Programming the MTS/T-BERD 2000 / 4000 / 6000 / 6000A / 8000 / 8000 V2 / Embedded OTDR

Portable, modular Platforms designed for the construction, validation and maintenance of optical fiber networks

Programming Manual

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Table of Contents

Connection

1

This chapter describes how to control and program the 8000 Base Unit / Embedded OTDR through the Ethernet interface.

The topics discussed in this chapter are as follows:

Connection via the Ethernet interface

The 8000 Base Unit can be controlled and programmed remotely through the Ethernet interface.

With a MTS / T-BERD 8000

The link to the PC can be direct, using an Ethernet crossover cable to link the 8000 Base Unit to the PC, or via a network.

With a MTS / T-BERD 8000 V2 / 6000- 6000A / 4000 / 2000 / Embedded OTDR

The link to the PC can be direct, using etiher a crossover or straight-through Ethernet cable to link the MTS / T-BERD / Embedded OTDR to the PC, or via a network.

Configuring the Ethernet interface

To configure the Ethernet interface of the 8000 Base Unit, refer to the chapter «Commands of the 8000 Base Unit» in the base manual of the 8000 Base Unit.

This is not available with the Embedded OTDR.

Connection to FTP server

It is possible, from a PC, to access the internal memory of the Attribute/Descriptor or to the USB memory stick connected to the Platform by means of the FTP server of the Attribute/Descriptor.

Direct connection

1 Connect directly the 8000 Base Unit to the PC with an Ethernet cable, using the RJ45 connectors on each equipment.

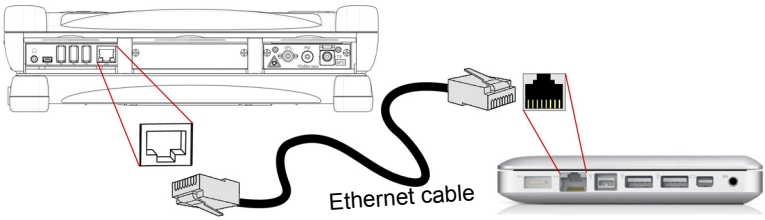


Fig. 1 Ethernet Connection T-BERD/MTS 8000 V2 <-> PC

2 Make sure the network configuration onto the PC is set to the **Dynamic** mode:

- **a** Click on **Start** > **Control Panel**.
- **b** Double click on **Network Connection**.
- **c** Double click on **Local Area Connection**.
- **d** In the dialog box, click on **Properties**.
- **e** Check the parameter **Internet Protocol (TCP/IP)** is selected (◉) and click once on it (underlined in blue)
- **f** Click on **Properties** button.
- **g** On the tab **General**, check the parameter **Obtain an IP address automatically** is selected (◉); if not, click to select it.
- **h** Click on **Ok** and close all the dialog boxes opened onto the PC.

3 On the 8000 Base Unit, in the **System Settings** page, under **I/O interface > Ethernet**, select **Dynamic**.

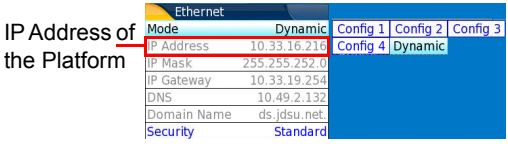


Fig. 2 System Settings > Ethernet: Dynamic mode

4 Note the IP Address and wait for about ten seconds while the connection is established.

Connection via a local network

1 On the PC

Find the IP address and the mask of the PC's sub-network:

- With Windows 98 or Millenium: Select **Start > Execute**, then enter `winipcfg` and click on **OK**.
- With Windows NT, 2000, XP or Vista: select **Start > Programs > Accessories > Dos Prompt**, type `ipconfig`", then **Enter**.

Note the IP address and the mask of the PC's sub-network.

2 Plug the RJ 45 connector of the Attribute/Descriptor into a hub or Ethernet switch with a straight-through Ethernet cable (see Figure 1 on page 2).

3 **On the Attribute/Descriptor**:
In the system set-up menu, under **I/O interfaces > Ethernet**, select **Config 1** (or **2** / **3** / **4**) on the line **Mode**, then enter the **IP address**, the **IP mask** of the PC and the **IP gateway** previously noted (step 1).

or

use **Dynamic** attribution mode (DHCP). In this case, the address of the Attribute/Descriptor (`10.33.16.216` in the example) is displayed but cannot be altered.

4. Wait for about ten seconds while the connection is established.
5. On the PC, make sure that the connection is operational by selecting **Start > Execute...** and typing `ping` followed by the address of the Attribute/Descriptor.

Protocol used

The protocol used is TCP/IP. Several ports may be used as a function of the type of command. The 8000 port is the port to use initially, in order to access all the commands of the **SYSTEM** menu and to ask the system for the other port port numbers to use for the other functions.

Numbers of ports used

On each connection, the system attributes port numbers corresponding to the different functions that are accessible.

These numbers are only valid for the duration of the session. It is therefore essential always to start by asking for the port numbers to use for a function before sending any commands relating to it (e.g. OTDR function). See page 23 for the instruction to request the port number.

Description of the commands

2

The topics discussed in this chapter are as follows:

Description of the commands

Command errors

Programming errors are recorded in the event status register.

– an «error of **instruction»** (bit 5 of the register) is detected :
- if the command is not contained in, or is not in strict conformity with the programming dictionary.
- if the parameters are outside the set range or incorrect.

– an «error of **execution»** (bit 4 of the register) is detected if the instrument cannot execute the command in the context given; for example if an acquisition parameter is modified while the measurement is in progress, etc.

For details of command errors, read the register of standard events with < *ESR?> .

See "Structure of the status registers" page 11.

Format of commands

The commands are of type SCPI. They have a hierarchical structure with a «root» level and one or more sub-levels known as «nodes».

A command will be composed of a concatenation of «nodes».

Example :

ACQ:PULS P5NS

– ACQ is the root
– :PULS is the 2nd level node
– P5NS is the parameter of the 2nd level node

Syntax of commands

– The commands include upper case and lower case letters:
- only the upper case letters are essential,
- the lower case letters may be omitted to shorten the commands.

– The successive nodes of a command must be separated by a colon (:)

– A space must separate the node from the last level of the parameter that may be associated with it. If there are several parameters, they must be separated by commas.
– Examples of commands:
  - complete form : ACQUISITION:LASER L850
  - shortened form : ACQ:LAS L850

Shortened form of command headers

In principle, when the header of the command consists of more than four characters, the following rules apply:

– The first four characters of the header are used unless the fourth character is a vowel. In this case, the vowel is eliminated, and only the first three characters are indispensable.
  Example: ACQ for ACQUISITION
  MEAS for MEASUREMENT
– If the command consists of only four characters, then these are all used, irrespective of whether the fourth character is a vowel or not.
  Example : FILE for file

Link between commands

Successive commands must be separated by a semi-colon (;).

Parameters

There are several types of parameters :

– **Numerical**: decimal numbers, signs, points and scientific notations. Example : 245, 687E2, -1.48E3,.426, 1.100E-4
– **Keywords:** OFF, ON, YES, NO for example,
– Strings of ASCII characters.
  These must always be put between quotes («») or apostrophes (’).
  Example : «TRACE TITLE»

Querying the system

For each command of the system there is a corresponding query :

– Most queries have no parameter. They then end with a «?». These queries are not given in the dictionary of commands provided below.

  Example :

  – SYST:TIME? asks for the time on the 8000 Base Unit

– Queries requiring one or more parameters include a question mark between the last node and any parameters present. These queries are shown in the dictionary of commands below.

  Example :

  – OTDS:K? L1310 requests the coefficient K for the wavelength 1310 nm.

Common commands and structure of the registers

3

The topics discussed in this chapter are as follows:

Common commands

The common commands are valid for all port numbers.

Local mode / Programmed mode

*REM — Command to change over to programmed mode.

*LOC — Command to return to local mode.

Searching for identification and options

*IDN? — Asks for identification of the 8000 Base Unit.
Example of answer from the 8000 Base Unit: Viavi, 8000 Base Unit, n, ISU, X.YZ

with: n = serial number and X.YZ = software version.

Queries on the registers

*STB? — Reads the status register of an instrument

Answer: a number from 0 to 255

*ESR? — Queries the contents of the standard events register of an instrument

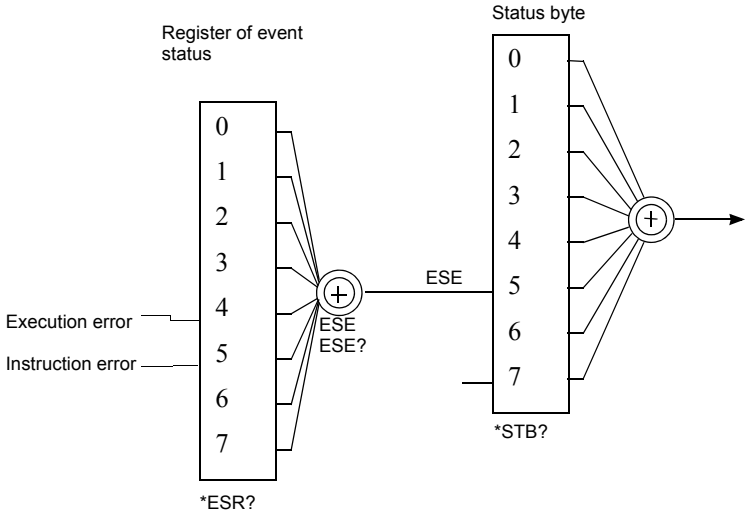
Answer: a number from 0 to 255.
All the events are deleted and the register is reset to zero.

*ESE — Device event bit enable

* ESE is followed by a number from 0 to 255.
Action: modifies its validation register and updates the ESB bit. This instruction is associated with *ESE?

*CLS — Deletes the status registers
- deletion of the standard events register
Action: the instrument resets the status word register to zero.

Structure of the status registers



System Commands

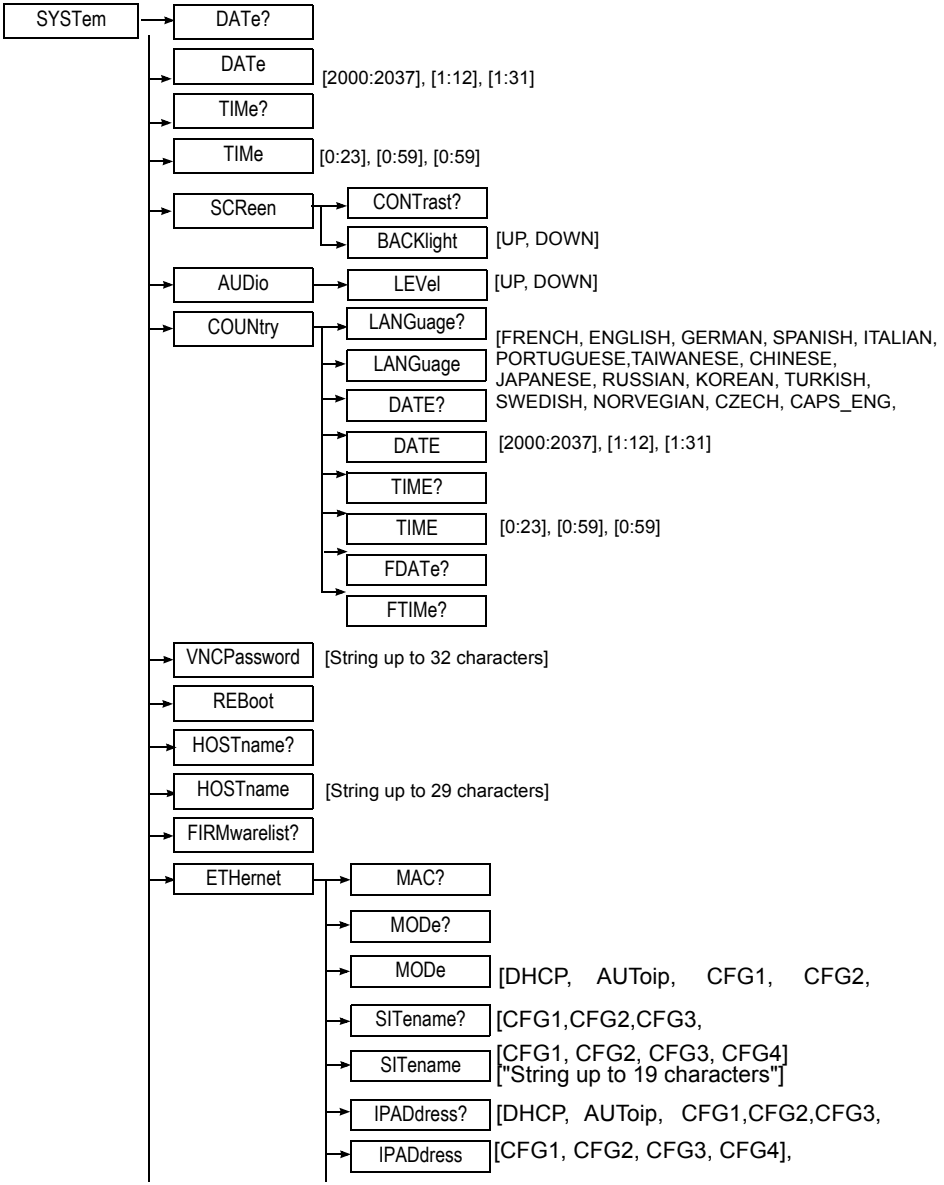
4

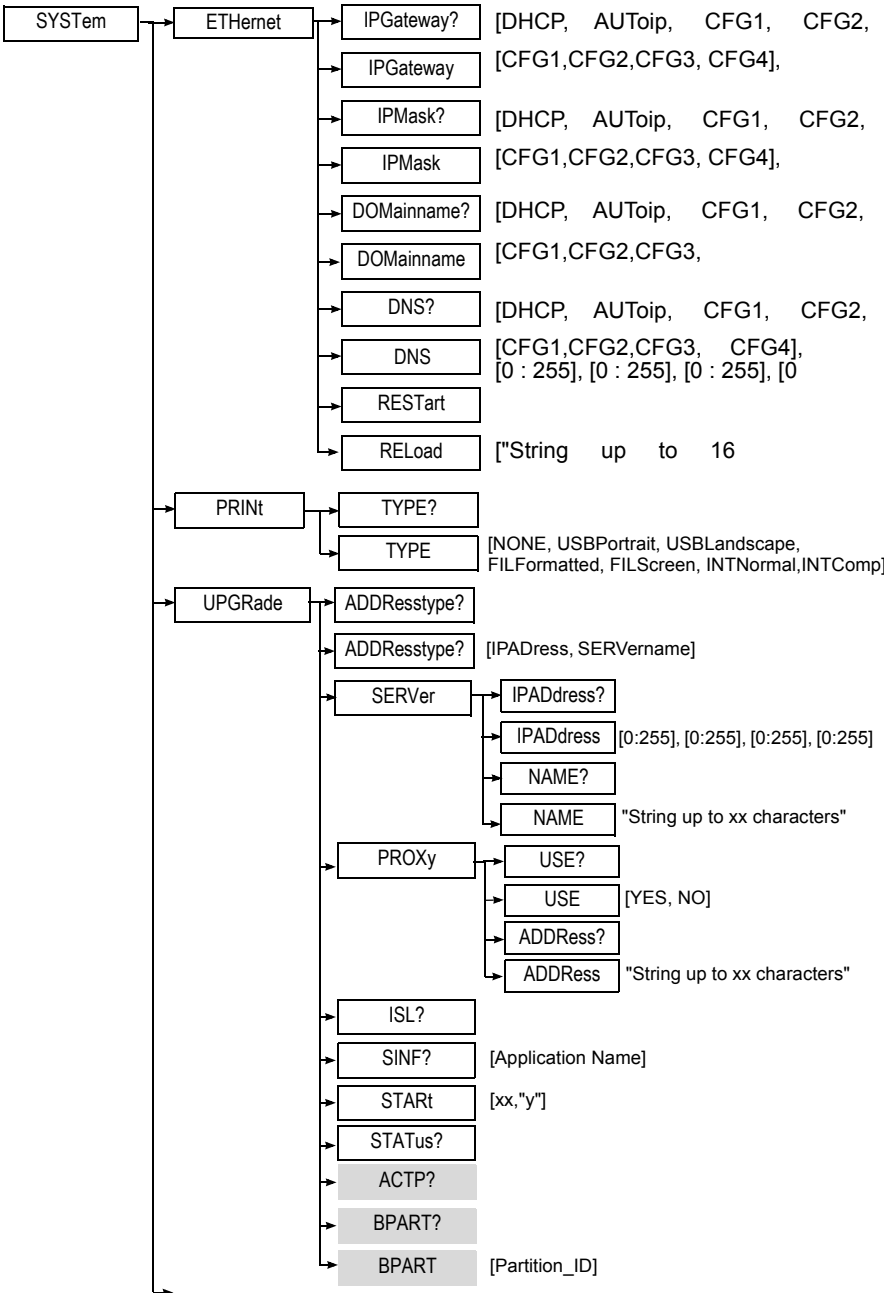
The commands described in this chapter concern the functions accessible with the SYSTEM key of the 8000 Base Unit. They are also all the commands accessible on the 8000 port.

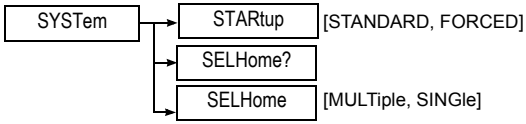
The topics discussed in this chapter are as follows:

System configuration commands

Command Format




SYSTem
ETHernet
IPGateway?
[DHCP, AUTOip, CFG1, CFG2,
IPGateway
[CFG1,CFG2,CFG3, CFG4],
IPMask?
[DHCP, AUTOip, CFG1, CFG2,
IPMask
[CFG1,CFG2,CFG3, CFG4],
DOMainname?
[DHCP, AUTOip, CFG1, CFG2,
DOMainname
[CFG1,CFG2,CFG3,
DNS?
[DHCP, AUTOip, CFG1, CFG2,
DNS
[CFG1,CFG2,CFG3, CFG4],
[0 : 255], [0 : 255], [0 : 255], [0
RESTart
RELoad
["String up to 16
PRINt
TYPE?
TYPE
[NONE, USBPortrait, USBLandscape,
FILFormatted, FILScreen, INTNormal,INTComp]
UPGRade
ADDResstype?
ADDResstype?
[IPADress, SERVername]
SERVer
IPADdress?
IPADdress
[0:255], [0:255], [0:255], [0:255]
NAME?
NAME
"String up to xx characters"
PROXy
USE?
USE
[YES, NO]
ADDRess?
ADDRess
"String up to xx characters"
ISL?
SINF?
[Application Name]
STARt
[xx,"y"]
STATus?
ACTP?
BPART?
BPART
[Partition_ID]



Description of the functions

DATe?	Asks the date
DATe	Fixes the date
	Parameters: Year, Month, Day of the month.
TIMe	Asks the date
TIMe	Fixes the time
	Parameters: Minutes, Hours, Seconds.

SCReen

:CONTrast?	Asks wether a contrast must be set
:BACKlight	Determines the contrast level
	Parameter: Contrast level (keyword)

AUDio

:LEVel	Determines the audio level
	Parameter: Audio level (keyword)

COUNtry

:LANGuage?	Asks for the language to be used
:LANGuage	Determines the language to be used
	Parameters: Language (keyword)
:DATE?	Asks the date
:DATE	Fixes the date
	Parameters: Year, Month, Day of the month.
:TIME?	Asks the time
:TIME	Fixes the time
	Parameters: Minutes, Hours, Seconds.
:FDATe?	Asks for the date format
:FTIMe?	Asks for the time format
VNCPassword	Determines a password for the VNC session
	Parameters: text string defining password (max. 32 characters).

Reboot	Force the full restart of the 8000 Base Unit
:HOSTname?	Returns Instrument Host Name (e.g. "map-8000-123")
:HOSTname	Changes Instrument Host Name (e.g. "map-inlab-123")
	Parameters: text string defining new hostname (max. 29 characters).
:FIRMwarelist	Returns Instrument Firmware list i.e. Boot, Kernel, FS, SSU, ISU etc. versions and date.
:ETHernet	
:MAC?	Return ethernet addresss with string format : "00:04:AC:80:02:9A"
:MODe?	Returns keyword reflecting current ethernet mode used.
:MODe	Set ethernet mode to be used, invoking ethernet reconfiguration.
	Parameters: Ethernet mode (keyword)
	Successful completion of command checked using "*esr?"
	If the Mode requested is the same as that currently used, no reconfiguration is invoked.
:SITename?	Return the site name description for the specified Static ethernet configuration
	Parameters: Static Mode (keyword)
	Query returns text field, e.g. "Ottawa Lab1"
:SITename	Set the site name description for the specified Static ethernet configuration
	Parameters: Static Mode (keyword) Desc = "text description" (max. 19 characters)
:IPADdress?	Return the IP Address for the specified ethernet mode
	Parameters: Mode (optional keyword)
	If no keyword is specified, the currently used value is returned.
	Querying with the DHCP keyword will return an execution error if it is not the active mode (via '*esr?').
	Query returns text field, e.g. "172.16.12.12"
:IPADdress	Set the IP Address for specified Static Mode
	Parameters: Static Mode
	Ip Address = 4 numerical values
	e.g. 172, 16, 12, 12 specifies '172.16.12.12'
:IPGateway?	Return the Gateway address for the specified ethernet mode
	Parameters: Mode (optional keyword)
	If no keyword is specified, the currently used value is returned.
	Querying with the DHCP keyword will return an execution error if it is not the active mode (via '*esr?').
	Query returns text field e.g. "10.1.16.1"

:IPGateway	Set the Gateway address for the specified Static mode
	Parameters: Static Mode
	Ip Address: 4 numerical values,
	e.g. 10, 1, 16, 1 = '10.1.16.1'
:IPMask?	Return the Subnet Mask for the specified ethernet mode
	Parameters: Mode (optional keyword)
	If no keyword is specified, the currently used value is returned. Querying with the DHCP keyword will return an execution error if it is not the active mode (via '*esr?'). Query returns text field e.g. "255.255.255.0"
:IPMask	Set the Subnet Mask for the specified Static mode
	Parameters: Static Mode
	Ip Address: 4 numerical values,
	e.g. 255, 255, 255, 0 specifies '255.255.255.0'
:DOMainname?	Return the Domain Name for specified ethernet mode
	Parameters: Mode (optional keyword).
	If no keyword is specified, the currently used value is returned. Querying with the DHCP keyword will return an execution error if it is not the active mode (via '*esr?'). Returns text field, e.g. "ste.eu.acterna.net"
:DOMainname	Set the Domain Name for the specified static mode
	Parameters: Static Mode (keyword)
	Domain= "text field" (max. 255 chars)
:DNS?	Return the set of DNS IP Addresses for the specified ethernet mode.
	Parameters: Mode (optional keyword)
	If no keyword is specified, the currently used value is returned.
	Query returns text field e.g. "10.1.20.30", or even
	"10.33.16.10,10.49.2.10,141.169.1.4" in the event of several DNS' having been specified. (A comma separator is used if several DNS' are specified in the returned string).
	Querying with the DHCP keyword will return an execution error if it is not the active mode (via '*esr?').
:DNS	Set DNS IP Address for specified static mode
	Parameters: Static Mode
	DNS number :1 / 2 / 3,
	Ip Address: 4 numerical values,
	e.g. 10, 1, 20, 30 specifies '10.1.20.30'.

:RESTart	Reconfigures the ethernet mode according to the current mode and associated parameters. Successful completion of command can be checked using "*esr?"
:RELoad	Load dhchcd new "ethernet" settings (max. 16 chars)

PRINt

:TYPE?	Asks for the type of printer to be used
:TYPE	Determines the type of printer to be used **Parameters:** Printer type (keyword)

UPGRade

:ADDResstype?	Asks the type of address for software upgrade
:ADDResstype	Determines the type of address for software upgrade **Parameters:** Address type (keyword)
:SERVer	
:IPADdress?	Asks the IP Address of server
:IPADdress	Determines the IP Address of server **Parameters:** IP address (keyword)
:NAME?	Asks the name of server
:NAME	Determines the name of server **Parameters:** server name (text)
:PROXy	
:USE?	Asks wether a proxy is used
:USE	Determines wether a proxy is used **Parameters:** Answer Yes/No (keyword)
:ADDRess?	Asks for the proxy address
:ADDRess	Determines the proxy address (e.g: 10.33.11.16.8080) **Parameters:** proxy address (text)
STARtup	Standard: next restart in standby mode if the user does not push ON/OFF button. Forced: next restart will launch applications, even if the user does not push ON/OFF button. **Parameter: Restart mode (keyword)**
:ISL?	
:SINF?	
:STARt	Start the upgrade process

:STATus? Return the status for the upgrade process (Pending, Succeeded, Failed, None)

One of the four following status is returned:

"None": Indicates that no upgrade process is running.

"Pending": The upgrade process is running.

"Failed": The upgrade process failed

"Succeeded": The upgrade process successfully ended

Specific upgrade commands for Embedded OTDR

:ACTP? Return the ID of the active partition (ie the ID of the partition on which the SW is currently running)

:BPART? Return the ID of the partition that will be used on the next and following reboot

:BPART? Set the default boot partition to Partition_ID. This command is used just after a reboot to set the Boot Partition to the Active partition ID (See diagram below)

Parameters: Partition_ID

NOTE

The ID returned by SYStem:UPGRage:BPART? and SYStem:UPGRage:ACTP? commands should be the same except after the first reboot following a successful upgrade process

Embedded OTDR Software upgrade mechanism:

The OTDR software can be upgraded either from a HTTP server on the Controller or with a FTP/TFTP client on the controller. The controller software can interrogate the OTDR, to find the status of the upgrade. If the upgrade is unsuccessful (e.g. if some necessary files are missing on the HTTP server) a 'Failed' status is returned by the OTDR. Otherwise, a 'Pending' status is returned.

Once the upgrade is completed successfully, the controller software asks the OTDR to reboot. The OTDR will reboot using the new image. The Controller software can then attempt to communicate with the OTDR which is running the new software version.

If the Controller software cannot successfully communicate with the OTDR, after the restart, then Controller software resets the OTDR using the HW 'reset' pin. The OTDR restarts, using the original software version (which is preserved unaltered up to this point).

If the Controller software does successfully communicate with the OTDR (and after it has issued some sanity-checking commands to verify that the OTDR is functioning OK on the new software), the Controller issues a new 'commit' command to the OTDR. The effect of this command is, to instruct the OTDR to use the current (i.e. the upgraded) software version in future, if it is reset via the HW 'reset' pin.

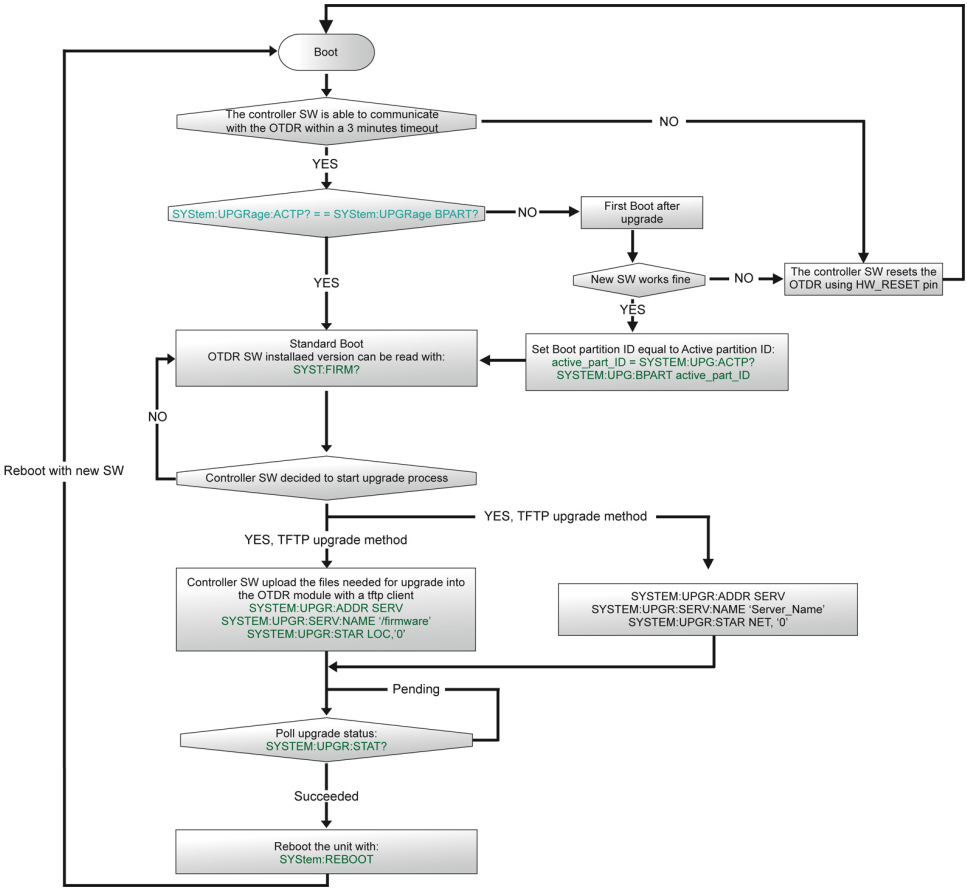


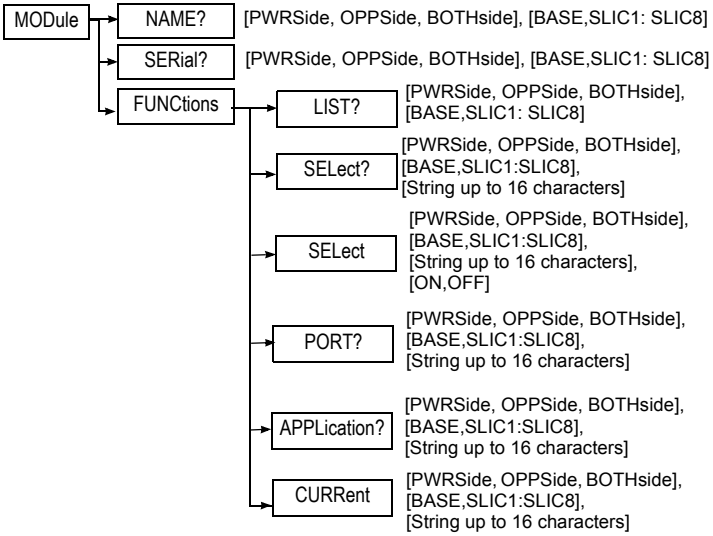
Figure 3 Upgrade process for Embedded OTDR

Command Example

SYST:DAT 2004,7,31

Commands relating to the plug-ins and the function

Command Format



Description of the functions

NAME? Asks the name of the module at the position shown.

Parameters: Position, Level.

Example answer: «5023MM»

SERial? Indicates the plug-in serial number.

FUNCtions

:LIST? Asks for the list of the functions present on a module at a given position and level.

ParametersPosition, Level.

Example answer: «OTDR»

:SELect? Asks the status of the function specified (the list of functions obtained by the order LIST).

As parameters Position, Level, Function.

Answer: ON or OFF

:SELect Positions the status of the function specified (list of the functions obtained by the order LIST).

	ParametersPosition, Level, Function, New status.
:PORT?	Asks the number of the TCP/IP port to be used for the commands relating to this function
:APPLication?	Asks for the application of the function specified
:	**Parameters** Position, Level, Function.
CURRent	Defines the current function at a given position
	Parameters Position, Level, Function.

Description of the keywords

Position of the plug-in in the instrument:

- *PWRSide*: power supply side
- *OPPSide:* side opposite to power supply side
- *BOTHside*: complete module

Level of the module:

- *BASE*: in the base
- *SLIC1, SLIC2, etc.SLIC7*: at a level from 1 to 7 (7 levels possible)

NOTE

On MTS/T-BERD 2000 and MTS/T-BERD 6000, the module is always set at position: pwrside,slic1.

An Embedded OTDR should be considered like a unit including a module at position: pwrside,slic1

Command Example

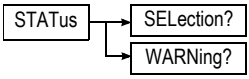
MOD:FUNC:SELECT pwrside,slic1,'OTDR',ON

Select the OTDR function on an Embedded OTDR.

MOD:FUNC:PORT? pwrside,slic1,'OTDR'

Return the port number to use to control the OTDR function

Command Format



SELection? Reset status after order

PLUG-in = FUNction = SELect

WARNing? Returns on-screen warning

Returns status byte registers value for selection operations. Selection status register countains:

Table 1

7	6	FFS	4	TMPRQ	AF	ANI	NEP

NEP: Not enough power (function selection in 'Off' state).

ANI: Software application required for function is not installed (function selection in 'Off' state).

AF: Software application required for function has failed (function selection in 'Off' state).

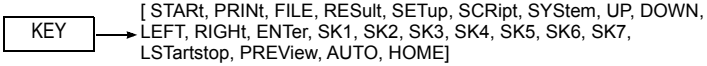
TMPRQ: Too much power required by all functions – Functions must be re-selected (all functions in 'Off' state).

(This may occur on power-up when attempting to restore the previous state of the UTS with a lower rated power supply).

FFS: Failed Function Selection.

Commands corresponding to the keys of the 8000 Base Unit

Command Format



Description of the functions

KEY Corresponds to the key requested as a parameter

Parameters: Key of the keyboard (keyword).

NOTE

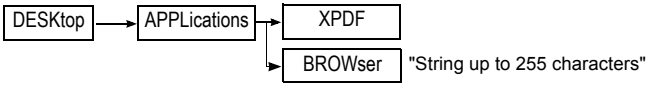
Some additional keywords may exist for a specific function. These keywords are then shown with comments with the same command, in the chapter on the function. See, for example, "Commands corresponding to the keys of the T-BERD/MTS" page 30 for the function Optical Fibers.

Description of the keywords

- *STARt:* Key **Start/Stop**.
- *PRINt*: Starts print-out.
- *FILE*: Calls up the file management menu.
- *RESult*: Calls up the measurement result screen.
- *SETup*: Calls up the configuration menu.
- *SCRipt*: Calls up the script management (or macros) menu.
- *SYStem*: Calls up the configuration screen of the instrument.
- *UP, DOWN, LEFT, RIGHt:* direction keys ▲, ▼, ◀ and ▶.
- *ENTer*: Validation key
- *SK1, …SK7*: Keys 1 to 7 (from top to bottom).
- *LSTartstop*: **Start/Stop** key (press and hold down)
- *PREView*: Starts acquisition of the trace in real time without averaging of results. A stop can be programmed during real-time acquisition, otherwise it will occur automatically after 10 minutes.
- *AUTO*: Same function as SCRIPT key
- *HOME*: Same function as SYSTEM key

Commands corresponding to the Desktop applications

Command Format



Description of the functions

XPF	Launch the PDF Reader application

BROWser	Launch the Web Browser application CHAINE is the following: LOAD: <URL> Load given url OPEN: Open a data stream APPEND: <DATA> append data to an opened stream CLOSE: close an opened stream RAISE: Take the focus FSON: Switch on full screen mode FSOFF: Switch off full screen mode EXIT: Terminate browser

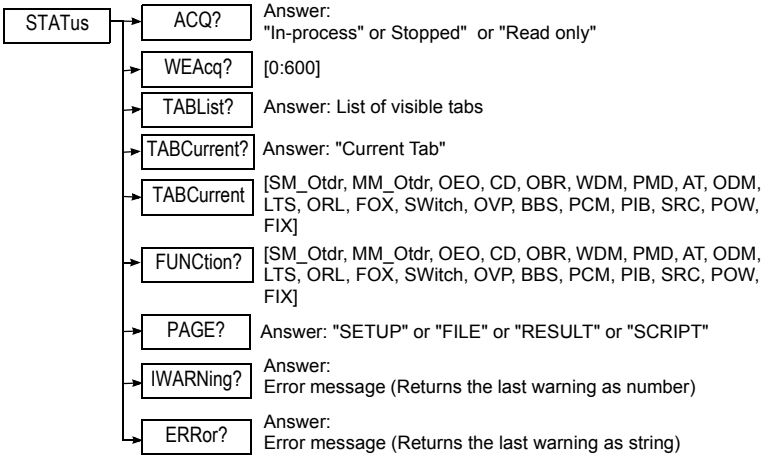
Commands relating to the Optical Fiber functions

5

The topics discussed in this chapter are as follows:

General commands in the Optical Fiber functions

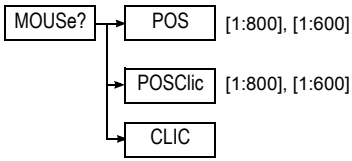
Status commands



Description of the functions

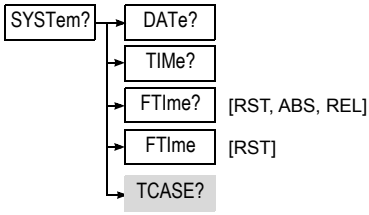
ACQ?	Asks the status of the acquisition and returns "STOPPED", "IN_PROGRESS" or "READ ONLY".
WEAcq?	Asks for the Wait end acquisition with a max time (timeout in seconds) in parameter and retunrs "STOPPED", "IN_PROGRESS" or "READ ONLY" for current function
TABList?	Asks for visible tabs and retunrs the list of visible tabs.
TABCurrent?	Asks for the current tab
TABCurrent	Determines the current tab **Parameters:** tab (keyword)
FUNCtion?	Asks for the function
PAGE?	Asks for the page display and answers "SETUP" or "FILE" or "RESULT" or "SCRIPT"
IWARNing?	Returns the last warning via numbers **Parameters**: warning message
ERRor?	Returns the last warning via characters **Parameters**: error message

Commands corresponding to the mouse



POS	Determines the position of the mouse on the screen **Parameter**: screen size
POSClic	Determines the position of the mouse clic on the screen **Parameter**: screen size
CLIC	Determines the clic action

Commands corresponding to the system



Description of the functions

DATe?	Returns the current date.
TIMe?	Returns the current time
FTIme?	Returns aboslute/relative time – RST: returns absolute time from origin in Milliseconds and reset relative time – ABS: returns absolute time from origin in Milliseconds – REL: returns relative time since last reset
FTIme	Reset relative time (no returned value)
	For Embedded OTDR only:
TCASE?	Return the Case temperature in Celsius degree.

Commands corresponding to the keys of the T-BERD/ MTS

KEY → [STARt, PRINt, FILE, RESult, SETup, SCRipt, SYStem, UP, DOWN, LEFT, RIGHt, ENTer, SK1, SK2, SK3, SK4, SK5, SK6, SK7, LSTartstop, PREView, BEGinacq, HALTacq, LUP, LDOWn, LLEFt, LRIGht]

Description of the functions

KEY — Corresponds to the key requested as a parameter

Parameters: Key of the keyboard.

Description of the keywords

See "Commands corresponding to the keys of the 8000 Base Unit" page 24 for the description of the common keywords.

– *BEGinacq*: Starts acquisition of the trace and averaging of the results during the acquisition. A stop can be programmed during averaging.
– *HALTacq*: Stops acquisition.

SKReset — Soft_Key Reset : Set Multi state softkey in a known state

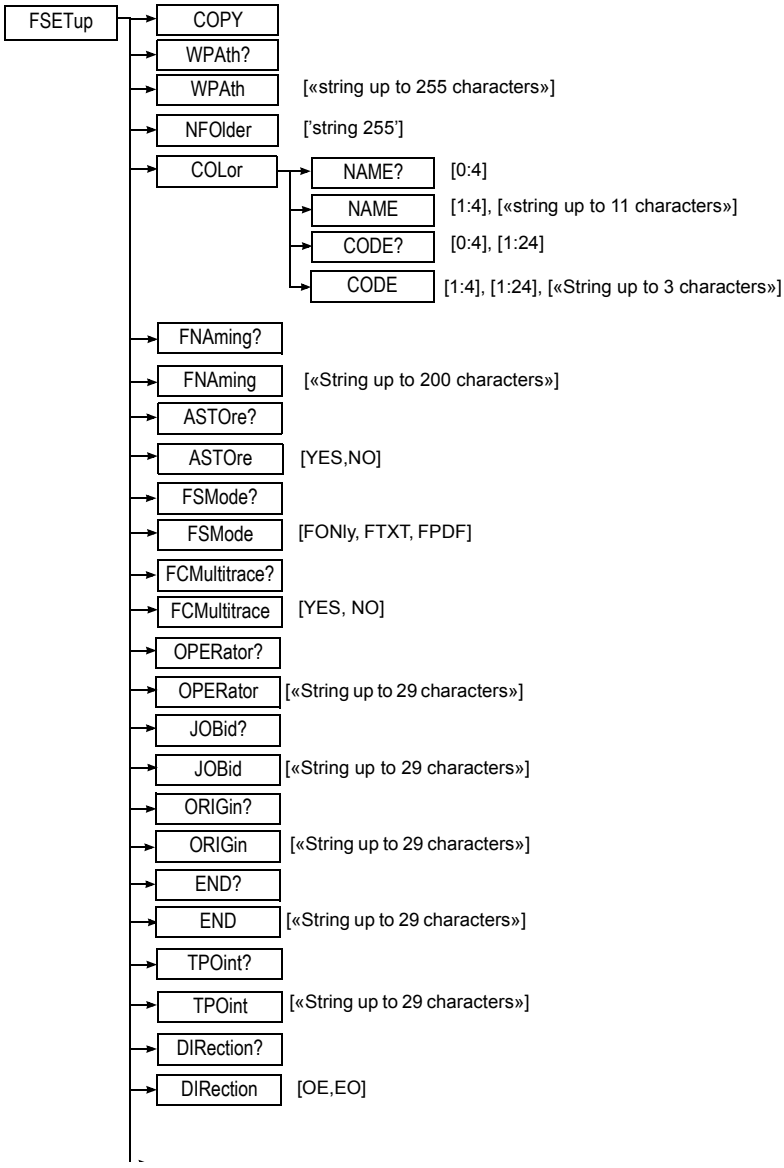
KEYBoard — [0:127], [NORMAL,

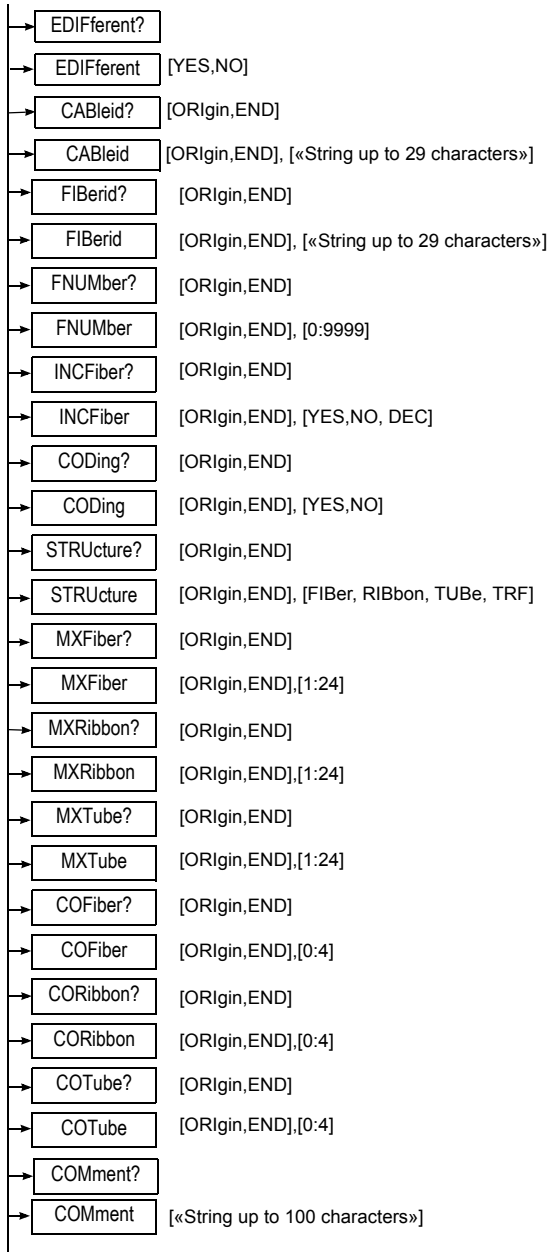
Simulation keyboard push via the ascii code of the key

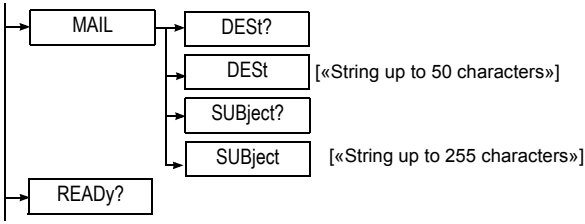
For keys Up,Down,Right,Left the long push is coded in the command by a SHIFT, even if with a FTTX it is a "ALT".

Commands corresponding to the File Configuration menu

Command Format


FSETup
COPY
WPAth?
WPAth
[«string up to 255 characters»]
NFOlder
['string 255']
COLor
NAME?
[0:4]
NAME
[1:4], [«string up to 11 characters»]
CODE?
[0:4], [1:24]
CODE
[1:4], [1:24], [«String up to 3 characters»]
FNAming?
FNAming
[«String up to 200 characters»]
ASTOre?
ASTOre
[YES,NO]
FSMode?
FSMode
[FONly, FTXT, FPDF]
FCMultitrace?
FCMultitrace
[YES, NO]
OPERator?
OPERator
[«String up to 29 characters»]
JOBid?
JOBid
[«String up to 29 characters»]
ORIGin?
ORIGin
[«String up to 29 characters»]
END?
END
[«String up to 29 characters»]
TPOint?
TPOint
[«String up to 29 characters»]
DIRection?
DIRection
[OE,EO]


EDIFferent?
EDIFferent [YES,NO]
CABleid? [ORIgin,END]
CABleid [ORIgin,END], [«String up to 29 characters»]
FIBerid? [ORIgin,END]
FIBerid [ORIgin,END], [«String up to 29 characters»]
FNUMber? [ORIgin,END]
FNUMber [ORIgin,END], [0:9999]
INCFiber? [ORIgin,END]
INCFiber [ORIgin,END], [YES,NO, DEC]
CODing? [ORIgin,END]
CODing [ORIgin,END], [YES,NO]
STRUcture? [ORIgin,END]
STRUcture [ORIgin,END], [FIBer, RIBbon, TUBe, TRF]
MXFiber? [ORIgin,END]
MXFiber [ORIgin,END],[1:24]
MXRibbon? [ORIgin,END]
MXRibbon [ORIgin,END],[1:24]
MXTube? [ORIgin,END]
MXTube [ORIgin,END],[1:24]
COFiber? [ORIgin,END]
COFiber [ORIgin,END],[0:4]
CORibbon? [ORIgin,END]
CORibbon [ORIgin,END],[0:4]
COTube? [ORIgin,END]
COTube [ORIgin,END],[0:4]
COMment?
COMment [«String up to 100 characters»]



Description of the functions

COPY — Copy File Setup of active function to others functions (same as softkey "Copy Setup for all").

WPAth? — Asks the complete access path of a file.

WPAth — Determines the complete access path of a file.

Parameters: Access path

NFOlder? — Determine the creation of a new folder

Parameters: name of the folder, string up to 255 characters

COLor

:NAME? — Asks the colour code name corresponding to a code number

Parameters: Coding number (from 1 to 4 = user colour coding, and 0 = TIA colour coding)

:NAME — Determines the colour code name corresponding to a user colour coding

Parameters: Number of colour coding, Name of the coding to be given

:CODE? — Asks the colour code (3 characters) corresponding to a colour coding and a position number in the coding.

Parameters: Colour code (from 1 to 4 = user colour, and 0 = colour of TIA code), Position number.

:CODE — Determines the colour code (3 characters) corresponding to a colour coding and a position number in the coding.

Parameters: Colour code (from 1 to 4 = user colour, and 0 = colour of TIA code), Position number, Colour code to be given.

The following parameters may have different values for each function (OTDR tab, OSA tab, etc.). It is therefore important to make sure that the current function is indeed the one on which these parameters are to be positioned

FNAming? — Asks the name of the file

FNAming	Determines the name of the file
	Parameters: Name of the file to be determined
STXT?	Asks if the file must be saved in txt format
STXT	Determines wether a txt file is saved or not
	Parameters: Answer Yes/No (Keyword)
ASTOre	Asksfor the automatic recording
ASTOre	Defines whether automatic recording is to be carried out
	Parameters: Answer Yes/No (Keyword)
OPERator?	Asks the name of the operator
OPERator	Determines the name of the operator
	Parameters: Name of the operator
ORIGin?	Asks the name of the origin
ORIGin	Determines the name of the origin
	Parameters: Name of the origin
END?	Asks the name of the end
END	Determines the name of the end
	Parameters: Name of the end
TPOint?	Asks the name of the point of access (test)
TPOint	Determines the name of the point of access (test)
	Parameters: Name of the point of access
DIRection?	Asks the direction of the measurement
DIRection	Determines the direction of the measurement
	Parameters: Keyword showing the direction
EDIFferent?	Asks if the ends must be managed in different ways
EDIFferent	Indicates whether the ends must be managed in different ways
	Parameters: Answer Yes/No (Keyword)
CABleid?	Asks for the identification of the cable at a given end
	Parameters: End of the link concerned
CABleid	Determines the identification of the cable at a given end
	Parameters: End of the link concerned, Name to be given
FIBerid?	Asks for the identification of the fiber at a given end
	Parameters: End of the link concerned
FIBerid	Determines the identification of the fiber at a given end
	Parameters: End of the link concerned, Name to be given
FNUMber?	Asks the fiber number at a given end
	Parameters: End of the link concerned

FNUMber	Determines the fiber number at a given end
	Parameters: End of the link concerned, Fiber number to be given
INCFiber?	Asks whether the fiber number at a given end is self-incremented
	Parameters: End of the link concerned
INCFiber	Indicates whether the fiber number at a given end must be self-incremented
	Parameters: End of the link concerned, Name to be given
CODing?	Asks whether a colour coding is used at a given end
	Parameters: End of the link concerned
CODing	Indicates whether a colour coding is used at a given end
	Parameters: End of the link concerned, Answer Yes/No (Keyword)
STRUcture?	Asks what structure is used for the colour coding at a given end
	Parameters: End of the link concerned
STRUcture	Determines the structure used for the colour coding at a given end
	Parameters: End of the link concerned, structure of the colour coding
MXFiber?	Asks the maximum number of fibres at a given end
	Parameters: End of the link concerned
MXFiber	Determines the maximum number of fibres at a given end
	Parameters: End of the link concerned, Number to be positioned
MXRibbon?	Asks the maximum number of ribbons at a given end
	Parameters: End of the link concerned
MXRibbon	Determines the maximum number of ribbons at a given end
	Parameters: End of the link concerned, Number to be positioned
MXTube?	Asks the maximum number of tubes at a given end
	Parameters: End of the link concerned
MXTube	Determines the maximum number of tubes at a given end
	Parameters: End of the link concerned, Number to be positioned
COFiber?	Asks the colour coding of the fiber at a given end
	Parameters: End of the link concerned
COFiber	Determines the colour coding of the fiber at a given end
	Parameters: End of the link concerned, Number of the colour coding (from 1 to 4 = user colour, and 0 = colour of TIA code)
CORibbon?	Asks the colour coding of the ribbon at a given end
	Parameters: End of the link concerned
CORibbon	Determines the colour coding of the ribbon at a given end
	Parameters: End of the link concerned, Number of the colour coding (from 1 to 4 = user colour, and 0 = colour of TIA code)

COTube?	Asks the colour coding of the tube at a given end
	Parameters: End of the link concerned
COTube	Determines the colour coding of the tube at a given end
	Parameters: End of the link concerned, Number of the colour coding (from 1 to 4 = user colour, and 0 = colour of TIA code)
:COMment?	Asks for the comment
:COMment	Determines the comment added on the current trace
	Parameters: comment.

MAIL

:DEST?	Asks the addressee of an e-mail
:DEST	Determines the addressee of an e-mail
	Parameters: Name of the addressee
:SUBject?	Asks the subject of an e-mail
:SUBject	Determines the subject of an e-mail
	Parameters: Description of the subject
READy?	Ask if a tab is active

Description of the keywords

Direction of the measurement:

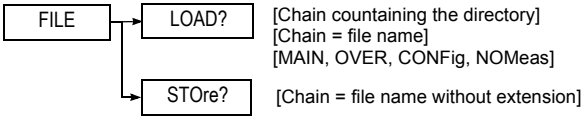
- *OEOrigin*: towards End
- *EOEnd* : towards Origin
- *OE* means Origin toward End
- *EO* means End toward Origin

Ends:

- *ORIgin*: Origin
- *END*: End

Structure of the color coding:

- *FIBer*: Fiber
- *RIBbon*: Ribbon
- *TUBe*: Tube
- *TRF*: Tube/Ribbon/Fiber



LOAD? **Parameters:** Directory, File name, loading way

If directory is «», the current directory is used.

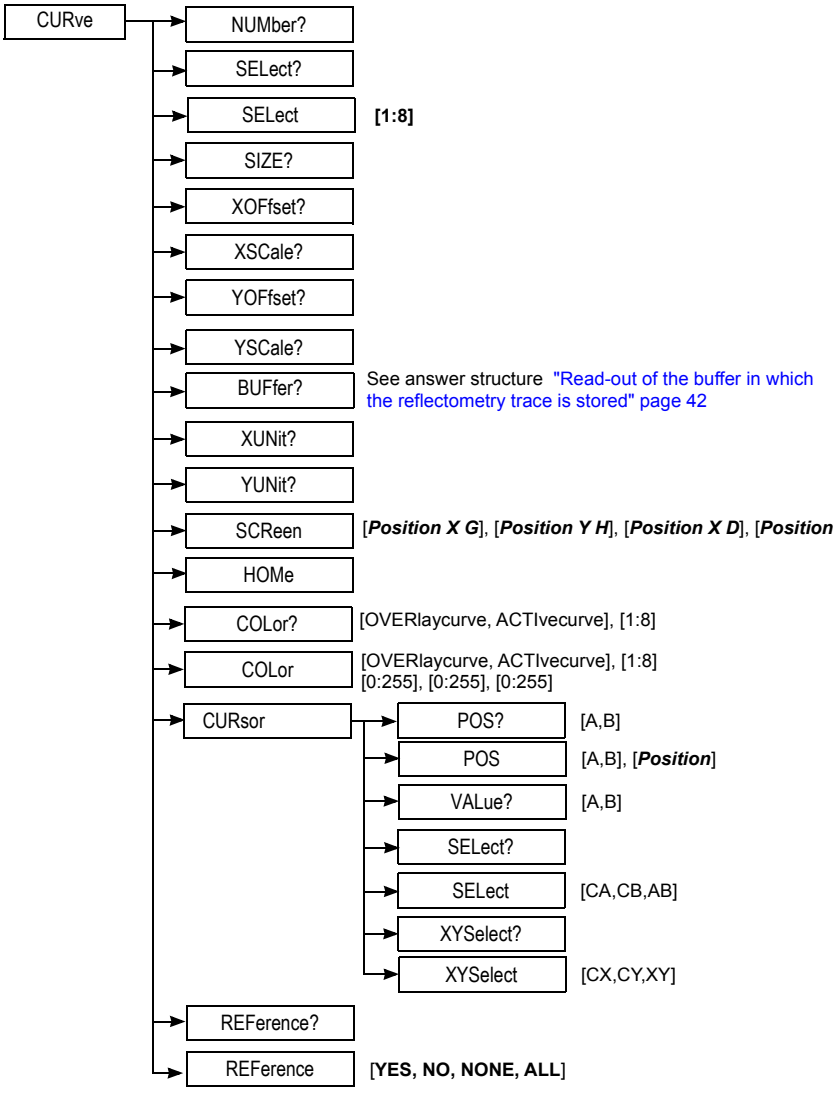
STOre? Save the current trace of the current tab.

If directory is «», the current directory is used.

Read-out of Results

Traces

Command Format



Description of the functions

These commands obtain the following replies in format Bellcore GR-196-CORE Issue 1, 1995 Standard OTDR Record (SOR).

The following parameters may have different values for each function (OTDR tab, OSA tab, etc.). It is important to make sure the current function is the one on which these parameters are to be positioned

NUMber?	Asks the number of curves
SELect?	Asks the active curve number
SELect	Determines the active curve number **Parameter**: Number of the curve
SIZE?	Number of points (size of the trace)
XOFFset?	Offset X axis
XSCale?	Scale X axis
YOFFset?	Offset Y axis
YSCale?	Scale Y axis
BUFFer?	Contents of the memory representing the trace (see paragraph "Read-out of the buffer in which the reflectometry trace is stored" page 42).
XUNit?	Unit used for the X axis (e.g. m for meter)
YUNit?	Unit used for the Y axis (e.g. dB for decibel)
HOME	Force the whole trace display
SCReen	Coordinates visible on the screen **Parameters:** Position X at the left of the screen, Position Y at the top of the screen, Position X at the right of the screen, Position Y at the bottom of the screen
COLor?	Asks the color for the overlaid or active curve and its number **Parameters:** Curve idnetifications
COLor	Determines the color on the curve selected **Parameters:** Color of the curve

CURsor

:POS?	Asks the position of a cursor **Parameters:** The cursor whose the position you wish to know (keyword)
:POS	Determines the position of a cursor **Parameters:** The cursor whose the position you wish to know (keyword), the position to be fixed
:VALue?	Asks the value corresponding to the position of a cursor

	Parameters: The cursor concerned (keyword)
:SELect?	Asks which cursor(s) is/are selected
:SELect	Determines which cursor(s) is/are selected
	Parameters: The cursor or cursors to be selected (keyword)
:XYSelect	Determines which cursor(s) is/are selected
	Parameters: The cursor or cursors to be selected (keyword)
REFerence?	Returns if current curve is set as reference (OTDR only)
REFerence	Determines the curve as reference
	Parameters: The curve(s) to be set as reference (keyword)
	YES, NO: set or reset reference for current curve
	NONE: reset references for all curves
	ALL: set all curves as reference

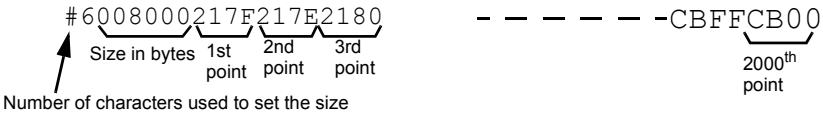
Read-out of the buffer in which the reflectometry trace is stored

The current trace is stored in a buffer equal in size to 4 times the number of points.

Each point is coded as four ASCII characters in 16 bits.

Command used to read the buffer: **CURve:BUFFer?**

Example of answer for a buffer of 2000 points:



In this example, for the first point, the value y is 217F in hexadecimal code with sign. To find the value in dB proceed as follows:

– convert 217F into decimal with sign: 8575.
– use the commands below to find the coefficients A and B
– value in dB with the examples given:
A*y + B = (0.001470 x 8575) - 12.640910 = -0.036 dB

In this example, for the last point, the value y is CB00 in hexadecimal code with sign. Thus:

– CB00 converted into decimal with sign = -13568
– the value in dB is thus:
A*y + B = [0.001470 x (-13568)] - 12.640910 = -32,586 dB

Number of points of the buffer?
CURve:SIZE?
Example of answer: 32000

Abscissa of the first point in the unit returned by "CURve:XUNit?"
CURve:XOFFset?
Example of answer: 0.000000.

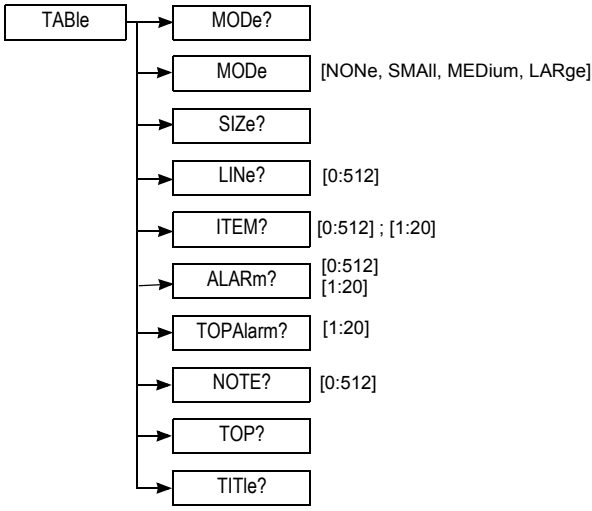
Distance separating 2 points?
CURve:XSCale?
Example of answer: 2.04636478E+01.

Coeff B of the function A*y + B?
CURve:YOFFset?
Example of answer: -12.640910

Coeff A of the function A*y + B?
CURve:YSCale?
Example of answer: -0.001470

Table

Command Format



The following parameters may have different values for each function (OTDR tab, OSA tab, etc.). It is therefore important to make sure that the current function is indeed the one on which these parameters are to be positioned

Description of the functions

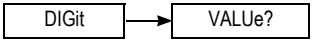
MODe?	Asks the size of the table on the screen
MODe	Determines the size of the table on the screen
	Parameters: Size of the screen (keyword)
SIZe?	Asks the number of lines of the table of measurements
LINe?	Returns the line shown (0 = active line)
	Parameters: Line number
ITEM?	Returns the value in the indicated line and column (0 = active line)
ALARm?	Returns the alarm status of the indicated line and column (0 = active line). The status could be NOT TESTED, PASS, WARNING, FAIL or PRELIMINARY.
TOPAlarm?	Returns the status of the column asked in the top line (0 = active line)
NOTE?	Returns the note associated to the line (0 = active line)
TOP?	Returns the information line above the table

TITle? Returns the title line of the table

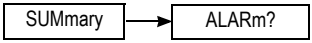
Description of the keywords

MODe

- *NONe*: No table
- *SMAll1:* Line of the table with scroll box
- *MEDium:* The screen is shared between the trace and the table
- *LARge*: The table occupies all the space on the screen



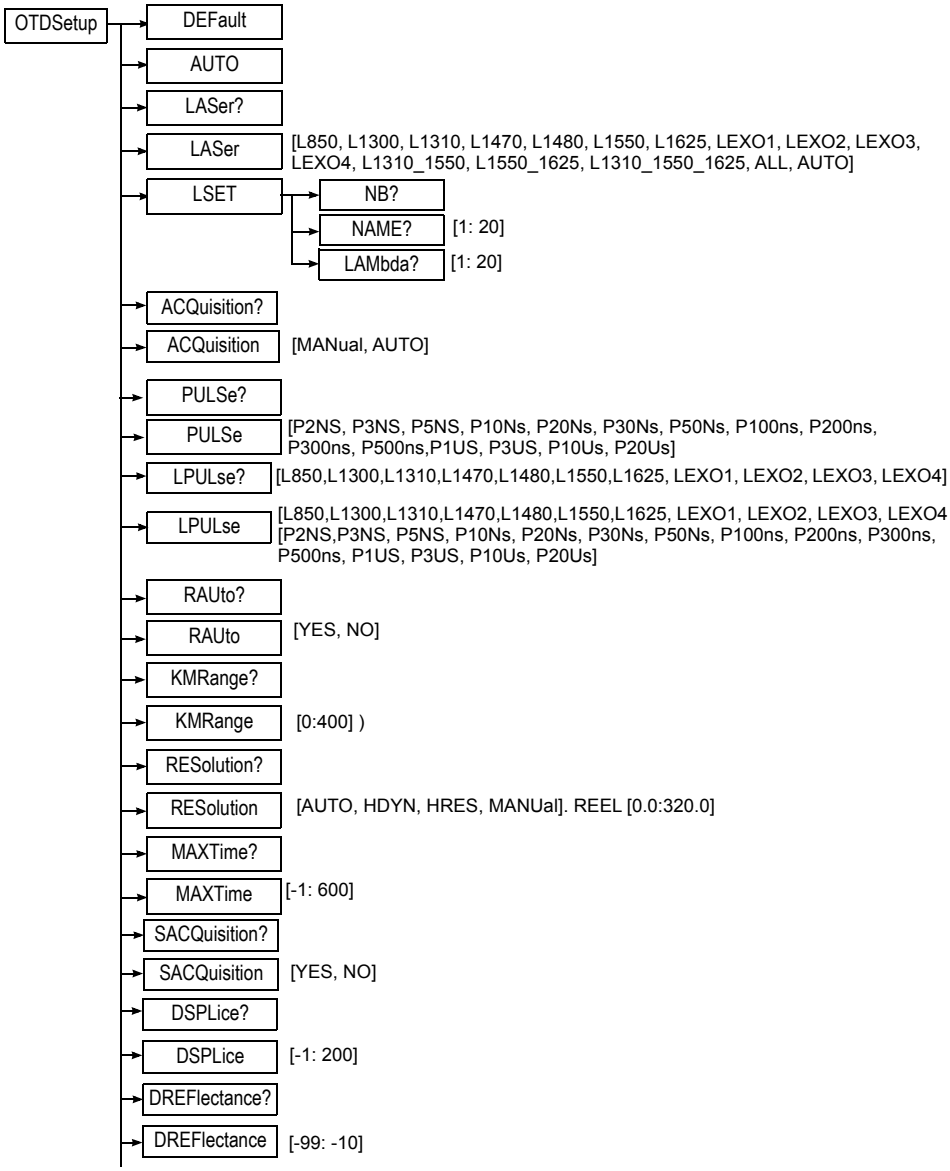
VALUe? Returns value on the table digit

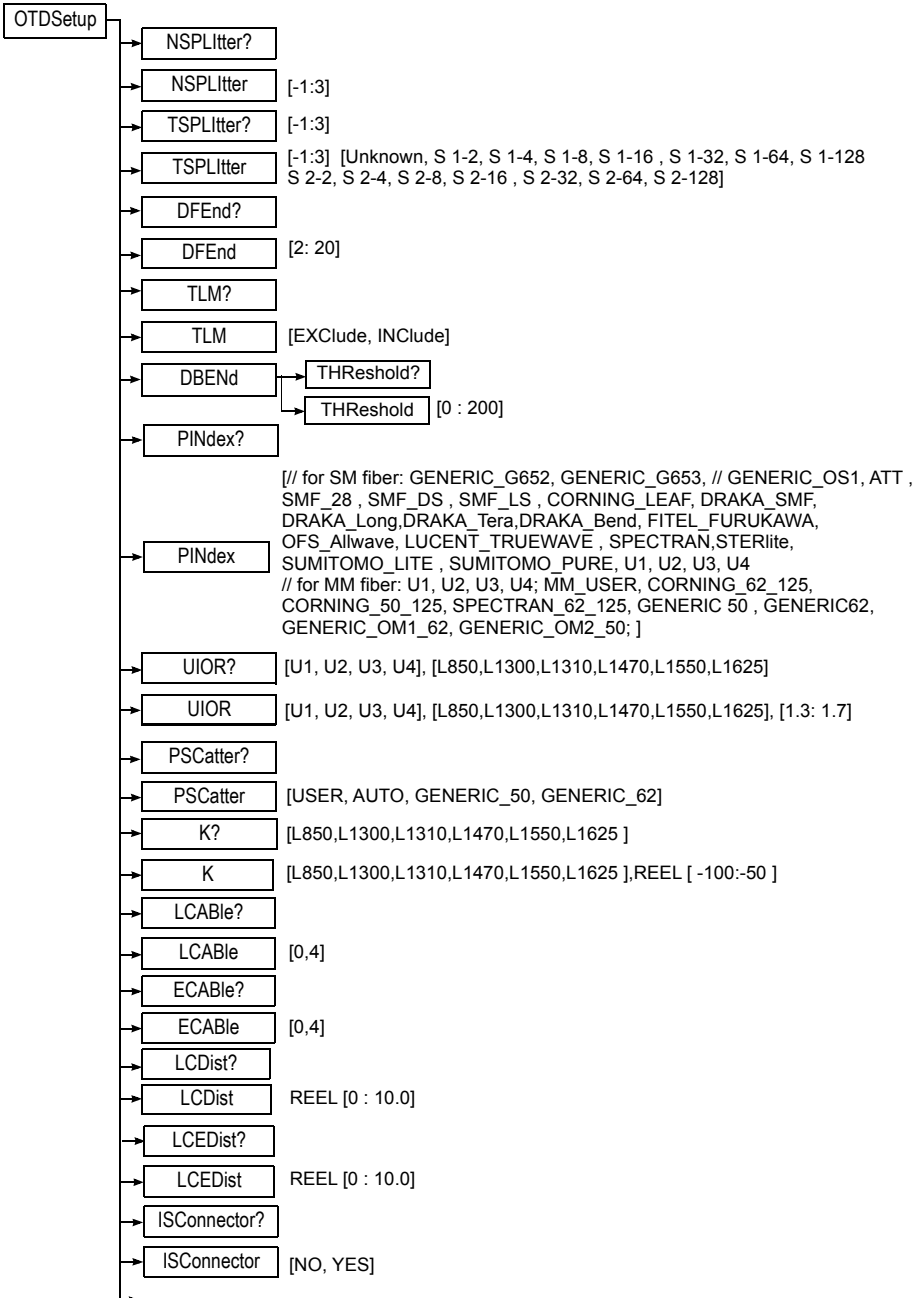


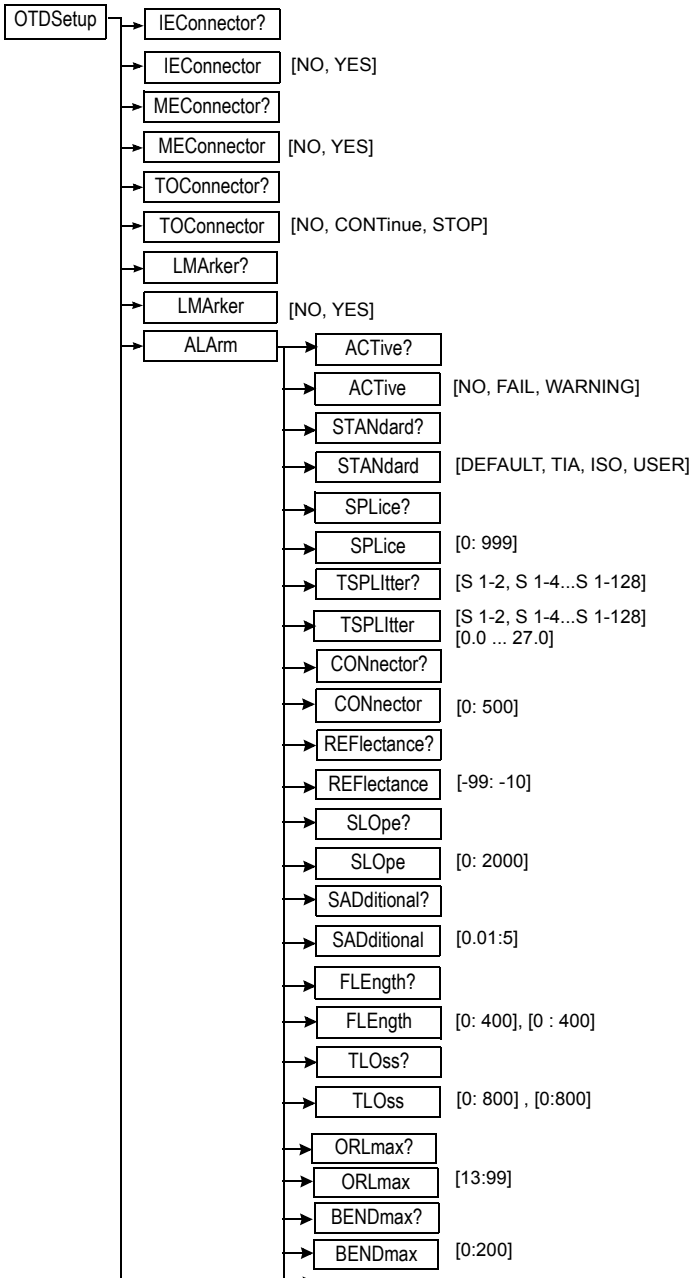
ALARm? Returns global alarm

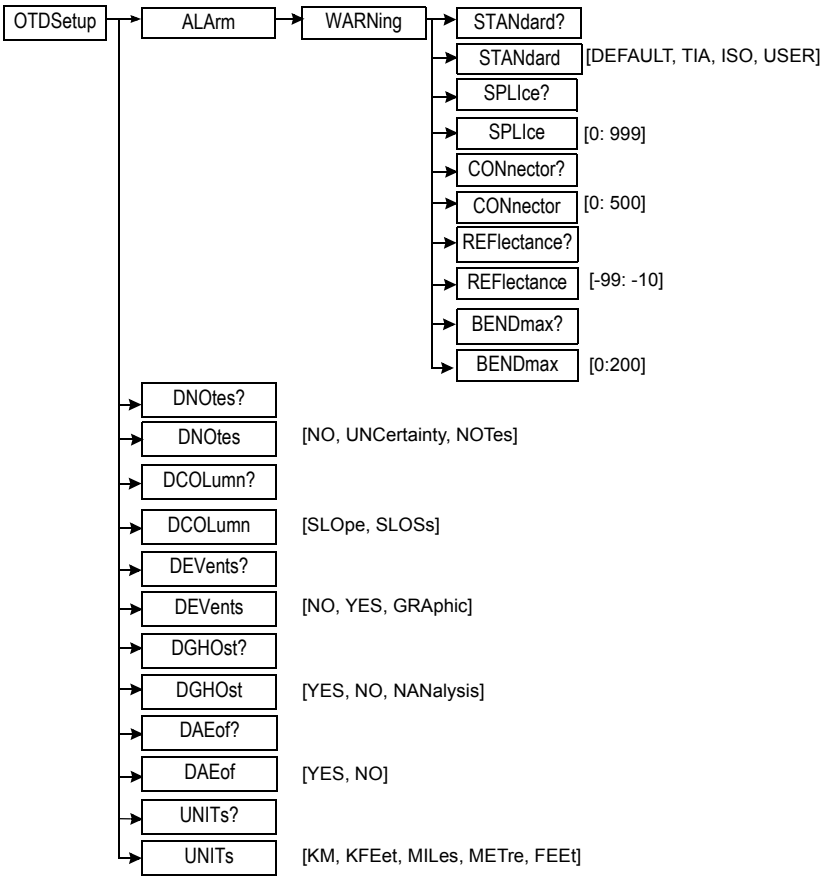
Commands relatives to the modules OTDR

Command Format


OTDSetup
DEFault
AUTO
LASer?
LASer
[L850, L1300, L1310, L1470, L1480, L1550, L1625, LEXO1, LEXO2, LEXO3, LEXO4, L1310_1550, L1550_1625, L1310_1550_1625, ALL, AUTO]
LSET
NB?
NAME?
[1: 20]
LAMbda?
[1: 20]
ACQuisition?
ACQuisition
[MANual, AUTO]
PULSe?
PULSe
[P2NS, P3NS, P5NS, P10Ns, P20Ns, P30Ns, P50Ns, P100ns, P200ns, P300ns, P500ns,P1US, P3US, P10Us, P20Us]
LPULse?
[L850,L1300,L1310,L1470,L1480,L1550,L1625, LEXO1, LEXO2, LEXO3, LEXO4]
LPULse
[L850,L1300,L1310,L1470,L1480,L1550,L1625, LEXO1, LEXO2, LEXO3, LEXO4
[P2NS,P3NS, P5NS, P10Ns, P20Ns, P30Ns, P50Ns, P100ns, P200ns, P300ns, P500ns, P1US, P3US, P10Us, P20Us]
RAUto?
RAUto
[YES, NO]
KMRange?
KMRange
[0:400])
RESolution?
RESolution
[AUTO, HDYN, HRES, MANUal]. REEL [0.0:320.0]
MAXTime?
MAXTime
[-1: 600]
SACQuisition?
SACQuisition
[YES, NO]
DSPLice?
DSPLice
[-1: 200]
DREFlectance?
DREFlectance
[-99: -10]


OTDSetup
NSPLItter?
NSPLItter
[-1:3]
TSPLItter?
[-1:3]
TSPLItter
[-1:3] [Unknown, S 1-2, S 1-4, S 1-8, S 1-16 , S 1-32, S 1-64, S 1-128
S 2-2, S 2-4, S 2-8, S 2-16 , S 2-32, S 2-64, S 2-128]
DFEnd?
DFEnd
[2: 20]
TLM?
TLM
[EXClude, INClude]
DBENd
THReshold?
THReshold
[0 : 200]
PINdex?
PINdex
[// for SM fiber: GENERIC_G652, GENERIC_G653, // GENERIC_OS1, ATT ,
SMF_28 , SMF_DS , SMF_LS , CORNING_LEAF, DRAKA_SMF,
DRAKA_Long,DRAKA_Tera,DRAKA_Bend, FITEL_FURUKAWA,
OFS_Allwave, LUCENT_TRUEWAVE , SPECTRAN,STERlite,
SUMITOMO_LITE , SUMITOMO_PURE, U1, U2, U3, U4
// for MM fiber: U1, U2, U3, U4; MM_USER, CORNING_62_125,
CORNING_50_125, SPECTRAN_62_125, GENERIC 50 , GENERIC62,
GENERIC_OM1_62, GENERIC_OM2_50;]
UIOR?
[U1, U2, U3, U4], [L850,L1300,L1310,L1470,L1550,L1625]
UIOR
[U1, U2, U3, U4], [L850,L1300,L1310,L1470,L1550,L1625], [1.3: 1.7]
PSCatter?
PSCatter
[USER, AUTO, GENERIC_50, GENERIC_62]
K?
[L850,L1300,L1310,L1470,L1550,L1625]
K
[L850,L1300,L1310,L1470,L1550,L1625],REEL [-100:-50]
LCABle?
LCABle
[0,4]
ECABle?
ECABle
[0,4]
LCDist?
LCDist
REEL [0 : 10.0]
LCEDist?
LCEDist
REEL [0 : 10.0]
ISConnector?
ISConnector
[NO, YES]


OTDSetup
IEConnector?
IEConnector
[NO, YES]
MEConnector?
MEConnector
[NO, YES]
TOConnector?
TOConnector
[NO, CONTinue, STOP]
LMArker?
LMArker
[NO, YES]
ALArm
ACTive?
ACTive
[NO, FAIL, WARNING]
STANdard?
STANdard
[DEFAULT, TIA, ISO, USER]
SPLice?
SPLice
[0: 999]
TSPLItter?
[S 1-2, S 1-4...S 1-128]
TSPLItter
[S 1-2, S 1-4...S 1-128]
[0.0 ... 27.0]
CONnector?
CONnector
[0: 500]
REFlectance?
REFlectance
[-99: -10]
SLOpe?
SLOpe
[0: 2000]
SADditional?
SADditional
[0.01:5]
FLEngth?
FLEngth
[0: 400], [0 : 400]
TLOss?
TLOss
[0: 800] , [0:800]
ORLmax?
ORLmax
[13:99]
BENDmax?
BENDmax
[0:200]



Description of the functions

The functions shown below refer to OTDR acquisitions

OTDSetup	Commands
DEFault	Determines the configuration by default.
AUTO	Same function as the softkey "Test Auto".
LASer?	Asks the wavelength of the laser source of the module (this depends on the module installed).
LASer	Determines the wavelength of the laser source of the module (depends on the module installed). **Parameters:** Wavelength of the laser (keyword)

LSET	
:NB?	Ask the number of lasers
:NAME?	Returns the name of the laser for each number
:LAMbda?	Returns the wavelength of the laser for each number
ACQuisition?	Asks the type of acquisition
ACQuisition	Determines the type of acquisition
	Parameters: Acquisition mode (Keyword) see "Keyword for ACQUIsition" on page 57
PULSe?	Asks the pulse width
PULSe	Determines the pulse width: from 3 ns to 20 µs according to plug-in (see specifications of the plug-ins) for all lasers.
	Parameters: Pulse width (keyword)
LPULse?	Asks for the pulse width per wavelength
LPULse	Determines the pulse width per wavelength
	Parameters: Lambda and Pulse (keyword)
RAUto?	Asks if the automatic range is to be used
	Parameters: Answer Yes/No
RAUto	Determines if the range is automatic or not
	Parameters: Answer Yes/No
KMRange?	Asks the range in km as a function of the module installed.
KMRange	Determines the range in km as a function of the module installed.
	Parameters: Range expressed in km
RESolution?	Asks for the resolution mode
RESolution	Choice of resolution (from 4 cm to 320 m according to module)
	Parameters: Mode of Resolution (keyword), Resolution (in meters)
MAXTime?	Asks for a period of acquisition during which averaging will be carried out
MAXTime	Choice of period of acquisition during which averaging will be carried out (from 5 s. to 5 min.). (-2 = «Auto Time»; -1 = «Real Time») WARNING: from 1 to 600 seconds (5 s. to 10 min.) for old modules.
	Parameters: Duration of acquisition
SACQuisition?	Asks if a short acquisition must be performed
SACQuisition	Determines if a short acquisition must be performed
	Parameters: Answer Yes/No (Keyword)
	The functions shown below refer to OTDR measurements
DSPLice?	Asks the level of detection of splices

DSPLice	Determines the level of detection of splices in 0.01 dB, from 0 to 2.00 dB.
	Parameters: Detection level expressed in hundredths of dB.
	0: all splices displayed; 200: no splice displayed. -1 = Auto
	Intermediate values between -11 and -98 in steps of 1 dB
DREFlectance?	Asks the detection level of reflectances in dB.
DREFlectance	Determines the detection level of reflectances in dB.
	Parameters: Detection level.
	-99: all reflectances displayed; -10: no reflectance displayed
NSPlitter?	Asks the number of splitter
NSPlItter	Determines the number of splitter.
	Parameters: -1: auto detection
	0: no splitter detection
	1...3: number of splitter(s).
TSPlitter?	Asks the type of splitter
TSPlItter	Determines the type of splitter.
	Parameters: type of splitter.
DFEnd?	Asks the detection level of the end of fiber (the attenuation threshold).
DFEnd	Determines the detection level of the end of fiber (the attenuation threshold).
	Parameters: Attenuation threshold.
	2: AUTO mode (automatic algorithm); the other values run from 3 to 20 dB (end of fiber on first event with loss > threshold).
TLM?	Asks if the total loss method is used with or without the loss of connectors.
TLM	Determines the total loss method with or without the loss of connectors.
	Parameters: Answer Yes/No
DBENd	
:THReshold?	Asks the threshold for the macro bend.
:THReshold	Determines the threshold for the macro bend. 0: threshold automatic bend
	Parameters: Value (dB)
PINdex?	Asks the Preset index: user memory (U1 to U4) or predefined
PINdex	Determines the index
	Parameters: Model of fiber (Warning: keywords different according to whether the fiber is single-mode or multi-mode).

UIOR?	Asks the user value for index of refraction
	Parameters: wavelength and user value (keyword)
UIOR	Determines the USER index of refraction
	Parameters: wavelength, user value (keywords) and value of the index (between 1.3 and 1.7)
PSCatter?	Asks the mode concerning the backscattering coefficient: user or predefined value
PSCatter	Determines the mode concerning the backscattering coefficient
	Parameters: Mode (keyword)
K?	Asks the backscattering coefficient in user mode
	Parameters: wavelength of the laser used (keyword)
K	Determines the backscattering coefficient
	Parameters: wavelength of the laser used (keyword), backscattering coefficient
LCABle?	Asks the number of dummy fibers at near end (Launch cable).
LCABle	Determines the number of dummy fibers (Launch cable).
	Parameters: Key number
	0= not validated, 1 to 3 = markers 1 to 3, 4 = launch cable in distance
ECABle?	Asks the number of dummy fibers at far end (End cable).
ECABle	Determines the number of dummy fibers at far end (End cable).
	Parameters: Key number
	0 = not validated, 1 to 3 = markers 1 to 3
LCDist?	Asks the launch fiber start at near end, in kilometer.
LCDist	Determines the launch fiber start at near end, in kilometer.
	Parameters: Number
LCEDist?	Asks the launch fiber length at far end, in kilometer.
LCEDist	Determines the launch fiber end, in kilometer.
	Parameters: Number
ISConnector?	Asks for the start connector attenuation
ISConnector	Determines wether the start connector attenuation must be taken into account in report.
	Parameters: Answer Yes/No (Keyword)
IEConnector?	Asks for the end connector attenuation
IEConnector	Determines wether the end connector attenuation must be taken into account in report.
	Parameters: Answer Yes/No (Keyword)
MEConnector?	Asks for the start connector measurement

MEConnector	Determines wether the start connector must be measured.
	Parameters: Answer Yes/No (Keyword)
TOConnector?	Asks for the test of the OTDR connector
TOConnector	Determines wether the OTDR connector must be tested (on error, issue a message and continue or stop acquisition).
	Parameters: message (Keyword)
LMArker?	Asks for locking markers
LMArker	Determines whether the markers must be locked
	Parameters: Answer Yes/No (Keyword)

ALArm

:ACTive?	Asks if the alarms are active
:ACTive	Determines whether the alarms are active
	Parameters: Answer Yes/No (Keyword)
:STANdard?	Asks the alarm thresold according to standard or not in the OTDR results table
:STANdard	Determines the alarm threshold according to standard or not in the OTDR results table
	Parameters: Alarm threshold used for results table (keyword)
:SPLice	Determines the alarm threshold
	Parameters: Threshold in dB/100 in steps of 100. E.g. 50 -> 0.5 dB. Min threshold: 0 no alarm Max. threshold = 9.99 dB (i.e. 999)
:TSPlitter?	Asks the type of splitter
:TSPlItter	Determines the type of splitter.
	Parameters: type of splitter.
:CONnector	Determines the alarm threshold of the splitter
	Parameters: Threshold in dB
:CONnector?	Asks the alarm threshold of the connectors
:CONnector	Determines the alarm threshold of the connectors
	Parameters: Threshold in dB/100. E.g. 50 -> 0.5 dB. Min. threshold = 0: no alarm. Max. threshold = 5 dB (i.e. 500).
:REFlectance?	Asks the alarm threshold of reflectances
:REFlectance	Determines the alarm threshold of reflectances
	Parameters: Threshold in dB -99 dB: No alarm. Max threshold: -10 dB
:SLOpe?	Asks the alarm threshold of slopes
:SLOpe	Determines the alarm threshold of slopes

	Parameters: Threshold in dB/km/1000. E.g. 200 -> 0.20 dB/km.
	Min. threshold = 0. Max. threshold = 2.00 dB (i.e. 2000).
	2001: No slope displayed.
:FLEngth?	Asks the alarm threshold of the link length in km
:FLEngth	Determines the alarm threshold of the link length in km
	Parameters: Min. threshold in km, max. threshold in km.
:TLOss?	Asks the min. and max. alarm thresholds of link loss in dB
:TLOss	Determines the min. and max. alarm thresholds of link loss in dB
	Parameters: Min. threshold in db/10, max. threshold in dB/10.
	0 = no alarm, 800 = 80 dB
:ORLmax?	Asks the alarm threshold of the ORL
:ORLmax	Determines the alarm threshold of the ORL
	Parameters: Threshold in db (13 dB = no alarm)
:BENDmax?	Asks the alarm threshold of bends
:BENDmax	Determines the alarm threshold of bends Min: 0 dB. Max.: 200 dB
	Parameters: Threshold in dB

: WARNing

:STANdard?	Asks the alarm thresold according to standard or not in the OTDR results table
:STANdard	Determines the alarm threshold according to standard or not in the OTDR results table
	Parameters: Alarm threshold used for results table (keyword)
:SPLIce?	Asks the alarm threshold.
:SPLIce	Determines the alarm threshold.
	Parameters: Threshold in dB/100 in steps of 100. E.g. 50 -> 0.5 dB. Max.= 9.99 dB (i.e. 999)
:CONnector?	Asks the alarm threshold of the connectors
:CONnector	Determines the alarm threshold of the connectors
	Parameters: Threshold in dB/100. E.g. 50 -> 0.5 dB. Min. threshold = 0: "no alarm". Max. threshold = 5 dB (i.e. 500).
:REFlectance?	Asks the alarm threshold of reflectances
:REFlectance	Determines the alarm threshold of reflectances Min: -99 dB. Max.: -10 dB
	Parameters: Threshold in dB
:BENDmax?	Asks the alarm threshold of bends

:BENDmax	Determines the alarm threshold of bends Min: 0 dB. Max.: 200 dB **Parameters:** Threshold in dB
	The functions shown below refer to OTDR display
DNOtes?	Asks the presence of notes, uncertainties or neither
DNOtes	Determines the presence of notes, uncertainties or neither **Parameters:** Answer (Keyword)
DCOLumn?	Asks the display of column slope / section loss
DCOLumn	Determines the display of column slope / section loss **Parameters:** Answer (Keyword)
DEVents?	Asks if events must be displayed on the trace
DEVents	Determines whether events must be displayed on the trace **Parameters:** Answer yes, no or in graphical form (Keyword)
DGHOst?	Asks if ghosts must be displayed on the trace
DGHOst	Determines whether ghosts must be displayed on the trace **Parameters:** Answer yes/no/NANalysis (Keyword)
DAEof?	Asks if events After End of Fiber must be displayed
DAEof	Display After End of Fiber **Parameters:** Answer yes/no (Keyword)
UNITs	Asks the unit of measurement to be used
UNITs	Determines the unit of measurement to be used **Parameters:** Unit of measurement (Keyword)

Description of the keywords

Laser:

- EXO: Exotic laser
- L850: Laser at 850 nm
- L1300: Laser at 1300 nm
- L1470: Laser at 1470 nm
- L1550: Laser at 1550 nm
- L1625: Laser at 1625 nm
- L1310_1550: Bi-lambda laser at 1310/1550 nm
- L1550_1625: Bi-lambda laser at 1550/1625 nm
- L1310_1550_1625: Tri-lambda laser at 1310/1550/1625 nm
- ALL: All the lasers available

Program (Auto-configuration for the next acquisition)

Keyword for ACQUIsition

– MANual : Manual mode. The user will choose the range, pulse, resolution and duration of acquisition shown by the operator.
– AUTO: Auto mode**.** The auto-config. function is validated. The 8000 Base Unit will choose the range, pulse, resolution and duration of acquisition according to the acquisition time fixed by the command OTDSetup:MAXTime for the fiber under test. As soon as these parameters of acquisition have been chosen, a «final acquisition» is started using these parameters. An automatic measurement is carried out at the end of the final acquisition.

Resolution:

– AUTO: The 8000 Base Unit will choose the appropriate resolution. The second parameter is necessary but not significant.
– MANU: The resolution must be given in the second parameter. If the value chosen is less than the min. possible value, then the min. possible value is selected.

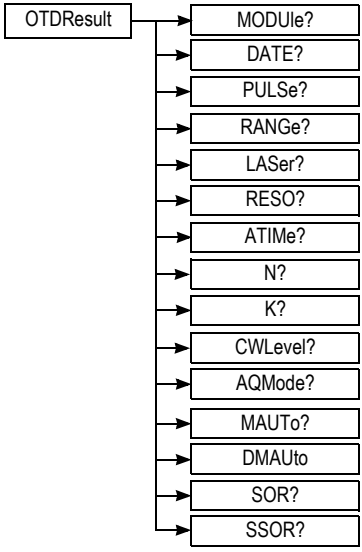
Notes:

– UNCertainty: Uncertainties

Units:

– KM: Kilometers
– KFEet: Kilofeet
– MILes: Miles

Orders to access to the informations concerning the current OTDR Trace



OTDRResult

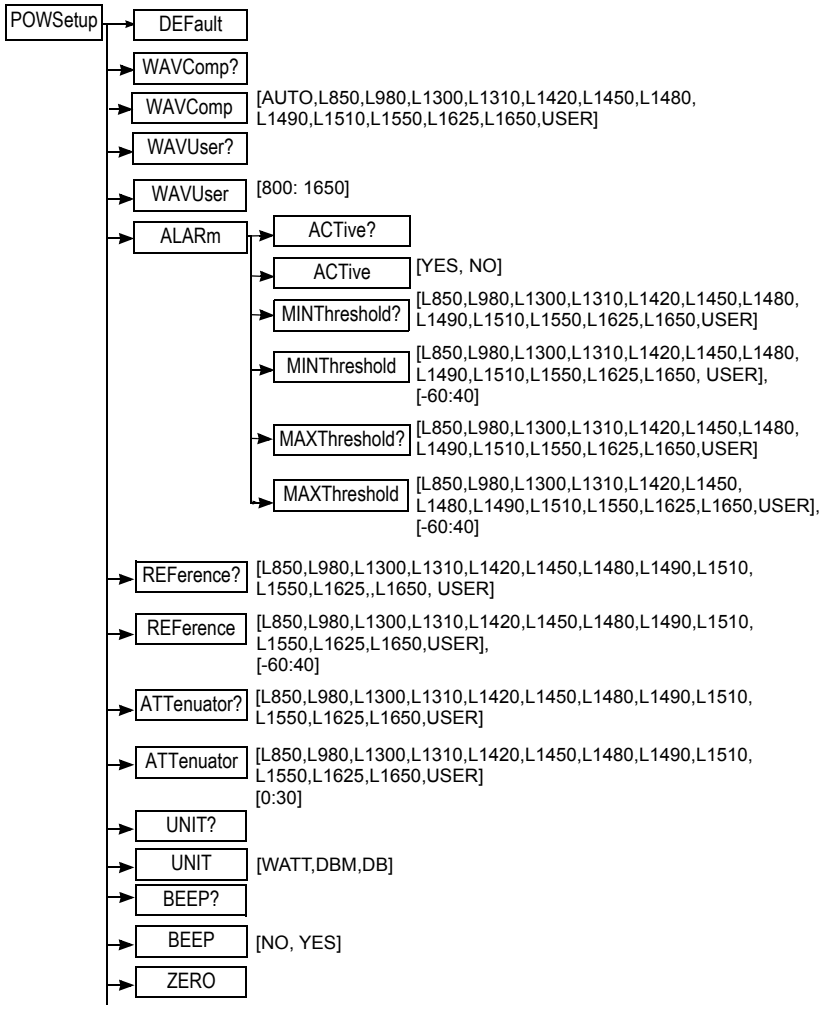
MODUle?	Type of plug-in having done the acquisition
DATE?	Acquisition date
PULSe?	Pulse used
RANGe?	Range used
LASer?	Laser used
RESO?	Resolution used
ATIMe?	Acquisition time
N?	Fiber index
K?	Backscatter coefficient
CWLevel?	Returns level of signal detected during acquisition
AQMode?	returns mode of acquisition "AVG" = averaging (standard mode) "RAM" = Raman "RA2" = Raman level 2 "PON" = PON mode

	"RTIME" = Real Time
MAUTo?	Start automatic measurements and answers OK
DMAUto	Delete results of the automatic measurement
SOR?	Return the current OTDR acquisition in Bellecore format (.SOR)
SSOR?	Return the current OTDR acquisition in Bellecore format (.SOR) with a specific header to set the size of the binary buffer to retrieve. The format of the header is 9 bytes. The first byte is always '#', the second byte is always '7' indicating the size in bytes of the binary buffer to retrieve is coded with the next 7 bytes. Bytes 3 to 9 are describing the size in bytes of the buffer (excluding the header)

Commands relating to the LTS option

Configuration of the power meter

Command Format



Description of the functions

DEFault	Restores the configuration
WAVComp?	Asks the compensation wavelength
WAVComp	Determines the compensation wavelength
	Parameters: Wavelength (keyword)
WAVUser?	Asks the compensation wavelength when this is USER specified.
WAVUser	Determines the compensation wavelength when this is USER specified.
	Parameters: Wavelength (value in nm)

ALArm

:ACTive?	Asks if the alarms must be activated
:ACTive	Determines whether the alarms must be activated
	Parameters: Answer Yes/No (keyword)
:MINThreshold?	Asks the minimum power threshold to trigger an alarm for a given wavelength
	Parameters: Wavelength given (keyword)
:MINThreshold	Determines the minimum power threshold to trigger an alarm for a given wavelength
	Parameters: Wavelength given (keyword), value of the threshold (in dB)
:MAXThreshold?	Asks the maximum power threshold to trigger an alarm for a given wavelength
	Parameters: Wavelength given (keyword)
:MAXThreshold	Determines the maximum power threshold to trigger an alarm for a given wavelength
	Parameters: Wavelength given (keyword), value of the threshold (in dB)
REFerence?	Asks the reference value for a given wavelength
	Parameters: Wavelength given (keyword)
REFerence	Determines the reference value for a given wavelength
	Parameters: Wavelength given (keyword), reference value
ATTenuator?	Asks the attenuator compensation value for a given wavelength
	Parameters : Wavelength given (keyword).
ATTenuator	Determines the attenuator compensation value for a given wavelength
	Parameters : Wavelength given (keyword), compensation value (in dB).
UNITs?	Asks the unit to be used
UNITs	Determines the unit to be used
	Parameters: Unit (Keyword)

BEEP?	Asks if a beep on modulation must be activated
BEEP	Determines wether a beep on modulation must be activated
	Parameters: Answer No/Yes (Keyword)
ZERO	Determines the zero user

POWResult

CURRent?	Asks for the complete result: power, mode and wavelength
POWer?	Asks the power received in the unit selected
SMODe?	Asks the mode of operation of the source (continuous, modulated, etc.)
WAVe?	Asks the wavelength used for compensation
DUNit?	Asks the current unit of the display (mW, uW, nW, etc.)

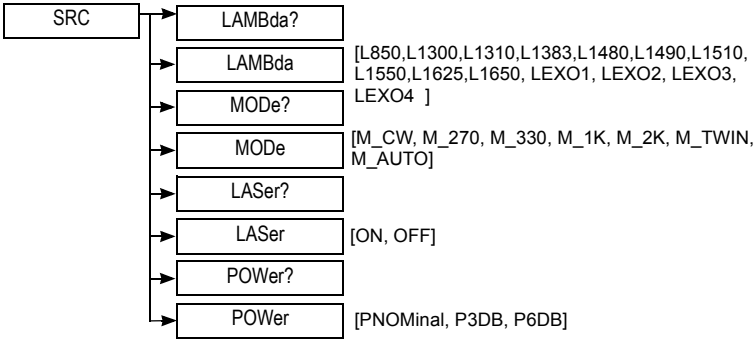
Description of the keywords

Wavelength

- *AUTO:* The power meter will search for the wavelength automatically
- *L850... L1650:* Each number corresponds to a wavelength in nm
- *USER*: The wavelength is not “standard”

Configuring the source

Command Format



Description of the functions

LAMBda?	Asks the wavelength to be chosen
LAMBda	Choice of wavelength (according to the configuration of the module): 1310 or 1550 nm for LASER source 850 or 1300 nm for LED source **Parameters:** Wavelength (keyword)
MODe?	Asks the mode of transmission of the signal emitted
MODe	Mode of transmission of the signal emitted **Parameters:** Mode of transmission (keyword)
LASer?	Asks the validation of the emission of the laser or the LED.
LASer	ON: validates the emission of the laser or the LED. OFF: stops the emission of the laser or the LED
POWer?	Only with OFI Modules Asks the level of emitted power
POWer	Only with OFI Modules Determines the level of emitted power **Parameters: power l**evel (keyword)

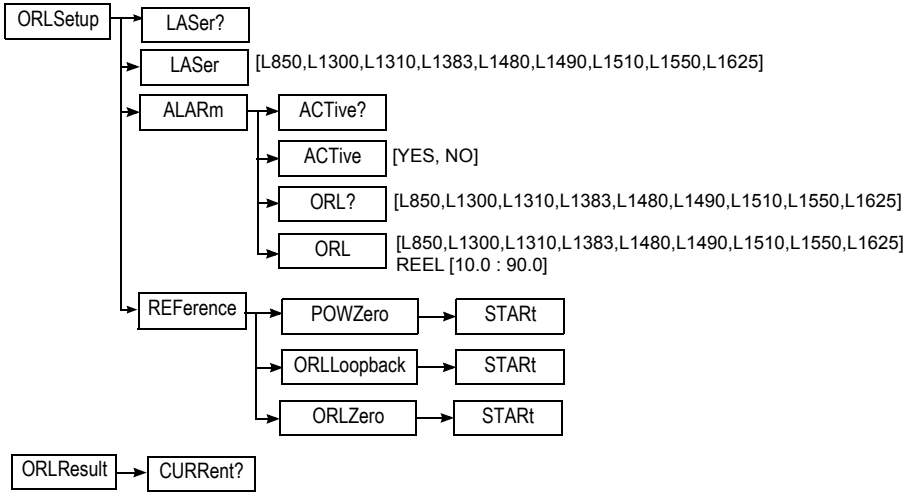
Description of the keywords

Mode of transmission

– *M_CW:* continuous power

– *M_270, M_330, M_1000, M_2000*: power modulated to the selected frequency (270 Hz, 330 Hz, 1 kHz, 2 kHz)
– *M_AUTO:* The power is modulated to a frequency dependent on the wavelength chosen.

Configuration of the ORL



Description of the functions

LASer?	Asks the wavelength of the laser
LASer	Determines the wavelength of the laser **Parameters:** Wavelength (value in nm)

ALArm

:ACTive?	Asks if the alarms must be activated
:ACTive	Determines whether the alarms must be activated **Parameters:** Answer Yes/No (keyword)
ORL?	Asks the wavelength to trigger the alarm **Parameters:** Wavelength
ORL	Determines the ORL level which will trigger the alarm at the wavelength selected. **Parameters:** Wavelength and threshold

REFerence

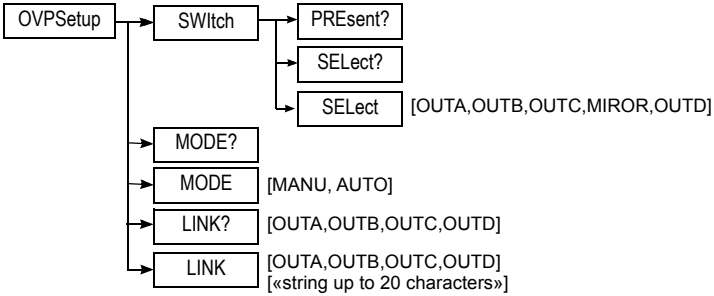
:POWZero	Start a reference measurement with the power zero mode
ORLLoopback	Start a reference measurement with the ORL loopback mode
ORLZero	Start a reference measurement with the ORL zero mode

ORLResult

CURRent?	Asks for the complete result.

Commands relating to the MTAU plug-in

Command Format



Description of the functions

SWItch

:PREsent?	Confirms the presence of a switch
:SELect?	Asks the port to be used
:SELect	Determines the port to be used
	Parameters: Port to be used (keyword)
MODE?	Asks the mode of transmission of the emitted power
MODE	Determines the mode of transmission of the emitted power
	Parameters: transmission mode (keyword)
LINK?	Asks the port to be automatically linked to the function (in AUTO mode is selected)

LINK — Determines the port to be automatically linked to the function (in AUTO mode is selected)

Parameters: Port to be used (keyword)

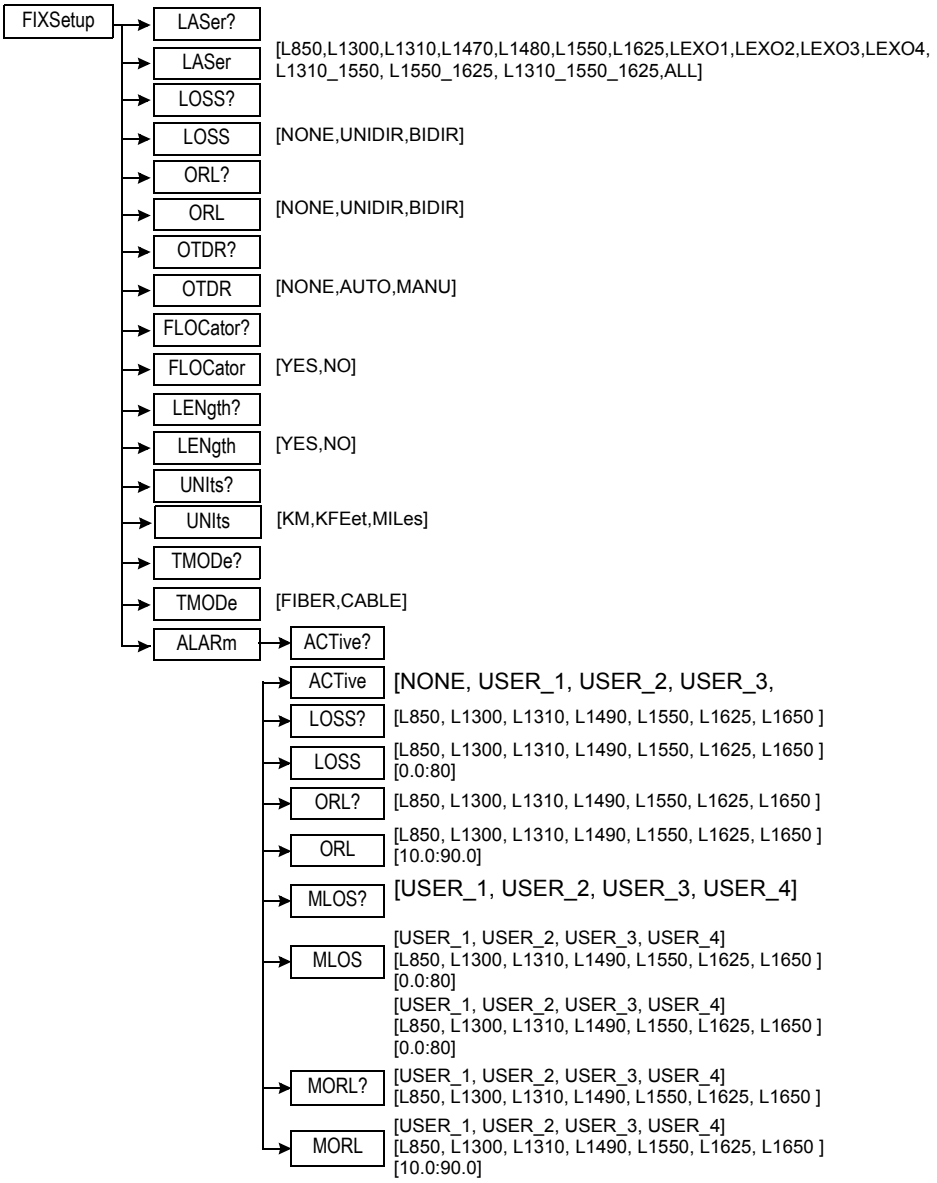
Description of the keywords

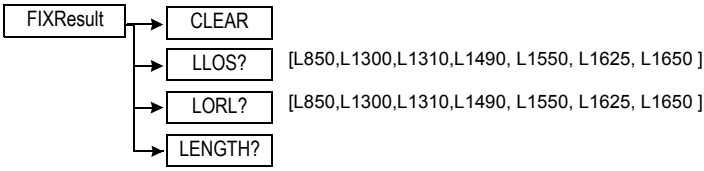
Port to be used

- *OUTA*: Port A
- *OUTB*: Port B
- *OUTC*: Port C
- *MIROR*: Mirror
- *OUTD*: Port D

Configuration of the FIX function

Command Format


FIXSetup
LASer?
LASer
[L850,L1300,L1310,L1470,L1480,L1550,L1625,LEXO1,LEXO2,LEXO3,LEXO4, L1310_1550, L1550_1625, L1310_1550_1625,ALL]
LOSS?
LOSS
[NONE,UNIDIR,BIDIR]
ORL?
ORL
[NONE,UNIDIR,BIDIR]
OTDR?
OTDR
[NONE,AUTO,MANU]
FLOCator?
FLOCator
[YES,NO]
LENgth?
LENgth
[YES,NO]
UNIts?
UNIts
[KM,KFEet,MILes]
TMODe?
TMODe
[FIBER,CABLE]
ALARm
ACTive?
ACTive
[NONE, USER_1, USER_2, USER_3,
LOSS?
[L850, L1300, L1310, L1490, L1550, L1625, L1650]
LOSS
[L850, L1300, L1310, L1490, L1550, L1625, L1650] [0.0:80]
ORL?
[L850, L1300, L1310, L1490, L1550, L1625, L1650]
ORL
[L850, L1300, L1310, L1490, L1550, L1625, L1650] [10.0:90.0]
MLOS?
[USER_1, USER_2, USER_3, USER_4]
MLOS
[USER_1, USER_2, USER_3, USER_4] [L850, L1300, L1310, L1490, L1550, L1625, L1650] [0.0:80]
[USER_1, USER_2, USER_3, USER_4] [L850, L1300, L1310, L1490, L1550, L1625, L1650] [0.0:80]
MORL?
[USER_1, USER_2, USER_3, USER_4] [L850, L1300, L1310, L1490, L1550, L1625, L1650]
MORL
[USER_1, USER_2, USER_3, USER_4] [L850, L1300, L1310, L1490, L1550, L1625, L1650] [10.0:90.0]



Description of the functions

The functions shown below refer to FIX function

LASer?	Asks the wavelength for the acquisition.
LASer	Fixes the wavelength for the acquisition.
	Parameters: Wavelength (keyword)
LOSS?	Asks the loss measurement method
LOSS	Fixes the loss measurement method
	Parameters: Method (keyword)
ORL?	Asks the ORL measurement method
ORL	Fixes the ORL measurement method
	Parameters: Method (keyword)
OTDR?	Asks the OTDR measurement method
OTDR	Fixes the OTDR measurement method
	Parameters: Method (keyword)
FLOCator?	Asks if the Fault locator measurement must be performed
FLOCator	Fault locator measurement
	Parameters: Answer Yes/No (keyword)
LENgth?	Asks if the length measurement must be performed
LENgth	Length measurement
	Parameters: Answer Yes/No (keyword)
UNITs?	Asks the unit of measurement for distances
UNITs	Unit of measurement of distances
	Parameters: Unit (keyword)

ALArm

:ACTive?	Asks the activation of alarms
:ACTive	Indicates the active alarm mode
	Parameters : mode (keyword)
:LOSS?	Asks the alarm thresholds of insertion loss for each wavelength.

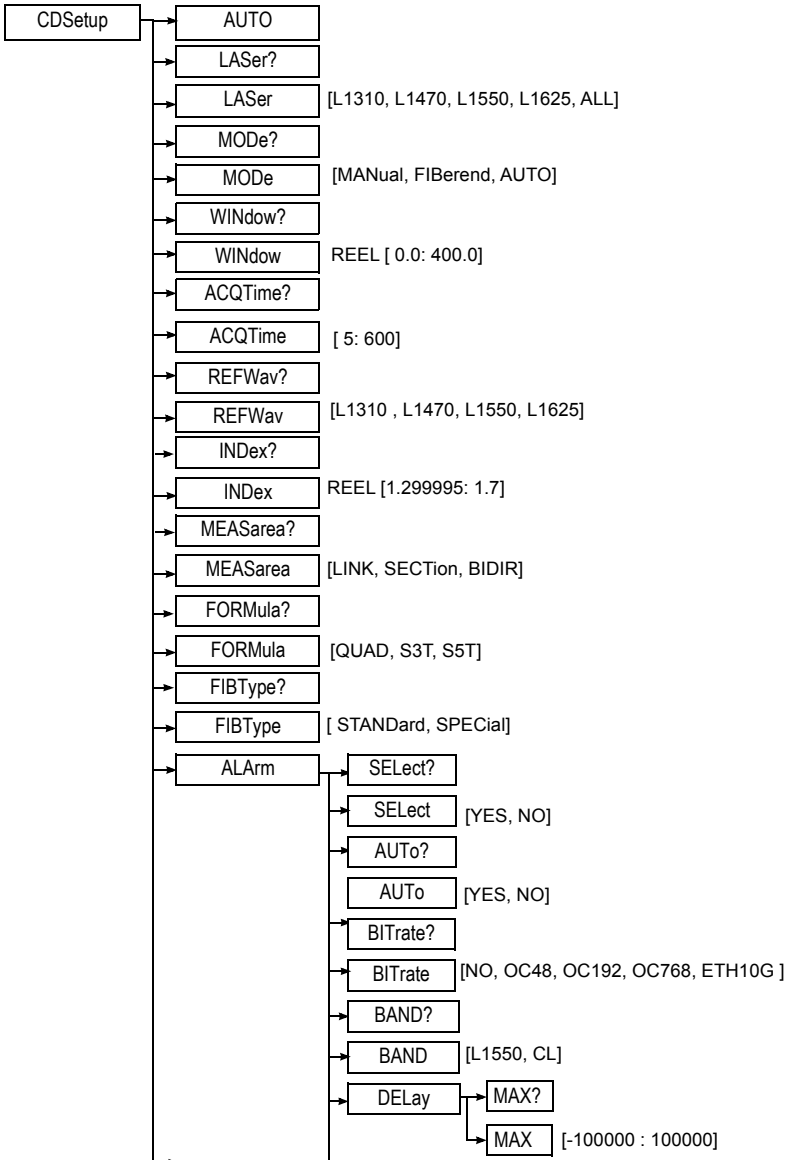
:LOSS	Determines the alarm thresholds of insertion loss for each wavelength.
	Parameters : Wavelength, threshold in dB 0: no alarm; -80: max. threshold
:ORL?	Asks the alarm thresholds of ORL for each wavelength
:ORL	Determines the alarm thresholds of ORL for each wavelength
	Parameters : Wavelength, threshold in dB 10.0: min. threshold; 90.0: max. threshold
:MLOS?	Asks the alarm thresholds of insertion loss for a mode.
:MLOS	Determines the alarm thresholds of insertion loss for a mode.
	Parameters : Wavelength, threshold in dB 0: no alarm; -80: max. threshold
:MORL?	Asks the alarm thresholds of ORL for each wavelength
:MORL	Determines the alarm thresholds of ORL for a mode
	Parameters : Wavelength, threshold in dB 10.0: min. threshold; 90.0: max. threshold

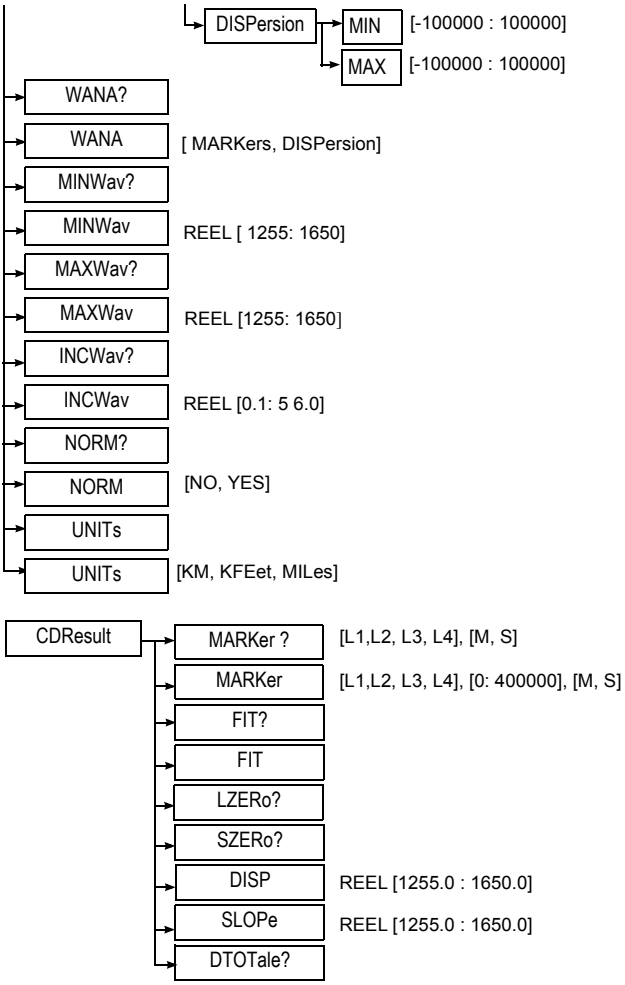
FIXResult

:CLEAR	Asks if all results must be cleared
:LLOS	Read local loss value for a lambda
	Parameters : Wavelength
:LORL	Read local ORL value for a lambda
	Parameters : Wavelength
:LENGTH	Read local length value for a lambda
	Parameters : Length

Configuration of the CD modules

Command Format





Description of the functions

AUTO	Determines the automatic configuration.
LASer?	Asks the wavelength for the acquisition.
LASer	Fixes the wavelength for the acquisition. **Parameters:** Wavelength (keyword)
MODe	Asks the mode of acquisition
MODe	Fixes the mode of acquisition

	Parameters: Mode (keyword)
WINdow	Asks the distance of the reflective event to be analysed
WINdow	Distance of the reflective event to be analysed (position of the window of analysis).
	Parameters: Distance (expressed in km)
ACQTime?	Asks the period of acquisition
ACQTime	Period of acquisition
	Parameters: Period (expressed in seconds)
REFWav?	Asks the Wavelength taken from among the four values as the reference for calculation of the delay of the other three.
REFWav	Wavelength taken from among the four values as the reference for calculation of the delay of the other three.
	Parameters: Wavelength (keyword)
INDex?	Asks the refractive index used for all the CD acquisitions
INDex	Refractive index used for all the CD acquisitions
	Parameters: Index
MEASarea?	Asks for the method of measurement used MEASareaMethod of measurement used: **Parameters:** Method (keyword)
FORMula?	Asks the delay approximation formula to be used to generate dispersion and measurement of slope
FORMula	Delay approximation formula to be used to generate dispersion and measurement of slope.
	Parameters: Formula (keyword)

ALArm

:SELect?	Asks if all the alarms are selected
:SELect	Indicates wether all the alarms are selected
	Parameters : Answer Yes/No (keyword)
:AUTo?	Asks the automatic determination of the alarm threshold
:AUTo	Automatic determination of the alarm threshold
	Parameters : Answer Yes/No (keyword)
:BITrate?	Asks the trafic rate on the fibre
:BITrate	Trafic rate on the fibre
	Parameters : Rate (keyword)
:BAND?	Asks the wavelength range on which alarm thresholds are set
:BAND	Wavelength range on which alarm thresholds are set
	Parameters : Wavelength range (keyword)

:DELay	
	MAX?Asks the delay maximum value
	MAX:Delay maximum value, in ps
	Parameters : Maximum value (number)
	-100000: no threshold
:DISPersion	
	MIN?Asks the inferior threshold value of the dispersion
	MINInferior threshold value of the dispersion, in ps/nm
	Paramètres : Inferior threshold value (number)
	-100000: no inferior threshold
	MAX?Asks the superior threshold value of the dispersion, in ps/nm
	MAXSuperior threshold value of the dispersion, in ps/nm
	Parameters : Superior threshold value (number)
	-100000: no superior threshold
WANA?	Asks the window of analysis to be displayed at the end of the measurement
WANA	Window of analysis to be displayed at the end of the measurement: **Parameters:** Type of window (keyword)
MINWav?	Asks the min. wavelength displayed on the trace and in the table
MINWav	Min. wavelength displayed on the trace and in the table
	Parameters: Min.wavelength (keyword)
MAXWav?	Asks the max. wavelength displayed on the trace and in the table
MAXWav	Max. wavelength displayed on the trace and in the table
	Parameters: Max. wavelength (keyword)
INCWav?	Asks the increment of maximum wavelength in the table of measurements
INCWav	Increment of maximum wavelength in the table of measurements
	Parameters: Increment (number)
NORM?	Asks to choose between the Normalized or Not Normalized to 1 km mode
NORM	Choice of mode: Normalized or Not Normalized to 1 km
	Parameters: Answer Yes/No (keyword)
UNITs?	Asks the unit of measurement for distances
UNITs	Unit of measurement of distances
	Parameters: Unit (keyword)
MARKer?	Asks the position of the markers on the trace shown and in the unit shown in As parameters

	Parameters: Wavelength (keyword), unit (keyword)
MARKer	Places a marker on the trace corresponding to the wavelength given, the distance given and the corresponding unit, provided in parameters.
	Parameters: Wavelength (keyword), distance, unit (keyword)
FIT?	Asks approximation of the delay trace
FIT	Starts approximation of the delay trace
LZERo?	Asks the zero dispersion wavelength λ_0 of the approximation in progress (in nm)
SZERo?	Asks the slope corresponding to λ_0
DISP	Returns to the value of the normalized dispersion, for λ, from 1255.0 to 1650.0 nm. **Parameters:** Value (in nm)
SLOPe	Returns to the value of the normalized slope, for λ, from 1255.0 to 1650.0 nm.
	Parameters: Value (in nm)
DTOTale?	Asks the total dispersion for the reference wavelength (chosen by the command REFW)

Description of the keywords

Laser:

- L1310, L1470... L1625: Laser at the wavelength of 1310 nm, 1470 nm...1625 nm
- All: All the lasers available

Mode:

- MANual : Manual mode
- FIBerend: End of fiber mode
- AUTO: Auto mode

Type of measurement

- LINK : Whole link
- SECTion: By section
- BIDIR: Bi-directional

Formula of approximation of the delay trace

- QUAD: quadratic
- S3T: Sellmeier 3 terms
- S5T: Sellmeier 5 terms

Type of fiber

– STANDard: Standard fiber
– SPECial: Non-standard fiber

Window of analysis (WANA)

– MARKers: markers
– DISPersion: dispersion

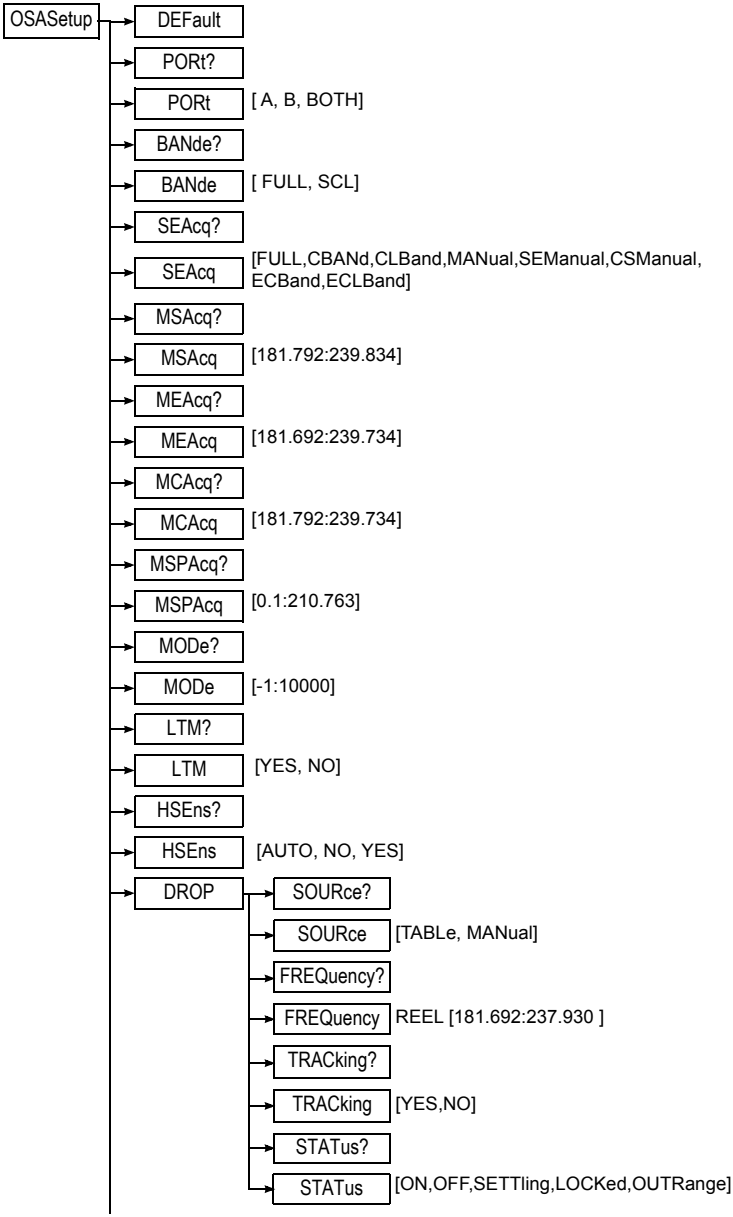
Units

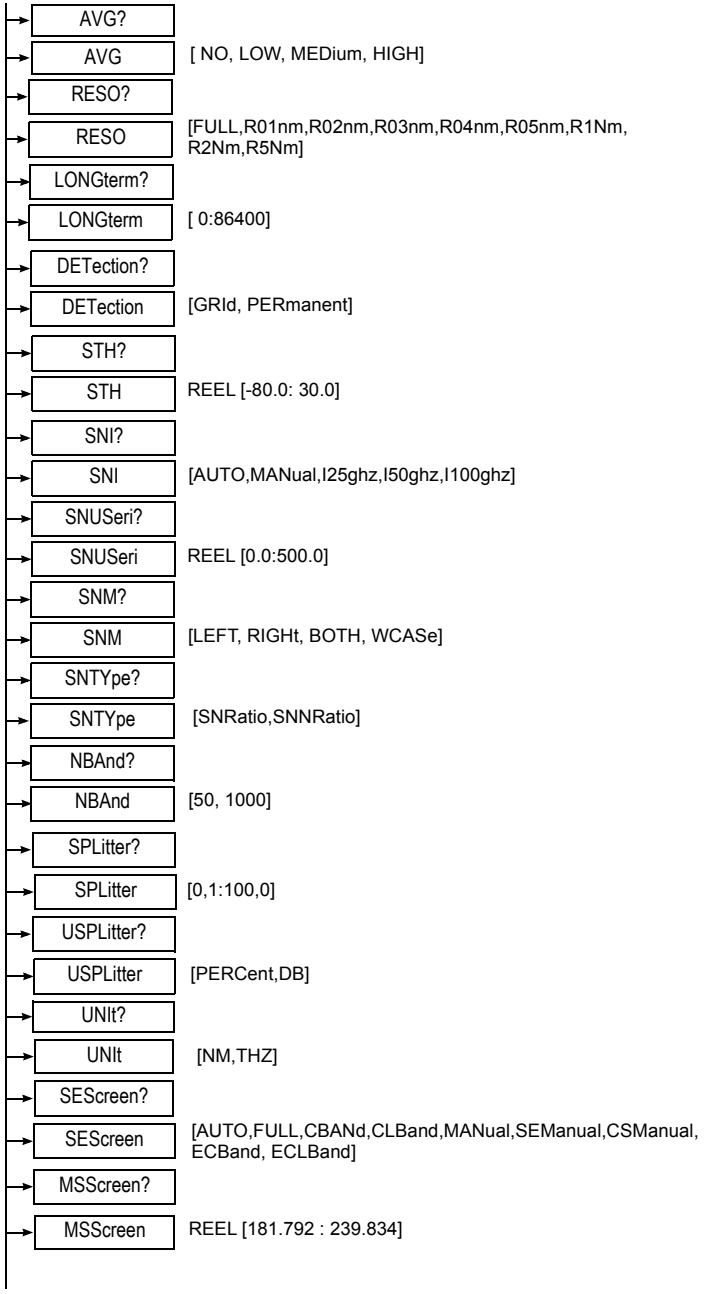
– KM: Kilometers
– KFEet: Kilofeet
– MILes: Miles

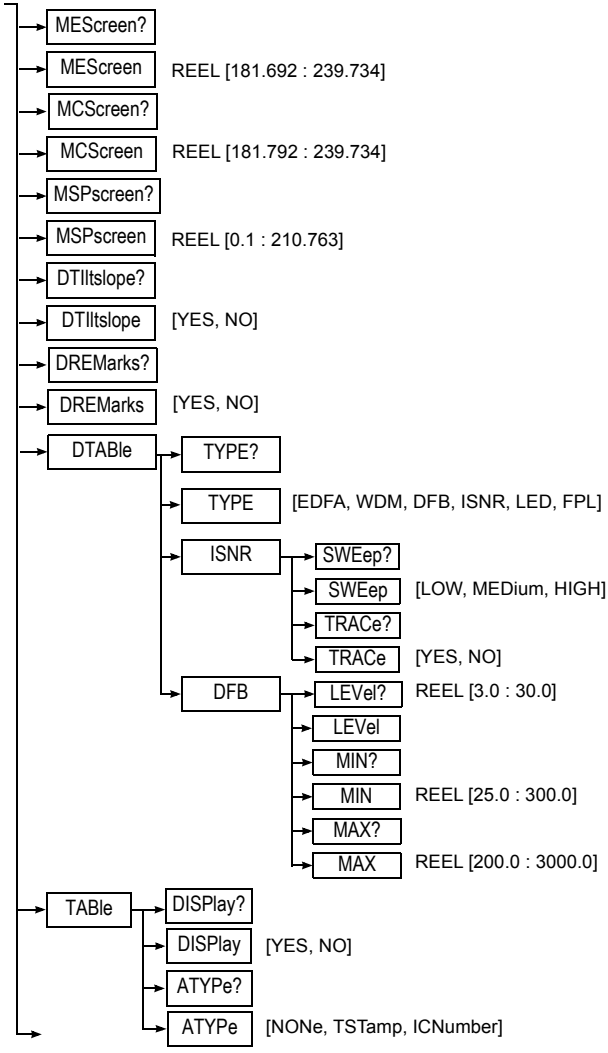
Marker

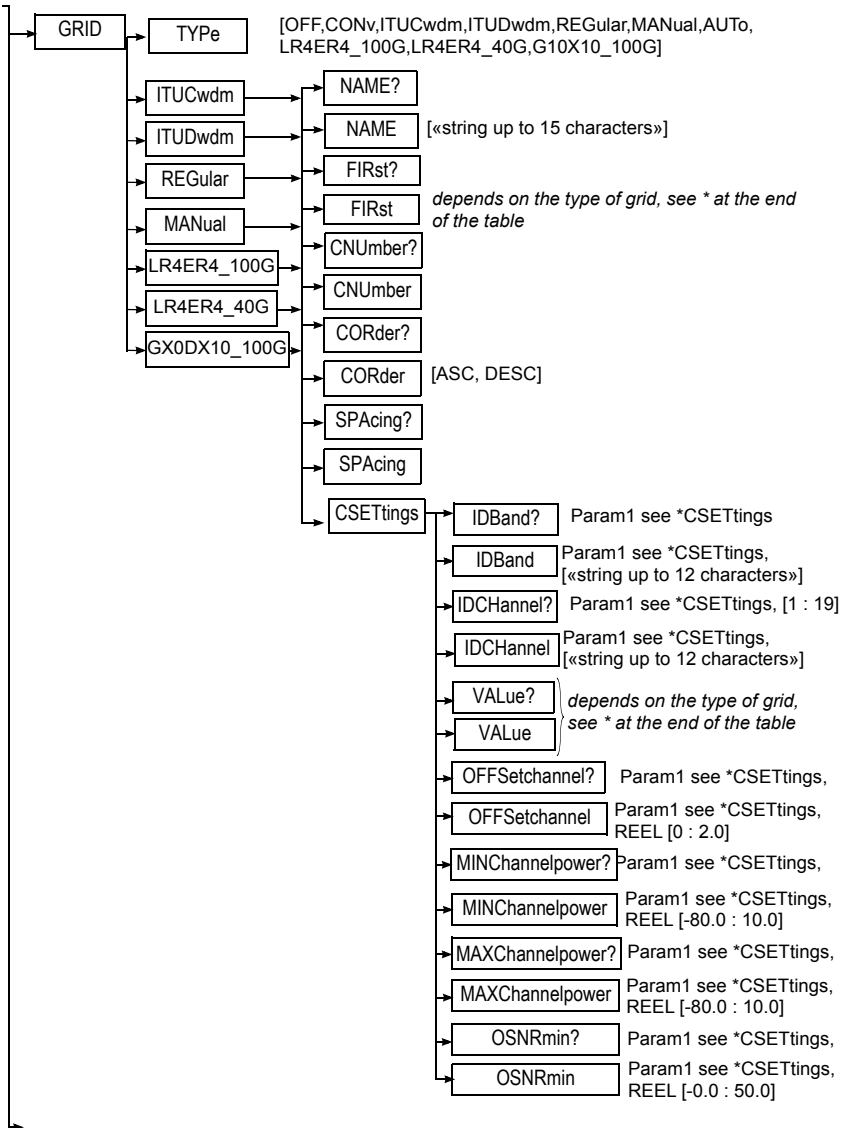
– L1...L4: CD markers from 1 to 4
– M: Expressed in meters
– S: Expressed in seconds

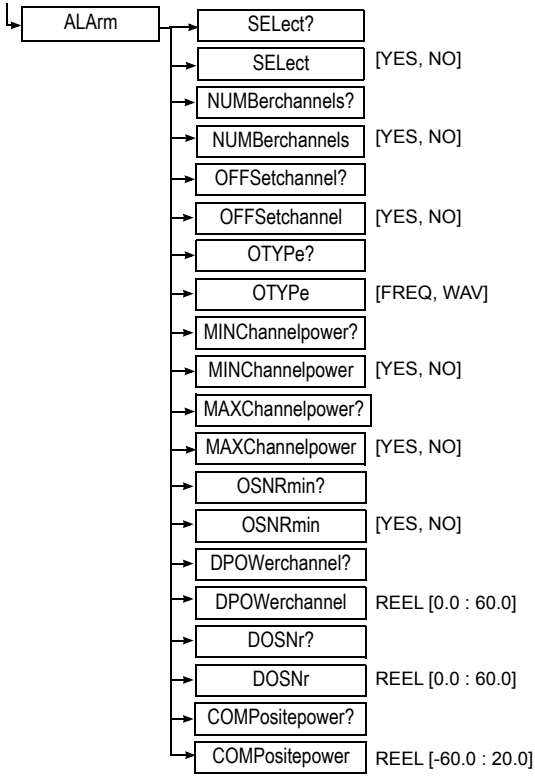
Configuration of the WDM and OSA modules




AVG?
AVG
[NO, LOW, MEDium, HIGH]
RESO?
RESO
[FULL,R01nm,R02nm,R03nm,R04nm,R05nm,R1Nm, R2Nm,R5Nm]
LONGterm?
LONGterm
[0:86400]
DETection?
DETection
[GRId, PERmanent]
STH?
STH
REEL [-80.0: 30.0]
SNI?
SNI
[AUTO,MANual,I25ghz,I50ghz,I100ghz]
SNUSeri?
SNUSeri
REEL [0.0:500.0]
SNM?
SNM
[LEFT, RIGHt, BOTH, WCASe]
SNTYpe?
SNTYpe
[SNRatio,SNNRatio]
NBAnd?
NBAnd
[50, 1000]
SPLitter?
SPLitter
[0,1:100,0]
USPLitter?
USPLitter
[PERCent,DB]
UNIt?
UNIt
[NM,THZ]
SEScreen?
SEScreen
[AUTO,FULL,CBANd,CLBand,MANual,SEManual,CSManual, ECBand, ECLBand]
MSScreen?
MSScreen
REEL [181.792 : 239.834]


MEScreen?
MEScreen
REEL [181.692 : 239.734]
MCScreen?
MCScreen
REEL [181.792 : 239.734]
MSPscreen?
MSPscreen
REEL [0.1 : 210.763]
DTIltslope?
DTIltslope
[YES, NO]
DREMarks?
DREMarks
[YES, NO]
DTABle
TYPE?
TYPE
[EDFA, WDM, DFB, ISNR, LED, FPL]
ISNR
SWEep?
SWEep
[LOW, MEDium, HIGH]
TRACe?
TRACe
[YES, NO]
DFB
LEVel?
REEL [3.0 : 30.0]
LEVel
MIN?
MIN
REEL [25.0 : 300.0]
MAX?
MAX
REEL [200.0 : 3000.0]
TABle
DISPlay?
DISPlay
[YES, NO]
ATYPe?
ATYPe
[NONe, TSTamp, ICNumber]


GRID
TYPe
[OFF,CONv,ITUCwdm,ITUDwdm,REGular,MANual,AUTo,
LR4ER4_100G,LR4ER4_40G,G10X10_100G]
ITUCwdm
ITUDwdm
REGular
MANual
LR4ER4_100G
LR4ER4_40G
GX0DX10_100G
NAME?
NAME
[«string up to 15 characters»]
FIRst?
FIRst
depends on the type of grid, see * at the end of the table
CNUmber?
CNUmber
CORder?
CORder
[ASC, DESC]
SPAcing?
SPAcing
CSETtings
IDBand?
Param1 see *CSETtings
IDBand
Param1 see *CSETtings, [«string up to 12 characters»]
IDCHannel?
Param1 see *CSETtings, [1 : 19]
IDCHannel
Param1 see *CSETtings, [«string up to 12 characters»]
VALue?
VALue
depends on the type of grid, see * at the end of the table
OFFSetchannel?
Param1 see *CSETtings,
OFFSetchannel
Param1 see *CSETtings, REEL [0 : 2.0]
MINChannelpower?
Param1 see *CSETtings,
MINChannelpower
Param1 see *CSETtings, REEL [-80.0 : 10.0]
MAXChannelpower?
Param1 see *CSETtings,
MAXChannelpower
Param1 see *CSETtings, REEL [-80.0 : 10.0]
OSNRmin?
Param1 see *CSETtings,
OSNRmin
Param1 see *CSETtings, REEL [-0.0 : 50.0]



*** Special note about FIRst**

CWDM : [C1270nm,C1290nm,C1310nm,C1330nm,C1350nm,C1370nm, C1390nm, C1410nm, C1430nm, C1450nm, C1470nm, C1490nm, C1510nm, C1530nm, C1550nm, C1570nm, C1590nm, C1610nm]

DWDM : REEL [192.1 : 196.1]

REGular : REEL [181.692 : 237.930]

MANual : *No Param used with MANual*

*** Special note about CNUmber**

CWDM : [1 : 18]

DWDM : [1 : 256]

REGular : [1 : 256]

MANual : [1 : 256]

*** Special note about CORder**

CWDM : *No order CORder for CWDM*
DWDM : [ASC : DESC]
REGular : [ASC : DESC]
MANual : *No order CORder for MAnual*

*** Special note about SPAcing**

CWDM : *No order SPAcing for CWDM*
DWDM : [I25Ghz,I50Ghz,I100ghz,I200ghz]
REGular : [20.0 : 1000.0]
MANual : *No order SPAcing for MANual*

*** Special note about CSETtings**

CWDM : [1 : 18]
DWDM : [1 : 256]
REGular : [1 : 256]
MANual : [1 : 256]

*** Special note about VALue?**

Only valid for MANual

*** Special note about VALue**

Only valid for MANual
MANUal : [1:256], [181.692 : 237.930]

Description of the functions

DEFault	Re-establishes the default configuration.
PORt?	Asks the port number (for 81OSA modules with several input ports)
PORt	Specifies the port number (for 81OSA modules with several input ports) **Parameters:** Port to be selected (Keyword)
BANde	Asks the acquisition band (for 81-PMDWDM-3 plug-in)
BANde	Selects the acquisition band (for 81-PMDWDM-3 plug-in) **Parameters:** Band to be selected (Keyword)
SEAcq?	Asks the start and end of acquisition
SEAcq	Determines the start and end of acquisition **Parameters:** Band to be selected (Keyword)

MSAcq?	Asks start of acquisition in manual
MSAcq	Determines the start of acquisition in manual **Parameters: Value (Thz)**
MEAcq?	Asks end of acquisition in manual
MEAcq	Determines the end of acquisition in manual **Parameters: Value (Thz)**
MCAcq?	Asks to center manual acquisition
MCAcq	Determines the center of manual acquisition **Parameters: Value (Thz)**
MSPAcq?	Asks the span for manual acquisition
MSPAcq	Determines the span for manual acquisition **Parameters: Value (Thz)**
MODe?	Asks the number of acquisitions used for the statistics
MODe	Determines the number of acquisitions used for the statistics -1 = Filter (drop) 0 = continuous mode 1 = single mode (single acquisition) 2 to 1000: statistic mode (indicates the number of acquisitions)
LTM?	Asks if the longterm monitoring mode is to be used
LTM	Determines the longterm monitoring mode **Parameters:** Answer Yes/NoHSEns?Asks whether High Sensitivity gain
HSEns?	Asks whether High Sensitivity gain
HSEns	Determines whether High Sensitivity gain **Parameters:** Answer Yes/No or Auto mode (keyword)

DROP

:SOURce?	Asks the source of the filter (drop)
:SOURce	Determines the source of the filter (drop) **Parameters:** Source from the table or manual (keyword)
:FREQuency?	Asks the frequency of the filter (drop)
:FREQuency	Determines the frequency of the filter (drop) **Parameters:** Frequency in THz NB: 181.692 THz = 1650 nm, 237.93 THz = 1260 nm
:TRACking?	Asks if the tracking must be performed on the filter
:TRACking	Determines whether tracking must be performed on the filter (the filter follows the peak even if the frequency moves, within certain limits) **Parameters:** Answer Yes/No (Keyword)

:STATus?	Asks to the drop status
:STATus	Returns to the drop status and description
	Parameters: Status: On, Off, settling, locked, OutRange
AVG?	Asks averaging
AVG	Determines averaging
	Parameters: Averaging mode (Keyword)
RESO?	Asks resolution
RESO	Determines resolution
	Parameters: Resolution (Keyword)
LONGterm?	Asks the interval between two acquisitions
LONGterm	Interval between two acquisitions
	0 = No wait
	1 = Manual wait
	2 to 86400 = Fixed waiting period (in seconds)
	Parameters: Waiting time (in s)
DETection?	Asks the mode of detection of channels
DETection	Determines the mode of detection of channels
	Parameters: Mode of detection (Keyword)
STH?	Asks the threshold of presence of the signal in the table of measurements
STH	Threshold of presence of the signal in the table of measurements. Auto threshold = -80 dBm
	Parameters: Threshold (in dBm)
SNI?	Asks the peak to noise distance, from the point serving as reference for noise.
SNI	Peak to noise distance, from the point serving as reference for noise.
	Parameters: Distance (Keyword)
SNUSeri?	Asks the distance from the peak (see SNI), asks the manual value if MANual for SNI.
SNUSeri	Distance from the peak (see SNI), fixes the manual value if MANual for SNI.
	Parameters: Distance (in GHz)
SNM?	Asks the method used for measurement of noise level
SNM	Determines the method used for measurement of noise level
	Parameters: Method to be used (Keyword)
SNTYpe?	Asks the type of noise level
SNTYpe	Determines the type of noise level

	Parameters: Type of noise (Keyword)
NBAnd?	Asks the bandwidth to consider for measurement of noise level
NBAnd	Determines the bandwidth to consider for measurement of noise level
	Parameters: Bandwidth (pm)
SPLitter?	Asks the attenuation value of the coupler
SPLitter	Determines the attenuation value of the coupler
	Parameters: Attenuation value (in %)
	100% = no coupler
USPLitter?	Asks the unit to use for the attenuation value of the coupler
USPLitter	Determines the unit used for the attenuation value of the coupler
	Parameters: Unit (keyword)
UNIt?	Asks the unit to use for spectrum measurements
UNIt	Determines the unit to be used for spectrum measurements
	Parameters: Unit (keyword)
SEScreen?	Asks the start and the end of the screen display
SEScreen	Determines the start and the end of the screen display
	Parameters: Band to be used (keyword)
	If the MANual option is used (manual mode), the commands below can then be used
MSScreen?	Asks the start of the screen display in manual mode
MSScreen	Determines the start of the screen display in manual mode
	Parameters: Value (THz)
MEScreen?	Asks the end of the screen display in manual mode
MEScreen	Determines the end of the screen display in manual mode
	Parameters: Value (THz)
MCScreen?	Asks the centre of the screen display in manual mode
MCScreen	Determines the centre of the screen display in manual mode
	Parameters: Value (THz)
MSPScreen?	Asks the span of the screen display in manual mode
MSPScreen	Determines the span of the screen display in manual mode
	Parameters: Value (THz)
DTIltslope?	Asks the display of tilt and slope
DTIltslope	Determines the display of tilt and slope
	Parameters: Answer Yes/No (keyword)
DREMarks?	Asks the display of notes in the table of measurements
DREMarks	Determines the display of notes in the table of measurements

Parameters: Answer Yes/No (keyword)

DTABle

:TYPE? Asks the type of measurements done

:TYPE Determines the type of measurements done

Parameters: Type of measurement (keyword)

EDFA: optical amplifier test application

WDM: standard WDM test with out-of-band OSNR

DFB: DFB laser qualification

ISNR: WDM test with in-band OSNR (only available for OSA-320)

:ISNR

SWEep?: Asks the sweep mode (only available for OSA-320)

SWEep: Determines the sweep mode (only available for OSA-320)

Parameters : Mode (keyword) -

LOW: Low mode

MEDium: medium mode

HIGH: high sensitivity mode

TRACe?: Asks if the IOSNR trace must be shown

TRACe: Determines if the IOSNR trace must be shown

Parameters : Answer Yes/No

:DFB

LEVel?: Asks the bandwidth measurement level

LEVel Determines the bandwidth measurement level

Parameters : Value (dB)

MIN? Asks the minimum distance for SMSR

MIN Determines the minimum distance for SMSR

Paramètres : Value (GHz)

MAX? Asks the maximum distance for SMSR

MAX Determines the maximum distance for SMSR

Parameters : Value (GHz)

TABle

:DISPlay? Asks wether notes are displayed in table

:DISPlay Determines wether notes are displayed in results tables

Parameters: Answer Yes / No (keyword)

:ATYPe? Asks wether auto type must be selected

:ATYPe Determines wether auto type must be selected

Parameters: Type of table (keyword)

GRID

:TYPe Determines the type of detection grid

Parameters: Type of grid (keyword)

GRID:ITUCwdm

:NAME? Asks the name of the detection grid

:NAME Determines the name of the detection grid

Parameters: Name of the grid

:FIRst? Asks the value of the first channel of the ITU grid

:FIRst Determines the value of the first channel of the ITU grid

Parameters: Value of the first channel (keyword corresponding to a wavelength)

:CNUmber? Asks the number of channels

:CNUmber Determines the number of channels

Parameters: Number of channels

GRID:ITUCwdm:CSETlings

:IDBand? Asks the identification of the band

Parameters: Channel number

IDBand Determines the name of the band

Parameters: Channel number, name of band

:IDCHannel? Asks the name of the channel

Parameters: Channel number

:IDCHannel Determines the name of the channel

Parameters: Channel number, name of channel

:OFFSetchannel? Asks the max. value of the offset of a channel

Parameters: Channel number

:OFFSetchannel Determines the max. value of the offset of a channel

Parameters: Channel number, value of the offset (THz)

:MINChannelpower? Asks the minimum power of a channel

Parameters: Channel number

:MINChannelpower Determines the minimum power of a channel

Parameters: Channel number, value (dBm)

:MAXChannelpower? Asks the maximum power of a channel

Parameters: Channel number

:MAXChannelpower Determines the maximum power of a channel

Parameters: Channel number, value (dBm)

:OSNRmin? Asks the minimum value of the signal to noise ratio

Parameters: Channel number

:OSNRmin Determines the minimum value of the signal to noise ratio

Parameters: Channel number, value

ITUDwdm

:NAME? Asks the name of the detection grid

:NAME Determines the name of the detection grid

Parameters: Name of the grid

:FIRst? Asks the value of the first channel of the ITU grid

:FIRst Determines the value of the first channel of the ITU grid

Parameters: Value of the first channel (expressed in THz))

:CNUmber? Asks the number of channels

:CNUmber Determines the number of channels

Parameters: Number of channels

:SPAcing? Asks the spacing between channels

:SPAcing Determines the spacing between channels

Parameters: Spacing (keyword)

:CORder? Asks channels order (ascending or descending order)

:CORder Determines channels order (ascending or descending order)

Paramètres : Order (keyword)

ITUDwdm:CSETIings

:IDBand? Asks for the identification of the band

Parameters: Channel number

:IDBand Determines the name of the band

Parameters: Channel number, name of band

:IDCHannel? Asks the name of the channel

Parameters: Channel number

:IDCHannel Determines the name of the channel

Parameters: Channel number, name of channel

:OFFSetchannel? Asks the max. value of the offset of a channel

Parameters: Channel number

:OFFSetchannel Determines the max. value of the offset of a channel

Parameters: Channel number, value of the offset (THz)

:MINChannelpower? Asks the minimum power of a channel

Parameters: Channel number

:MINChannelpower Determines the minimum power of a channel

Parameters: Channel number, value (dBm)

:MAXChannelpower? Asks the maximum power of a channel

Parameters: Channel number

:MAXChannelpower Determines the maximum power of a channel

Parameters: Channel number, value (dBm)

:OSNRmin? Asks the minimum value of the signal to noise ratio

Parameters: Channel number

:OSNRmin Determines the minimum value of the signal to noise ratio

Parameters: Channel number, value

REGular

:NAME? Asks the name of the detection grid

:NAME Determines the name of the detection grid

Parameters: Name of the grid

:FIRst? Asks the value of the first channel of the regular grid

:FIRst Determines the value of the first channel of the regular grid

Parameters: Value of the first channel (THz)

:CNUmber? Asks the number of channels

:CNUmber Determines the number of channels

Parameters: Number of channels

:CORder? Asks the channels order (ascending or descending order)

:CORder Determines channels order (ascending or descending order)

Paramètres : Order (keyword)

:SPAcing? Asks the spacing between channels

:SPAcing Determines the spacing between channels
Parameters: Spacing (GHz)

REGular:CSETlings

:IDBand? Asks the identification of the band
Parameters: Channel number
:IDBand Determines the name of the band
Parameters: Channel number, name of band
:IDCHannel? Asks the name of the channel
Parameters: Channel number
:IDCHannel Determines the name of the channel
Parameters: Channel number, name of channel
:OFFSetchannel? Asks the max. value of the offset of a channel
Parameters: Channel number
:OFFSetchannel Determines the max. value of the offset of a channel
Parameters: Channel number, offset value (THz)
:MINChannelpower? Asks the minimum power of a channel
Parameters: Channel number
:MINChannelpower Determines the minimum power of a channel
Parameters: Channel number, value (dBm)
:MAXChannelpower? Asks the maximum power of a channel
Parameters: Channel number
:MAXChannelpower Determines the maximum power of a channel
Parameters: Channel number, value (dBm)
:OSNRmin? Asks the minimum value of the signal to noise ratio
Parameters: Channel number
:OSNRmin Determines the minimum value of the signal to noise ratio
Parameters: Channel number, value

MANual

:NAME? Asks the name of the detection grid
:NAME Determines the name of the detection grid
Parameters: Name of the grid
:CNUmber? Asks the number of channels
:CNUmber Determines the number of channels

Parameters: Number of channels

MANual:CSETlings

:VALue?	Asks the frequency of the grid channel	
	Parameters: Channel number	
	:VALue	Determines the frequency of the grid channel
	Parameters: Channel number, Frequency value (THz)	
:IDBand?	Asks the identification of the band	
	Parameters: Channel number	
	:IDBand	Determines the name of the band
	Parameters: Channel number, name of band	
	:IDCHannel?	Asks the name of the channel
	Parameters: Channel number	
	:IDCHannel	Determines the name of the channel
	Parameters: Channel number, name of channel	
:OFFSetchannel?	Asks the max. value of the offset of a channel	
	Parameters: Channel number	
:OFFSetchannel	Determines the max. value of the offset of a channel	
		Parameters: Channel number, offset value (THz)
:MINChannelpower?	Asks the minimum power of a channel	
	Parameters: Channel number	
:MINChannelpower	Determines the minimum power of a channel	
		Parameters: Channel number, value (dBm)
:MAXChannelpower?	Asks the maximum power of a channel	
	Parameters: Channel number	
:MAXChannelpower	Determines the maximum power of a channel	
		Parameters: Channel number, value (dBm)
:OSNRmin?	Asks the minimum value of the signal to noise ratio	
	Parameters: Channel number	
:OSNRmin	Determines the minimum value of the signal to noise ratio	
	Parameters: Channel number, value	

ALArm

:SELect?	Asks if all the alarms are selected
:SELect	Indicates whether all the alarms are selected
	Parameters: Answer Yes/No (keyword)

:NUMBerchannels?	Asks if alarm is activated as a function of the number of channels
:NUMBerchannels	Indicates whether alarm is activated as a function of the number of channels **Parameters:** Answer Yes/No (keyword)
:OFFSetchannel?	Asks if the alarm is activated as a function of the max. offset of a channel
:OFFSetchannel	Indicates whether alarm is activated as a function of the max. offset of a channel **Parameters:** Answer Yes/No (keyword)
:OTYPe?	Asks the channel offset type
:OTYPe	Indicates the channel offset type **Parameters:** Offset type (keyword)
:MINChannelpower?	Asks whether alarm is activated as a function of the min. power of a channel
:MINChannelpower	Indicates whether alarm is activated as a function of the min. power of a channel **Parameters:** Answer Yes/No (keyword)
:MAXChannelpower?	Asks if the alarm is activated as a function of the max. power of a channel
:MAXChannelpower	Indicates whether alarm is activated as a function of the max. power of a channel **Parameters:** Answer Yes/No (keyword)
:OSNRmin?	Asks if the alarm is activated as a function of the minimum signal to noise ratio
:OSNRmin	Indicates whether alarm is activated as a function of the minimum signal to noise ratio **Parameters:** Answer Yes/No (keyword)
:DPOWerchannel?	Asks the alarm threshold of the delta of power between channels
:DPOWerchannel	Determines the alarm threshold of the delta of power between channels **Parameters:** Value (dB)
:DOSNr?	Asks the alarm threshold of the delta of the signal to noise ratio between channels.
:DOSNr	Determines the alarm threshold of the delta of the signal to noise ratio between channels. **Parameters:** Value (dB)
:COMPositepower?	Asks the alarm threshold for the composite power
:COMPositepower	Determines the alarm threshold for the composite power **Parameters:** Value (dBm)

Description of the keywords

High sensitivity gain:

– NO : No commutation of the high Sensitivity gain.
– YES: Commutation of the high Sensitivity gain.
– AUTO: Automatic detection of power range.

Status of the filter (drop)

– ON: Filter activated
– OFF: Filter deactivated
– SETTling: In course of stabilization
– LOCKed: Locked (if tracking)
– OUTRange: Outside pass band

Averaging

– NO: No averaging
– LOW: Low averaging
– MEDium: Medium averaging
– HIGH: High averaging (reduction of the noise level to 5 dB)

Detection

– GRID: Channels detection according to the grid
– PERmanent: Continuous detection of all channels

Resolution

– FULL: Maximum resolution of the filter (<0,1 nm)
– R01nm...R05 nm: 0,1 / 0,2 / 0,3 / 04 or 0,5 nm
– R1Nm,R2Nm, R5Nm: 1 / 2 / 5 nm (for the modules OSA-XXX only)

SNI (signal to noise distance)

– AUTO: Distance chosen by the instrument
– MANual: Distance selected manually
– I25ghz, I50ghz, I100ghz: 25, 50 or 100 GHz from the peak

SNM (method of noise calculation)

– LEFT: Uses the left-hand part of the spectrum
– RIGHt: Uses the right-hand part of the spectrum

– BOTH: Uses the left-hand part and the right-hand part of the spectrum

PORT (acquisition port)

– A: acquisition on port A
– B: acquisition on port B
– BOTH: acquisition on both ports

BAND (acquisition band) (exclusively for 81WDMPMD plug-in)

– SCL: acquisition on SCL band (1485 - 1640 nm)
– FULL: acquisition on the whole band (1260 - 1640 nm)

Type of measurement (DTABle: TYPE)

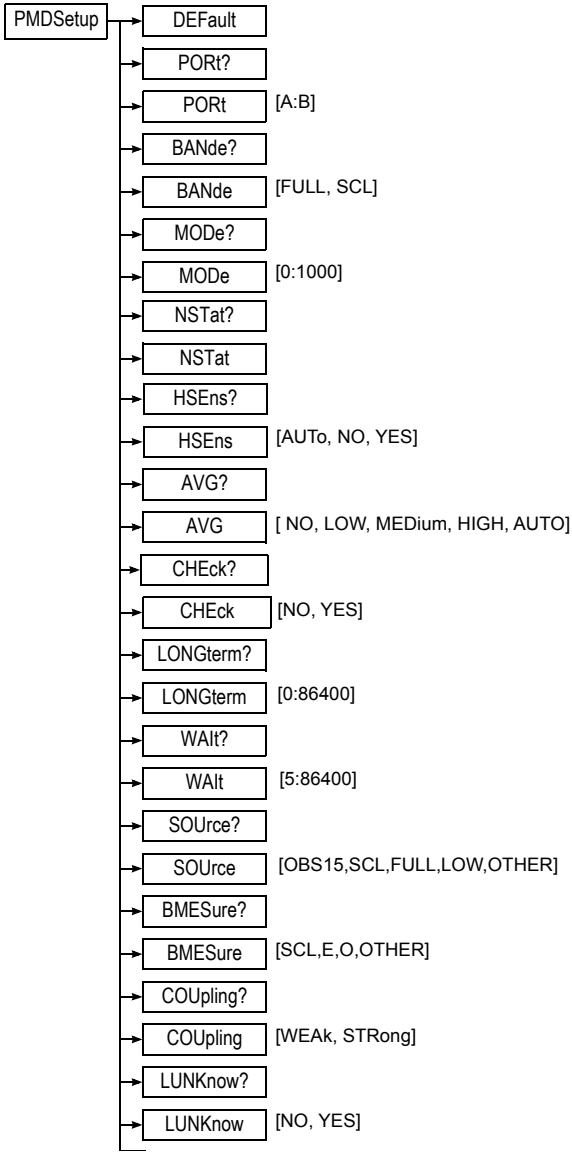
– WDM: WDM measurement /
– EDFA: EDFA measurement
– DFB: DFB measurement

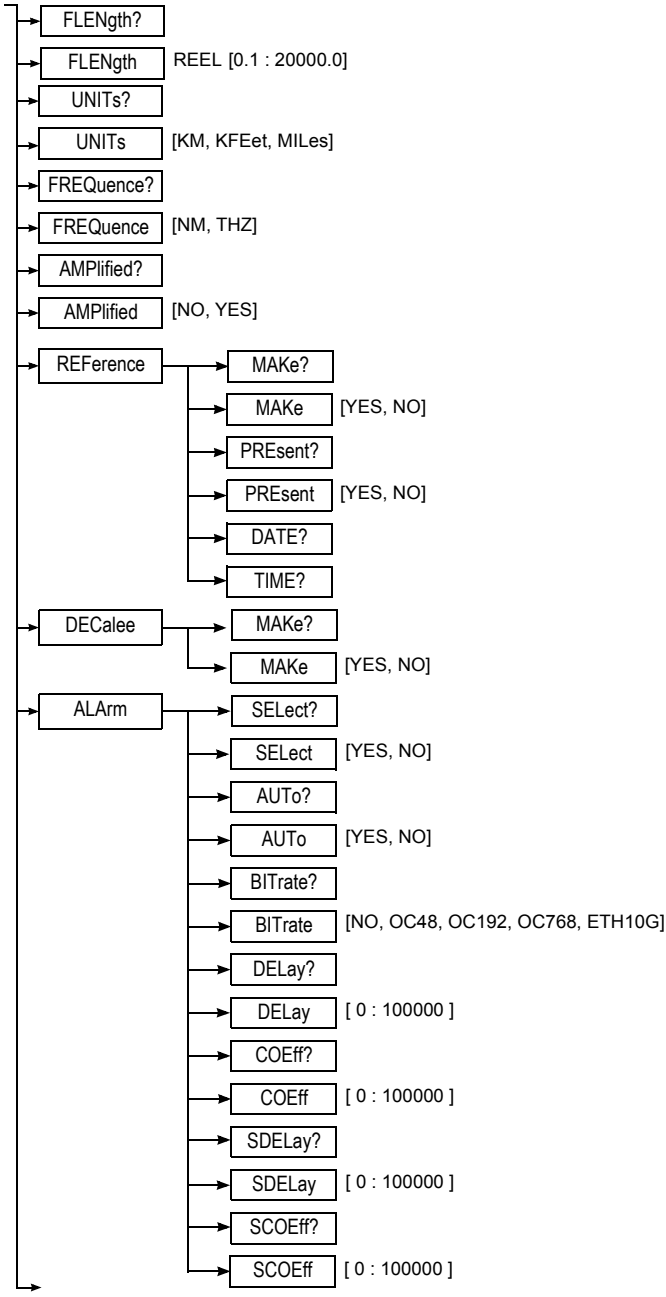
CORder (Grid order)

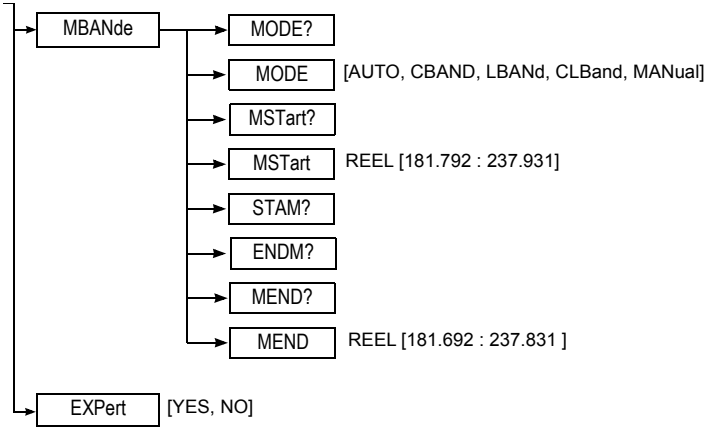
– ASC: ascending order
– DESC: descending order

Configuration of the PMD module

Command Format


PMDSetup
DEFault
PORt?
PORt
[A:B]
BANde?
BANde
[FULL, SCL]
MODe?
MODe
[0:1000]
NSTat?
NSTat
HSEns?
HSEns
[AUTo, NO, YES]
AVG?
AVG
[NO, LOW, MEDium, HIGH, AUTO]
CHEck?
CHEck
[NO, YES]
LONGterm?
LONGterm
[0:86400]
WAIt?
WAIt
[5:86400]
SOUrce?
SOUrce
[OBS15,SCL,FULL,LOW,OTHER]
BMESure?
BMESure
[SCL,E,O,OTHER]
COUpling?
COUpling
[WEAk, STRong]
LUNKnow?
LUNKnow
[NO, YES]


FLENgth?
FLENgth
REEL [0.1 : 20000.0]
UNITs?
UNITs
[KM, KFEet, MILes]
FREQuence?
FREQuence
[NM, THZ]
AMPlified?
AMPlified
[NO, YES]
REFerence
MAKe?
MAKe
[YES, NO]
PREsent?
PREsent
[YES, NO]
DATE?
TIME?
DECalee
MAKe?
MAKe
[YES, NO]
ALArm
SELect?
SELect
[YES, NO]
AUTo?
AUTo
[YES, NO]
BITrate?
BITrate
[NO, OC48, OC192, OC768, ETH10G]
DELay?
DELay
[0 : 100000]
COEff?
COEff
[0 : 100000]
SDELay?
SDELay
[0 : 100000]
SCOEff?
SCOEff
[0 : 100000]



Description of the functions

DEFault	Determines the default configuration (Auto Mode by default). **Parameters:** None
PORt?	Asks the port number (for 81OSA modules with several input ports)
PORt	Specifies the port number (for 81OSA modules with several input ports) **Parameters:** Port to be selected (Keyword)
BANde?	Asks the acquisition band (for 81-PMDWDM-3 plug-in)
BANde	Selects the acquisition band (for 81-PMDWDM-3 plug-in) **Parameters:** Band to be selected (Keyword)
MODe?	Asks the number of acquisitions used for statistics:
MODe	Number of acquisitions used for statistics: **Parameters:** Number of acquisitions 0 = continuous acquisition 1 = a single acquisition 2 to 100: number of acquisitions
HSEns?	Asks if High sensitivity gain is to be used
HSEns	Determines if High sensitivity gain is to be used **Parameters:** Answer Yes/No (keyword) or AUTO mode
AVG?	Asks the Averaging type
AVG	Averaging **Parameters:** Type of averaging (keyword)
CHEck?	Asks if the power must be checked

CHEck	Power check
	Parameters: Answer Yes/No (keyword)
LONGterm?	Asks the waiting time between 2 acquisitions
LONGterm	Waiting time between 2 acquisitions
	Parameters: Time (expressed in s)
	0 = No waiting time
	1 = Manual waiting time
	2 to 86400 = fixed waiting time (in seconds)
WAIt?	Asks the wait period
WAIt	Wait period between 2 acquisitions
	Parameters: Time (expressed in s)
SOUrce?	Asks the source used
SOUrce	Determines the source used for acquisition
	Parameters: source Mode (keyword)
BMESure?	Asks the measurement band
BMESure	Determines the measurement band
	Parameters: Band (keyword)
COUpling?	Asks the coupling mode
COUpling	Coupling
	Parameters: Mode of coupling (Keyword)
LUNKnow?	Asks wether the fiber length is known
LUNKnow	Determines wether the fiber length is known
	Parameters: Answer Yes/No (Keyword)
FLENgth?	Asks the length of the fiber
FLENgth	Length of the fiber
	Parameters: Length (expressed in the unit chosen in UNITs)
UNIts?	Asks the unit of measurement of distances and lengths
UNIts	Unit of measurement of distances and lengths
	Parameters: Unit (keyword)
FREQuence	Unit of measurement of frequency
	Parameters: Unit (keyword)
AMPlified?	Ask wehter an amplified network is used
AMPlified	Determines wether an amplified network is used
	Parameters: Answer Yes/No (keyword)

REFerence (only with the 507xWDMPMD and 81OSAxxx plug-ins)

:MAKe	Make reference
	Parameters: Answer Yes/No (keyword)
:PREsent?	Reference valid (useful for saving the config.)
	Parameters: Answer Yes/No (keyword)
:DATe?	Asks the date of reference
:TIMe?	Asks the time of reference

DECalee

:MAKe?	Ask wether a low PMD reference is performed
:Make	Determines wether a low PMD reference is performed
	Parameters: Answer Yes/No (keyword)

ALArm

:SELect?	Asks if all the alarms must be selected
:SELect	Selects all the alarms
	Parameters: Answer Yes/No (keyword)
:AUTo?	Asks if the alarms are detected in automatic mode
:AUTo	Determines the alarms in automatic mode
	Parameters: Answer Yes/No (keyword)
:BITrate?	Asks if the alarm must be set as a function of the bit rate of the fiber
:BITrate	Alarm as a function of the bit rate of the fiber
	Parameters: Answer (keyword)
:DELay?	Asks the alarm threshold concerning the delay (max. delay before alarm)
:DELay	Determines the alarm threshold concerning the delay (max. delay before alarm)
	Parameters: Delay (in fs). 0 = no threshold
:COEff ?	Asks the alarm threshold on the coefficient
:COEff	Determines the alarm threshold on the coefficient
	Parameters: Delay (in fs). 0 = no threshold
:SDELay?	Asks the alarm threshold concerning the delay of the second order
:SDELay	Determines the alarm threshold concerning the delay of the second order (max.delay before alarm)
	Parameters: Delay (in fs). 0 = no threshold

:SCOEff?	Asks the alarm threshold on the coefficient of the second order
:SCOEff	Determines the alarm threshold on the coefficient of the second order
	Parameters: Delay (in fs). 0 = no threshold

MBANde

:MODE?	Asks the band to be selected
:MODE	Selection of the band
	Parameter : Type of band (keyword)
:MSTart?	Asks fot the start of the manual measurement
:MSTart	Start of the manual measurement
	Parameter : Value (THz)
:STAM?	Start of the measurement
:ENDM?	End of the measurement
:MEND?	Asks for the end of the manual measurement
:MEND	End of the manual measurement
	Parameter Value (THz)

EXPert

EXPert	Expert Menu active
	Parameter : **Answer Yes/No (**keyword**)**

Description of the keywords

Port (Acquisition Port)

- A: acquisition on port A
- B: acquisition on port B

Averaging

- NO: No averaging.
- LOW: Low averaging (on 4 samples)
- MEDium: Medium averaging (on 16 samples)
- HIGH: High averaging (on 32 samples)
- AUTO: High or low averaging is automatically detected while the reference is being made.

Units

- KM: Kilometers

– KFEet: Kilofeet
– MILes: Miles

Frequency

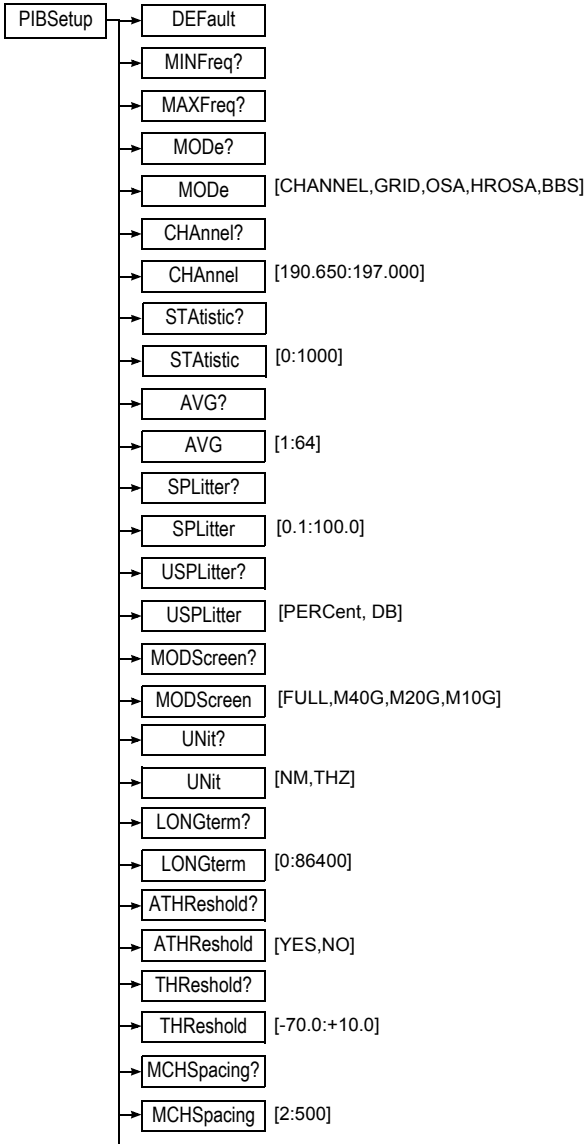
– NM: nanometers
– THZ: Thz

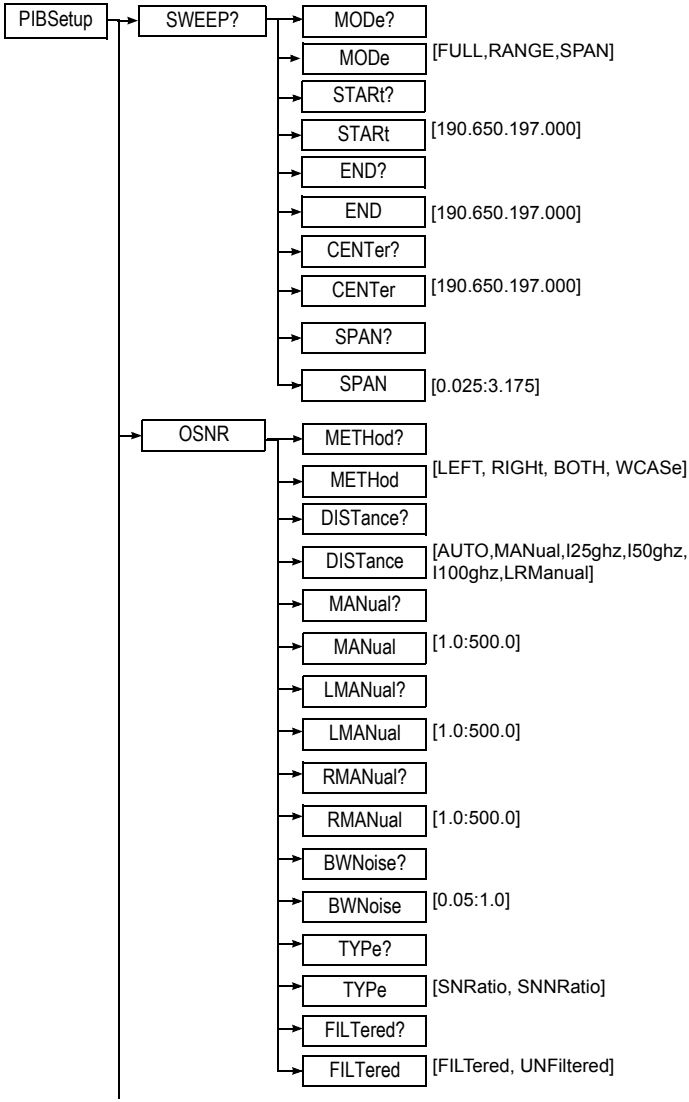
Acquisition Band (exclusively with 81WDMPMD plug-in)

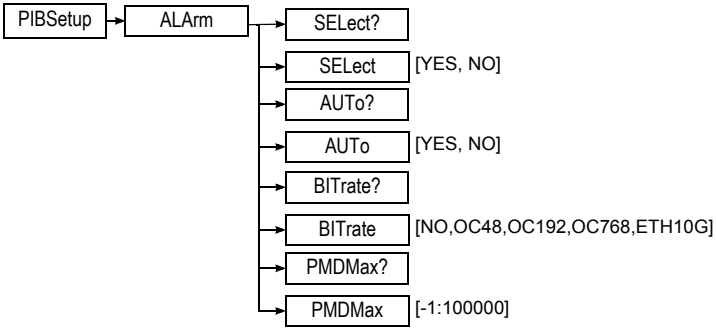
– SCL: Acquisition on SCL band (1485 - 1640 nm)
– FULL: acquisition on the whole band (1260 - 1640 nm)

Configuration of the I-PMD module

Command Format




PIBSetup
SWEEP?
MODe?
MODe
[FULL,RANGE,SPAN]
STARt?
STARt
[190.650.197.000]
END?
END
[190.650.197.000]
CENTer?
CENTer
[190.650.197.000]
SPAN?
SPAN
[0.025:3.175]
OSNR
METHod?
METHod
[LEFT, RIGHt, BOTH, WCASe]
DISTance?
DISTance
[AUTO,MANual,I25ghz,I50ghz,
I100ghz,LRManual]
MANual?
MANual
[1.0:500.0]
LMANual?
LMANual
[1.0:500.0]
RMANual?
RMANual
[1.0:500.0]
BWNoise?
BWNoise
[0.05:1.0]
TYPe?
TYPe
[SNRatio, SNNRatio]
FILTered?
FILTered
[FILTered, UNFiltered]



Description of the functions

DEFault	Test AUTO
MINFreq	Asks the Minimum frequency managed by the module (GHz)
MAXFreq	Asks the Maximum frequency managed by the module (GHz)
MODe?	Asks the acquisition mode
MODe	Determines the acquisition mode
	Parameters: Keyword
CHAnnel?	Asks the channel frequency in CHANNEL mode
CHAnnel	Determines the channel frequency in CHANNEL mode
	Parameters: Value (THz)
STAtistic?	Asks the number of statistics to be performed
STAtistic	Determines the number of statistics to be performed
	Parameters; number of statistics (Min: 0 / Max: 1000 / No: 1)
	0: Continuous mode / 1: Single mode / 2:1000: Number of statistics
AVG?	Asks the number of averagings
AVG	Determines the number of averagings
	Parameters: number of averagings (No: 1 / Min Avg: 2 / Max Avg: 64))
SPLitter?	Asks the value of the splitter attenuation
SPLItter	Determines the value of the splitter attenuation
	Parameters: value in % (No splitter: 100.0 / Min. attenuation: 0.1)
USPLitter?	Asks the unit for value of the splitter attenuation
USPLitter	Determines the unit for value of the splitter attenuation
	Parameters: Keyword
MODScreen?	Asks the wavelength range displayed on screen
MODScreen	Determines the wavelength range displayed on screen

	Parameters: Keyword
UNit?	Asks the measurement unit on X axis
UNit	Determines the measurement unit on X axis
	Parameters: keyword
LONGterm?	Asks the interval between 2 scans
LONGterm	Determines the interval between 2 scans
	Parameters: Waiting time (0: No wait / 30 sec: Min wait / 86400 sec: max wait)
ATHReshold?	Asks if the auto detection threshold must be defined in HR OSA
ATHReshold	Determines if the auto detection threshold must be defined in HR OSA
	Parameters: Answer Yes/No (Keyword)
THReshold?	Asks the detection threshold for HR OSA mode
THReshold	Determines the detection threshold for HR OSA mode in dBm
	Parameters: Value
MCHSpacing?	Asks the minimum channel spacing for HR OSA mode
MCHSpacing	Determines the minimum channel spacing for HR OSA mode
	Parameters: Value in GHz

SWEEP

:MODe?	Asks for the sweep mode
:MODe	Determines the sweep mode
	Parameters: Keyword
:STARt?	Asks for the start frequency (Range mode)
:STARt	Determines the start frequency
	Parameters: Value in THz
:END?	Asks for the end frequency (Range mode)
:END	Determines the end frequency
	Parameters: Value in THz
:CENTer?	Asks for the center frequency (Span mode)
:CENTer	Determines the center frequency
	Parameters: Value in THz
:SPAN?	Asks for the span frequency (Span mode)
:SPAN	Determines the span frequency
	Parameters: Value in THz

OSNR

:METHod?	Asks for the OSNR method to be used
:METHod	Determines the OSNR method to be used
	Parameters: Keyword
:DISTance?	Asks for the distance mode
:DISTance	Determine s the distance mode
	Parameters; Keyword
:MANual?	Asks for a manual distance
:MANual	Determines a manual distance
	Parameters: Value in GHz
:LMANual?	Asks for the left distance manual entry
:LMANual	Determines the left distance
	Parameters: Value in GHz
:RMANual?	Asks for the right distance manual entry
:RMANual	Determines the right distance manual entry
	Parameters: Value in GHz
:BWNoise?	Asks for the noise bandwidth measurement
:BWNoise	Determines the noise bandwidth measurement
	Parameters: Value in nm
:TYPe?	Asks for OSNR measurement type
:TYPe	Determines the OSNR measurement type
	Parameters; Keyword
:FILTered?	Asks if the OSNR in-band is filtered or not
:FILTered	Determines if OSNR In-Band is filtered or not
	Parameters: Answer Yes/No (Keyword)

ALArm

:SELect?	Asks for selection of all the alarms
:SELect	Determines if all the alarms are selected
	Parameters; Answer Yes/No (Keyword)
:AUTo?	Asks if automatic alarms must be applied
:AUTo	Determines if all the alarms must be applied
	Parameters: Answer Yes/No (Keyword)
:BITrate?	Asks for the fiber bit rate
:BITrate	Determines the fiber bit rate
	Parameters; Keyword
:PMDMax?	Asks for the maximum alarm threshold on PMD

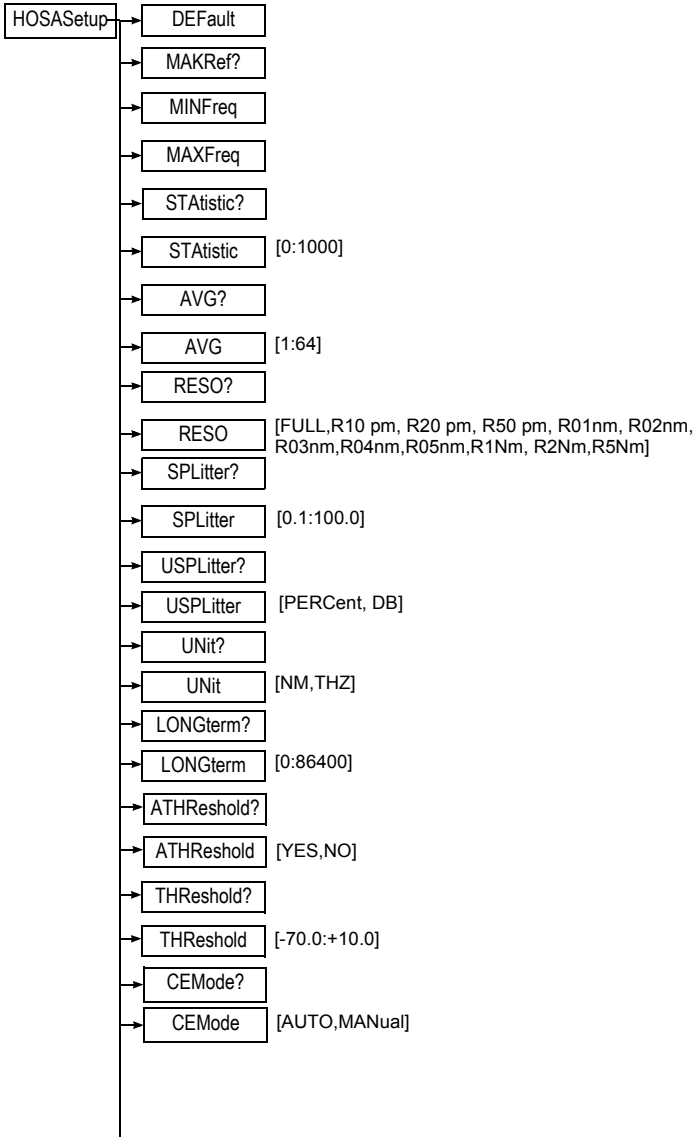
:PMDMax

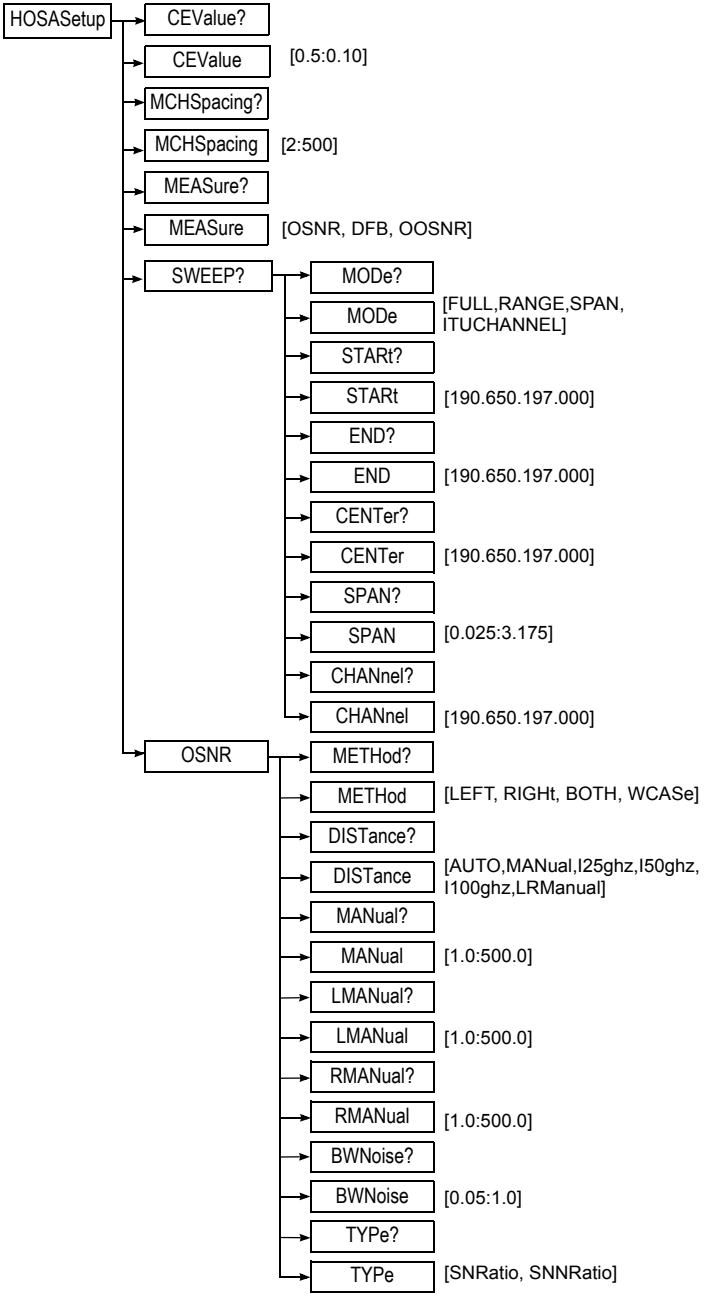
Determines the maximum alarm threshold on PMD

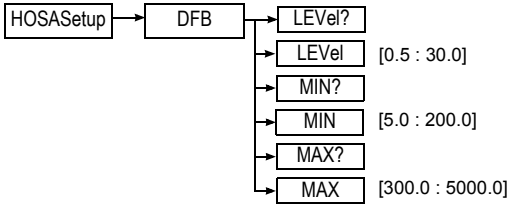
Parameters: Value in fs (-1: no alarm / 100: PMD Min / 100000: PMD Max)

Configuration of the HR-OSA module

Command Format




HOSASetup
CEValue?
CEValue
[0.5:0.10]
MCHSpacing?
MCHSpacing
[2:500]
MEASure?
MEASure
[OSNR, DFB, OOSNR]
SWEEP?
MODe?
MODe
[FULL,RANGE,SPAN, ITUCHANNEL]
STARt?
STARt
[190.650.197.000]
END?
END
[190.650.197.000]
CENTer?
CENTer
[190.650.197.000]
SPAN?
SPAN
[0.025:3.175]
CHANnel?
CHANnel
[190.650.197.000]
OSNR
METHod?
METHod
[LEFT, RIGHt, BOTH, WCASe]
DISTance?
DISTance
[AUTO,MANual,I25ghz,I50ghz, I100ghz,LRManual]
MANual?
MANual
[1.0:500.0]
LMANual?
LMANual
[1.0:500.0]
RMANual?
RMANual
[1.0:500.0]
BWNoise?
BWNoise
[0.05:1.0]
TYPe?
TYPe
[SNRatio, SNNRatio]



Description of the functions

DEFault	Test AUTO
MAKRef	Perform a reference (Zero)
MINFreq	Minimum frequency managed by the module (GHz)
MAXFreq	Maximum frequency managed by the module (GHz)
STAtistic?	Asks the number of statistics to be performed
STAtistic	Determines the number of statistics to be performed
	Parameters; number of statistics (Continuous: 0 / Max: 1000 / No: 1)
AVG?	Asks the number of averagings
AVG	Determines the number of averagings
	Parameters: number of averagings (No: 1 / Min Avg: 2 / Max Avg: 64))
RESO?	Asks the resolution
RESO	Determines the resolution
	Parameters: Keyword
SPLitter?	Asks the value of the splitter attenuation
SPLItter	Determines the value of the splitter attenuation
	Parameters: value in % (No splitter: 100.0 / Min. attenuation: 0.1)
USPLitter?	Asks the unit for value of the splitter attenuation
USPLitter	Determines the unit for value of the splitter attenuation
	Parameters: Keyword
UNit?	Asks the measurement unit on X axis
UNit	Determines the measurement unit on X axis
	Parameters: keyword
LONGterm?	Asks the interval between 2 acquisitions
LONGterm	Determines the interval between 2 acquisitions
	Parameters: Waiting time (0: No wait / 30 sec: Min wait / 86400 sec: max wait)
ATHReshold?	Asks if the auto detection threshold must be defined in HR OSA

ATHReshold	Determines if the auto detection threshold must be defined in HR OSA
	Parameters: Answer Yes/No (Keyword)
THReshold?	Asks the detection threshold for HR OSA
THReshold	Determines the detection threshold for HR OSA in dBm
	Parameters: Value
CEMode?	Asks the Channel Elevation mode
CEMode	Determines the Channel Elevation mode
	Parameters: Auto or Manual (keyword)
CEValue?	Asks the Manual Channel Elevation value
CEValue	Determines the Manual Channel Elevation value
	Parameters: Value in dB
MCHSpacing?	Asks the minimum channel spacing
MCHSpacing	Determines the minimum channel spacing
	Parameters: Value in GHz
MEASure?	Asks for the measurement mode
MEASure	Determines the measurement mode
	Parameters: Keyword

SWEEP

:MODe?	Asks for the sweep mode
:MODe	Determines the sweep mode
	Parameters: Keyword
:STARt?	Asks for the start frequency (Range mode)
:STARt	Determines the start frequency
	Parameters: Value in THz
:END?	Asks for the end frequency (Range mode)
:END	Determines the end frequency
	Parameters: Value in THz
:CENTer?	Asks for the center frequency (Span mode)
:CENTer	Determines the center frequency
	Parameters: Value in THz
:SPAN?	Asks for the span frequency (Span mode)
:SPAN	Determines the span frequency
	Parameters: Value in THz
:CHANnel?	Asks for the ITU channel (ITU mode)
:CHANnel	Determines the ITU channel (ITU mode)

Parameters: Value in THz

OSNR

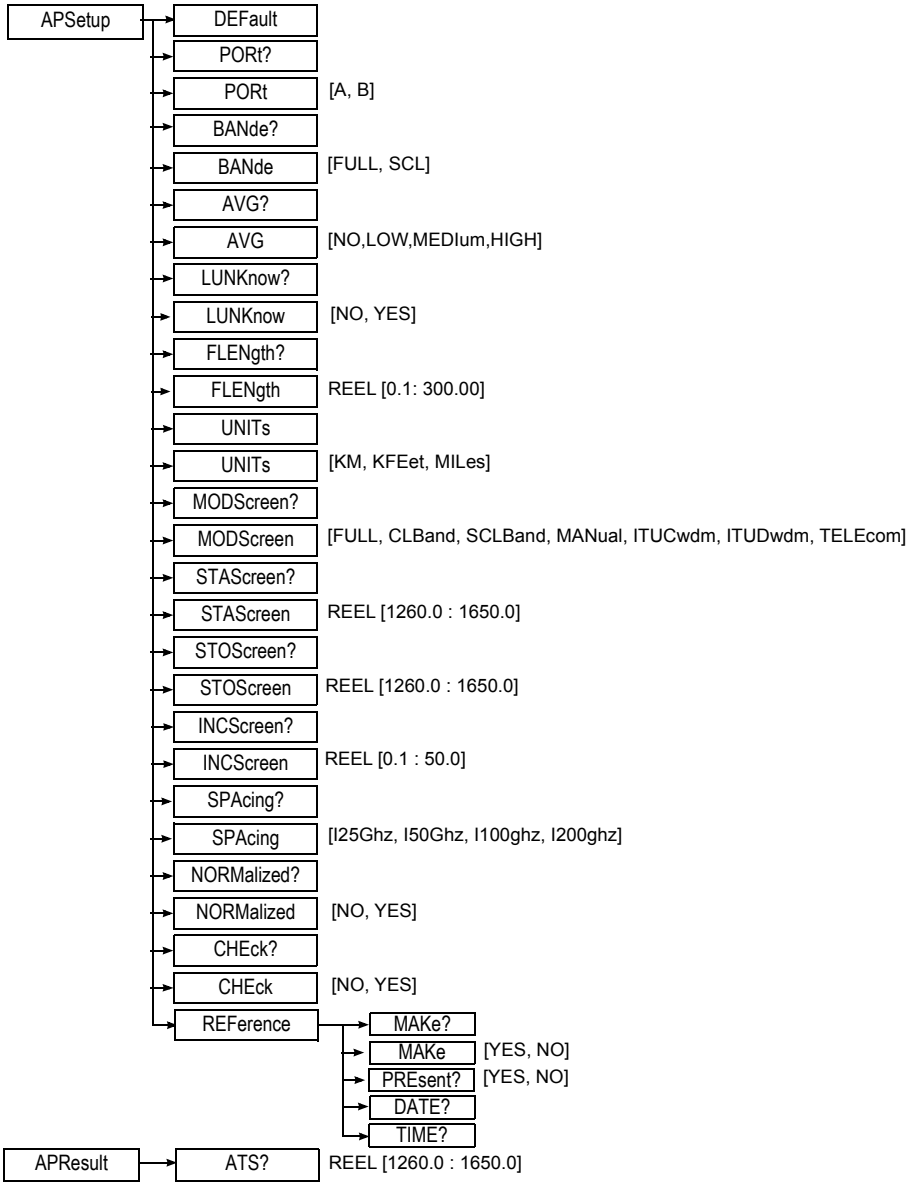
:METHod?	Asks for the OSNR method to be used
:METHod	Determines the OSNR method to be used
	Parameters: Keyword
:DISTance?	Asks for the distance mode
:DISTance	Determine s the distance mode
	Parameters; Keyword
:MANual?	Asks for a manual distance
:MANual	Determines a manual distance
	Parameters: Value in GHz
:LMANual?	Asks for the left distance manual entry
:LMANual	Determines the left distance
	Parameters: Value in GHz
:RMANual?	Asks for the right distance manual entry
:RMANual	Determines the right distance manual entry
	Parameters: Value in GHz
:BWNoise?	Asks for the noise bandwidth measurement
:BWNoise	Determines the noise bandwidth measurement
	Parameters: Value in nm
:TYPe?	Asks for OSNR measurement type
:TYPe	Determines the OSNR measurement type
	Parameters; Keyword

DFB

LEVel?:	Asks the bandwidth measurement level
LEVel	Determines the bandwidth measurement level
	Parameters : Value (dBc)
MIN?	Asks the minimum distance for SMSR
MIN	Determines the minimum distance for SMSR
	Paramètres : Value (GHz)
MAX?	Asks the maximum distance for SMSR
MAX	Determines the maximum distance for SMSR
	Parameters : Value (GHz)

Configuration of the AP module

Command Format



Description of the functions

DEFault	Test AUTO
PORt?	Asks the port to be used
PORt	Selects the port to be used
	Parameters: Port to be selected (Keyword)
BANde?	Asks the acquisition band (for 81-PMDWDM-3 plug-in)
BANde	Selects the acquisition band (for 81-PMDWDM-3 plug-in)
	Parameters: Band to be selected (Keyword)
AVG?	Asks the averaging acquisition mode
AVG	Selects the averaging acquisition
	Parameters: Averaging to be selected (Keyword)
FLENgth?	Asks the length of the fiber
FLENgth	Length of the fiber
	Parameters: Length (expressed in the unit chosen in UNITs)
LUNKnow?	Asks wether the fiber length is known
LUNKnow	Determines wether the fiber length is known
	Parameters: Answer Yes/No (Keyword)
UNIts?	Asks the unit of measurement of distances and lengths to be used
UNIts	Unit of measurement of distances and lengths
	Parameters: Unit (keyword)
MODScreen?	Asks the displaying boundaries
MODScreen	Determines the displaying boundaries
	Parameters: Band to be used (Keyword)
:STAScreen?	Asks the starting boundary when the displaying band is in manual mode
:STAScreen	Starting boundary when the displaying band is in manual mode
	Parameters: Value (nm)
:STOScreen?	Asks the ending boundary when the displaying band is in manual mode
:STOScreen	Ending boundary when the displaying band is in manual mode
	Parameters: Value (nm)
:INCScreen?	Asks the wavelength increment when the displaying band is in manual mode
:INCScreen	Wavelength increment when the displaying band is in manual mode
	Parameters: Value (nm)
:SPACing?	Asks spacing between DWDM channels
:SPACing	Fix spacing between DWDM channels
	Parameters: Value (ghz)
:NORMalized?	Asks the choice of the mode normalized or not normalized to the km

:NORMalized	Choice of the mode normalized or not normalized to the km **Parameters:** Answer Yes/No (Keyword)
:CHEck?	Asks if the power must be checked
:CHEck	Power check **Parameters:** Answer Yes/No (Keyword)

REFerence

:MAKe?	Asks if a reference measurement must be performed
:MAKe	Make reference **Parameters:** Answer Yes/No (keyword)
:PREsent?	Reference valid (useful for saving the config.) **Parameters:** Answer Yes/No (keyword)
:DATe?	Asks the date of reference
:TIMe?	Asks the time of reference

APResult

:ATS?	Value of spectral attenuation for a wavelength **Parameters:** Value

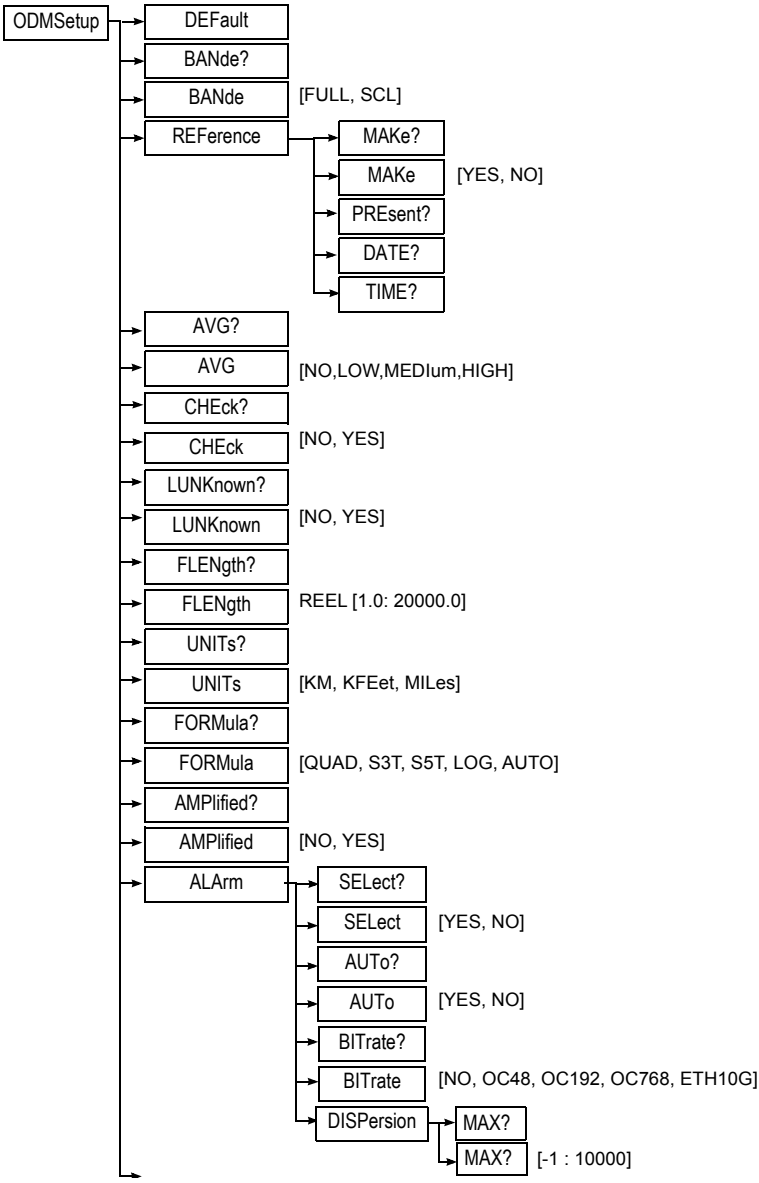
Description of the keywords

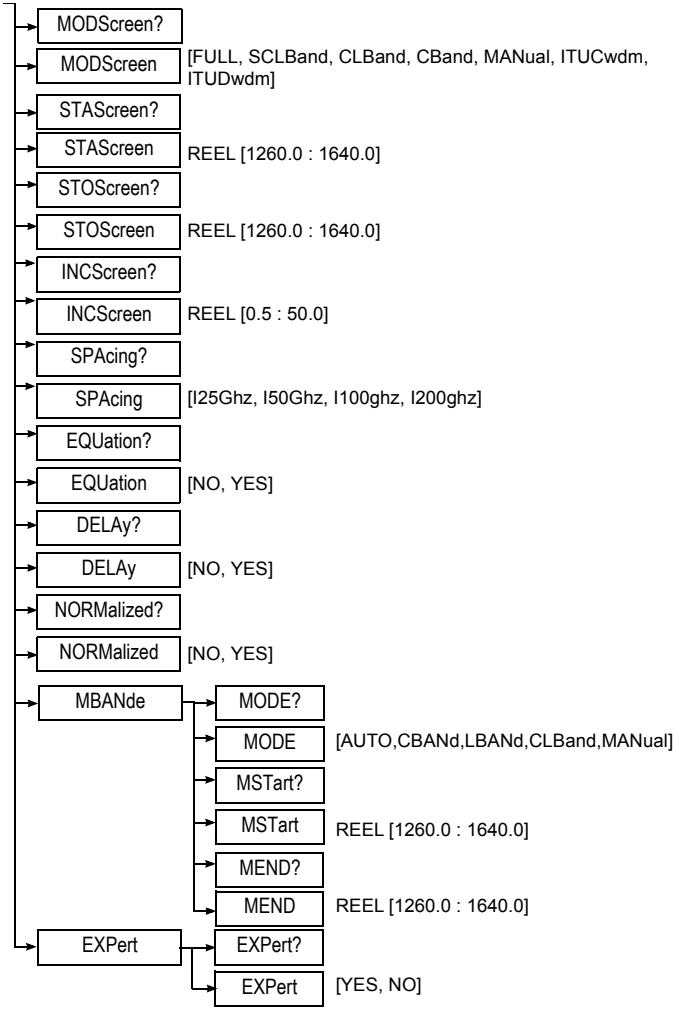
Displaying mode:

- FULL: Displaying of the whole range 1260 - 1640
- CL Band: Displaying of the band C+L exclusively
- SCL Band: Displaying of the band S+C+L exclusively
- MANual: Displaying of the band according the parameters STAScreen, STOScreen and INCScreen
- ITUCwdm: Displaying the ITUCWDM channel exclusively
- ITUDwdm: Displaying the ITU DWDM channel exclusively (Spacing defined by SPACing parameter)
- TELEcom: Displaying Telecom channel exclusively.

Configuration of the ODM Modules

Command Format


ODMSetup
DEFault
BANde?
BANde
[FULL, SCL]
REFerence
MAKe?
MAKe
[YES, NO]
PREsent?
DATE?
TIME?
AVG?
AVG
[NO,LOW,MEDIum,HIGH]
CHEck?
CHEck
[NO, YES]
LUNKnown?
LUNKnown
[NO, YES]
FLENgth?
FLENgth
REEL [1.0: 20000.0]
UNITs?
UNITs
[KM, KFEet, MILes]
FORMula?
FORMula
[QUAD, S3T, S5T, LOG, AUTO]
AMPlified?
AMPlified
[NO, YES]
ALArm
SELect?
SELect
[YES, NO]
AUTo?
AUTo
[YES, NO]
BITrate?
BITrate
[NO, OC48, OC192, OC768, ETH10G]
DISPersion
MAX?
MAX?
[-1 : 10000]



Description of the functions

DEFault	Determines the default configuration
	Parameters : None
BANde?	Asks for the measurement band
BANde?	Determines for the measurement band
	Parameters : Band (keyword)

REFerence

:MAKe?	asks if the reference must be taken
:MAKe	Take a reference
	Parameters : Answer Yes/No (keyword)
:PREsent?	Valid reference
	Parameters : Answer Yes/No (keyword)
:DATe?	Asks the date of reference
:TIMe?	Asks the time of reference
AVG?	Asks the averaging mode
AVG	Selects the averaging acquisition
	Parameters: Averaging to be selected (Keyword)
:CHEck?	Asks if the power must be checked
:CHEck	Power check **Parameters:** Answer Yes/No (Keyword)
LUNKnown?	Asks if the length of the fiber is unknown
LUNKnown	Length of the fiber unknown
	Parameters : Answer Yes/No (keyword)
FLENgth?	Asks if the length of the fiber is known
FLENgth	Length of the fiber
	Parameters: Length (expressed in the unit selected in UNITs)
UNIts?	Asks the measurement units of distances and lengths
UNIts	Measurement units of distances and lengths
	Parameters : Unit (keyword)
FORMula?	Asks the formula of approximation for the delay curve
FORMula	Formula of approximation for the delay curve
	Parameters : formula (keyword)
AMPlified?	Asks wether an amplified network is used
AMPlified	Determines wether an amplified network is used
	Parameters : Answer Yes/No (keyword)

ALArm

:SELect?	Asks the sSelection of all the alarms
:SELect	Selection of all the alarms
	Parameters : Answer Yes/No (keyword)
:AUTo?	Asks to set the Automatic alarm
:AUTo	Automatic alarm

	Parameters : Answer Yes/No (keyword)
:BITrate?	Asks to set the alarm according to the bit rate of fiber
:BITrate	Alarm according to the bit rate of fiber
	Parameters : Answer Yes/No (keyword)
:DISPersion	
	MAX? Asks the maximum alarm threshold on dispersion
	MAX Alarm on dispersion
	Parameters : Value
MODScreen?	Asks the displaying boundaries
MODScreen	Determines the displaying boundaries
	Parameters: Band to be used (keyword)
:STAScreen?	Asks the starting boundary when the displaying band is in manual mode
:STAScreen	Starting boundary when the displaying band is in manual mode
	Parameters: Value (nm)
:STOScreen?	Asks the ending boundary when the displaying band is in manual mode
:STOScreen	Ending boundary when the displaying band is in manual mode
	Parameters: Value (nm)
:INCScreen?	Asks the wavelength increment for measurement table
:INCScreen	Wavelength increment for measurement table
	Parameters: Value (nm)
:SPACing?	Asks the spacing between DWDM channels
:SPACing	Fix spacing between DWDM channels
	Parameters: Value (ghz)
:EQUation?	Asks for the display of the fit equation
:EQUation	Display of the fit equation
	Parameters: Answer No/Yes (keyword)
:DELAy?	Asks for the display of the real delay points
:DELAy	Display of the real delay points
	Parameters: Answer No/Yes (keyword)
:NORMalized?	Asks the choice of the mode normalized or not normalized to the km
:NORMalized	Choice of the mode normalized or not normalized to the km **Parameters:** Answer Yes/No (Keyword)

MBANde

:MODE?	Asks the measurement band selection
:MODE	Determines the measurement band selection

	Parameters: Band selection (Keyword)
:MSTart?	Asks the starting wavelength of the measurement
:MSTart	Determines the starting wavelength
	Parameters:Wavelength
:MEND?	Asks the ending wavelength of the measurement
:MEND	Determines the ending wavelength
	Parameters: Wavelength
:EXPert?	Asks if the expert menu is active
:EXPert	Determines the expert menu activation
	Parameters: Answer Yes/No (keyword)

Description of the keywords

Units:

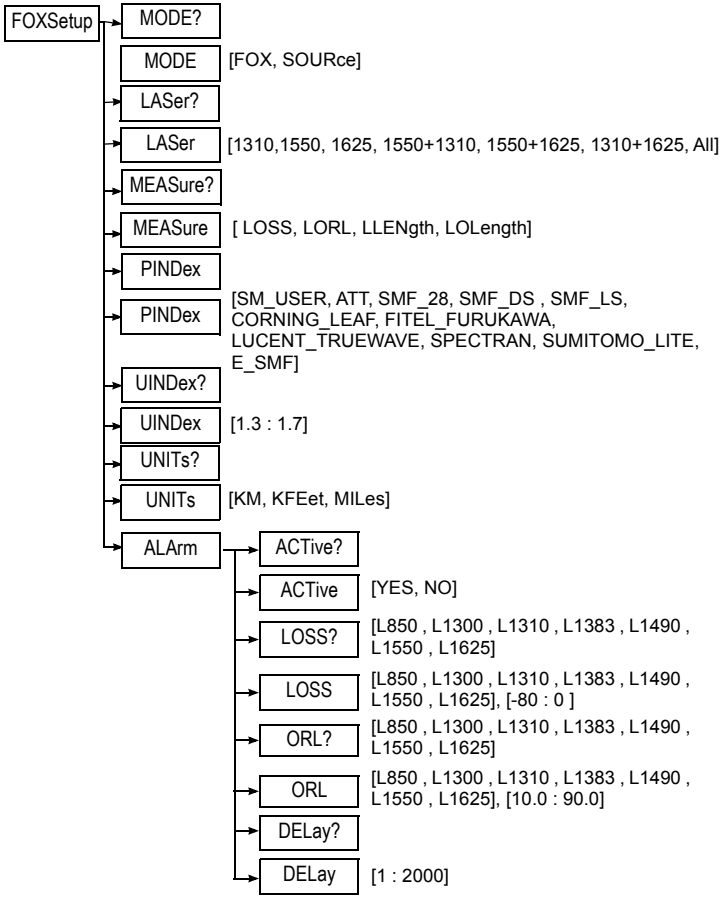
– KM Kilometers / KFEet : Kilofeet / MILes : Miles

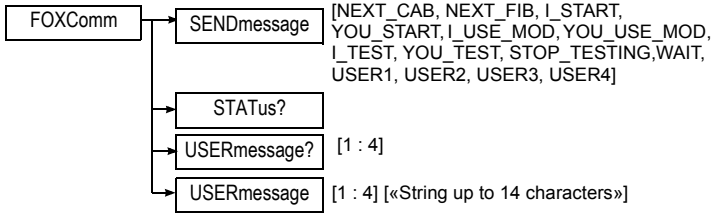
Displaying mode:

– FULL: Displaying of the whole range 1260 - 1640
– CL Band: Displaying of the band C+L exclusively
– SCL Band: Displaying of the band S+C+L exclusively
– MANual: Displaying of the band according the parameters STAScreen, STOScreen and INCScreen
– ITUCwdm: Displaying the ITUCWDM channel exclusively
– ITUDwdm: Displaying the ITU DWDM channel exclusively (Spacing defined by SPACing parameter)

Configuration of FOX function (OFI module)

Command Format





Description of the functions

MODE?	Asks the mode
MODE	Determines the mode
	Parameters: Mode to be selected (keyword)
LASer?	Asks the wavelength of the laser source of the module (this depends on the module installed).
LASer	Determines the wavelength of the laser source of the module (this depends on the module installed). String up to 30 characters.
	Parameters: Wavelength of the laser (keyword)
	All: all the wavelength Format the chain with the separator «+». Ex: «1350+1550».
MEASure?	Asks the measure type to be carried out.
MEASure	Fixes the measure type to be carried out.
	Parameters : measure (keyword)
PINDex?	Asks the predefined index
PINDex	Fixes the predefined index
	Parameters : index (keyword)
UINDex?	Asks the user index
UINDex	Fixes the user index
	Parameters : index
UNITs?	Asks the unit of measurement of distances
UNITs	Unit of measurement of distances
	Parameters : Unit (keyword)

ALArm

:ACTive?	Asks the activation of alarms
:ACTive	Indicates if the alarm are activated

	Parameters : Answer Yes/No (keyword)
:LOSS?	Asks the alarm thresholds of insertion loss for each wavelength.
:LOSS	Determines the alarm thresholds of insertion loss for each wavelength.
	Parameters : Wavelength, threshold in dB 0: no alarm; -80: max. threshold
:ORL?	Asks the alarm thresholds of ORL for each wavelength
:ORL	Determines the alarm thresholds of ORL for each wavelength
	Parameters : Wavelength, threshold in dB 10.0: min. threshold; 90.0: max. threshold
:DELay?	Asks the alarm threshold concerning the delay (max. delay before alarm)
:DELay	Determines the alarm threshold concerning the delay (max. delay before alarm)
	Parameters: Delay in ps. 1: min. delay, 2000: max. delay
FOXComm	
SENDmessage	Determines the message to send to the distant user
	Parameters : message
STATus?	Asks the messsage status
USERmessage?	Asks the message sent by the user
	Parameters : message
USERmessage	Determines the message sent by the user
	Parameters : message, chain of 14 characters max.

Description of the keywords

Laser :

- 1310, 1550... 1625 : Laser at the wavelength of 1310 nm, 1470 nm...1625 nm
- All : All the lasers available

Mesure

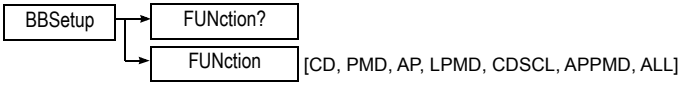
- LOSS: Loss measurement
- LORL: Loss + ORL measurement
- LLENgth: Loss + Length measurement
- LOLength: Loss + ORL + Length measurement

FOXComm

– USERmessage: Message entered by the user, up to 14 characters max.

Configuration of BBS Function

Command Format



Description of the functions

FUNction?	Ask the function to be used with the BBS
FUNction	Determines the function to be activated with the BBS. **Parameters:** Function (keyword)

Description of some commands

A

This appendix gives an example of a complete command.

Topics discussed in this chapter are as follows:

Example of commands on Port 8000

NOTE

Position of the plug-in in the instrument:

- *PWRSide*: power supply side
- *OPPSide:* side opposite to power supply side
- *BOTHside*: complete module

- **Bold**: Comment
- *Italic*: SCPI Command
- Underlined: Answer from MTS

REMOTE

**REM*

IDENTIFICATION OF THE PRODUCT

**IDN?*

JDSU,MTS6000A,10549,ISU,4.59

DATE - READ

SYST:DATe?

2009,04,23

DATE - WRITE

SYST:DATe 2008,7,31

TIME

SYST:TIMe?

14,28,08

NAME OF THE MODULE

MOD:NAME?pwrside,slic1

"8156 SRL"

MOD:NAME?oppside,slic1

"8126 MR"

SERIAL NUMBER OF THE MODULE

MOD:SERIAL?pwrside,slic1

"815"

FUNCTIONS AVAILABLE ON THE MODULE - READ

MOD:FUNC:LIST?pwrside,slic1

"OTDR","OTDR-MM"

STATUS OF SELECTED FUNCTION - ASK

MOD:FUNC:SELECT?pwrside,slic1,"OTDR"

ON

SWITCH OFF SELECTED FUNCTION

MOD:FUNC:SELECT pwrside,slic1,"OTDR",OFF

SWITCH ON SELECTED FUNCTION

MOD:FUNC:SELECT pwrside,slic1,"OTDR",ON

STATUS - ASK

STATUS:WARNING?

"NO WARNING"

READ THE STATUS BYTE REGISTER

**STB?*

0

READ THE EVENT STATUS REGISTER

**ESR?*

0

USER INTERFACE : FUNCTION KEY

KEY SYSTEM

KEY RESULT

USER INTERFACE - SOFTKEY

KEY SK7

CAUTION

On each connection, the system attributes port numbers corresponding to the different functions that are accessible. It is therefore essential always to start by asking for the port numbers to use for a function before sending any commands relating to it (e.g. OTDR function)

ASK FOR FO APPLICATION PORT NUMBER

MODule:FUNCtion:PORT? OPPSide,SLIC1,"OTDR"

8002

Example of commands on Port FO

- **BOLD**: Comment
- *Italic*: SCPI Command
- Underlined: Answer from MTS

REMOTE

**REM*

IDENTIFICATION OF THE PRODUCT

**IDN?*

JDSU,MTS6000A,10549, FO,4.59

FILE INFORMATION - AUTO STORE

FSETup:ASTOre NO

LINK DESCRIPTION - ORIGIN/END - WRITE

FSETup:ORIGin "Beginning"

FSETup:END "End"

LINK DESCRIPTION - END - READ

FSETup:END?

"End"

FIBER DESCRIPTION - FIBER NUMBER - READ

FSETup:FNUMber? ORIG

1

FIBER DESCRIPTION - FIBER NUMBER - WRITE

FSETup:FNUMber ORIG,10

FIBER DESCRIPTION - FIBER NUMBER INCREMENT - READ

FSETup:INCFIBER? ORIG

NO

FIBER DESCRIPTION - FIBER NUMBER INCREMENT - WRITE

FSETup:INCFIBER ORIG,NO

FSETup:INCFIBER ORIG,YES

SETUP ACQUISITION - LASER - READ

OTDSetup:LAS?

L1310

SETUP ACQUISITION - LASER - WRITE

OTDSetup:LAS L1550

STATUS ACQUISITION - READ

STATus:ACQ?

STOPPED

USER INTERFACE : FUNCTION KEY

KEY START

STATUS ACQUISITION - READ

STATus:ACQ?

IN_PROGRESS

STATUS ERROR - READ

STATus:ERR?

"NO WARNING"

STATUS ACQUISITION - READ

STATus:ACQ?

STOPPED

READ ACQUISITION SETUP

OTDSetup:LAS?

L1310

OTDSetup:PULS?

p10us

OTDSetup:KMRange?

260

OTDSetup:RES?

MAN , 2.50

OTDSetup:N? L1550

1.46500

OTDSetup:MAXT?

10

OTDSetup:PROgram?

MAN

RESULT- READ TRACE

CURVe:BUFF?

#70015816F36A …….

RESULT SIZE OF TABLE OF EVENTS - READ

TABle:SIZe?

4

RESULT TABLE OF EVENTS READ LINE BY LINE

TABle:LINe? 1

1,Reflection, 4.32,,>-22.80,, 4.32,

TABle:LINe? 2

2,Reflection, 40.29,,>-58.65,, 35.97,

Example

NOTE

Position of the plug-in in the instrument:

- *PWRSide*: power supply side
- *OPPSide:* side opposite to power supply side
- *BOTHside*: complete module

PORT 8000

*rem

*idn?

Check Name and Serial Number of Modules

MOD:NAME?pwrside,slic1

MOD:SERIAL?pwrside,slic1

MOD:NAME?oppside,slic1

MOD:SERIAL?oppside,slic1

Select and activate Module in Slice, Power Side, function OTDR

MOD:FUNC:SELECT?pwrside,slic1,"OTDR"

MOD:FUNC:SELECT pwrside,slic1,"OTDR",ON

MOD:FUNC:SELECT?pwrside,slic1,"OTDR"

PORT FO

*rem

*idn?

Set Autostore to NO

KEY FILE

FSETup:ASTOre?

FSETup:ASTOre NO

Set Fiber Number to 1

FSETup:FNUMber? ORIG

FSETup:FNUMber ORIG,1

FSETup:FNUMber? ORIG

Set Acquisition Mode to Manual

KEY SETUP

OTDSetup:PROgram?

OTDSetup:PROgram MANual

OTDSetup:PROgram?

Set Wavelength

OTDSetup:LAS?

OTDSetup:LAS L1550

OTDSetup:LAS?

Set Pulsewidth

OTDSetup:PULS?

OTDSetup:PULS P100NS

OTDSetup:PULS?

Set Range to Manual

OTDSetup:RAUTO?

OTDSetup:RAUTO NO

Set Range

OTDSetup:KMRange?

OTDSetup:KMRange 10

OTDSetup:KMRange?

Set Resolution

OTDSetup:RES?

OTDSetup:RES MANU,0.32

OTDSetup:RES?

Set Index of Refraction

OTDSetup:N? L1550

OTDSetup:N L1550,1.4732

OTDSetup:N? L1550

Set Acquisition Time

OTDSetup:MAXT?

OTDSetup:MAXT 25

OTDSetup:MAXT?

Start Acquisition and check Status

KEY START

STATus:ACQ?

STATus:ACQ?

Read Results: Trace

CURVe:BUFF?

Read Results: table of events

TABle:SIZe?

TABle:LINe? 1

TABle:LINe? 2

TABle:LINe? 3

78000001006
Rev007
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