



## Multiple Source + Visible Fault Finder + Optical Power Meter

### Introduction

The Cercis Model 6120 Fiber Optic Tester provides 1 – 4 fiber-coupled light sources, along with a visual fault finder, and a optical power meter. Standard sources available include:

- 850 nm VCSEL
- 850 or 1300 nm SLED
- 1310, 1550, or 1625 nm Fabry-Perot lasers
- 1310 or 1550 DFB lasers
- CWDM DFB lasers: 1470, 1490, 1510, 1530, 1550, 1570, 1590 or 1610 nm

Each source can be turned on via its SOURCE key; when the source is on, the red LED will be lit. Automatic power control circuits stabilize the optical power output.

Please read this Operator's Manual to familiarize yourself with the operation and safety procedures for the Model 6120 before using the instrument. **IMPROPER OPERATION MAY RESULT IN DAMAGE TO THE INSTRUMENT.**

### Features

- ◆ Optical output ports are either fixed FC (FC/PC; FC/APC can be specified) or interchangeable adapter (FC, SC or ST (PC); APC may be specified)
- ◆ Power meter optical input port uses Cercis interchangeable adapters – chose from 2.5 mm FC, ST, SC, LC, MU, SMA or V-pin; these interchangeable adapters click on or off via a bayonet mount
- ◆ Power switch (at back) to start the power meter, fault finder, and light source function; individual source, mode, wavelength and reference buttons to access features
- ◆ Circuit status check at enable
- ◆ Over-current circuit protection
- ◆ Red LED illuminates when each source is activated; Individual access to each source
- ◆ Compact, 8-1/2 X 3-1/2" benchtop or 1/4 rack-mountable metal enclosure.
- ◆ 110 VAC (3-prong grounded US standard outlet), fused for 1/4 amp, fast acting

### Interchangeable Adapters

Interchangeable adapters for light sources and power meters look alike. However, the light source adapters have a large hole to accommodate the split sleeve; power meter adapters have a small hole which acts as a fiber stop to prevent damage to the detector window. Do not use a light source adapter on a power meter; a power meter adapter will not fit on the light source. If the bayonet mount is loose, it may be tightened by pinching between your thumbs.



## Safety

Any operator should fully read, understand, and follow this manual prior to operation of this fiber optic tester. At no time should any operator look directly at the optical bulkhead output when the laser is activated. Any wavelengths > 700 nm, are invisible to the human eye; light may only be detected using an optical power meter or infrared-activated sensor.

Typically the fiber optic tester sources are classified as Class I, but custom power levels meeting Class IIIb classification may be provided. See the Specifications page for source type and output power. The following safety features are incorporated:

- 1) All sources may be activated simultaneously. When the source is on, the LED above the output is illuminated. This LED may be observed without exposure to laser radiation.
- 2) Optical power is accessible via interchangeable optical adapter. A removable dust cap is included to maintain a clean interface and to keep users from exposure to laser radiation when no connector is connected.

## Operating Instructions

**WARNING: THIS INSTRUMENT MAY CONTAIN INVISIBLE INFRARED LASERS OF CLASS I or CLASS IIIb. LASER RADIATION IS EMITTED FROM THE OPTICAL OUTPUT PORTS WHEN THE CORRESPONDING LED IS ILLUMINATED.**

\*\*\*\*\* DO NOT STARE AT THE OUTPUT PORT BEAMS \*\*\*\*\*

- 1) Be sure 110 VAC plug is connected to a grounded wall outlet, do not defeat the ground connection.
- 2) POWER: Switch the power on using the on/off switch; the display will readout serial number, hardware and firmware versions.
- 3) SOURCE: Enable individual LASER/LED/VCSEL/LED operation by quickly pressing and releasing the SOURCE button. The status LED will illuminate above the source as that source is activated.
- 4) MODE: Depress MODE to scroll through selections: dBm, dB, nW/μW/mW (autoranging).
- 5) WAVELENGTH: Depress to scroll through calibration wavelengths of the fiber optic tester. There may be up to 8 calibration wavelengths per instrument. These may be specified by the purchaser.
- 6) REFERENCE: Depress to set the reference (dBm while measuring in dB) for a connected jumper.



Specifications

Model 6120-4	Units	Typical			
Wavelength	nm	1310 Laser Fabry-Perot	850 VCSEL	1550 Laser Fabry-Perot	1300 nm SLED
Wavelength Range	nm	+/- 20	+/- 20	+/-20	+/-20
Spectral Width (FWHM)	nm	2	2	2	135
Stability 1 hr. max. deviation	dB	<0.1	<0.1	<0.1	<0.1
Power Output (fiber coupled) (Set Point min.) 9/125 SMF or any fiber connected	dBm $\mu$ W	-10 100	-5 315	-10 100	-17 20 (50/125 MMF)
Detector Type (Active Diameter)	mm	InGaAs 2			
Power Range	dBm	+5 to - 70			
Calibrated Wavelengths	nm	850 / 980 / 1310 / 1550 / 1625			
Absolute Accuracy	dB	+/- 0.25 dB			
LCD Graphic Display		View 46 X 18.5 mm; 98 x 32 pixel; blue characters; background gray (reflective not requiring a backlight). Display incorporates 3 distinct annunciators: nW, $\mu$ W, mW (autoranging) dB and dBm, plus LOW or OVL (power too low or too high)			
Function	W dBm dB	nW, $\mu$ W, mW (autoranging) dBm (absolute power) dB (relative power)			
Fuse (fast acting)	A	1/4			

RS-232 Bus Port

The RS232 serial bus port is located at the back of the unit. RS232 bus port enables computer control of all functions using easy commands; ACSII text communication compatible with MicroSoft C++<sup>R</sup> or Visual Basic<sup>R</sup> or National Instruments LabView<sup>R</sup>



## **Service**

No user serviceable parts inside. Refer servicing to qualified personnel.

Should a source fail - with failure defined as total or partial optical power decrease - its output should be checked using an optical power meter (Cercis Model 510g or 510i or equivalent). If power is below the rated power of each source, the user should clean the optical port with NTT-type or similar adapter-cleaning sticks and recheck the power output with another connector. If output is still below the rated power, Cercis should be called for service of the unit.

This unit is a custom design based on Cercis Model 520-Series laser light sources and 610-Series optical power meter with data logging. The design of this unit is such that sources may be interchanged if failures occur. Each source may be replaced without disruption to other sources.

## **Warranty / Repairs**

Cercis makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that the product be free from defects in materials and workmanship: 1 year limited warranty (unless otherwise specified) for instrument. Cercis is not liable for laser failure beyond that deemed to be due to mechanical error.

Warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, repairs or alternations made outside our facilities or to a lack of maintenance. Cercis limits all implied warranties to the period specified above from the date the product was purchased. Except as stated herein, any implied warranties of merchantability and fitness are excluded. Cercis shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special or consequential damage arising from the use of its products. To take advantage of this warranty, the product must be approved for return for examination, postage prepaid, to Cercis. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection discloses a defect, Cercis will either repair or replace the product with a product of equal or higher performance. If it is determined that the defect resulted from causes not within the scope of Cercis warranty, then the purchaser must bear the cost of repair and return shipping.



## Programming for Remote Operation

### 1.0 Overview

The Model 6120 programming interface enables the user to remotely control the instrument using a PC. The interface operates using standard RS-232 serial bus ASCII text communications. It is compatible with DOS, Windows, Mac or Linux operating systems.

Software to control the 6120 can be easily programmed using various programming platforms such as Microsoft Visual Basic<sup>®</sup>, or Visual C++<sup>®</sup>, and National Instruments Labview<sup>®</sup>. or any programming language allowing ASCII text communications over the PC hardware RS-232 serial bus.

The programming interface includes a full set of commands to allow the user to control the instrument and obtain various system configuration information and measurement results.

### 1.1 Communications Protocol

The 6120 hardware RS-232 serial port is a 3 wire implementation using the RxD, TxD and GND pins of the standard RS-232 interface. All communications flow control handshaking is performed in software by the programming interface.

The serial communication parameters are fixed at the following values

- BAUD RATE, 9600
- DATA BITS, 8
- STOP BITS, 1
- PARITY, none
- FLOW CONTROL, none

These COM port parameters should be setup using either the operating system or programming language commands.



All communications to and from the 6120 are by ASCII text string commands, parameters and returned values. Commands, parameters and return values are terminated by a RETURN character, CR (ASCII 13 decimal, 0D hexadecimal). After a command is received, the 6120 will prompt for any required parameters by sending a “?” character. The program must wait for the prompt before sending each parameter. If an error is encountered at any time, the 6120 will send the appropriate error code (see Table A) and terminate the command. After a command is successfully completed, the 6120 will return “OK”; a new command may then be issued.

The 6120 contains an internal hardware receive buffer which is 4 bytes long. All commands and parameters must be 4 bytes or less (including the terminating CR) or a buffer overflow may result.

All commands and parameters must be received by the 6120 within a user programmable timeout period. This timeout period defaults to approximately 3 seconds at power on, but may be changed by issuing the TMO command. If a command or parameter is not received within the timeout period, a “TIMEOUT ERROR” code is returned and the command is terminated. It is important to send commands and parameters quickly, because while the 6120 is waiting for commands or parameters, the instrument is not acquiring power meter readings. Also, the control program should avoid continuous polling of the 6120 as this will not allow the power meter to be updated.

Below is an example of a typical command and return sequence which illustrates sending the GSI (get source information) command/parameter and receiving a response. In the example, (CR) is the RETURN character (ASCII 13 decimal, 0D hexadecimal), the text after and including the “;” is a comment only for explanation and should not be part of the program.

```
Send:      GSI(CR)           ; GSI get source info command
Receive:   ?                 ; request source # parameter
Send:      1(CR)             ; send source #1 parameter
Receive:   LD,FP:1310nm:100uW(CR) ; source info
Receive:   OK(CR)           ; command completed
```

The returned information is dependent on the source installed in the instrument in position #1 and may be different.

The following is a GSI command where the parameter send is for an invalid source number (5). The 6120 replies with an error code and terminates the command.

```
Send:      GSI(CR)           ; GSI get source info command
Receive:   ?                 ; request source # parameter
Send:      5(CR)             ; send source #5 parameter
Receive:   E107(CR)         ; error #107 invalid source
```



## 1.2 Software Control Scheme

The Model 6120 fiber optic tester is designed to be custom configured with user specified LASER, LED or VCSEL light sources, and InGaAs, Ge or Si power meters with custom calibration wavelengths. Therefore, each instrument will typically have a unique configuration of sources and calibration wavelengths.

In order to allow the software to accommodate these custom configurations, the instrument is controlled by the remote control software via source ID handles and wavelength ID handles. ID handles are simply numeric values corresponding to the physical light source or wavelength calibration.

Light sources are numbered 1 to 4 with source #1 being located on the instrument slot nearest the power meter display. Calibration wavelengths are numbered 1 to 8 with the shortest wavelength being wavelength #1, and all others in increasing wavelength order. Not all sources and/or wavelength calibrations need be used. Table D lists all currently supported light source types.

The following commands are used to determine the number of sources and calibration wavelengths available on the instrument and obtain information on each source and the wavelength of each calibration.

GNS,           get number of sources.  
GSI,           get source information  
GNW,         get number of wavelengths  
GWC,         get wavelength calibration

The GNS command returns the number of sources installed on the instrument; if two sources are installed, the number 2 is returned. Source #1 will be in the slot nearest the power meter display on the instrument, source #2 will be the next source to the left. To determine what source is installed in source #2, the GSI command is issued with 2 as the parameter.

The GNW command returns the number of calibration wavelengths on the instrument. If the 2<sup>nd</sup> calibration is 1310nm, issuing the GWC command with 2 as the parameter will return "1310nm".

In this way, all sources and calibration wavelengths on the instrument can be identified. All subsequent control commands will reference each source and calibration wavelength through its corresponding source number and wavelength number.

Alternatively, the user may hard program the control software application by simply using the appropriate source number corresponding to the desired physical source slot on the instrument. At power on, the instrument will default to calibration wavelength #1. Cycling through the available wavelengths by pressing the wavelength button will identify each calibration wavelength in turn. This method will work but is less generic as it relies on the physical mapping of sources and calibration wavelengths which may differ between instruments.



### 1.3 Error Codes

The following table lists all the standard Error codes and explanations. There may be additional error codes available if the instrument has been customized for added features; see any available appendices.

**TABLE A: ERROR CODES**

Code	Error	Description
E100	Null Error	Internal use
E101	Error None	Internal use
E102	Unrecognized Command	Command issued is not recognized
E103	Command Syntax	Command syntax error
E104	Parameter Syntax	Parameter syntax error
E105	Parameter Range	Parameter value is out of range
E106	Buffer Overflow	Secondary receive buffer overflow
E107	Source Unavailable	Source not installed or greater than 4
E108	Wavelength Unavailable	Wavelength number present
E109	Invalid Mode	Power meter mode is not valid
E110	Timeout Error	Serial timeout expired



1.4 Command Set

Table B gives a listing of all the Model 6120 commands organized by function.

**TABLE B – Commands by Function**

<b>System Information</b>		
GMN	Get Model	Page 12
GSN	Get Serial Number	Page 12
GHV	Get Hardware Version	Page 13
GSV	Get Software Version	Page 13
<b>Light Sources</b>		
GNS	Get Number of Sources (less VFF)	Page 13
GSI	Get Source Information	Page 14
SEN	Source Enable	Page 14
SDE	Source Disable	Page 15
VEN	Visual Fault Finder Enable	Page 15
VDE	Visual Fault Finder Disable	Page 16
<b>Power Meter</b>		
GNW	Get Number of Wavelengths	Page 16
GWC	Get Wavelength Number Calibration	Page 17
GWA	Get Wavelength Number	Page 17
SWA	Set Wavelength Number	Page 18
SMO	Set Mode	Page 18
GMO	Get Current Mode	Page 19
SRF	Set Reference	Page 19
GRF	Get Current Reference	Page 19
GRS	Get Reading Status	Page 20
GRD	Get Current Reading	Page 20
<b>System Utilities</b>		
BEE	Sound the Beep	Page 21
TMO	Serial Timeout	Page 21

**TABLE C – Commands – Alphabetical**

Table C is an alphabetical listing of commands.

Mnemonic	Command	Explanation
BEE	Sound the Beep	Page 21
GHV	Get Hardware Version	Page 13
GMN	Get Model	Page 12
GMO	Get Current Mode	Page 19
GNS	Get Number of Sources (less VFF)	Page 13
GNW	Get Number of Wavelengths	Page 16
GRD	Get Current Reading	Page 20
GRF	Get Current Reference	Page 19
GRS	Get Reading Status	Page 20
GSI	Get Source Information	Page 14
GSN	Get Serial Number	Page 12
GSV	Get Software Version	Page 13
GWA	Get Wavelength Number	Page 17
GWC	Get Wavelength Number Calibration	Page 17
SDE	Source Disable	Page 15
SEN	Source Enable	Page 14
SMO	Set Mode	Page 18
SRF	Set Reference	Page 19
SWA	Set Wavelength Number	Page 18
TMO	Serial Timeout	Page 21
VDE	Visual Fault Finder Disable	Page 16
VEN	Visual Fault Finder Enable	Page 15



TABLE D – Standard Source Types

Source Type	Wavelength (nm)	Fiber Mode Core	Power (dBm)		Available Options
			Min.	Max.	
VCSEL	850	MM 50	-5	-3	-
SLED	850	MM 50	-17	-10	-
SLED	1300	MM 50	-17	-15	-
SLED	660	MM 1 mm	-9	-4	-
LASER F-P	1310	SM 9	-10	2	-
LASER F-P	1550	SM 9	-10	2	-
LASER F-P	1625	SM 9	-10	2	-
LASER DFB	1310	SM 9	-10	3	Internal Isolator
LASER DFB	1550	SM 9	-10	3	Internal Isolator
LASER DFB	1470-1610	SM 9	-10	3	Internal Isolator
LASER	635	SM 9	0	2	

Automatic power control circuits stabilize the optical power output.

Output power can be varied by coupling. The minimum values given are standard; the maximum values are possible.



## 1.5 Command Set Descriptions

Following is a list of all commands including command name, command mnemonic, number of parameters, parameter name, parameter type, parameter range, command description and command example.

---

COMMAND NAME:

Get Model Number

COMMAND MNEMONIC:

GMN

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the model number and any custom modifiers to the base model number

EXAMPLE:

*Send:* GMN(CR)

*Receive:* Model 6120(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get Serial Number

COMMAND MNEMONIC:

GSN

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the instrument serial number modifiers to the base

EXAMPLE:

*Send:* GSN(CR)

*Receive:* S/N 220001(CR)

*Receive:* OK(CR)



COMMAND NAME:

Get Hardware Version

COMMAND MNEMONIC:

GHV

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the instrument hardware revision number

EXAMPLE:

*Send:* GHV(CR)

*Receive:* Hardware V2.00(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get Software Version

COMMAND MNEMONIC:

GSV

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the instrument firmware revision number

EXAMPLE:

*Send:* GSV(CR)

*Receive:* Firmware V2.00(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get Number of Sources

COMMAND MNEMONIC:

GNS

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the number of light sources installed on the instrument

EXAMPLE:

*Send:* GNS(CR)

*Receive:* 2(CR)

*Receive:* OK(CR)



COMMAND NAME:

Get Source Information

COMMAND MNEMONIC:

GSI

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

1 to number of sources

DESCRIPTION:

Returns information on the source number requested

EXAMPLE:

*Send:* GSI(CR)

*Receive:* ?

*Send:* 2(CR)

*Receive:* LD,FP:1550nm:100uW(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Source ENable

COMMAND MNEMONIC:

SEN

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

1 to number of sources

DESCRIPTION:

Enable light source number

EXAMPLE:

*Send:* SEN(CR)

*Receive:* ?

*Send:* 1(CR)

*Receive:* OK(CR)



COMMAND NAME:

Source Disable

COMMAND MNEMONIC:

SDE

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

1 to number of sources

DESCRIPTION:

Disable light source number

EXAMPLE:

*Send:* SDE(CR)

*Receive:* ?

*Send:* 1(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Visual fault finder Enable

COMMAND MNEMONIC:

VEN

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Enable visual fault finder

EXAMPLE:

*Send:* VEN(CR)

*Receive:* OK(CR)



COMMAND NAME:

Visual fault finder Disable

COMMAND MNEMONIC:

VDE

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Disable visual fault finder

EXAMPLE:

*Send:* VDE(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get Number of Wavelengths

COMMAND MNEMONIC:

GNW

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the number of calibration wavelengths on the instrument

EXAMPLE:

*Send:* GNW(CR)

*Receive:* 5(CR)

*Receive:* OK(CR)



COMMAND NAME:

Get Wavelength Calibration

COMMAND MNEMONIC:

GWC

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

1 to number of calibration wavelengths

DESCRIPTION:

Returns the calibration wavelength for the wavelength number requested

EXAMPLE:

*Send:* GWC(CR)

*Receive:* ?

*Send:* 2(CR)

*Receive:* 1550nm(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get Wavelength number

COMMAND MNEMONIC:

GWA

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

1 to number of calibration wavelengths

DESCRIPTION:

Returns the current wavelength number

EXAMPLE:

*Send:* GWA(CR)

*Receive:* 3(CR)

*Receive:* OK(CR)



COMMAND NAME:

Set Wavelength number

COMMAND MNEMONIC:

SWA

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

1 to number of calibration wavelengths

DESCRIPTION:

Set the wavelength number

EXAMPLE:

*Send:* SWA(CR)

*Receive:* ?

*Send:* 2(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Set MMode

COMMAND MNEMONIC:

SMO

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

0 to 2

DESCRIPTION:

Set the power meter mode

0=Absolute dBm

1=Relative dB

2=Absolute Watts

EXAMPLE:

*Send:* SMO(CR)

*Receive:* ?

*Send:* 2(CR)

*Receive:* OK(CR)



COMMAND NAME:

Get MOde

COMMAND MNEMONIC:

GMO

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the current power meter mode

EXAMPLE:

*Send:* GMO(CR)

*Receive:* Abs:Watt(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Set ReFERENCE

COMMAND MNEMONIC:

SRF

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Sets the mode to Relative dB and sets a new reference power

EXAMPLE:

*Send:* SRF(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get ReFERENCE

COMMAND MNEMONIC:

GRF

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the current reference value or ABS if absolute mode

EXAMPLE:

*Send:* GRF(CR)

*Receive:* -26.60dBm(CR)

*Receive:* OK(CR)

EXAMPLE:

*Send:* GRF(CR)

*Receive:* ABS(CR)

*Receive:* OK(CR)



COMMAND NAME:

Get Reading Status

COMMAND MNEMONIC:

GRS

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns T if a new power meter reading is available F if not.

EXAMPLE:

*Send:* GRS(CR)

*Receive:* T(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

Get ReaDing

COMMAND MNEMONIC:

GRD

NUMBER OF PARAMETERS:

None

DESCRIPTION:

Returns the latest power or relative power reading

EXAMPLE:

*Send:* GRD(CR)

*Receive:* -13.50dBm(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

VOLume adjust

COMMAND MNEMONIC:

VOL

NUMBER OF PARAMETERS:

One

PARAMETER TYPE

Integer

PARAMETER RANGE

0 to 1

DESCRIPTION:

Adjusts the speaker volume, at power on volume is set to midpoint.

Available range is +/- 16 ticks from midpoint. The speaker will momentarily sound at the new volume. 0=decrease the volume one tick 1=increase the volume one tick

EXAMPLE:

*Send:* VOL(CR)

*Receive:* 1(CR)

*Receive:* OK(CR)



COMMAND NAME:

BEEp the speaker

COMMAND MNEMONIC:

BEE

NUMBER OF PARAMETERS:

Two

PARAMETER TYPE

Integer

PARAMETER RANGE

0 to 255

DESCRIPTION:

Sounds a beep on the speaker. First parameter is the beep frequency. Second parameter is the beep duration. The frequency and duration are relative values from 0-255. The user should select appropriate values.

EXAMPLE:

*Send:* BEE(CR)

*Receive:* ?

*Send:* 200(CR)

*Receive:* ?

*Send:* 50(CR)

*Receive:* OK(CR)

---

COMMAND NAME:

set the TiMeOut value

COMMAND MNEMONIC:

TMO

NUMBER OF PARAMETERS:

1

PARAMETER TYPE

Integer

PARAMETER RANGE

0 to 255

DESCRIPTION:

Sets a new time out value for serial communications. The value is a relative number with 255 corresponding to approximately 3 second timeout

EXAMPLE:

*Send:* TMO(CR)

*Receive:* ?

*Send:* 200(CR)

*Receive:* OK(CR)



**APPENDIX**

**Specifications**

Model 6120Q	Units	Typical
<b><i>Light Source Specifications</i></b>		
Wavelength Laser #1	nm	1310
Wavelength VCSEL #2	nm	850
Wavelength Laser #3	nm	1550
Wavelength SLED #4	nm	1300
Wavelength Range	nm	+/- 20
Stability 1 hr. max. deviation	dB	<0.1
Power Output (fiber coupled) Set Point min. 62.5/125 MMF or any fiber connected	dBm μW	See Table Page 3
<b><i>Optical Power Meter</i></b>		
Detector Active Area, Type		2 mm InGaAs
Power Range	dBm	+5 to -70
Absolute Accuracy	dB	+/- 0.25
Calibrated Wavelengths	nm	850, 1300, 1550
Spectral Response Range	nm	850 - 1650
<b><i>Visual Fault Finder Specifications</i></b>		
Wavelength – Laser Diode	nm	635 +/- 20 nm
Power Output (fiber coupled) Set Point Min. into 9/125 or larger fiber	dBm mW	0 1
<b><i>Instrument Specifications</i></b>		
Fuse (fast acting) @ 125 V	A	0.5
Power Consumption @ 115VAC or 230 VAC	W	2.5

**RS-232 Bus Port:** The RS232 serial bus port is located at the back of the unit. RS232 bus port enables computer control of all functions using easy commands; ACSII text communication compatible with MicroSoft C++<sup>R</sup> or Visual Basic<sup>R</sup> or National Instruments LabView<sup>R</sup>

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