

BroadLighter-M Benchtop Broadband Light Source. Product Technical Specification.



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All specifications are subject to change without notice.

Product Description:

Superlum BroadLighter-M-S devices are high power, broadband and very low coherence AC powered bench-top light sources based on fiber coupled superluminescent diode modules (SLD).

The internal structure of any BroadLighter-M has modular design consisting of an optical unit with SLD and other optical components, driver unit and main unit. The driver unit has an integrated DC power supply, as well as driving electronics and temperature control for SLDs. Main unit acts as a motherboard for optical and driver units.

Any M-S series Broadlighter have one SLD module inside, which determines output optical parameters of the device. The design of integrated SLD module controller ensures excellent operation stability of the light sources.

Built-in Output Level Control:

Every BroadLighter-M-S features an output level control through SLD drive current variation. BroadLighter-M-S provides ten discrete levels of output power ranging from 10% to 100%. Level control is available via front panel interface and a remotely via control software.

Optical performance varies depending on selected SLD model and power level – see a brief description below. If you wish to preserve parameters of optical output at different output power levels, look for BroadLighter-M S-series with variable optical attenuator option.

Bell-shaped spectral output

For BroadLighter-M-S models with bell-shaped output spectral shape remains relatively unchanged at all power levels. The spectrum width and mean wavelength vary slightly with the power level (Figure 1). Optical performance is specified for 100% output level. Current BroadLighter-M models with bell-shaped spectral output include M-S670.7.14-I, M-S780.14.30-I, M-S840.25.30-I, M-S970.25.40-I, M-S980.12.50-I, etc.

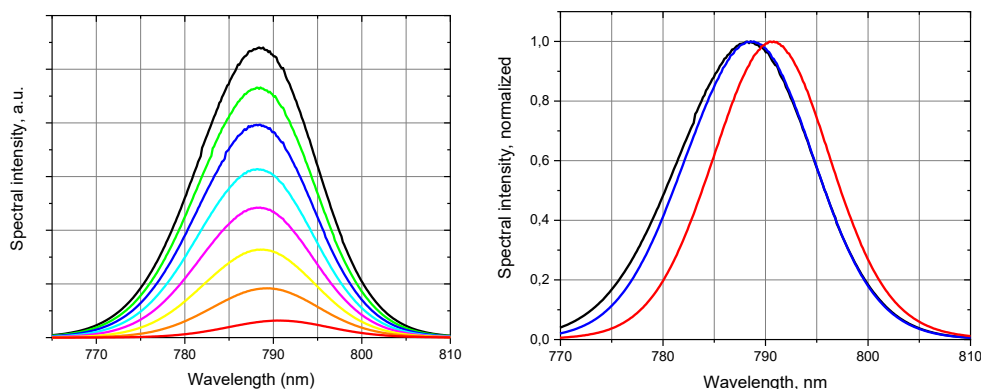


Figure 1. Sample spectra of BroadLighter-M-S780.14.30-I. Left: optical spectra at output levels ranging from 100% (black line) to 10% (red line). Right: the same normalized: black line – 100% output; red line – 10% output; other colors – levels between 20%...90%.

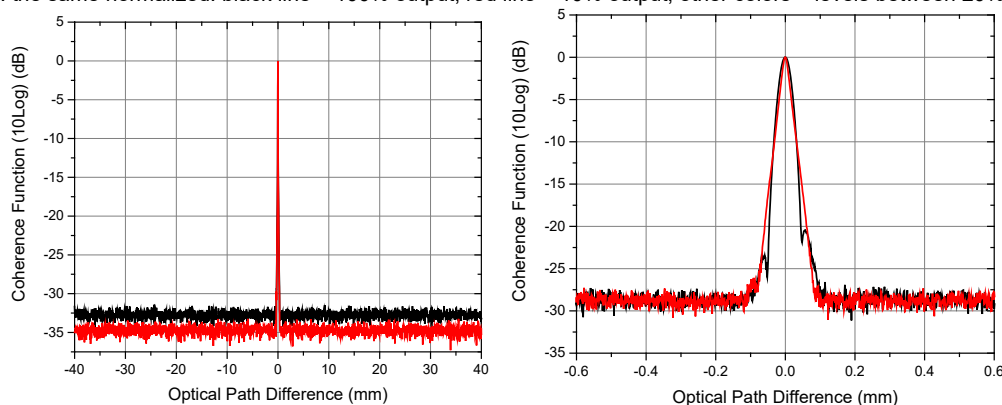


Figure 2. Sample coherence measurements of BroadLighter-M M-S-795-G output. Left –coherence at different output power of 100% (black line) and 10% (red line) measured with 40 mm span. Right: same measurement with 0.6 mm span.

Dual peak-shaped spectral output

For BroadLighter-M models with dual peak-shaped output spectrum width and mean wavelength vary significantly with power level. The spectral shape varies with the output level (Figure 3). Optical performance is specified for 100% output level. BroadLighter-M models with dual peak-shaped spectral output include M-S840.50.25-I, M-S1060.80.25-I, etc.

If you wish to preserve an output spectral parameters at different output levels, look for BroadLighter-M S-series with variable optical attenuator option.

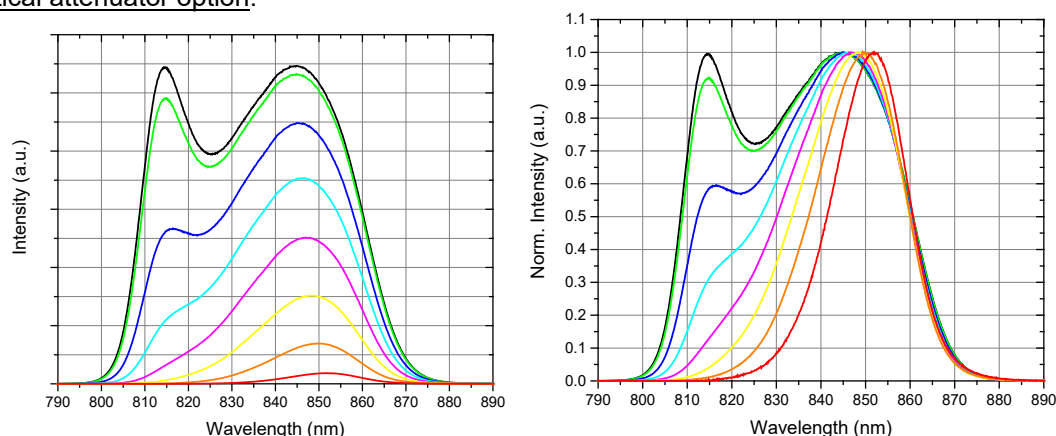


Figure 3. Sample spectra of BroadLighter-M-S849.50.25-I. Left: optical spectra at output levels ranging from 100% (black line) to 10% (red line). Right: the same normalized: black line – 100% output; red line – 10% output; other colors – levels between 20%...90%.

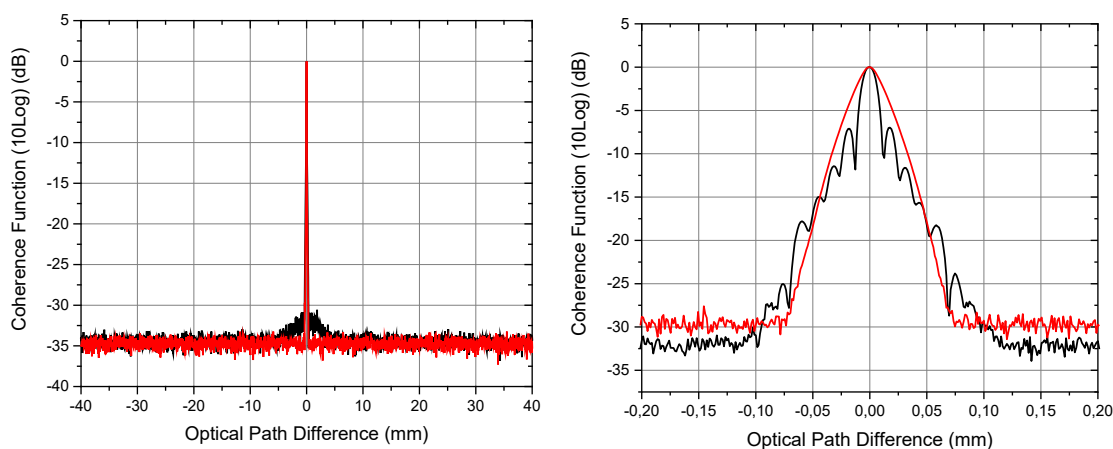


Figure 4. Sample coherence measurements of BroadLighter-M-S849.50.25-I. Left –coherence at 100% (black line) and 10% (red line) of output power measured with 40 mm span. Right: the same but 0.6 mm span.

Product Features:

- LCD screen with easy to use graphical user interface
- Built-in multichannel highly stable driver and temperature controller
- Built-in optical isolator (optional)
- Built-in discrete output level control
- USB interface
- 9-pin DSUB connector for remote control with TTL logic
- Wide range voltage power supply suitable for the 100-240 V AC power lines
- FC/APC fiber optic connector
- Remote interlock

Physical Specifications:

- Overall dimensions (WxHxD): 251x112x192 mm
- Weight (max): 4 kg
- Metal case enclosure

Electrical Power Requirements:

- 100-240VAC, 50/60Hz 40 VA MAX
- IEC 320 compatible AC power cord plug

Environmental Specifications:

- Operating temperature range¹: +5 °C to +35 °C
- Storage temperature range²: -30 °C to +70 °C
- Relative humidity < 80%

Package Contents:

- BroadLighter-M Broadband SLD Light Source
- AC Power Cord
- Master Key
- Optical Patchcable
- Quick Start Guide
- Acceptance Test Report
- CD-ROM
- USB interface cable

¹ Operating temperature range may vary depending on the configuration.

² Storage temperature range may vary depending on configuration.

Sample Optical Performance Parameters:

Model number	Power, mW		Wavelength, nm	3 dB spectrum width, nm		Spectral ripple, %	Minimum isolation ³ , dB	Spectral shape ⁴
	Min.	Typ.		Min.	Typ.			
M-S670.7.15-I	8.0	10.0	670 ± 10	6	7	<5	-30	Bell-shaped
M-S780.14.30-I	20.0	22.0	780 ± 10	12	14	<5	-30	Bell-shaped
M-S830.70.15-I	12.0	15.0	830 ± 10	60	70	<5	-30	Dual peak
M-S840.25.30-I	20.0	22.0	840 ± 10	22	25	<5	-30	Bell-shaped
M-S840.50.25-I	17.0	20.0	840 ± 10	48	53	<5	-30	Dual peak
M-S970.25.40-I	30.0	32.0	970 ± 10	22	25	<5	-30	Bell-shaped
M-S980.12.50-I	40.0	42.0	980 ± 10	10	12	<5	-30	Bell-shaped
M-S1060.80.25-I	18.0	20.0	1060 ± 10	75 (6 dB)	80 (6 dB)	<5	-30	Bell-shaped

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Fibers and Connectors⁵:

Parameter	Type	Comments
Fiber type	SM	SM600 (630-750 nm center) HI780 fiber (750-950 nm center) SM980 (950-1100 nm center)
Mode field diameter / Numerical Aperture (NA)	5 µm / 0.14	
Connector type	FC/APC	
Connector key type	Tight-fit/narrow	



WARNING – CLASS 3B INVISIBLE LASER RADIATION
AVOID EXPOSURE TO BEAM
CLASS 3B LASER PRODUCT
Wavelength: 750-1100 nm
CW/Pulsed: CW
Max Average Power: < 30 mW
Complies with IEC/EN 60825-1:(2014)

³ At mean wavelength.

⁴ Spectral shape alters with output power level.

⁵ Fiber type can be different for M-S-1050-series and custom models – contact Superlum for more information.