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DUAL WAVELENGTH LED SOURCE

Features:

- Rugged, compact, lightweight, dual wavelength LED source
- 850, 1300, and 1550 nm wavelengths available
- Long term stability
- Low temperature dependence
- Selectable internal modulation for CW, 270 Hz, 1 kHz, or 2 kHz
- Auto power-down mode
- Push-and-hold power keys to prevent accidental activation
- Low battery indicator
- Long battery life
- May be operated from AC power mains with optional adaptor
- Dust caps attached to the case
- Low cost

Single or dual wavelength LED source

Applications:

- Installing and maintaining fiber optic networks
- Testing multimode fiber cables
- Testing passive optical components
- Verifying patchcord specifications
- Measuring insertion loss
- Calibrating optical receivers
- Laboratory research

Product Description:

The OZ Optics Dual Wavelength LED Source consists of two sources in a single, lightweight package, and is ideal for multimode fiber testing. Either one of the two outputs can be activated from the front panel. The user interface is controlled by a microprocessor and the optical outputs are thermally stabilized.

An LED display and simple keys on the front panel provide easy operation. The front panel keys are used to select on, off, modulation, and wavelength. The LED source allows the user to select one of four preset power levels via the keypad.

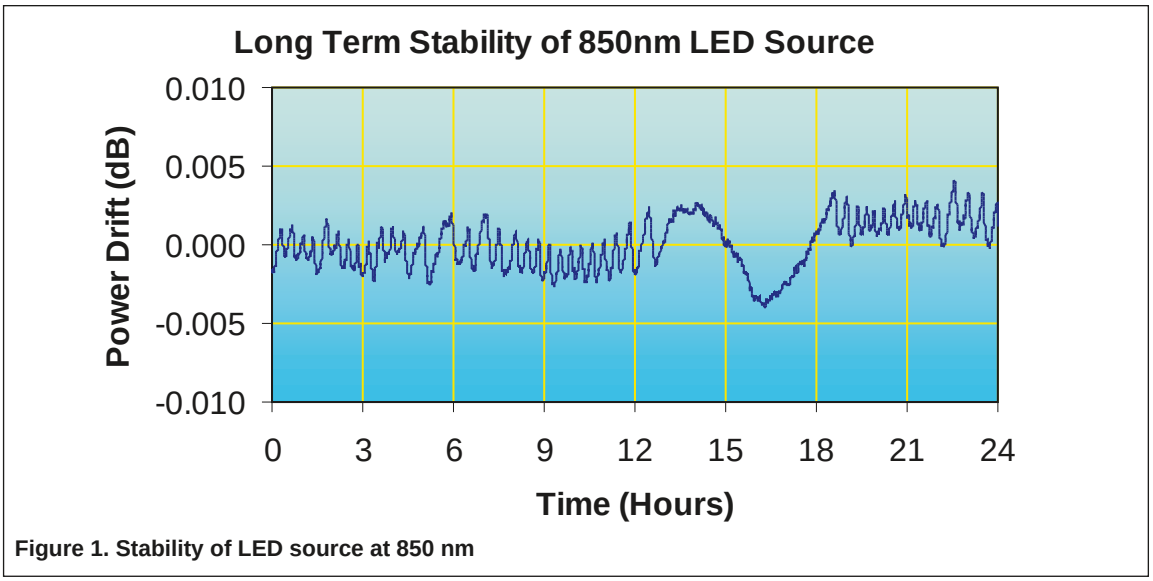

Figure 1. Stability of LED source at 850 nm

Ordering Information for Standard Parts:

Bar Code	Part Number	Description
43777	FOSS-22-3-50/125-850/1300-M-0.02	Dual Wavelength Fiber Optic Laser Source with 850 &1300nm LEDs, Output power is typically 20µW (-17dBm), using a 50/125 µm, 0.22NA multi-mode fiber with super FC/PC receptacle. Uses 2 AA batteries or optional AC adapter.
44768	FOSS-22-3-50/125-850/1550-M-0.02	Dual Wavelength Fiber Optic Laser Source with 850nm and 1550nm LEDs, Output power is typically 20µW (-17dBm), using a 50/125 µm, 0.22NA multi-mode fiber with super FC/PC receptacle. Uses 2 AA batteries or optional AC adapter.
39578	FOSS-22-3-50/125-1300/1550-M-0.02	Dual Wavelength Fiber Optic Laser Source with 1300 and 1550 nm LEDs, Output power is typically 20µW (-17dBm), using a 50/125 µm, 0.22NA multi-mode fiber with super FC/PC receptacle. Uses 2 AA batteries or optional AC adapter.
51964	FOSS-21-3-50/125-1300-M-0.02	Single wavelength Fiber Optic Source with 1300nm LED, with a 50/125 µm, 0.22 NA graded index multimode fiber, and with an FC/PC receptacle. The output power is typically 20µW (-17dBm). Uses 2 AA batteries or optional AC adapter.
27834	AC-5VDC-MULTI-PLUG-Z	Power supply, 15 Watts, 5VDC output, 3A, with power cord and multi-plugs for different countries. Output is 2.1mm center positive pin power plug.

Standard Product Specifications:

Parameter		Specification		
Wavelength (nm)		850	1300	1550
Wavelength accuracy		±20 nm (maximum)	±40 nm (maximum)	
Line width		50 nm, typical	30 nm typical 40 nm maximum	
Output power	Using 50/125 MM fiber	-17 dBm (20 µW), typical	-17 dBm (20 µW) typical	
	Using 9/125 SM fiber	n/a	-20 dBm (10 µW) typical	
Stability[1]	After 30 minutes warm-up	±0.01 dB	±0.03 dB	
	After 3 hours warm-up	±0.005 dB	±0.01 dB	
Temperature coefficient (-20 to 50 °C)		0.04 dB/°C, maximum	0.04 dB/°C, maximum	
Connector receptacles		Super PC or Ultra PC Polished NTT-FC/PC, AT&T-ST, and SC		
Internal modulation		CW, 270 Hz, 1 kHz, and 2 kHz		
Power supply		AA alkaline batteries (two), for more than 40 hours of operation. Optional AC/DC adaptor.		
Temperature range	Operating:	-10 to 50 °C		
	Storage:	-20 to 60 °C		
Dimensions (W x L x H)		76 x 127 x 25.4 mm (3 x 5 x 1 in.)		
Weight, with batteries		225 g (0.5 lb.)		
Laser classification based on IEC 60825-1		Class 1		

Note: [1] Over 24 hours, at 23 °C ±1 °C, after 30 minute warm-up, using 50/125 multimode fiber with NTT- FC/PC connector

Ordering Examples for Standard Parts:

A customer in the USA needs an 850 and 1300 nm dual wavelength LED source, with FC/PC receptacles. He also wants an AC power supply adaptor.

Bar Code	Part Number	Description
43777	FOSS-22-3-50/125-850/1300-M-0.02	Dual Wavelength Fiber Optic Laser Source with 850 &1300nm LEDs, Output power is typically 20µW (-17dBm), using a 50/125 µm, 0.22NA multi-mode fiber with super FC/PC receptacle. Uses 2 AA batteries or optional AC adapter.
27834	AC-5VDC-MULTI-PLUG-Z	Power supply, 15 Watts, 5VDC output, 3A, with power cord and multi-plugs for different countries. Output is 2.1mm center positive pin power plug.

Ordering Information for Custom Parts:

OZ Optics welcomes the opportunity to provide custom designed products to meet your application needs. As with most manufacturers, customized products do take additional effort so please expect some differences in the pricing compared to our standard parts list. In particular, we will need additional time to prepare a comprehensive quotation, and lead times will be longer than normal. In most cases non-recurring engineering (NRE) charges, lot charges, and a 5 piece minimum order will be necessary. These points will be carefully explained in your quotation, so your decision will be as well-informed as possible. We strongly recommend buying our standard products.

Questionnaire for Custom Parts:

1. What are the wavelengths required for the LED sources?
2. What is required maximum output power of each LED source?
3. What type of receptacles are required for each LED source?

Receptacle Style FOSS ***FOSS-2N-X-a/b-W-F-P***

N = 1: Single wavelength
2: Dual wavelengths

X = Receptacle or connector code:
3S = Standard, Super, or Ultra NTT-FC/PC
SC = SC
8 = AT&T-ST

P = Output power in mW
0.02 for 20 µW
0.1 for 100 µW

F = M = Multimode
S = Singlemode

W = Wavelength, in nm: 850, 1310, 1550

a/b = Fiber core/cladding size, in µm
9/125 for 1300/1550nm corning SMF-28 singlemode fiber
50/125 for 50/125 multimode
62.5/125 for 62.5/125 multimode fiber

Ordering Examples for Custom Parts:

A customer in North America needs an 850/1300 nm dual wavelength LED source, with an SC receptacle on the 850nm source, and the 1300nm source. He also wants an AC adaptor.

Bar Code	Part Number	Description
49390	FOSS-22-SC-50/125-850/1300-M-0.02	Dual Wavelength Fiber Optic Laser Source with 850 &1300nm LEDs, with super SC/PC receptacle. Output power is typically 20µW (-17dBm), when used with a 50/125µm, 0.22NA multi-mode fiber. Uses 2 AA batteries or optional AC adapter.
27834	AC-5VDC-MULTI-PLUG-Z	Power supply, 15 Watts, 5VDC output, 3A, with power cord and multi-plugs for different countries. Output is 2.1mm center positive pin power plug.

Frequently Asked Questions (FAQs):

Q: Can I operate both sources simultaneously?
A: No, only one source at a time can be active.

Q: Do you offer other adaptors for your sources?
A: We can, but we do not recommend this as they are very costly. We recommend instead to use an intermediate patch cord to interface with different connectors, to convert from a standard receptacle to other style connectors.

Q: What is the output power of the LED sources?
A: Typical coupled power is 20 µW using 50/125um(0.22NA) multimode fiber.

Q: Can I use a LED source to test a singlemode system and what power level can be coupled to singlemode fiber?
A: You can use the source with singlemode fiber, but it is generally not recommended because of the low coupling efficiency into singlemode fiber; typically 10µW for 9/125um fiber. Normally, a laser diode source would be used to test a singlemode system. However, if a non-coherent source is required then a LED source may be appropriate.

Q: Do I need to use eye protection when using a LED source?
A: No. However, under certain conditions, the infrared optical output power may exceed Class 1 eye safety limits as defined by IEC 825-1 (1993-11). Do not use magnification (such as microscope) when viewing the device's output.

Application Notes:

The OZ Optics Dual Wavelength LED Source (LED source) uses the latest technology to provide two optical sources in a single, compact package. It provides highly stable LED light references for testing multimode fiber cable at 850, 1300 and 1550nm wavelengths. It is also used in test applications, in the manufacture of passive optical components, and to calibrate devices.

Easy to use:

The LCD display on the front panel indicates the wavelength and the modulation frequency.

Testing and manufacturing passive optical components:

LED sources are used mostly for multimode testing. While they provide a lower output power and a broader spectral width than a laser source, for multimode applications this is not an issue.

One of the key issues with testing multimode systems is that system losses are generally mode dependent. High order modes are typically attenuated more than low order modes. Thus, for accurate measurements one must excite all the modes in the fiber. LED sources are much better than laser diodes for this purpose.

Another advantage of LED sources over laser sources is the fact that the light produced is incoherent. Coherent light from lasers can cause problems if multiple reflections within the optical system interfere constructively or destructively. This interference pattern can change dramatically over a short time period due to small temperature changes or stresses to the fiber. The incoherence of LED sources avoids these interference problems, and greatly simplifies the effort required to test or calibrate multimode systems.

Calibrating optical receivers:

Because of the low temperature dependence and long term stability of LED source, it is the ideal source to calibrate optical receivers. Battery life is a major convenience issue for a source used in this application. The LED source provides up to 40 hours of operation from two AA batteries. An auto power down mode, push-and-hold power keys to prevent accidental activation, as well as the low battery indicator, ensure the most convenience and continuous usage.

Choosing CW or modulation mode:

Unit output power mode can be set in: CW, 270 Hz, 1 KHz, and 2 KHz.

In some applications it is may be easier to detect a modulated signal rather than a continuous (CW) signal. This is especially true if the signal to be detected is very small. A CW signal may be indistinguishable from any offset that may exist in the receiver's electronics. A modulated signal, however, can easily be identified and separated from a constant background level.

Low battery indicator:

The LED source can use AC/DC power or AA alkaline batteries. The battery icon on the LCD displays approximately how much battery life is remaining.

Using bare fibers:

To use an unterminated fiber, we also recommend using the OZ Optics Bare Fiber Adaptors with Magnetic Clamp (http://www.ozoptics.com/ALLNEW_PDF/DTS0003.pdf). When using a bare fiber with the device, take great care to ensure that the bare fiber tip does not extend beyond the adaptor tip. Otherwise you may scratch the optics inside.