OptoTest
Test Solutions for Fiber Optics

OP750

Multichannel Source

Instruction Manual

*Opto***Test** Corp. 4750 Calle Quetzal, Camarillo, CA 93012 805 987 1700 sales@optotest.com

Contacting OptoTest Corporation

Telephone:	(805) 987 1700 (8 a.m. to 5 p.m. PST)
Web site:	www.optotest.com
E-mail:	engineering@optotest.com
Mail:	OptoTest Corp. 4750 Calle Quetzal Camarillo, CA 93012

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MnOP750-RevA5

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Overview

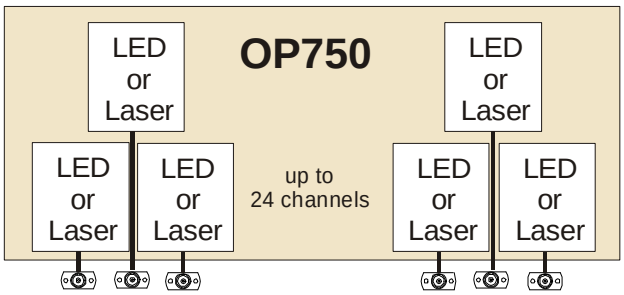
The OP750 offers a compact solution for multiple individual or switched sources in a single unit. This multichannel source is configured to specifications and supports the following source combinations in one unit:

Single wavelength singlemode source (850nm, 980nm, 1310nm, 1550nm, 1625nm)
Dual wavelength singlemode source (1310nm & 1550nm)
Single wavelength multimode LED (850nm, 1300nm)
Dual wavelength switched multimode LED (850nm & 1300nm)
Mutlichannel individual single, or switched or dual wavelength sources

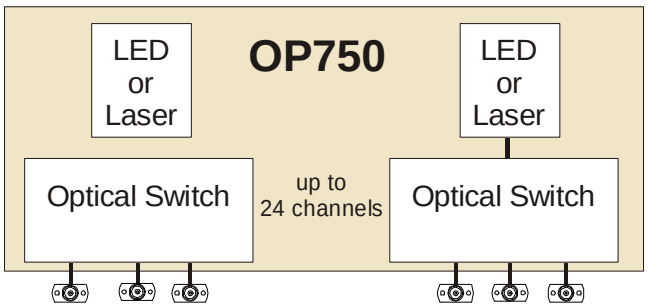
The OP750 is easily combined with OP710 multichannel optical power meters and together with the OPL-PRO software for multichannel optical power measurements can be captured over any length of time.

Principle of Operation

Multichannel Source - Individual Sources



Multichannel Source - Switched Sources



Initial Preparation

Unpacking and Inspection

The unit was carefully inspected, mechanically, electrically and optically before shipment. When received, the shipping carton should contain the items listed in *Standard Contents*. Account for and inspect each item. In the event of a damaged instrument, write or call OptoTest Corp, California. Please retain the shipping container in case re-shipment is required for any reason.

Damaged In Shipment

All instruments are shipped F.O.B. Newbury Park when ordered from OptoTest. If you receive a damaged instrument you should:

1. Report the damage to your shipper immediately.
2. Inform OptoTest Corporation.
3. Save all shipping cartons.

Failure to follow this procedure may affect your claim for compensation.

Standard Contents

1. Model OP750 Multichannel Source, built to specifications
2. Power Cord (U.S. Shipments only)
3. USB A-B cable
4. Certificate of Calibration and if requested the Metrology Report
5. Instruction Manual(s)
6. CD with applicable software and documentation

Specifications

OP750 Specifications

	Specifications		
Models	OP750-LS types	OP750-LD types	
Source Wavelength[1] (single wavelength)	850nm, 980nm, 1310nm, 1550nm, 1625nm	850nm, 1300nm, or both	
(dual wavelength)	1310nm & 1550nm	850nm & 1300nm switched	
Source Type	FP Laser	LED	
FWHM	<20nm	850nm	1300nm
		< 80nm	< 180nm
Output Power	typical -3dBm maximal +3dBm	typical -17dBm	
Internal Fiber	9/125 SMF28	105/250 SI Fiber guaranteed overfill CPR 850nm: >18dB for 62.5/125 1300nm: >20dB for 62.5/125	
Stability[2]	typically ±0.05 dB		
Settling Time (switched sources)	Typically 0.1 second		
Optical Connector Interface	fixed bulkhead interface, FC/PC, SC/PC, ST/PC (others available)		
	PC polish angle polish	PC polish only	
Mainframe			
Power Supply	90VAC .. 264VAC 47Hz to 63Hz 0.7Amps(115VAC) 0.4Amps(230VAC) Fuse: T1A, 250V		
Warm-up time	5-15 minutes		
Environmental: **Operating temp.** **Storage temp:** **Humidity**	 0°C to +50°C -15°C to +70°C 0 - 95% RH (non-condensing)		
Dimensions	19” Rack Standard (16.8 x 3.8 x 10 in.)		
Shipping dimensions	14” x 12” x 21”		
Weight	6lbs		
Shipping weight	12lbs		

[1] All actual center wavelengths are +/-30nm from the nominal value for all source types.

[2] Within specified ambient environmental temperature of 20°C to 25°C, stable within +/- 2°C. Laser sources are stabilized to better than 1%. For stable measurements the fiber need to be kept stable and back reflections minimized.

Laser Safety

OptoTest source modules, depending on the model, may contain lasers that are harmful to the human eye. The singlemode (typically 1310nm or 1550nm) lasers typically have an output of -2dBm. These are considered a Class III laser and should not be viewed directly, pointed at anyone, or viewed through a telescopic device as this could cause eye damage. The multimode LEDs (typically 850nm and 1300nm) are Class II LEDs and should not be viewed directly for long periods of time or through a telescopic device ever as this could result in eye damage.

External Source Input:
An optional optical source input is available on the back side of the OP750. That port is switched on through remote control via the USB port.

 Selection of external source
By pressing both channel selectors at once for at least one second the external source input is toggled on and off. The channel indicator in the display as well as all the channel LEDs will briefly go blank to indicate the switching.

Definition of Specifications

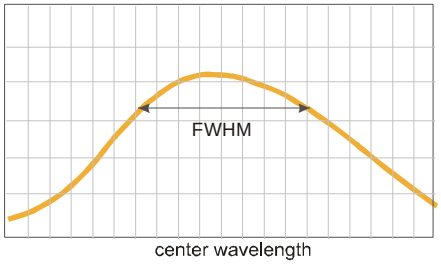
Source Wavelength

The wavelength specifications of the source is a nominal specification, the exact center wavelength varies depending on the source type. Laser sources are typically within +/- 10nm of the nominal center wavelength. LED sources have a broad spectral width and usually within +/- 20nm of the nominal center wavelength.

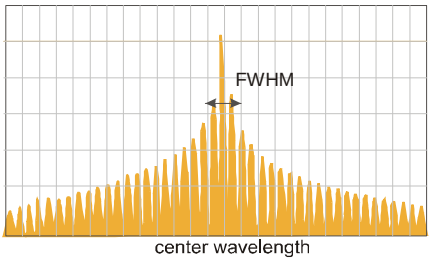
Source Type

For singlemode measurements either a Fabry-Perot (FP) or Distribution Feedback (DFB) laser source is applied, for multimode measurements usually a LED source is used.

Light Emitting Diode (LED)
Typical Spectrum



Fabrit Perot Laser
Typical Spectrum



Output Power

The typical output power is the minimal power level that the source delivers at a 100% setting. Actual power levels are usually slightly higher and depend on the installed source component as well as the fiber size the absolute power reading is taken with.

Launch Condition

For multimode sources the launch condition is qualification for to what degree the core of the fiber is filled (modal distribution). The CPR (coupling power ratio) is a measurement that indicates the fullness of the fill, a high CPR indicates a full-fill or over-fill whereas a low CPR indicates an under-fill.

Stability

The source power stability is measured over one hour of operation at ambient temperature unless specified otherwise. To measure the stability the fiber should not be excessively moved, ideally fibers are fixed in place. For singlemode measurements strong backreflections should be avoided as they can influence the stability of the measurement. The OP750 sources have a typical temperature dependence of better than 0.03dB/ ºC.

Settling Time

Switched multichannel sources require a switch settling time.

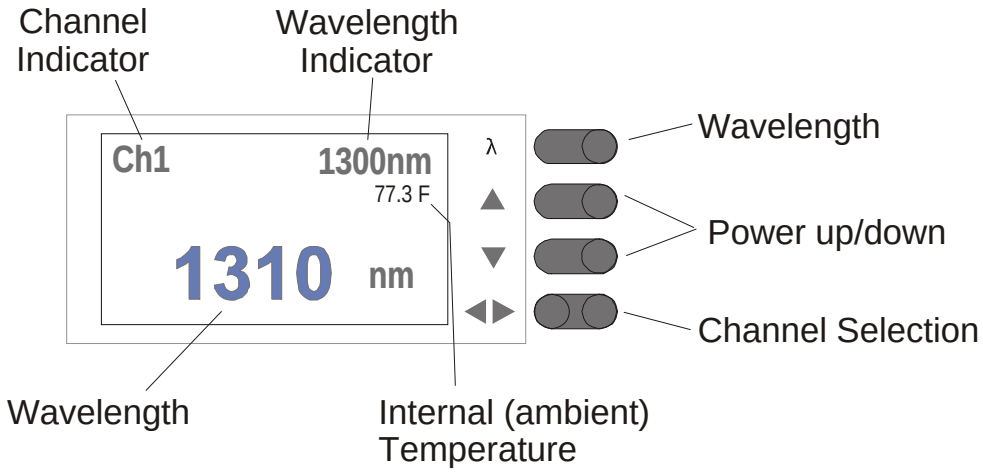
Warm-up Time

The optical power meters in general do not need any warm-up time unless the instrument has to acclimate to a changing environment. In order to calibrate the instrument or to perform stable measurement the instrument should be acclimated for 15 minutes for each 5ºC of temperature differential. For example if the instrument was stored at 18ºC and brought into an environment of 28ºC the instrument should allowed to warm-up for 30 minutes.

Environmental

Operating Temperature: This is the temperature range in which the instrument will conform to the specifications after the specified warm up time.
Storage Temperature: This is the temperature range at which the instrument can be stored with the power off, without any damage or any loss of specification to the instrument. It is required that the instrument be brought back to within the operating temperature range before it is turned on.
Humidity: The relative non-condensing humidity levels allowed in the operating temperature range.

Frontpanel Operation



Wavelength

The wavelength button toggles through the available source selection per individual optical port, depending on the configuration of the instrument. For switched multimode LED sources the wavelength selection will switch between the two internal LEDs.

Power Up, Power Down

The nominal source output power is coarsely adjustable, for LED sources the adjustment range is somewhat linear between 0% and 100%. The adjustment for laser sources depends on the particular laser source and is limited to approximate 6dB range.

NOTE: Pressing the Up and Down button at the same time will turn the source OFF.

Channel Selection

Advances the channel forwards or backwards. For the selected channel the applicable wavelength is displayed as well as the adjustable power level. If the OP750 contains a switched source the channel selection routes the internal source to the selected output port. (If both selectors are pressed at the same time the internal switch is reset and the external source input is toggled).

USB Control of the OP750

The OP750 can be controlled via the USB bus. The following commands are available via the OP750.DLL to communicate with the instrument through a program.

Command Summary

NOTE: For a detailed and complete description of the OP750.DLL function calls please consult the OP750.DLL Description on the Applications and Driver CD or visit the support section of www.optotest.com.

InitDLL	Initializes the OP710.DLL
GetDLLStatus	Returns the status of the last library call.
GetUSBDeviceCount	Returns the number of OptoTest devices connected to the USB bus.
GetTemperature	Returns the ambient temperature in either Celsius or Fahrenheit
SetChannel	Selects the channel, for a switched source this routes the source to that particular channel.
SetWavelength	Sets the source wavelength of a dual wavelength source.
SetSourcePower	Turns on and adjust the source power of the individual source.
Backlight	Lights or dims the backlight of the instrument.

Warranty Information

OptoTest Corp. warrants this product to be free from defects in material and workmanship for a period of one year from date of shipment. During the warranty period we will, at our option, either repair or replace any product that proves to be defective. To exercise this warranty contact OptoTest Corp. Headquarters. You will be given prompt assistance and return instructions. Repairs will be made and the instrument returned, transportation prepaid. Repaired products are warranted for the balance of the original warranty period, or at least 90 days.

NOTE: Do not send instruments for any reason without contacting OptoTest headquarters first.