ATM)	Sets the duration (in seconds) of the ATM Loopback test. To stop a continuous Loopback, issue this command with a value of 0.

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ATMLOOPBack Commands	Description
ATMLOOPBack:DURation:CONTinuous (Protocol supported: ATM)	Generates a continuous Loopback for the ATM protocol processor. To stop a continuous Loopback, issue the following command: **ATMLOOPB:DUR:0**
ATMLOOPBack:ONCE (Protocol supported: ATM)	Generates a single Loopback cell for the ATM protocol processor.
ATMLOOPBack:CLEARCount (Protocol supported: ATM)	Resets the Loopback Cells Received counter to zero.

ATMQOS Branch

The following commands support functionality associated with the ATM Quality of Service button located under the ATM Functns Function Group button.

ATMQOS Commands	Description
ATMQOS:VCC? (Protocol supported: ATM)	Queries the ATM protocol processor's Quality of Service function for the value of the QOS VPI and VCI.
ATMQOS:VCC: *vpi vci* (Protocol supported: ATM)	Sets the VPI and VCI for the QOS measurement. Use the following guidelines to enter the VPI and VCI: **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier.
ATMQOS:PDU? (Protocol supported: ATM)	Queries the ATM protocol processor's QOS function for the value of the Protocol Data Unit (PDU) length.
ATMQOS:PDU (Protocol supported: ATM)	Sets the Protocol Data Unit length. Values range from 1 to 100.
ATMQOS:SCR? (Protocol supported: ATM)	Queries the ATM protocol processor's QOS function for the value of the Sustained Cell Rate command.
ATMQOS:SCR (Protocol supported: ATM)	Sets the Sustained Cell Rate for Quality of Service measurement to the value specified, or returns an error code (-104) if it is out of the valid range
ATMQOS:START (Protocol supported: ATM)	Starts a QOS test.
ATMQOS:STOP (Protocol supported: ATM)	Stops a QOS test.

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ATMSCAN Branch

The ATM Scan Branch SCPI commands support functionality associated with the Scan button. The Scan button is located under the ATM Functns Function Group button.

ATMSCAN Commands	Description
ATMSCAN:VCCHDR? (Protocol supported: ATM)	Queries the ATM protocol processor's Scan function for the value of the Scan Header (Hex)
ATMSCAN:VCCHDR:*gfc vpi vci pti clp* (Protocol supported: ATM)	Sets the Scan function's VCC Header values. Use the following guidelines to enter the VCC Header: **gfc** — a single digit Hex value (0 to F) that represents the Generic Flow Control bit in a VCC Header. The GFC is used only for a UNI interface. It is not required for an NNI interface. **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier. **pti** — a 2 digit binary value (0 or 1) that represents the Payload Type Indicator bits in a VCC Header. Enter values only for the 2nd and 3rd bit position. **clp** — a single digit binary value that represents the Cell Loss Priority bit in a VCC Header. **Note:** Use a space to separate VCC Header parameters. For example, To enter a UNI VCC Header: **ATMSCAN:VCCHDR:F 01 0040 11 0** To enter an NNI VCC Header: **ATMSCAN:VCCHDR:01 0040 11 X**
ATMSCAN:COUNT? (Protocol supported: ATM)	Queries the Scan function for the number of VCCs in the Scan table.
ATMSCAN:VCC?:*X* (Protocol supported: ATM)	Queries a specific VCC (that appears in the Scan table as a result of using the Scan function) for its VPI and VCI values.
ATMSCAN:ADDVCC:*X* (Protocol supported: ATM)	Adds a specific VCC (that appears in the Scan table as a result of using the Scan function) to the ATM protocol processor's VCC Table.
ATMSCAN:ADDVCC:ALL (Protocol supported: ATM)	Add all VCCs (that appear in the Scan table as a result of using the Scan function) to the ATM protocol processor's VCC Table.
ATMSCAN:CLEAR (Protocol supported: ATM)	Removes all recently scanned VCCs from the Scan table
ATMSCAN:START (Protocol supported: ATM)	Start scanning
ATMSCAN:STOP (Protocol supported: ATM)	Stop scanning

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ATMSTRESS Branch

The ATM Stress Branch SCPI commands support functionality associated with the Stress Test button. This button is located under the ATM Functns Function Group button.

ATMSTRESS Commands	Description
ATMSTRESS:HEADER:*gfc vpi vci pti clp* (Protocol supported: ATM)	Sets the Stress function's VCC Header values. Use the following guidelines to enter the VCC Header: **gfc** — a single digit Hex value (0 to F) that represents the Generic Flow Control bit in a VCC Header. The GFC is used only for a UNI interface. It is not required for an NNI interface. **vpi** — a 2 digit hex value (for a UNI interface) or a 3 digit hex value (for an NNI interface) that represents the Virtual Path Identifier. **vci** — a 4 digit Hex value that represents the Virtual Channel Identifier. **pti** — a 3 digit binary value (0 or 1) that represents the Payload Type Indicator bits in a VCC Header. Enter values only for the 2nd and 3rd bit position. **clp** — a single digit binary value that represents the Cell Loss Priority bit in a VCC Header. **Note:** Use a space to separate VCC Header parameters. For example, To enter a UNI Stress VCC Header: **ATMSTRESS:HEADER:F 01 0040 111 0** To enter an NNI Stress VCC Header: **ATMSTRESS:HEADER:001 0040 111 0**
ATMSTRESS:HEADER? (Protocol supported: ATM)	Queries the VCC header mask used for the Stress Test
ATMSTRESS:PCR:*X* (Protocol supported: ATM)	Sets the Peak Cell Rate value for the Stress Test. X is: **0** to **100** — a value, expressed in percent, from 1 to 100 percent.
ATMSTRESS:PCR? (Protocol supported: ATM)	Queries the ATM protocol processor's Stress function for the value of the Peak Cell Rate command.
ATMSTRESS:MODE? (Protocol supported: ATM)	Queries the ATM protocol processor's Stress mode to determine if a Transmit or Receive Stress test is in progress. A 0 indicates that Stress mode is off. A 1 indicates that Stress mode is on.
ATMSTRESS:TXSTART (Protocol supported: ATM)	Starts the transmission of ATM cells for the Stress Test
ATMSTRESS:RXSTART (Protocol supported: ATM)	Starts the monitoring of ATM cells for the Stress Test
ATMSTRESS:TXSTOP (Protocol supported: ATM)	Stops the transmission of ATM cells for the Stress Test
ATMSTRESS:RXSTOP (Protocol supported: ATM)	Stops the monitoring of ATM cells for the Stress Test

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ATMSTRESS Commands	Description
ATMSTRESS:TXSTATUS? (Protocol supported: ATM)	Queries the transmission status of Stress Test mode
ATMSTRESS:RXSTATUS? (Protocol supported: ATM)	Queries the monitoring status of the Stress Test mode

ATMSYS Branch

The ATM System Branch SCPI commands support functionality associated with the Settings button. This button is located under the ATM Functns Function Group button.

ATMSYS Commands	Description
ATMSYS:CELLRATE:*X* (Protocol supported: ATM)	Determines how the ATM interface's bandwidth is represented in units of measure: X is: **CPS** — Cells per second. The bandwidth is entered and displayed as cells-per-second. **BW** — Bandwidth percentage. The bandwidth is entered and displayed as a percentage ranging from 0.0 percent to 100.0 percent. **KB** — Kilobits per second. The bandwidth is entered and displayed as Kbps. **MB** — Megabits per second. The bandwidth is entered and displayed as Mbps.

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GET Branch

The Get Branch SCPI commands act as batch commands by retrieving values for multiple ASA 312 parameters using a single SCPI command. This is similar to using the Trnsmt and Receive Function Group buttons to view various settings of the different protocol processors.

GET Commands	Description
GET:ALLSET (see also, GET:*X*SET) (Protocol supported: SONET, DS1, DS3, ATM)	Displays the transmit, receive, and pattern settings for the SONET, DS1, DS3, ATM, and DS0 test units. All values are separated by commas. The following **SONET** commands appear: Initial Laser Setting (On or Off); Laser Type (1310 or 1550); Mapping; Settings Control (Yes=Coupled, No=Independent); Orderwire Add/Drop; Clock Setting; Transmit/Receive Interface; Line Frequency Offset (0.0=Off); SPE Under Test; VT Under Test (VT #); VT Under Test (Group #); VT Signal Label (in decimal); Tx Pattern In Other VTs; Tx Pattern in Other STS-1s; Tx Pattern for STS-3c/12c; Tx Path Signal Label; Rx OC Rate; Rx SPE Dropped Under Test; Rx VT Channel; Rx VT Group Dropped; RX Pattern for STS-3c/12c; Error Type Generated; Error Rate Generated; Alarm Generated; Rx Termination (for NAA I only); Tx STS12 Inserted Under Test; Rx STS12 Dropped Under Test The following **DS1** commands appear: Tx Line; Tx Frame; Tx Pattern; Tx Signal Level; Clock; Rx Frame; Rx Pattern; Input Termination; Error Type Generated; Error Rate Generated; Alarm Generated; Jitter Mapping; Jitter Hits Threshold; Jitter Equalization; ATM DS1 Mapping; Fractional T1 Mode; Fractional T1 Mask The following **DS3** commands appear: Tx Signal Level; Tx Frame; Tx Pattern; Pattern Coupling; Rx Frame; Rx Pattern; Input Termination; M13 DS1 Channel Inserted; M13 Bkgd DS1 Framing; M13 Bkgd DS1 Framing; M13 Bkgd DS1 Pattern; Error Type Generated; Error Rate Generated; Alarm Generated; Jitter Mapping; Jitter Hits Threshold; Jitter Equalization; ATM DS3 Mapping; DS3 Bit Inhibition

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GET Commands	Description
GET:ALLSET (continued) (Protocol supported: SONET, DS1, DS3, ATM)	The following **ATM** commands appear: ATM Interface; Cell Rate Display; Loopback Header; Loopback Connection; Loopback Rate; Loopback Duration; Loopback Continuous; Provision VPI; Provision VCI; Provision PCR; Provision SCR; Provision MBS; Provision PDUs; QOS VPI; QOS VCI; QOS SCR; Scan Header Mask; Rx Status; Tx Status; QOS State; Provisioning State; Scan State; Error Type Generated; Error Rate Generated; Error Generated Duration; Error Burst Count; Alarm Generated; Alarm Generated Duration; QOS PDU Length; ATM Mapping; Stress Test Header; Stress Test PCR; Cell Scrambling The following **DS0** commands appear: Channel Dropped; Circuit Signaling; Test Site
GET:AHIS (Protocol supported: ATM)	Queries and displays the graph history for the ATM test set. If an error or alarm is recorded and graphed, then it is logged as an error/alarm record. For **ATM**, 10 bytes are used to report the following history: **Byte 1** reports alarms. The following bits indicate the type of alarm reported: Bit 0 is Cell sync Bit 1 is SCNR Bit 2 is F4 AIS Bit 3 is F5 AIS Bit 4 is F4 RDI Bit 5 is F5 RDI **Byte 2** reports alarms. **Byte 3** reports Uncorrectable HEC errors (SONET) **Byte 4** reports Correctable HEC errors (SONET) **Byte 5** reports DS1/DS3 HEC errors **Byte 6** reports DS1/DS3 BIP errors **Byte 7** reports DS1/DS3 FEBE errors **Byte 8** reports DS1/DS3 Framing errors **Byte 9** reports AAL errors **Byte 10** reports Bit errors The graph history appears in one of three formats: 1. If no errors/alarms are present, then the following appears: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the ending timestamp of the query.

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GET Commands	Description
GET:AHIS (continued) (Protocol supported: ATM)	2. If an error or alarm is graphed, then the following appears: **a, b, c, d, d..., d, e** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the error/alarm record. Each record starts with its timestamp for that minute followed by a hexidecimal value. All records are separated by commas. **e** is the ending timestamp of the query. 3. A start/stop history range (the beginning and ending date and time) can be entered when the command is issued. If test results do not fall within this range, then only the values of the last timed test are returned. For example: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator and appears as No (N). **c** is beginning timestamp (starting elapsed time) of known data. It appears as YYMMDDHHMM. **d** is the ending timestamp of known data. It appears as YYMMDDHHMM.

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GET Commands	Description
GET:APM (Protocol supported: ATM)	Queries and displays performance monitoring statistics (such as errors, alarms, and elapsed time) for the ATM test set. All main statistics are separated by commas; error subfields are separated by plus (+) signs. **Note:** Plus signs are also used for Scientific notation (for example, 0.00e+00). For **ATM**, the following displays: **a, b, c + d + e + f + g + h + i + j + k + l + m + n, o + p + q + r + s + t** where, **a** is the elapsed time in seconds for the protocol processor **b** is the duration of a Loss of Cell Sync alarm **c** is the duration of when a cell overflow condition occurs **d** is the duration of a VPI (F4) AIS alarm **e** is the duration of a VCI (F5) AIS alarm **f** is the duration of a VPI (F4) RDI alarm **g** is the duration of a VCI (F5) RDI alarm **h** is the duration of a PLCP Sync alarm **i** is the duration of an SCNR (Selected Cells Not Received) alarm **j** is the duration of Status condition alarm **k** is the duration of a Loss of Pattern Sync (LOPS) alarm **l** is the duration of a PLCP OOF alarm **m** is the duration of a PLCP LOF alarm **n** is the duration of a PLCP Yellow alarm (**Note:** Parameters **o–v** report errors. Each error reports: Error count Errored seconds Severely Errored Seconds Error-free seconds Unavailable seconds Average error rate (in Scientific notation, 0.00e+00) Current error rate (in Scientific notation, 0.00e+00) For example, the parameters reported for one specific error may appear as: 156442671+0+0+126+1513+1.55e-04+0.00e+00) **o** is the reported values for a HEC Correctable error **p** is the reported values for a HEC Uncorrectable error **q** is the reported values for a HEC error when the unit is mapped for ATM/DS1 or ATM/DS3 **r** is the reported values for an AAL error **s** is the reported values for a BIT error **t** is the reported values for a PLCP BIP error **u** is the reported values for a PLCP FEBE error **v** is the reported values for a PLCP Framing error

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GET Commands	Description
GET:ASET (Protocol supported: ATM)	Queries and displays all user-definable Transmit and Receive settings for the ATM test set. For **ATM**, the following displays: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, aa, bb, cc, dd, ee, ff, gg** where, **a** is the ATM Interface command value (see ATMINT?) **b** is the Unit of Measure command value (see ATMSYS:CELLRATE) **c** is the Loopback VCC Header command value (see ATMLOOPB:VCCHDR?) **d** is the Loopback Connection Type command value (see ATMLOOPB:CONN?) **e** is the Loopback Insertion Rate command value (see ATMLOOPB:RATE?) **f** is the Loopback Duration of Insertion command value (see ATMLOOPB:DUR?) **g** is the Loopback Duration of Insertion (Continuous) command value (see ATMLOOPB:DUR:CONT) **h** is the Provision VPI command value (see ATMPROV:VCC?) **i** is the Provision VPI command value (see ATMPROV:VCC?) **j** is the Provision Peak Cell Rate command value (see ATMPROV:PCR?) **k** is the Provision Sustained Cell Rate command value (see ATMPROV:SCR?) **l** is the Provision Maximum Burst Size command value (see ATMPROV:MBS?) **m** is the Provision PDU command value (see ATMPROV:PDUS?) **n** is the QOS VPI command value (see ATMQOS:VCC?) **o** is the QOS VCI command value (see ATMQOS:VCC?) **p** is the QOS Sustained Cell Rate command value (see ATMQOS:SCR?) **q** is Scan Header value (see ATMSCAN:VCCHDR?) **r** is RX ON/OFF value **s** is TX ON/OFF value **t** is the QOS Start/Stop state (see ATMQOS:START or ATMQOS:STOP) **u** is the Provision Start/Stop state (see ATMPROV:START or ATMPROV:STOP) **v** is the Scan Start/Stop state (see ATMSCAN:START or ATMSCAN:STOP)

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GET Commands	Description
GET:ASET (continued) (Protocol supported: ATM)	**w** is the Type of Error Added command value (see SOUR:ERR:TYPE?) **x** is the Error Insertion Rate command value (see SOUR:ERR:URATE?) **y** is the ATM Duration of Error Insertion command value (see SOUR:ERR:DUR?) **z** is the Error Burst Count command value (see SOUR:ERR:BURSTCNT?) **aa** is the ATM Alarm Generated command value (see SOUR:AL:TYPE?) **bb** ATM Duration of Alarm Generation command value (see SOUR:AL:DUR?) **cc** is the QOS PDU Length command value (see ATMQOS:PDU?) **dd** is the ATM Mapping command value (see SOUR:MAP:*X* or SOUR:DS1ATM? or SOUR:DS3ATM?) **ee** is the Stress Header value (see ATMSTRESS:HEADER?) **ff** is the Stress Peak Cell Rate command value (see ATMSTRESS:PCR?) **gg** is the Cell Scrambling command value

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GET Commands	Description
GET:ATMSUMMARY (Protocol supported: ATM)	Queries and displays a summary report of current cell activity, bandwidth percentage used, virtual channel status, and virtual channel totals for the current ATM VCC Table. This is the equivalent of viewing the ATM Summary Counts report on the ASA 312. This command combines the results of several individual FETCh:VCC commands. Command results appear using the following format: **a, b.b, c, d.d, e, f.f, g, h, i, j** where, **a** is total cells received on monitor channels (see FETCh:VCC:COUNT:TOTAL) **b.b** is the bandwidth percentage for monitored VCCs (see FETCh:VCC:BANDwidth:TOTal) **c** is the total number of user cells discarded (see FETCh:VCC:COUNT:DISCarded) **d.d** is the bandwidth percentage of discarded cells (see FETCh:VCC:BANDwidth:DIScarded) **e** is the reported cell count (see FETCh:VCC:COUNT:IDLE) **f.f** is the bandwidth percentage for the reported cell count (see FETCh:VCC:BANDwidth:IDLE) **g** is number of virtual channels configured to transmit data (see FETCh:VCC:COUNT:TRANSMIT) **h** is the number of virtual channels configured to receive and monitor data (see FETCh:VCC:COUNT:MONITOR) **i** is the number of virtual channels configured to report detailed monitor status (see FETCh:VCC:COUNT:MON/DET) **j** is the number VCC table entries (see FETCh:VCC:COUNT:ENTRIES)

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GET Commands	Description
GET:1HIS (Protocol supported: DS1)	Queries and displays the graph history for the DS1 test set. If an error or alarm is recorded and graphed, then it is logged as an error/alarm record. For **DS1**, 8 bytes are used to report the following history: **Byte 1** reports alarms. The following bits indicate the type of alarm reported: Bit 0 is Unused Bit 1 is LOS Bit 2 is AIS Bit 3 is LOF Bit 4 is LOP Bit 5 is COFA Bit 6 is Excess Zeros **Byte 2** reports alarms. The following bits indicate the type of alarm reported: Bit 0 is unused Bit 1 is Yellow Bit 2 is Unused Bit 3 is Loop Up Bit 4 is Loop Down **Byte 3** reports Code Violations **Byte 4** reports BPV errors **Byte 5** reports CRC errors **Byte 6** reports Frame errors **Byte 7** reports wide band peak-to-peak DS1 Jitter history **Byte 8** reports high band peak-to-peak DS1 Jitter history The graph history appears in one of three formats: 1. If no errors/alarms are present, then the following appears: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the ending timestamp of the query.

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GET Commands	Description
GET:1HIS (continued) (Protocol supported: DS1)	2. If an error or alarm is graphed, then the following appears: **a, b, c, d, d..., d, e** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the error/alarm record. Each record starts with its timestamp for that minute followed by a hexidecimal value. All records are separated by commas. **e** is the ending timestamp of the query. 3. A start/stop history range (the beginning and ending date and time) can be entered when the command is issued. If test results do not fall within this range, then only the values of the last timed test are returned. For example: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator and appears as No (N). **c** is beginning timestamp (starting elapsed time) of known data. It appears as YYMMDDHHMM. **d** is the ending timestamp of known data. It appears as YYMMDDHHMM.

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GET Commands	Description
GET:3HIS (Protocol supported: DS3)	Queries and displays the graph history for the DS3 test set. If an error or alarm is recorded and graphed, then it is logged as an error/alarm record. For **DS3**, 9 bytes are used to report the following history: **Byte 1** reports alarms. The following bits indicate the type of alarm reported: Bit 0 is Power loss (unused) Bit 1 is LOS Bit 2 is AIS Bit 3 is LOF Bit 4 is LOP Bit 5 is Idle Bit 6 is X-bit **Byte 2** reports Code Violations **Byte 3** reports BPV errors **Byte 4** reports C-bit errors **Byte 5** reports P-parity errors **Byte 6** reports FEBE errors **Byte 7** reports Frame errors **Byte 8** reports wide band peak-to-peak DS3 Jitter history **Byte 9** reports high band peak-to-peak DS3 Jitter history The graph history appears in one of three formats: 1. If no errors/alarms are present, then the following appears: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the ending timestamp of the query.

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GET Commands	Description
GET:3HIS (continued) (Protocol supported: DS3)	2. If an error or alarm is graphed, then the following appears: **a, b, c, d, d..., d, e** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the error/alarm record. Each record starts with its timestamp for that minute followed by a hexidecimal value. All records are separated by commas. **e** is the ending timestamp of the query. 3. A start/stop history range (the beginning and ending date and time) can be entered when the command is issued. If test results do not fall within this range, then only the values of the last timed test are returned. For example: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator and appears as No (N). **c** is beginning timestamp (starting elapsed time) of known data. It appears as YYMMDDHHMM. **d** is the ending timestamp of known data. It appears as YYMMDDHHMM.

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GET Commands	Description
GET:1PM (Protocol supported: DS1)	Queries and displays performance monitoring statistics (such as errors, alarms, and elapsed time) for the DS1 test set. All main statistics are separated by commas; error subfields are separated by plus (+) signs. **Note:** Plus signs are also used for Scientific notation (for example, 0.00e+00). For **DS1**, the following displays: **a, b, c, d, e, f + g + h + i + j + k + l + m + n, o + p + q + r** where, **a** is the elapsed time in seconds for the protocol processor **b** is unused (0) **c** is unused (0) **d** is unused (0) **e** is unused (0) **f** is the duration of a Loss of Signal alarm **g** is the duration of an Out of Frame (OOF) alarm **h** is the duration of a Loss of Frame alarm **i** is the duration of a Loss of Pattern alarm **j** is the duration of an Excess Zeros alarm **k** is the duration of a Yellow alarm **l** is the duration of an AIS alarm **m** is the duration of an Idle alarm **n** is the number of OOF events (**Note:** Parameters **o–r** report errors. Each error reports: Error count Errored seconds Severely Errored Seconds Error-free seconds Unavailable seconds Average error rate (in Scientific notation, 0.00e+00) Current error rate (in Scientific notation, 0.00e+00) For example, the parameters reported for one specific error may appear as: 156442671+0+0+126+1513+1.55e-04+0.00e+00) **o** is the reported values for a BIT error **p** is the reported values for a BPV error **q** is the reported values for a Frame bit error **r** is the reported values for a CRC error

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GET Commands	Description
GET:0PM (Protocol supported: DS0)	Queries and displays performance monitoring statistics (such as errors, alarms, and elapsed time) for the DS0 test set. All main statistics are separated by commas; error subfields are separated by plus (+) signs. **Note:** Plus signs are also used for Scientific notation (for example, 0.00e+00). For **DS0**, the following displays: **a b c d e f g h i j k l m n o p q r s t u v w x, y** where, **a** displays the channel signaling bits for Channel 1 **b** displays the channel signaling bits for Channel 2 **c** displays the channel signaling bits for Channel 3 **d** displays the channel signaling bits for Channel 4 **e** displays the channel signaling bits for Channel 5 **f** displays the channel signaling bits for Channel 6 **g** displays the channel signaling bits for Channel 7 **h** displays the channel signaling bits for Channel 8 **i** displays the channel signaling bits for Channel 9 **j** displays the channel signaling bits for Channel 10 **k** displays the channel signaling bits for Channel 11 **l** displays the channel signaling bits for Channel 12 **m** displays the channel signaling bits for Channel 13 **n** displays the channel signaling bits for Channel 14 **o** displays the channel signaling bits for Channel 15 **p** displays the channel signaling bits for Channel 16 **q** displays the channel signaling bits for Channel 17 **r** displays the channel signaling bits for Channel 18 **s** displays the channel signaling bits for Channel 19 **t** displays the channel signaling bits for Channel 20 **u** displays the channel signaling bits for Channel 21 **v** displays the channel signaling bits for Channel 22 **w** displays the channel signaling bits for Channel 23 **x** displays the channel signaling bits for Channel 24 **y** displays the channel data bits for the dropped channel

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GET Commands	Description
GET:3PM (Protocol supported: DS3)	Queries and displays performance monitoring statistics (such as errors, alarms, and elapsed time) for the DS3 test set. All main statistics are separated by commas; error subfields are separated by plus (+) signs. **Note:** Plus signs are also used for Scientific notation (for example, 0.00e+00). For **DS3**, the following displays: **a, b, c, d, e, f + g + h + i + j + k + l + m, n + o + p + q + r + s** where, **a** is the elapsed time in seconds for the protocol processor **b** is unused (0) **c** is unused (0) **d** is unused (0) **e** is unused (0) **f** is the duration of a Loss of Signal alarm **g** is the duration of a Loss of Frame alarm **h** is the duration of an Out of Frame alarm **i** is the duration of a Loss of Pattern alarm **j** is the duration of an Idle alarm **k** is the duration of an AIS alarm **l** is the duration of an X-Bit alarm **m** is the duration of (**Note:** Parameters **n–s** report errors. Each error reports: Error count Errored seconds Severely Errored Seconds Error-free seconds Unavailable seconds Average error rate (in Scientific notation, 0.00e+00) Current error rate (in Scientific notation, 0.00e+00) For example, the parameters reported for one specific error may appear as: 156442671+0+0+126+1513+1.55e-04+0.00e+00) **n** is the reported values for a BIT error **o** is the reported values for a BPV error **p** is the reported values for a Frame error

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GET Commands	Description
GET:1SET (Protocol supported: DS1)	Queries and displays all user-definable Transmit and Receive settings for the DS1 test set. For **DS1**, the following displays: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q** where, **a** is the Tx Line Code command value (see SOUR:LCODE?) **b** is the Tx Framing command value (see SOUR:FRAMing?) **c** is the Tx Pattern command value (see SOUR:PATT? or SOUR:UPATT?) **d** is the Tx Signal Level command value (see SOUR:SIGLEVEL?) **e** is the Clock Reference command value (see SENS:CLOC) **f** is the Rx Framing command value (see SENS:FRAM?) **g** is the Rx Pattern command value (see SENS:PATT? or SENS:UPATT?) **h** is the Input Termination command value (see SENS:TERM) **i** is the type of error generated (see SOUR:ERR:TYPE) **j** is the error rate generated (see SOUR:ERR:URATE) **k** is the DS1 Alarm Generated command value (see SOUR:AL:TYPE?) **l** is the Jitter Mapping command value (see SENS:JITTER:MAP?) **m** is the Jitter Hits Threshold command value (see SENS:JITTER:LEVEL) **n** is the Jitter Equalization command value **o** is the ATM DS1 Mapping command value (see SENS:DS1ATM) **p** is the Fractional T1 Mode command value (see SOUR:FRAC_T1:MODE?) **q** is the Fractional T1 Mask command value (see SOUR:FRAC_T1:MASK)

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GET Commands	Description
GET:0SET (Protocol supported: DS0)	Queries and displays all user-definable Transmit and Receive settings for the DS0 test set. For **DS0**, the following displays: **a, b, c** where, **a** is DS0 channel (Channels 1 - 24) dropped from the DS1 signal **b** indicates the type of circuit signaling used (U=Unknown; LS=Loop Start; GS=Ground Start; LRB=Loop-Reverse Battery; NPRB=Network-Provided Reverse Battery; EM=E&M signaling; CPLS=CI-Provided Loop Start) **c** indicates if the Network Interface or Customer Interface generates circuit signaling

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GET Commands	Description
GET:3SET (Protocol supported: DS3)	Queries and displays all user-definable Transmit and Receive settings for the DS3 test set. For **DS3**, the following displays: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s** where, **a** is the Tx Signal Level command value (see SOUR:SIGLEVEL) **b** is the Tx Framing command value (see SOUR:FRAM?) **c** is the Tx Pattern command value (see SOUR:PATT? or SOUR:UPATT?) **d** is the Settings Control command value (see SOUR:COUP?) **e** is the Rx Framing command value (see SENS:FRAM?) **f** is the Rx Pattern command value (see SENS:PATT? or SENS:UPATT?) **g** is the DS1 Input Termination command value (see SENS:TERM) **h** is M13 DS1 Channel Inserted command value (see SOUR:M13:INS?) **i** is the M13 Background DS1 Framing command value (see SENS:M13:BGFR) **j** is the M13 Background DS1 Pattern command value (see SENS:M13:BGP) **k** is DS3 M13 DS1 Channel Dropped command value (see SENS:M13:DROP?) **l** is the Type of DS3 Error Added command value (see SOUR:ERR:TYPE?) **m** is the Error Insertion Rate command value (see SOUR:ERR:URATE?) **n** is the Alarm Generated command value (see SOUR:AL:TYPE?) **o** is Jitter Mapping command value (see SENS:JITTER:MAP?) **p** is Jitter Hits Threshold command value (see SENS:JITTER:LEVEL?) **q** is the Jitter Equalization command value (see SENS:JITTER:EQUAL?) **r** is the ATM DS3 Mapping command value (see SENS:DS3ATM?) **s** is the BIT Analysis' BIT Error Counts command value (see SENS:DS3BIT)

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GET Commands	Description
GET:1TSD (Protocol supported: DS1)	Queries and displays all Trouble Scan results for the DS1 test set. Results display as integers and are separated by plus (+) signs. **Note:** The ">" character indicates an overflow condition. This may be present for the error parameters. For **DS1**, the following results display: **a+b+c+d+e+f+g+h+i+j+k+l+m** where, **a** is elapsed time in seconds for the DS1 test set **b** is the duration (in seconds) of an LOS **c** is the duration (in sec.) of an OOF **d** is the duration (in sec.) of an LOP **e** is the number of OOF events **f** is the duration (in sec.) of an AIS **g** is the duration (in sec.) of a Yellow alarm **h** is the number of BIT errors **i** is the number of Frame errors **j** is the number of CRC errors **k** is the number of BPV errors **l** is the duration (in sec.) of excessive zeros **m** is the number of Idle seconds
GET:3TSD (Protocol supported: DS3)	Queries and displays all Trouble Scan results for the DS3 test set. Results display as integers and are separated by plus (+) signs. **Note:** The ">" character indicates an overflow condition. This may be present for the error parameters. For **DS3**, the following results display: **a+b+c+d+e+f+g+h+i+j+k+l+m** where, **a** is the elapsed time for the DS3 test set (in sec.) **b** is the duration of an LOS (in sec.) **c** is the duration of an OOF (in sec.) **d** is the duration of an LOP event (in sec.) **e** is the duration of an AIS alarm **f** is the duration of an XBIT alarm **g** is the number of BIT errors **h** is the number of FEBE errors **i** is the number of BPV errors **j** is the number of P Parity errors **k** is the number of C-Bit Parity errors **l** is the number of FEBE errors **m** is the duration of Idle alarm seconds

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GET Commands	Description
GET:DS1BT (Protocol supported: DS1)	Queries and displays twenty-one different patterns used to detect bridge taps on a DS1. The following patterns are reported: **All Ones; 1-in-2; 1-in-4; 1-in-6; 1-in-7; 1-in-8; 2-in-9; 2-in-10; 2-in-11; 2-in-12; 2-in-13; 2-in-14; 2-in-15; 3-in-18; 3-in-19; 3-in-20; 3-in-21; 3-in-22; 3-in-23; 3-in-24;** and **QRSS**. Command results appear using the following format: **a, b, c, d, a, b, c, d, ..., e, f** where **a** is the pattern's Bit error rate **b** is the pattern's errored second count **c** is the pattern's duration (30 seconds maximum) **d** is the pattern's status: 1=testing; 2=pass; 3=fail **e** is a summary of the 21 different patterns **f** is the total elapsed time since the start of the bridge tap test
GET:DS1MP (Protocol supported: DS1)	Queries and displays five different patterns (multi-pattern testing) to stress a DS1. The following patterns are reported: All Ones; 1-in-8; 2-in-8; 3-in-24; and QRSS. Command results appear using the following format: **a, b, c, d, a, b, c, d, ..., e, f** where **a** is the pattern's Bit error rate **b** is the pattern's errored second count **c** is the pattern's duration (300 sec./5 min. maximum) **d** is the pattern's status: 1=testing; 2=pass; 3=fail **e** is a summary of the 5 different patterns **f** is the total elapsed time since the start of the multi-pattern test
GET:E1OH (Protocol supported: E1)	Returns the E1 overhead, each as two-digit HEX characters, with no commas or spaces separating overhead values. Bytes are always sent, even if invalid in the current framing, If this happens, the bytes are set to zero. Command results appear using the following format: (Note: All values appear in two-digit HEX notation.) **a a a a a a a a b c d d d d d d d d d d d d d d d** where, Results appear in the following order: **a** = Spare Bits: 8 bytes, one byte for each frame. Bits 1 to 3 are unused. (zero). **b** = E-Bits: 1 byte; the two E-bits appear in the lower two bits. Bits 3 to 8 are unused (zero). **c** = CAS X-Bits: 1 byte; in bits 5, 7, and 8. The remaining bits are unused (0). **d** = CAS ABCD Bits: 15 bytes; organized in the same order as the CAS. ABCD bits for Time Slots 1 to 15 are in lower-order bits. ABCD bits for Time Slots 17 to 31 are in upper-order bits of bytes 1 to 15.

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GET Commands	Description
GET:E1PM (Protocol supported: E1)	For **E1**, the following displays: **a, b + c + d + e + f + g + h + i , j + k + l + m + n** where, **a** is the elapsed time in seconds for the protocol processor (Note: Parameters b-i report alarms) **b** is the duration of a Loss of Signal alarm **c** is the duration of an AIS alarm **d** is the duration of a Loss of Frame alarm **e** is the duration of a Loss of Pattern alarm **f** is the duration of a COFA alarm (value is always 0) **g** is the duration of an RAI alarm **h** is the duration of an RMFAI alarm **i** is the duration of a CASMFL alarm (**Note:** Parameters **j-n** report errors. Each error reports: Error count Errored seconds Severely Errored Seconds Error-free seconds Unavailable seconds Average error rate (in Scientific notation, 0.00e+00) Current error rate (in Scientific notation, 0.00e+00) For example, the parameters reported for one specific error may appear as: 156442671+0+0+126+1513+1.55e-04+0.00e+00) **j** is the reported values for a BIT error **k** is the reported values for a BPV error **l** is the reported values for a Frame bit error **m** is the reported values for a CRC error **n** is the reported values for a FEBE error

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GET Commands	Description
GET:JITTER (Protocol supported: DS1, DS3)	Queries and displays various Jitter values. (**Note:** The Jitter measurement feature is an optional module that requires factory-installation of the Jitter card and supporting hardware.) Jitter results appear using the following format: **a, b, c, d, e, f, g, h, i, j, k, l, m** where, **a** is Current Wideband Positive Peak **b** is Current Wideband Negative Peak **c** is Current Wideband Peak to Peak (absolute value) **d** is Maximum Wideband Positive Peak **e** is Maximum Wideband Negative Peak **f** is Maximum Wideband Peak to Peak **g** is Current Highband Positive Peak **h** is Current Highband Negative Peak **i** is Current Highband Peak to Peak (absolute value) **j** is Maximum Highband Positive Peak **k** is Maximum Highband Negative Peak **l** is Maximum Highband Peak to Peak **m** is the number of seconds that the Jitter Hits Threshold was exceeded

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GET Commands	Description
GET:LED (Protocol supported: SONET, DS1, DS3, ATM)	Queries and displays the current LED value and Status Indicator (LED text) history for all test sets. The command results appear as a series of digits separated by commas. Values for the SONET LEDs appear first, followed by the DS1 LEDs, the DS3 LEDs, the ATM LEDs, and miscellaneous LEDs indicating transmit, receive, and elapsed time status. Command results appear as a value from 0 to 4, where: **0** indicates a white LED with black text **1** indicates a red LED with red text **2** indicates a white LED with red text **3** indicates a green LED with black text **4** indicates a green LED with red text The following **SONET** LEDs are reported: Section OK; SEF/OOF; LOS; LOF; BPV; B1 Err; Line OK; Line PTR Loss; Line AIS; Line FERF; K1K2; Line PTR Adj; B2 Err; Path OK; Path AIS; Path Yellow; Path FEBE; B3 Err; VT OK; VT PTR Loss; VT AIS; VT Yellow; VT FEBE; VT PTR Adj; BIP 2 Err; Pattern Sync; BIT; Clock Reference The following **DS1** LEDs are reported: Line; Frame; Pattern Sync; LOS; BPV; AIS; Yellow; FBIT; BIT; COFA; CRC; Excess 0's; Loop Up/Loop Down; Looped; Idle; Last Looped Command (0=Loop Down, 1=Loop Up) The following **DS3** LEDs are reported: Line; Frame; Pattern Sync; LOS; BPV; AIS; Idle; FBIT; BIT; Parity; C-Parity; FEBE; XBit The following **ATM** LEDs are reported: Cell Sync; Cell Overflow; HEC; AIS; RDI; SCNR; Status; AAL; BIT; LOPS; PLCP-Sync; Framing; OOF; LOF; BIP; FEBE; PLCP-Yellow The following **LEDs** and **Status Indicators** are reported: SONET Rx Power (0=Pwr Loss, 1=Pwr OK); DS1 Line Code (AMI or B8ZS); Laser (ON or OFF); DS1 elapsed time (in seconds); DS3 elapsed time; SONET elapsed time; ATM elapsed time; ATM Tx indicator (ON or OFF); ATM Rx indicator (ON or OFF), ATM Mapping indicator (None, DS1 PLCP, DS1 Direct, DS3 PLCP, DS3 Direct, STS1, STS3c, or STS12c)

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GET Commands	Description
GET:PROV (Protocol supported: ATM)	Queries and displays the results of an ATM Provisioning test. Command results appear using the following format: **a, b, c, d, e, f** where, **a** is the provisioning Peak Cell Rate received (see FETCh:PROV:PCR?) **b** is the provisioning Sustained Cell Rate received (see FETCh:PROV:SCR?) **c** is the provisioning Maximum Burst Size received (see FETCh:PROV:MBS?) **d** is the provisioning Protocol Data Units received (see FETCh:PROV:PDUS?) **e** is the number of provisioning cells lost (see FETCh:PROV:LOST?) **f** is the provisioning cell loss ratio (see FETCh:PROV:LOSSRATIO?)
GET:QOS (Protocol supported: ATM)	Queries and displays the Quality of Service results for ATM test unit. Command results appear using the following format: **a, b, c, d, e, f, g, h, i, j, k, l, m, n** where, **a** is the minimum Cell Transfer Delay (CTD) (see FETC:QOS:CTD:MIN?) **b** is the maximum CTD (see FETC:QOS:CTD:MAX?) **c** is the average CTD (see FETC:QOS:CTD:AVG?) **d** is the maximum positive (early) Cell Delay Variation (CDV) (see FETC:QOS:EARLY:MAX?) **e** is the percent of positive (early) CDV (see FETC:QOS:EARLY:PCT?) **f** is the average positive (early) CDV (see FETC:QOS:EARLY:AVG?) **g** is the maximum negative (late) CDV (see FETC:QOS:LATE:MAX?) **h** is the percent of negative (late) CDV (see FETC:QOS:LATE:PCT?) **i** is the average negative (late) CDV (see FETC:QOS:LATE:AVG?) **j** is the cell loss count (see FETC:QOS:LOSTC:CNT?) **k** is the percentage of lost cells (see FETC:QOS:LOSTC:RATIO?) **l** is the number of cells received (see FETC:QOS:RECDC?) **m** is the number of CRC errors received (see FETC:QOS:CRCS?) **n** is the number of PDU length errors (see FETC:QOS:LENERR?)

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GET Commands	Description
GET:SHIS (Protocol supported: SONET)	Queries and displays the graph history for the SONET test set. If an error or alarm is recorded and graphed, then it is logged as an error/alarm record. For **SONET**, 12 bytes are used to report the following history: **Byte 1** reports alarms. The following bits indicate the type of alarm reported: Bit 0 is Unused Bit 1 is LOS Bit 2 is LOF Bit 3 is OOF Bit 4 is LOP (STS Pointer) Bit 5 is Line AIS Bit 6 is Path AIS **Byte 2** reports alarms. The following bits indicate the type of alarm reported: Bit 0 is K1K2 Bit 1 is Line FERF Bit 2 is Path Yellow Bit 3 is VT LOP Bit 4 is VT AIS Bit 5 is VT Yellow Bit 6 is Payload **Byte 3** reports B1 errors **Byte 4** reports B2 errors **Byte 5** reports B3 errors **Byte 6** reports Path FEBE errors **Byte 7** reports VT BIP-2 errors **Byte 8** reports VT FEBE errors **Byte 9** reports STS Positive Pointer Adjustments **Byte 10** reports STS Negative Pointer Adjustments **Byte 11** reports VT Positive Pointer Adjustments **Byte 12** reports VT Negative Pointer Adjustments The graph history appears in one of three formats: 1. If no errors/alarms are present, then the following appears: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the ending timestamp of the query.

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GET Commands	Description
GET:SHIS (continued) (Protocol supported: SONET)	2. If an error or alarm is graphed, then the following appears: **a, b, c, d, d..., d, e** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator. If Yes(Y), then another error/alarm record is automatically sent with an additional query. If No (N), then this is the last of the error/alarm records. No records are sent without another request. **c** is beginning timestamp (starting elapsed time). It appears as YYMMDDHHMM. **d** is the error/alarm record. Each record starts with its timestamp for that minute followed by a hexidecimal value. All records are separated by commas. **e** is the ending timestamp of the query. 3. A start/stop history range (the beginning and ending date and time) can be entered when the command is issued. If test results do not fall within this range, then only the values of the last timed test are returned. For example: **a, b, c, d** where, **a** is the number of error and alarm records per minute (000) in the transmission **b** is the Continuation indicator and appears as No (N). **c** is beginning timestamp (starting elapsed time) of known data. It appears as YYMMDDHHMM. **d** is the ending timestamp of known data. It appears as YYMMDDHHMM.

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GET Commands	Description
GET:SPM (Protocol supported: SONET)	Queries and displays performance monitoring statistics (such as errors, alarms, and elapsed time) for the SONET test set. All main statistics are separated by commas; error subfields are separated by plus (+) signs. **Note:** Plus signs are also used for Scientific notation (for example, 0.00e+00). For **SONET**, the following displays: **a, b, c, d, e + f + g + h + i + j + k + l + m + n + o + p, q + r + s + t + u + v, w + x + y + z + aa + bb + cc + dd + ee + ff + gg + hh + ii + jj + kk** where, **a** is the elapsed time in seconds for the protocol processor **b** is the elapsed time for two connected test units **c** is unused (0) **d** is unused (0) (**Note:** Parameters **e–p** are alarms with results appearing in seconds.) **e** is the duration of a Loss of Signal alarm **f** is the duration of a Loss of Frame alarm **g** is the duration of an Out of Frame alarm **h** is the duration of a Line AIS alarm **i** is the duration of a Line Far-end Remote Failure (FERF-L) alarm (A FERF-L is also known as a Line RDI alarm) **j** is the duration of a Loss of Pointer alarm **k** is the duration of a Path AIS alarm **l** is the duration of a Path Yellow alarm **m** is the duration of a Path Unequipped alarm **n** is the duration of a VT AIS alarm **o** is the duration of a VT FERF alarm **p** is the duration of a VT Unequipped alarm (**Note:** Parameters **q–v** report STS Pointer Values) **q** is the duration of an STS LOP alarm **r** is the number of increments reported for positive Pointer justification **s** is the number of decrements reported for negative Pointer justification **t** is the value of the H1 and H2 Pointer bytes in HEX notation **u** is the Pointer value in decimal notation **v** is the New Data Flag count

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GET Commands	Description
GET:SPM (continued) (Protocol supported: SONET)	(**Note:** Parameters **w–bb** report VT Pointer Values) **w** is the duration of a VT LOP alarm **x** is the number of increments reported for positive Pointer justification **y** is the number of decrements reported for negative Pointer justification **z** is the value of the H1 and H2 Pointer bytes in HEX notation **aa** is the pointer value in decimal notation **bb** is the New Data Flag count (**Note:** Parameters **cc–kk** report errors. Each error reports: Error count Errored seconds Severely Errored Seconds Error-free seconds Unavailable seconds Average error rate (in Scientific notation, 0.00e+00) Current error rate (in Scientific notation, 0.00e+00) For example, the parameters reported for one specific error may appear as: 156442671+0+0+126+1513+1.55e-04+0.00e+00) **cc** is the reported values for a B1 error **dd** is the reported values for a B2 error **ee** is the reported values for a B3 error **ff** is the reported values for a BIP-2 error **gg** is the reported values for a Line FEBE error **hh** is the reported values for a VT FEBE error **jj** is the reported values for a Payload BIT error **kk** is the reported values for an STSX-1 BPV error

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GET Commands	Description
GET:SRPOH *X* (Protocol supported: SONET)	Queries and displays the SONET Receive STS Path Overhead bytes and VT Overhead bytes. X is: **1** — STS-1 #1 for OC-1 or STSX-1 SONET interface **1–3** — STS-1 #1 – STS-1 #3 for OC-3 SONET interface **1–12** — STS-1 #1 – STS-1 #12 for OC-12 SONET interface Command results appear using the following format: (**Note:** All values appear in two-digit HEX notation.) **a b c d e f g h i j k l m n o p** where, (**Note:** Parameters **a–h** are STS Path OH bytes.) **a** is the B3 byte **b** is the C2 byte **c** is the F2 byte **d** is the G1 byte **e** is the H4 byte **f** is the Z3 byte **g** is the Z4 byte **h** is the Z5 byte (**Note:** Parameters **i–p** are VT Path OH bytes. If the unit is not mapped for VT 1.5 mode, then these bytes are set to 00.) **i** is the V1 byte **j** is the V2 byte **k** is the V3 byte **l** is the V4 byte **m** is the V5 byte **n** is the J2 byte **o** is the Z6 byte **p** is the Z7 byte

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GET Commands	Description
GET:SRTOH *X* (Protocol supported: SONET)	Queries and displays the SONET Receive Transport Overhead bytes. X is: **1** — STS-1 #1 for OC-1 or STSX-1 SONET interface **1–3** — STS-1 #1 – STS-1 #3 for OC-3 SONET interface **1–12** — STS-1 #1 – STS-1 #12 for OC-12 SONET interface Command results appear using the following format: **a b c d e f g h i j k l m n o p q r s t u v w x y z aa** where, (**Note:** All values appear in two-digit HEX notation.) **a** is the A1 byte **b** is the A2 byte **c** is the B1 byte **d** is the B2 byte **e** is the C1 byte **f** is the D1 byte **g** is the D2 byte **h** is the D3 byte **i** is the D4 byte **j** is the D5 byte **k** is the D6 byte **l** is the D7 byte **m** is the D8 byte **n** is the D9 byte **o** is the D10 byte **p** is the D11 byte **q** is the D12 byte **r** is the E1 byte **s** is the E2 byte **t** is the F1 byte **u** is the H1 byte **v** is the H2 byte **w** is the H3 byte **x** is the K1 byte **y** is the K2 byte **z** is the Z1 byte **aa** is the Z2 byte

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GET Commands	Description
GET:SSET (Protocol supported: SONET)	For **SONET**, the following displays: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, aa** where, **a** indicates if the Laser is on or off **b** indicates the type of laser used (1310 nm or 1550 nm) **c** indicates the Mapping command value **d** is the Settings Control command value (see SOUR:COUP?) **e** is the Orderwire Add/Drop command value (see SOUR:ORDER?) **f** is the Clock Reference command value (see SENS:CLOC) **g** is the Transmit Interface command value (see SOUR:OC?) **h** is the SPE Frequency Offset command value (see SOUR:SPEFREQOFF?) **i** is the Tx SPE Under Test command value (see SOUR:SPE:INS?) **j** is the Tx VT Under Test (VT #) command value (see SOUR:VTCH:INS?) **k** is the Tx VT Under Test (Group #) command value (see SOUR:VTGR:INS?) **l** is the Tx VT Signal Label command value (see SOUR:VTSIGLBL) **m** is the Pattern in Other VTs command value (see SOUR:OVTPATT?) **n** is the Pattern in Other STSs command value (see SOUR:OSTSPATT?) **o** is the Tx Pattern for Other STS1s command value (see SOUR:PATT?) **p** is the Path Signal Label command value (see SOUR:PSIGLBL) **q** is the Receive Interface command value (see SENS:OC?) **r** is the Rx SPE Under Test command value (see SENS:SPE:INS?) **s** is the Rx VT Under Test (VT #) command value (see SENS:VTCH:DROP?) **t** is the Rx VT Under Test (Group #) command value (see SENS:VTGR:DROP?) **u** is STS-3c/12c/48c Pattern command value (see SENS:PATT?) **v** is the Type of Error Added command value (see SOUR:ERR:TYPE?) **w** is the Error Insertion Rate command value (see SOUR:ERR:URATE?)

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GET Commands	Description
GET:SSET (continued) (Protocol supported: SONET)	**x** is the Alarm Generated command value (see SOUR:AL:TYPE?) **y** is the NAA I Rx Termination command value **z** is the Tx STS-12 Under Test command value (see SOUR:STS:INS?) **aa** is the Rx STS-12 Under Test command value (see SENS:STS:DROP?)
GET:STPOH *X* (Protocol supported: SONET)	Queries and displays the SONET Transmit STS Path Overhead bytes and VT Path Overhead bytes. X is: **1** — STS-1 #1 for OC-1 or STSX-1 SONET interface **1–3** — STS-1 #1 – STS-1 #3 for OC-3 SONET interface **1–12** — STS-1 #1 – STS-1 #12 for OC-12 SONET interface Command results appear using the following format: (**Note:** All values appear in two-digit HEX notation.) **a b c d e f g h i j k l m n o p** where, (**Note:** Parameters **a–h** are STS Path OH bytes.) **a** is the B3 byte **b** is the C2 byte **c** is the F2 byte **d** is the G1 byte **e** is the H4 byte **f** is the Z3 byte **g** is the Z4 byte **h** is the Z5 byte (**Note:** Parameters **i–p** are VT Path OH bytes. If the unit is not mapped for VT 1.5 mode, then these bytes are set to 00.) **i** is the V1 byte **j** is the V2 byte **k** is the V3 byte **l** is the V4 byte **m** is the V5 byte **n** is the J2 byte **o** is the Z6 byte **p** is the Z7 byte

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GET Commands	Description
GET:STSD (Protocol supported: SONET)	Queries and displays all user-definable Transmit and Receive settings for the SONET test set. For **SONET**, the following results display: **a+b+c+d+e+f+g+h+i+j+k+l+m+n+o+p+q+r+s+t+u+v** where, **a** is the elapsed time for the SONET test set **b** is the duration of an LOS **c** is the duration of an LOF **d** is the duration of an OOF event **e** is the duration of Loss of Pointer **f** is the duration of STSX BPV seconds **g** is the duration of Section B1 errors **h** is the duration of Line AIS errors **i** is the duration of Line B2 errors **j** is the duration of Path AIS seconds **k** is the duration of Path B3 errors **l** is the duration of VT LOP seconds **m** is the duration of VT AIS seconds **n** is the duration of VT BIP2 errors **o** is the duration of Line FERF **p** is the duration of Line FEBE seconds **q** is the duration of Path Yellow alarms **r** is the duration of Path FEBE seconds **s** is the duration of VT FERF seconds **t** is the duration of LOP **u** is the number of BIT errors **v** is the duration of VT FEBE errors

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GET Commands	Description
GET:STTOH *X* (Protocol supported: SONET)	Queries and displays the SONET Transmit Transport Overhead bytes for the selected STS-1, where X is: **1** — STS-1 #1 for OC-1 or STSX-1 SONET interface **1–3** — STS-1 #1 – STS-1 #3 for OC-3 SONET interface **1–12** — STS-1 #1 – STS-1 #12 for OC-12 SONET interface Command results appear using the following format: **a b c d e f g h i j k l m n o p q r s t u v w x y z aa** where, (**Note:** All values appear in two-digit HEX notation.) **a** is the A1 byte **b** is the A2 byte **c** is the B1 byte **d** is the B2 byte **e** is the C1 byte **f** is the D1 byte **g** is the D2 byte **h** is the D3 byte **i** is the D4 byte **j** is the D5 byte **k** is the D6 byte **l** is the D7 byte **m** is the D8 byte **n** is the D9 byte **o** is the D10 byte **p** is the D11 byte **q** is the D12 byte **r** is the E1 byte **s** is the E2 byte **t** is the F1 byte **u** is the H1 byte **v** is the H2 byte **w** is the H3 byte **x** is the K1 byte **y** is the K2 byte **z** is the Z1 byte **aa** is the Z2 byte

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GET Commands	Description
GET:SYS (Protocol supported: SONET, DS1, DS3, ATM)	Queries and displays various system capabilities for all test sets. This command is useful when trying to determine what features are licensed in the unit as well as viewing the unit's software release version. The results for this command are grouped by **SONET** features, **DS1** features, **DS3** features, **ATM** features, and **various hardware and software** features. Each major group of features are separated by commas (,). Values within a group are separated by plus (+) signs. Command results appear using the following format: **a+a+a+..., b+b+..., c+c, d+d, e+e, f, g, h, i, j** where, **a** represents SONET features. The following parameters can appear: **3** — Unit is licensed for OC-3 **12** — Unit is licensed for OC-12 **12C** — Unit is licensed for OC-12 concatenation mode **48** — Unit is licensed for OC-48 **48C** — Unit is licensed for OC-48 concatenation mode **1310** and/or **1550** — Unit contains a 1310 nm laser and/or a 1550 nm laser **DUAL** — Indicates that the unit has dual laser capability **NONE** — Indicates that SONET functionality is not support by this unit **VTB** — Unit is licensed for Byte Sync mode **<blank>** — If the unit is only licensed for SONET electrical operation (STSX-1), then the SONET parameters field will be blank. **b** represents DS1 features. The following parameters can appear: **0** — Unit is licensed for DS0 **NONE** — Indicates that DS1 functionality is not supported by this unit. **c** represents DS3 features. The following parameters can appear: **<blank>** — Unit is licensed for DS3 **NONE** — Indicates that DS3 functionality is not supported by this unit. **d** represents ATM features. The following parameters can appear: **3** — Unit is licensed for ATM/STS-3c mode **12** — Unit is licensed for ATM/STS-12c mode **T** — Unit is licensed for ATM/DS1 and/or ATM/DS3 mode

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GET Commands	Description
GET:SYS (continued) (Protocol supported: SONET, DS1, DS3, ATM)	**e** represents miscellaneous hardware and software features. The following parameters can appear: **PAR** — Unit is licensed for Parallel port hardware **REM** — Unit is licensed for Remote Access Manager software **PC** — Unit is licensed for PCMCIA hardware **ETH** — Unit is licensed for Ethernet operation **JITTER** — Unit is licensed for Jitter hardware **f** is the unit's date and time. It appears as **MMDDYYYYHHMMSS** **g** is the unit's software version release number **h** is the unit's ATM software version release number **i** is the unit's Jitter software version release number **j** is the SCPI software version release number
GET:SW (Protocol supported: SONET, DS1, DS3, ATM)	Queries and displays all Switch Matrix connections. Command results appear using the following format: **a1,a2, b1,b2, c1,c2, ...** where, **a1** is the target of the first Switch Matrix connection **a2** is the source of the first Switch Matrix connection (for example, DS1LI,DS1PP indicates that a signal connection is made from the DS1 protocol processor (source) to the DS1 Line Interface (target).) **b1** is the target of the second Switch Matrix connection **b2** is the source of the second Switch Matrix connection **c1** is the target of the third Switch Matrix connection **c2** is the source of the third Switch Matrix connection The following defines the various Switch Matrix components: **ATMDS1** — ATM DS1 protocol processor **ATMDS3** — ATM DS3 protocol processor **ATMPP** — ATM protocol processor **ATMSON** — ATM SONET protocol processor **DS1LI** — DS1 Line Interface **DS1PP** — DS1 protocol processor **DS3LI** — DS3 Line Interface **DS3PP** — DS3 protocol processor **M13DS1** — M13 Mux DS1 **M13DS3** — M13 Mux DS3 **SONET** — SONET protocol processor **STSX1** — STSX-1

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GET Commands	Description
GET:VCC *X*,*Y* (Protocol supported: ATM)	Queries and displays the number of entries in a VCC Table and the parameters for VCC Table entries. **X** is the starting VCC Table range (from 1 to 256) **Y** is the ending VCC Table range (from 1 to 256) Command results appear using the following format: **a, b, c, d d d d d, e, f, g, h, i, j, k, l, m, n, d d d d d, e, f, ...** where, **a** is first entry queried in a VCC Table (appears once) **b** is the last entry required in a VCC Table (appears once) **c** indicates the total number of entries in a VCC Table (appears once) **d d d d d** is the Header Field for the VCC Table entry (which contains the *gfc*, *vpi*, *vci*, *pti*, and *clp*) **e** is the virtual channel's Tx Pattern **f** is the virtual channel's Rx Pattern g is virtual channel's ATM Adaptation Layer (AAL) **h** is the virtual channel's PDU Length for the virtual channel **i** is the virtual channel's traffic shaping (VBR, CBR, or UBR) **j** is the Peak Cell Rate (only valid for VBR and CBR) **k** is the Sustained Cell Rate for VBR traffic **l** is the Max Burst Size for VBR traffic **m** indicates the transmit state of the virtual channel (0=Disabled, 1=Enabled) **n** indicates the monitor state of the virtual channel (0=Disabled, 1=Monitor, 2=Detail)
GET:VCCPM (Protocol supported: ATM)	Queries and displays results data for the VCC Table. Command results appear using the following format: **a, b, c, d, e, c, d, e, ... c, d, e** where, **a** is number of VCC channels entered in a VCC Table **b** is the continuation indicator (No or Yes). **No** indicates that this VCC section contains the last of the VCC records; no more transmissions will be sent without another request. **Yes** indicates that more VCC records can be sent in this transmission. Another transmission will automatically be sent with a query containing only the VCC section. **c** is the received cell rate **d** is the Cell Lost Priority (CLP) indicator **e** indicates if an error was reported for an individual virtual channel

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GET Commands	Description
GET:VCCROW *X* (Protocol supported: ATM)	Queries and displays a status report for a specific virtual channel. X is the virtual channel. Command results appear using the following format: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v** where, **a** is the virtual channel's received cell rate **b** is the total number of cells received **c** is the number of F4 (VPI) AIS alarm seconds **d** is the number of F5 (VCI) AIS alarm seconds **e** is the number of F4 (VPI) RDI alarm seconds **f** is the number of F5 (VCI) RDI alarm seconds **g** is the total number of Pattern Sync errors detected for a virtual channel enabled for Detailed Detection mode **h** is the Cell Loss Priority (CLP) indicator (0=high priority, 1=low priority) **i** is the AAL5 CRC Error count **j** is the AAL5 CRC Error rate **k** is the AAL5 Length Error count **l** is the AAL5 Length Error rate **m** is the AAL5 PDU count **n** is the Bit error count **o** is the Bit error rate **p** is the AAL1 SNP Error count **q** is the AAL1 SNP Error rate **r** is the AAL1 Lost cell count **s** is the AAL1 Lost cell rate **t** is the AAL1 misinserted cell count **u** is the AAL1 misinserted cell rate **v** is the AAL5 PDU rate line PDUs/sec

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SET Branch

The Set Branch SCPI commands act as batch commands by setting values for multiple ASA 312 parameters using a single SCPI command. This is similar to using the Trnsmt and Receive Function Group buttons to configure various settings of the different protocol processors.

SET Commands	Description
SET:1SET (Protocol supported: DS1)	Sets the user-definable Transmit and Receive settings for the DS1 test set. For **DS1**, the following parameters can be configured: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q** where, **a** is the Tx Line Code command value (see SOUR:LCODE?) **b** is the Tx Framing command value (see SOUR:FRAMing?) **c** is the Tx Pattern command value (see SOUR:PATT? or SOUR:UPATT?) **d** is the Tx Signal Level command value (see SOUR:SIGLEVEL?) **e** is the Clock Reference command value (see SENS:CLOC) **f** is the Rx Framing command value (see SENS:FRAM?) **g** is the Rx Pattern command value (see SENS:PATT? or SENS:UPATT?) **h** is the Input Termination command value (see SENS:TERM) **i** is the type of error generated (see SOUR:ERR:TYPE) **j** is the error rate generated (see SOUR:ERR:URATE) **k** is the DS1 Alarm Generated command value (see SOUR:AL:TYPE?) **l** is the Jitter Mapping command value (see SENS:JITTER:MAP?) **m** is the Jitter Hits Threshold command value (see SENS:JITTER:LEVEL) **n** is the Jitter Equalization command value **o** is the ATM DS1 Mapping command value (see SENS:DS1ATM) **p** is the Fractional T1 Mode command value (see SOUR:FRAC_T1:MODE?) **q** is the Fractional T1 Mask command value (see SOUR:FRAC_T1:MASK)

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SET Commands	Description
SET:0SET (Protocol supported: DS0)	Sets the user-definable Transmit and Receive settings for the DS0 test set. For **DS0**, the following parameters can be configured: **a, b, c** where, **a** is DS0 channel (Channels 1 - 24) dropped from the DS1 signal **b** indicates the type of circuit signaling used (U=Unknown; LS=Loop Start; GS=Ground Start; LRB=Loop-Reverse Battery; NPRB=Network-Provided Reverse Battery; EM=E&M signaling; CPLS=CI-Provided Loop Start) **c** indicates if the Network Interface or Customer Interface generates circuit signaling

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SET Commands	Description
SET:3SET (Protocol supported: DS3)	Sets the user-definable Transmit and Receive settings for the DS3 test set. For **DS3**, the following parameters can be configured: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s** where, **a** is the Tx Signal Level command value (see SOUR:SIGLEVEL) **b** is the Tx Framing command value (see SOUR:FRAM?) **c** is the Tx Pattern command value (see SOUR:PATT? or SOUR:UPATT?) **d** is the Settings Control command value (see SOUR:COUP?) **e** is the Rx Framing command value (see SENS:FRAM?) **f** is the Rx Pattern command value (see SENS:PATT? or SENS:UPATT?) **g** is the DS1 Input Termination command value (see SENS:TERM) **h** is M13 DS1 Channel Inserted command value (see SOUR:M13:INS?) **i** is the M13 Background DS1 Framing command value (see SENS:M13:BGFR) **j** is the M13 Background DS1 Pattern command value (see SENS:M13:BGP) **k** is DS3 M13 DS1 Channel Dropped command value (see SENS:M13:DROP?) **l** is the Type of DS3 Error Added command value (see SOUR:ERR:TYPE?) **m** is the Error Insertion Rate command value (see SOUR:ERR:URATE?) **n** is the Alarm Generated command value (see SOUR:AL:TYPE?) **o** is Jitter Mapping command value (see SENS:JITTER:MAP?) **p** is Jitter Hits Threshold command value (see SENS:JITTER:LEVEL?) **q** is the Jitter Equalization command value (see SENS:JITTER:EQUAL?) **r** is the ATM DS3 Mapping command value (see SENS:DS3ATM?) **s** is the BIT Analysis' BIT Error Counts command value (see SENS:DS3BIT)

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SET Commands	Description
SET:ASET (Protocol supported: ATM)	Sets the user-definable Transmit and Receive settings for the ATM test set. For **ATM**, the following parameters can be configured: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, aa, bb, cc, dd, ee, ff, gg** where, **a** is the ATM Interface command value (see ATMINT?) **b** is the Unit of Measure command value (see ATMSYS:CELLRATE) **c** is the Loopback VCC Header command value (see ATMLOOPB:VCCHDR?) **d** is the Loopback Connection Type command value (see ATMLOOPB:CONN?) **e** is the Loopback Insertion Rate command value (see ATMLOOPB:RATE?) **f** is the Loopback Duration of Insertion command value (see ATMLOOPB:DUR?) **g** is the Loopback Duration of Insertion (Continuous) command value (see ATMLOOPB:DUR:CONT) **h** is the Provision VPI command value (see ATMPROV:VCC?) **i** is the Provision VPI command value (see ATMPROV:VCC?) **j** is the Provision Peak Cell Rate command value (see ATMPROV:PCR?) **k** is the Provision Sustained Cell Rate command value (see ATMPROV:SCR?) **l** is the Provision Maximum Burst Size command value (see ATMPROV:MBS?) **m** is the Provision PDU command value (see ATMPROV:PDUS?) **n** is the QOS VPI command value (see ATMQOS:VCC?) **o** is the QOS VCI command value (see ATMQOS:VCC?) **p** is the QOS Sustained Cell Rate command value (see ATMQOS:SCR?) **q** is Scan Header value (see ATMSCAN:VCCHDR?) **r** is RX ON/OFF value **s** is TX ON/OFF value **t** is the QOS Start/Stop state (see ATMQOS:START or ATMQOS:STOP) **u** is the Provision Start/Stop state (see ATMPROV:START or ATMPROV:STOP)

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SET Commands	Description
SET:ASET (continued) (Protocol supported: ATM)	**v** is the Scan Start/Stop state (see ATMSCAN:START or ATMSCAN:STOP) **w** is the Type of Error Added command value (see SOUR:ERR:TYPE?) **x** is the Error Insertion Rate command value (see SOUR:ERR:URATE?) **y** is the ATM Duration of Error Insertion command value (see SOUR:ERR:DUR?) **z** is the Error Burst Count command value (see SOUR:ERR:BURSTCNT?) **aa** is the ATM Alarm Generated command value (see SOUR:AL:TYPE?) **bb** ATM Duration of Alarm Generation command value (see SOUR:AL:DUR?) **cc** is the QOS PDU Length command value (see ATMQOS:PDU?) **dd** is the ATM Mapping command value (see SOUR:MAP:*X* or SOUR:DS1ATM? or SOUR:DS3ATM?) **ee** is the Stress Header value (see ATMSTRESS:HEADER?) **ff** is the Stress Peak Cell Rate command value (see ATMSTRESS:PCR?) **gg** is the Cell Scrambling command value

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SET Commands	Description
SET:E1OH (Protocol supported: E1)	Sets the E1 Overhead bytes. Values are entered in two-digit HEX notation. No commas or spaces can appear between values. Enter OH bytes using the following format: (Note: All values appear in two-digit HEX notation.) **a a b c d d d d d d d d d d d d d d** where, **a** = Spare Bits: Two command bytes are used to configure the E1 spare bit values. The first command byte determines whether the second byte controls all spare bits globally or if it controls one bit position in each byte. The value of the first command byte cannot be anything other than 0, 4, 5, 6, 7, or 8. If the value of the first command byte is 0, then bits 4-8 of the second command byte become bits 4-8 in each of the spare bytes for the odd frames 1-15; bits 1, 2, and 3 are ignored. If the first command byte is a 4, 5, 6, 7, or 8, then the byte's value defines which bit position (4-8) of the spare bytes will be affected by the second byte of this command. No other spare bit positions will be modified. For the case where the first command byte is non-zero, the bit order from the second command byte will be applied as: bit 1 to frame 15, bit 2 to frame 13, bite 3 to frame 11, bit 4 to frame 9, bit 5 to frame 7, bit 6 to frame 5, bit 7 to frame 3, and bit 8 to frame 1. **b** = E-Bits: The two E-bits appear in the lower two bits. Bits 3 to 8 are unused (zero). **c** = CAS X-Bits: Only bits 5, 7, and 8 are used. **d** = CAS ABCD Bits: Organized in the same order as the CAS. ABCD bits for Time Slots 1 to 15 are in lower-order bits. ABCD bits for Time Slots 17 to 31 are in upper-order bits of bytes 1 to 15.

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SET Commands	Description
SET:SSET (Protocol supported: SONET)	Sets the user-definable Transmit and Receive settings for the SONET test set. For **SONET**, the following parameters can be configured: **a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, aa** where, **a** indicates if the Laser is on or off **b** indicates the type of laser used (1310 nm or 1550 nm) **c** indicates the Mapping command value **d** is the Settings Control command value (see SOUR:COUP?) **e** is the Orderwire Add/Drop command value (see SOUR:ORDER?) **f** is the Clock Reference command value (see SENS:CLOC) **g** is the Transmit Interface command value (see SOUR:OC?) **h** is the SPE Frequency Offset command value (see SOUR:SPEFREQOFF?) **i** is the Tx SPE Under Test command value (see SOUR:SPE:INS?) **j** is the Tx VT Under Test (VT #) command value (see SOUR:VTCH:INS?) **k** is the Tx VT Under Test (Group #) command value (see SOUR:VTGR:INS?) **l** is the Tx VT Signal Label command value (see SOUR:VTSIGLBL) **m** is the Pattern in Other VTs command value (see SOUR:OVTPATT?) **n** is the Pattern in Other STSs command value (see SOUR:OSTSPATT?) **o** is the Tx Pattern for Other STS1s command value (see SOUR:PATT?) **p** is the Path Signal Label command value (see SOUR:PSIGLBL) **q** is the Receive Interface command value (see SENS:OC?) **r** is the Rx SPE Under Test command value (see SENS:SPE:INS?) **s** is the Rx VT Under Test (VT #) command value (see SENS:VTCH:DROP?) **t** is the Rx VT Under Test (Group #) command value (see SENS:VTGR:DROP?) **u** is STS-3c/12c/48c Pattern command value (see SENS:PATT?)

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SET Commands	Description
SET:SSET (continued) (Protocol supported: SONET)	**v** is the Type of Error Added command value (see SOUR:ERR:TYPE?) **w** is the Error Insertion Rate command value (see SOUR:ERR:URATE?) **x** is the Alarm Generated command value (see SOUR:AL:TYPE?) **y** is the NAA I Rx Termination command value **z** is the Tx STS-12 Under Test command value (see SOUR:STS:INS?) **aa** is the Rx STS-12 Under Test command value (see SENS:STS:DROP?)
SET:STPOH *abcdefghijklmnop* (Protocol supported: SONET)	Sets the SONET Transmit STS Path Overhead bytes and VT Path Overhead bytes for the current STS-1. **Note:** Before using this command, select an STS-1 by using the SOUR:SPE:INS command or the SET:SSET command. All values must be entered in two-digit HEX notation. No commas or spaces must appear between values. For example, **SET:STPOH 6C02030104030405A1A2A3A4A5B1B3B3** Changes the B3 byte to 01101100, the C2 byte to 00000010, the F2 byte to 00000011, and so on. Enter Overhead bytes using the following format: **a b c d e f g h i j k l m n o p** where, (**Note:** Parameters **a–h** are STS Path OH bytes.) **a** is the B3 byte **b** is the C2 byte **c** is the F2 byte **d** is the G1 byte **e** is the H4 byte **f** is the Z3 byte **g** is the Z4 byte **h** is the Z5 byte (**Note:** Parameters **i–p** are VT Path OH bytes. If the unit is not mapped for VT 1.5 mode, then set these bytes to 00.) **i** is the V1 byte **j** is the V2 byte **k** is the V3 byte **l** is the V4 byte **m** is the V5 byte **n** is the J2 byte **o** is the Z6 byte **p** is the Z7 byte

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SET Commands	Description
SET:STTOH *X, abcdefghijklmnopqrstuvwxyzaa* (Protocol supported: SONET)	Sets the SONET Transmit Transport Overhead bytes for the selected STS-1, where X is: **1** — STS-1 #1 for OC-1 or STSX-1 SONET interface **1–3** — STS-1 #1 – STS-1 #3 for OC-3 SONET interface **1–12** — STS-1 #1 – STS-1 #12 for OC-12 SONET interface and: ***a b c d e f g h i j k l m n o p q r s t u v w x y z aa*** are Transport Overhead bytes (the Section Overhead and Line Overhead) of the selected STS-1 as listed below. (**Note:** All values must be entered in two-digit HEX notation. No commas or spaces must appear between values.) **a** is the A1 byte **b** is the A2 byte **c** is the B1 byte **d** is the B2 byte **e** is the C1 byte **f** is the D1 byte **g** is the D2 byte **h** is the D3 byte **i** is the D4 byte **j** is the D5 byte **k** is the D6 byte **l** is the D7 byte **m** is the D8 byte **n** is the D9 byte **o** is the D10 byte **p** is the D11 byte **q** is the D12 byte **r** is the E1 byte **s** is the E2 byte **t** is the F1 byte **u** is the H1 byte **v** is the H2 byte **w** is the H3 byte **x** is the K1 byte **y** is the K2 byte **z** is the Z1 byte **aa** is the Z2 byte For example, **SET:STTOH 12, 0102111221010203040506070809 0A0B0C11125161626371728182** Selects STS-1 #12 and changes the A1 byte to 00000001, the A2 byte to 00000010, and so on.

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SET Commands	Description
SET:SW (Protocol supported: SONET, DS1, DS3, ATM)	Sets Switch Matrix connections. Parameters are entered using a target and source format. Each parameter is separated by a comma. For example, **SET:SW ds3pp,sonet** Makes a Switch Matrix connection from the SONET protocol processor to the DS3 protocol processor. Selects the DS3 protocol processor as the target Switch Matrix connection and the SONET protocol processor as the signal source of the Switch Matrix connection. In the process, the SONET protocol processor is mapped for DS3 operation. The following defines the various Switch Matrix components: **ATMDS1** — ATM DS1 protocol processor **ATMDS3** — ATM DS3 protocol processor **ATMPP** — ATM protocol processor **ATMSON** — ATM SONET protocol processor **DS1LI** — DS1 Line Interface **DS1PP** — DS1 protocol processor **DS3LI** — DS3 Line Interface **DS3PP** — DS3 protocol processor **M13DS1** — M13 Mux DS1 **M13DS3** — M13 Mux DS3 **SONET** — SONET protocol processor **STSX1** — STSX-1

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SET Commands	Description
SET:VCC *a, b, c, d d d d d, e, f, g, h, i, j, k, l, m, n, d d d d d, e, f, ...* (Protocol supported: ATM)	Creates a single entry or multiple entries in an ATM VCC Table. **Note:** The first two parameters of this command (*a* and *b*) indicate the starting and ending range of virtual channels in the VCC Table. A total of 256 virtual channels can be added to a VCC Table. However, due to the large amount of data that will be passed, it is recommended that large VCC Tables be entered in smaller groups. For example, if 75 virtual channels are being entered, then enter 20 virtual channels at one time: **SET:VCC 1,20,Y,...** **SET:VCC 21,40,N,...** **SET:VCC 41,60,N,...** **SET:VCC 61,75,N,...** Command parameters appear using the following format: **a, b, c, d d d d d, e, f, g, h, i, j, k, l, m, n, d d d d d, e, f, ...** where, **a** is the number of the first virtual channel that is being set in a VCC Table **b** is the number of the last virtual channel that is being set in a VCC Table **c** (Delete Table First parameter) determines if existing VCC Table entries are deleted (Y=Yes) or remain (N=No) when additional virtual channels are added to a VCC Table. When creating multiple VCC Table entries, the Yes parameter (Y) only needs to be entered for the first SET:VCC command. **d** is the Header Field for the VCC Table entry which consists of the *gfc* (a single HEX value), *vpi* (a two-digit HEX value), *vci* (a four-digit HEX value), *pti* (a two-digit Binary value), and *clp* (a single digit Binary value) **e** is the virtual channel's Tx Pattern **f** is the virtual channel's Rx Pattern g is virtual channel's ATM Adaptation Layer (AAL) **h** is the virtual channel's PDU Length for the virtual channel **i** is the virtual channel's traffic shaping (VBR, CBR, or UBR) **j** is the Peak Cell Rate (only valid for VBR and CBR) **k** is the Sustained Cell Rate for VBR traffic **l** is the Max Burst Size for VBR traffic **m** indicates the transmit state of the virtual channel (0=Disabled, 1=Enabled) **n** indicates the monitor state of the virtual channel (0=Disabled, 1=Monitor, 2=Detail)

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TEST Branch

The Test Branch SCPI commands control Timed Test functionality. This branch supports commands associated with the Tests & Setup Function Group button.

TEST Commands	Description
TTEST:ABORT:*X* (Protocol supported: SONET, DS1, DS3, E1, ATM)	Stops the timed test for the selected protocol processor. X is: **DS1** **DS3** **SONET** **E1** **ATM**
TTEST:LOAD:*X.Y* (Protocol supported: SONET, DS1, DS3, E1)	Retrieves and starts a timed test configuration that already exists on the ASA 312 or NAA I. Filenames follow the standard DOS naming convention of 8.3 (xxxxxxxx.yyy). X is: The name of the timed test configuration file. The filename can be from one to eight characters in length. Y is: One of the following three character file extensions. **TTS** for SONET timed tests **TT1** for DS1 timed tests **TT3** for DS3 timed tests TTE for E1 timed tests
TTEST:RESULTS:*X* (Protocol supported: SONET, DS1, DS3, E1)	Retrieves timed test results for the selected protocol processor. X is: **SON** for SONET **DS1** for DS1 **DS3** for DS3 **E1** for E1 If a test is active, command results appear using the following format: **a** where, **a** is *A* which indicates that the test is active If a test is inactive, command results appear using the following format: **a,b,c,d,e,f** where, **a** is *I* which indicates that the test is inactive **b** is P (Passed) or F (Failed) for the first test threshold **c** is P or F for the second test threshold **d** is P or F for the third test threshold **e** is P or F for the fourth test threshold **f** is the test duration in seconds **Note:** If there have been no timed tests performed since the unit was last powered on, then **I,P,P,P,P,0** displays.

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TEST Commands	Description
TTEST:RUN:*X a,b,c,d,e,f,g,e,f,g,e,f,g,e,f,g* (Protocol supported: SONET, DS1, DS3, E1)	Configures the parameters for a timed test, where X is: **SON** for a SONET timed test **DS1** for a DS1 timed test **DS3** for a DS3 timed test **E1** for an E1 timed test and: **a** indicates which protocol processor's timed test settings will be saved. It is one of the following: **SON** for the SONET protocol processor **DS1** for the DS1 protocol processor **DS3** for the DS3 protocol processor E1 for the E1 protocol processor **ALL** for the SONET, DS1, DS3, and E1 protocol processors **b** is the timed test duration in minutes. (**Note:** This value does not change once a timed test starts.) **c** defines what activities occur at the conclusion of a timed test. This parameter is one of the following: **1** — Take no action **2** — Display and print timed test results. The test is not repeated. **3** — Automatically print test results. The test is not repeated. **4** — Display and print timed test results, and then repeat the timed test. **5** — Automatically display and print timed test results, and then repeat the timed test. The display, print, and repeat cycle continues. **d** determines the origin of the timed test command. This parameter is one of the following: **0** — The timed test was started from an ASA 312 user interface or by a SCPI command issued while the unit is not in a remote session. **1** — The timed test was started by a SCPI command issued while the unit is in a remote session. **e** is the Type parameter. It indicates the type of activity that will occur during the timed test. It is one of three criteria for a timed test. The Type parameter is one of the following: **NONE** **ALARM** **FAIL** — Failure **RATE** — Error rate **CNT** — Error count **SEC** — Errored seconds **PTR** — Pointer adjustments (SONET only)

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TEST Commands	Description
TTEST:RUN:*X a,b,c,d,e,f,g,e,f,g,e,f,g,e,f,g* (continued) (Protocol supported: SONET, DS1, DS3, E1)	**f** is the Event parameter and is one of the following: **AIS** — Alarm Indication Signal (DS1 alarm event) **ANY** — Any event is monitored (SONET, DS1, and DS3) **B1** — Section B1 error (SONET error event) **B2** — Line B2 error (SONET error event) **B3** — Path B3 error (SONET error event) **BIP2** — VT BIP-2 (SONET error event) **BIT** — Bit error (DS1 error event) **BPV** — Bi Polar Violation (DS1 or DS3 error event) **CASMFL** — CAS Multi-frame Loss (E1 alarm event) **CBIT** — C-Bit error (DS3 error event) **CRC** — CRC error (DS1 error event) **EXZ** — Excess Zeros (DS1 alarm event) **FEBE** — Far-End Block Error (DS3 error event) **FRAME** — Frame error (DS1 or DS3 error event) **IDLE** — Idle alarm (DS1 alarm event) **LAIS** — Line AIS (SONET alarm event) **LFEBE** — Line FEBE (SONET error event) **LFERF** — Line FERF (SONET alarm event) **LOF** — Loss of Frame (SONET, DS1, or DS3 failure event) **LOS** — Loss of Signal (SONET, DS1, or DS3 failure event) **OOF** — Out of Frame (SONET, DS1, or DS3 failure event) **PAIS** — Path AIS (SONET alarm event) **PAT** — Pattern Sync (DS1 failure event) **PAY** — Payload Bit (SONET error event) **PPAR** — P-Parity error (DS3 error event) **PUNEQ** — Path Unequipped (SONET alarm event) **PYEL** — Path Yellow (SONET alarm event) **RAI** — Remote Alarm Indication (E1 alarm event) **RMFAI** — Remote Multi-frame Alarm (E1 alarm event) **STSADJ** — STS Pointer adjustment (SONET Pointer event) **STSNDF** — STS NDF count (SONET Pointer event) **STSPTR** — STS Pointer loss (SONET Pointer event) **VTAIS** — VT AIS (SONET alarm event) **VTUNEQ** — VT Unequipped (SONET alarm event) **VTYEL** — VT Yellow (SONET alarm event) **PFEBE** — Path FEBE (SONET error event) **VTFEBE** — VT FEBE (SONET error event) **VTADJ** — VT Pointer adjustment (SONET Pointer event) **VTNDF** — VT NDF count (SONET Pointer event) **VTPTR** — VT Pointer loss (SONET Pointer event) **XBIT** — X-Bit alarm (DS3 alarm event) **YEL** — Yellow (DS1 alarm event)

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TEST Commands	Description
TTEST:RUN:*X a,b,c,d,e,f,g,e,f,g,e,f,g,e,f,g* (continued) (Protocol supported: SONET, DS1, DS3, E1)	**g** is Threshold parameter and is one of the following: **DET** — Detected (alarm and failure events) **NOT** — Not Detected (alarm and failure events) **Cnnnnn** — Error Count or Errored Seconds Threshold. Error count or errored seconds is greater than nnnnn (nnnnn ranges from 0 to 1000) **RnnEnn** — Error Rate Threshold. The error rate is greater than n.n e-nn. (For example, R43E0E is an error rate of 4.3 e-03 or .0043.)
TTEST:RUN:*X*? (Protocol supported: SONET, DS1, DS3, E1)	Queries and displays the timed test parameters for the selected protocol processor, where X is: **SON** — SONET protocol processor **DS1** — DS1 protocol processor **DS3** — DS3 protocol processor **E1** — E1 protocol processor
TTEST:STATUS:X (Protocol supported: SONET, DS1, DS3, E1)	Displays the time remaining for a timed test. The time appears in seconds. If a value of 0 is returned, the timed test is stopped.

RUN Branch

The Run Branch SCPI commands enable and disable protocol processors.

RUN Commands	Description
RUN:STATUS? (Protocol supported: All protocols)	Displays the Run/Stop state of all protocol processors in the following order: SONET DS1 DS3 ATM E1 Command results appears as a 0 or 1, where: **0** — Indicates that the protocol processor is stopped or off. **1** — Indicates that the protocol processor is running. For example, **10010** Indicates that the SONET and ATM protocol processors are running, while the DS1, DS3, and E1 protocol processors are stopped.

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RUN Commands	Description
RUN:RESTART:*X* (Protocol supported: All protocols)	This command has two functions: 1. It enables a protocol processor 2. It and clears and resets all result and event counters and timers for the selected protocol processor X is: **ALL** — Restarts all protocol processors **SONET** — Restarts the SONET protocol processor **DS1** — Restarts the DS1 protocol processor **DS3** — Restarts the DS3 protocol processor **ATM** — Restarts the ATM protocol processor **E1** — Restarts the E1 protocol processor
RUN:STOP:*X* (Protocol supported: All protocols)	This command stops the current test that is running on the selected protocol processor. X is: **ALL** — Stops all protocol processors **SONET** — Stops the SONET protocol processor **DS1** — Stops the DS1 protocol processor **DS3** — Stops the DS3 protocol processor **ATM** — Stops the ATM protocol processor **E1** — Stops the E1 protocol processor

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4 Error Codes

Error Codes

The Error Codes assist in debugging ASA 312 and NAA I problems. In the following list of Error Codes, the negative numbers are standard SCPI codes and the positive number are ASA 312 and NAA I specific codes.

Error Code	Definition
-100	Command Error (Generic) - Bad, is-spelled, or wrong command
-104	Data Type Error - Cannot use data, wrong values or type
-109	Missing Parameters - Wrong number of parameters for command
-120	Numeric Data Error - Number is wrong type or wrong size
-131	Invalid Suffix - Wrong parameter value
-350	Error queue overflow (Error queue size is 79)
-400	Generic Query Error - Could not send response to query
100	Command invalid for protocol processor or mode/mapping/framing - Generic
110	Not applicable - DS1 is always coupled
112	Requested DS-1 Framing is Invalid - Cannot use for DS-1
119	Requested DS-1 Error is Invalid - Cannot use this type or rate
121	Requested DS-3 Pattern is Invalid - Cannot select this pattern
122	Requested DS-3 Framing/Mapping is Invalid - Cannot use for DS-3
123	DS-3 Line Code is not Changeable - Cannot select or Query
129	Requested DS-3 Error is Invalid - Cannot use this type or rate
131	Requested DS1 Pattern is Invalid - Cannot select this pattern
141	Requested SONET Pattern is Invalid, Only OC3c, OC12c, and OC48 have patterns.
142	Requested SONET Mapping is Invalid. For example, STSX-1 Drop/Insert mapping is invalid for STSX-1 Interface
143	Optical Linecode is not Changeable - Cannot Select or Query
145	SONET - byte in use for orderwire - Cannot Transmit
146	SONET - byte in use for DataCom Channel - Cannot Transmit
147	SONET - byte in use for DataCom Channel - Cannot Query
148	Invalid SONET Overhead Byte - This byte cannot be changed
149	Requested SONET Error is Invalid - Cannot use this type or rate
150	Requested SONET error Invalid for the current mode or mapping

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Error Code	Definition
151	Requested DS1 Alarm invalid
152	Requested DS3 Alarm invalid
153	Requested SONET Alarm invalid
154	Unable to report error generation rate
155	Invalid VT Signal label
156	LASER command or query invalid - laser not available
157	Pointer adjustment argument invalid (PTRSTS, PTRVT)
160	Unable to execute command/query while pop-up menu is active
161	T1X1 Sequence is in progress -- cannot do pointer adjustment
162	SPE offset in progress -- cannot do other pointer adjustments
163	Argument for STS pointer adjustment out of range (-8 to 8)
164	Argument for VT pointer adjustment is not 1 or -1
165	VT Pointer adjustment requested when mapping is not VT 1.5
166	VT Pointer adjustment requested when SONET mode is OC3c or OC12c
167	VT Pointer adjustment out of range (78 to 81)
168	Invalid STS-1 # specified for Transport Overhead
169	VT receive pointer undefined or mapping not VT 1.5
170	Cannot set requested mode - dialog box or menu is open
171	Unavailable - Signal Status Screen measuring another protocol processor.
175	Test set must be selected before any SOUR commands or queries
180	Optical sampling not yet complete - try again
181	Command or query not valid - software not licensed for SONET
182	Command or query not valid - software not licensed for ATM
183	Bridged Low option not available in hardware
184	Command/query invalid - software not licensed for this setting
185	Saved file version does not match current software version
186	Another timed test is already running
187	Test Set is not connected to Line Interface
200	Query Not Valid for This Test Set - Generic
213	CRC Query Invalid - Cannot use this on DS-1
214	C-bit Query Invalid - Cannot use this on DS-1
215	FEBE Query Invalid - Cannot use this on DS-1
216	P-Parity Query Invalid - Cannot use this on DS-1
217	BIP Query Invalid - Cannot use this on DS-1
220	DS-3 Query Invalid
223	CRC Query Invalid - Cannot use this on DS-3
224	C-bit Query Invalid - Cannot use this on DS-3
225	FEBE Query Invalid - Cannot use this on DS-3
226	P-Parity Query Invalid - Cannot use this on DS-3
227	BIP Query Invalid - Cannot use this on DS-3

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Error Code	Definition
230	ATM Query Invalid - ATM option is not supported
240	Query Invalid for SONET or SONET mode/mapping
241	Bit Query Invalid - Cannot use this on SONET without STS-3c
242	BPV Query Invalid - No Optical BPVs
243	CRC Query Invalid - Cannot use this on SONET
244	Framing Query Invalid - Cannot use this on SONET
245	FEBE Query Invalid - Cannot use this on SONET
246	P-Parity Query Invalid - Cannot use this on SONET
248	VT Bip Query Invalid - Cannot use this without VT Mapping
249	Channel Scan not able to be performed
250	command or query not valid - Software not licensed for Jitter
251	Jitter Hits Threshold setting out of range (0 to 50.0)
252	Query invalid - Jitter is not mapped to DS1 or DS3
253	Jitter Equalization invalid (Must be 0, 450, or 900)
254	Jitter Mapping invalid - Input Termination cannot be Bridged or Bridged Low
300	VCC Table full - Another entry cannot be added
301	VCC 0,0 cannot be entered - value of idle cell
302	Entry already exists in the VCC table
303	Entry does not exist in the VCC table
304	Invalid pattern for ATM
305	No current VCC table entry exists for SCPI
306	Enabled entries are already “OFF” (Receive or Transmit)
307	Enabled entries are already “ON” (Receive or Transmit)
308	Command not valid - channel is currently transmitting
309	Entry cannot be enabled, already 16 transmit channels
310	Cannot enable detail, AAL is 5 or already 4 detail channels
311	Command not valid - channel is currently receiving
312	Setting cannot be changed - ATM is currently transmitting
313	Setting cannot be changed - ATM is currently receiving
314	Invalid error rate for ATM
315	Duration invalid - error type is “None”
316	Burst count invalid for current error type
317	ATM alarm duration not valid - Alarm type “None”, or idle VCC
318	Command invalid - conflicts with current ATM I/O (e.g. QOS)
319	Scope invalid for current error type
320	Alarm scope command or query invalid for current alarm type
321	Cannot generate Loopback cell - VCC already transmitting
322	Command not valid - related VCC has idle cell value(0/0)
323	Element out of range for scan table
324	Could not set up header mask for FETCH:VCCDETAIL command
325	Requested ATM Error is invalid - can’t use this type or rate

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Error Code	Definition
326	Requested ATM Alarm is invalid
327	Command requires unit be in ATM mapping
328	ATM I/O Conflict
329	Not in ATM Stress Test mode
330	ATM Stress TX Off
331	ATM Stress RX Off
332	Not in ATM/DS3 mode
333	Not in ATM/DS1 mode
334	Not in OC-12c ATM Mapping
335	Cannot enter Idle Cell
336	Cannot enter a VCI of 3, 4, 6, or 7
337	Add/change to VCC Table would cause bandwidth to exceed 100 percent
338	Loopback can not be generated
339	Auto Config fail. Test Set is not connected to Line Interface
400	Test Set not enabled (E1 / DS1)
401	Query invalid for frame type
402	Invalid E1 framing/mapping type
403	Invalid E1 M13 background pattern
404	Invalid DS1 M13 background pattern
405	Requested E1 pattern is invalid
406	Requested E1 alarm is invalid
407	Requested E1 error is invalid - Cannot use this type or rate

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5 Register Definitions

The ASA 312 and NAA I support nine GPIB registers. The following tables define these registers.

*STB?
Status Byte (Immediate Response Queue)

Bit	Description / Value
0	Unassigned
1	Unassigned
2	Errors are in Queue
3	QUEStionable Status Summary
4	MAV (Output available in its Queue)
5	Standard Event Status Register Summary
6	Request for Service (RQS)
7	OPERation Status Summary

*ESR?
Standard Event Status Register (Immediate Response Queue)

BIT	Description / Value
0	Operation Complete
1	Request Control
2	Query Error
3	Device Dependent Error
4	Execution error
5	Command error
6	User Request
7	Power on

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STATus:OPER?
Operations Register

By default, all bits of the Operations register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:OPER:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ◄

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Description / Value
0	Calibration (Always zero)
1	Settling (Always zero)
2	Ranging (Always zero)
3	Sweeping (Always zero)
4	Measuring (Always zero)
5	Waiting for trig (Always zero)
6	Waiting for arm (Always zero)
7	Correcting (Always zero)
8	TCON Summary
9	Unassigned
10	Unassigned
11	Unassigned
12	Unassigned
13	Instrument Summary (Always zero)
14	Program Summary (Always zero)
15	Not Used - Forbidden

STATus:QUES?
Questionable Register

By default, all bits of the Questionable register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:QUES:ENAB:#HF

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NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ◄

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Description / Value
0	Voltage (Always zero)
1	Current (Always zero)
2	Time (Always zero)
3	Frequency (Always zero)
4	Phase (Always zero)
5	Modulation (Always zero)
6	Calibration (Always zero)
7	Unassigned
8	ALARm1 Summary
9	ALARm2 Summary
10	ALARm3 Summary
11	ALARm4 Summary
12	ALARm5 Summary
13	Unassigned
14	Command Warning
15	Not Used - Forbidden

STATus:OPER:TCON?
Telecom Configuration Register (TCON)

By default, all bits of the Telecom Configuration register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:OPER:TCON:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ◄

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

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BIT	Description / Value
0	DS-1 Test Set Selected
1	DS-3 Test Set Selected
2	ATM Test Set Selected
3	SONET Test Set Selected
4	Using STS-1 mode on transmit
5	Using OC-1 mode on transmit
6	Using OC-3 mode on transmit
7	Using OC-12 mode on transmit
8	Using STS-1 mode on receive
9	Using OC-1 mode on receive
10	Using OC-3 mode on receive
11	Using OC-12 mode on receive
12	Concatenated Mode on transmit
13	Concatenated Mode on receive
14	ATM Mapping, ATM/STS-1, ATM/STS-3c, or ATM/STS-12c
15	Not Used - Forbidden

STATus:QUES:ALAR1?
ALARm1 Register (DS-1)

By default, all bits of the Alarm 1 register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:QUES:ALAR1:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ◄

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Description / Value
0	DS-1 Loss of Pattern
1	DS-1 Loss of Frame
2	DS-1 Loss of Signal
3	DS-1 Alarm Indication Signal (AIS)

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BIT	Description / Value
4	DS-1 Path Yellow
5	DS-1 Excess Zeros
6	DS-1 Excess ones
7	DS-1 COFA
8	Looped Tester
9	Loop Up detected
10	Loop Down Detected
11	DS-1 Idle
12	DS-1 Calibration Synchronization Failed
13	Unassigned
14	Unassigned
15	Not Used - Forbidden

STATus:QUES:ALAR2?
ALARm2 Register (DS-3)

By default, all bits of the Alarm 2 register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:QUES:ALAR2:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ◄

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Description / Value
0	DS-3 Loss of Pattern
1	DS-3 Loss of Frame
2	DS-3 Loss of Signal
3	DS-3 AIS
4	DS-3 Idle
5	DS-3 X-Bit Alarm
6	DS-3 RDI (FEBE)
7	Unassigned
8	Unassigned
9	Unassigned

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BIT	Description / Value
10	Unassigned
11	Unassigned
12	Unassigned
13	Unassigned
14	Unassigned
15	Not Used - Forbidden

STATus:QUES:ALAR3?
ALARm3 Register (SONET)

By default, all bits of the Alarm 3 register are masked and will not report alarms. Before you can query a bit in this register for its values, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:QUES:ALAR3:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ➤

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Area	Description / Value
0	Section	SONET Out of Frame
1	Section	SONET Loss of Frame
2	Section	SONET Loss of Signal
3	Section	SONET Loss of Optical Power
4	Line	Pointer Loss
5	Line	AIS
6	Line	RAI - Far End Receive Failure (FERF)
7	Path	AIS
8	Path	RDI - Far End Block Error (FEBE)
9	VT	Pointer Loss
10	VT	AIS
11	VT	Yellow
12	VT	RDI -(FEBE)
13	Payload	OC3c or OC12c Loss of Pattern
14	Path	Yellow
15		Not Used - Forbidden

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STATus:QUES:ALAR4?
ALARm4 Register (ATM)

By default, all bits of the Alarm 4 register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:QUES:ALAR4:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ➤

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Description / Value
0	LOCS or PLCP Frame Sync
1	OVFL
2	AIS
3	RDI
4	SCNR
5	STA
6	LOPS
7	PLCPOOF
8	PLCPLOF
9	PLCPYEL
10	Unassigned
11	Unassigned
12	Unassigned
13	Unassigned
14	Unassigned
15	Not Used - Forbidden

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STATus:QUES:ALAR5?
ALARm5 Register (E1)

By default, all bits of the Alarm 5 register are masked and will not report alarms. Before you can query a bit in this register for its value, it must be enabled. The following example shows how to enable (set to 1) the first four bits in the register:

Type: STAT:QUES:ALAR5:ENAB:#HF

NOTE ➤
Register values may be entered using HEX notation (as shown above) or decimal notation. ◄

With at least one bit enabled, the register can now be used.

Refer to the *Status Branch* section in Chapter 2 for more information about Status Branch commands.

BIT	Description / Value
0	E1 Loss of Pattern Sync (LSS)
1	E1 Loss of Frame (LOF)
2	E1 Loss of Signal (LOS)
3	E1 Alarm Indication Signal (AIS)
4	E1 Remote Alarm Indicator (RDI)
5	E1 CASMFL
6	E1 RMFAI
7	E1 COFA
8	Line Looped
9	Payload Looped
10	Unassigned
11	Unassigned
12	Unassigned
13	Unassigned
14	Unassigned
15	Not Used - Forbidden

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