M-D-VA-series Broadlighter. Benchtop Broadband Light Source with integrated Variable Optical Attenuator.

Superlum offers M-D-840-HP Broadlighter broadband light source with a Variable Optical Attenuator (VOA) option. It has the suffix "-VA" in the model number. In this design, output power is changeable within 0–100% with the step of 10%. Spectral performance is guaranteed at the full (100%) output power.

Changing Optical power

In **M-D-series Broadlighter with VOA**, SLD itself always emits 100% of its power. The output power is changed with the help of a broadband VOA that is placed after the SLD modules and the optical isolator. For this Broadlighter, changes of optical spectrum with output power are minimized (see the example below)[1]. M-D-series light source with VOAs is recommended for applications requiring changeable output power but stable spectral shape and center wavelength.

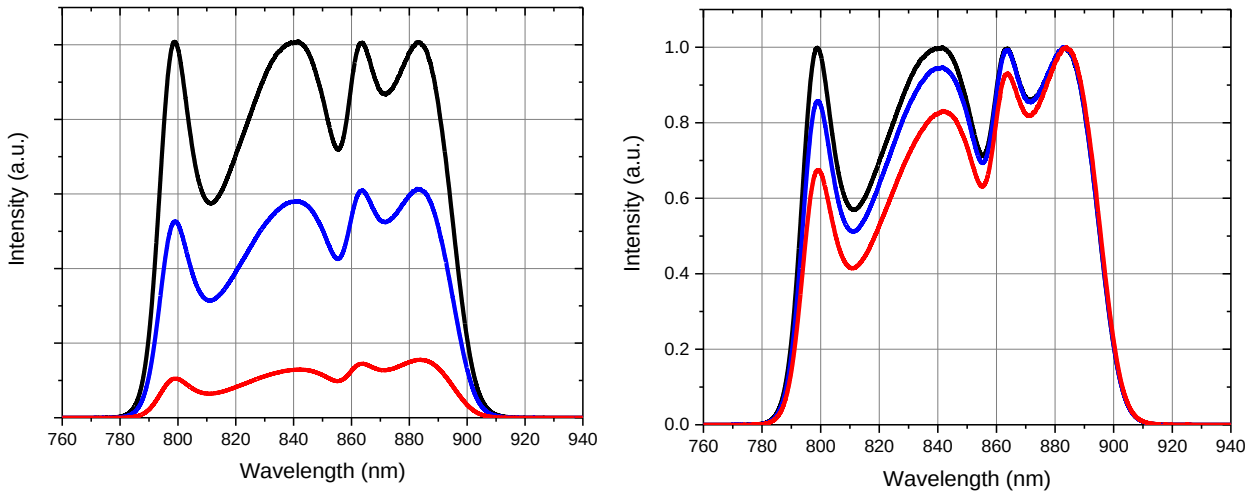
Optical isolator

Standard light source M-D-840-HP-I-VA has a built-in optical isolator to protect the integrated SLD modules from optical feedback.

Optical characteristics

Key parameters of a standard model are listed in the table below.

Model number	Center wavelength (nm)	Spectral width, FWHM (nm)		Output power, SM (mW)	
		Min.	Typ.	Min.	Typ.
M-D-840-HP-I-VA	840±10	90	100	7.0	9.0



Spectrum of Broadlighter M-D-840-HP-I-VA. Left – optical spectrum at output levels: 100% (9 mW SMF, black line); 50% (4.5 mW SMF, blue line); 10% (0.9 mW SMF, red line). Right – same but normalized: 100% (black line); 50% (blue line); 10% (red line).

[1] Up to 30% reduction of emission spectral width (FWHM) is possible at maximum attenuation level.

Physical Specifications
- Overall dimensions (W×H×D): 251×112×192 mm.
- Weight (max): 4 kg.
- Electrical Power Specifications
- 100-240 V AC, 50/60 Hz, 40 VA MAX.
- Environmental Specifications
- Operating temperature range: +5 °C to +35 °C.
- Storage temperature range: -30 °C to +70 °C.
- Operating relative humidity: < 80%, non-condensing.

Note: Operating and storage temperatures may be different for custom models. The ranges shown are valid for all standard models.

Stability
- Long-term (8 h): maximum drift 0.5%.
- Short term (15 min) : maximum drift 0.1%

Laser Safety Measures
The most of high-power SLDs of Superlum are Class 3B according to IEC/EN 60825-1:2014. M-series Broadlighter light sources are equipped with the master key control, remote interlock connection, visual/audible alarm (including a "beep" and 3-seconds delay of switching the emission on after pushing the ON button), and information and warning stickers.

Additionally, each M-series Broadlighter features a built-in protection against optical power overshoot. It is based on an output power monitor placed before the output FC/APC socket and an electrical circuit which immediately switches the emission off if the optical power exceeds the maximum value shown in the Acceptance Test Report (delivered with each device) by more than 30%.

Acceptance Test Report
Each device is delivered with the Acceptance Test Report (ATR) showing at least optical power, spectral data and plot of spectrum at maximum output power, and some other relevant details. An example of ATR is presented in the end of this document.

Package Contents
- Broadlighter-M Broadband Light Source
- AC Power Cord.
- Master Key.
- Optical Patchcable.
- Quick Start Guide.
- Acceptance Test Report.
- CD-ROM with the companion software.
- USB Interface Cable.