Collimated LEDs, 385 nm

Description

Thorlabs' M385LP1-C Collimated LEDs consist of the M385LP1 mounted LED and a lamphouse-port-compatible housing that contains an aspheric collimation optic. The LED has a nominal wavelength of 385 nm and is mounted to the end of a heat sink equipped with internal SM1 (1.035"-40) threads. The M385LP1-C LEDs need to be supplied with a constant current. For more information on each available version, please see the Specifications below.

Specifications

Common Specifications	
Color	UV
Nominal Wavelength[a]	385 nm
Bandwidth (FWHM)	12 nm
Maximum Current (CW)	1700 mA
Forward Voltage	3.9 V
Electrical Power (Max)	6630 mW
Emitter Size	1.4 mm x 1.4 mm
Typical Lifetime	>10 000 h
Operating Temperature (Non-Condensing)	0 to 40 °C
Storage Temperature	-40 to 70 °C
Risk Group[b]	RG3 - High Risk Group

a. Value is approximate.
b. According to the standard IEC 62471:2006, Photobiological Safety of Lamps and Lamp Systems

Item #	M385LP1-C1	M385LP1-C2	M385LP1-C4	M385LP1-C5
Total Beam Power[a]	795 mW	520 mW	660 mW	630 mW
Beam Diameter[a]	50 mm	37 mm	44 mm	43 mm
Compatible Microscopes	Olympus BX and IX	Leica DMI	Zeiss Axioskop	Nikon Eclipse

a. Values are approximate.
b. Measured at Maximum Current.

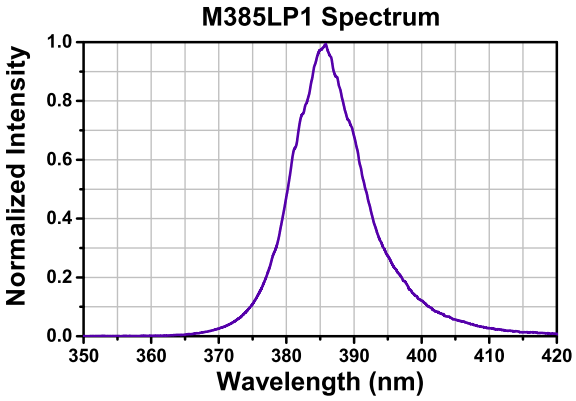
Operating Instructions

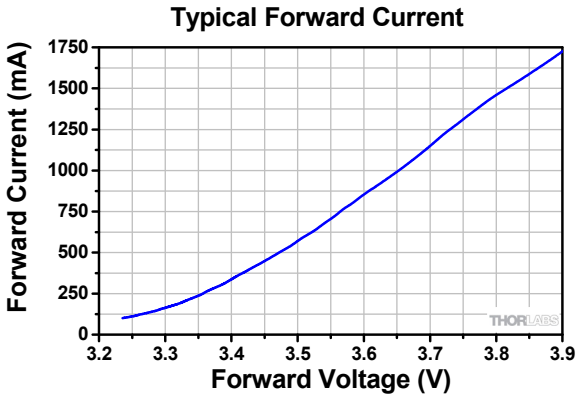
Be sure to provide air ventilation in order to avoid overheating, drops in optical power, and reduced lifetime. Each LED has a characteristic switch-on behavior, which depends on the LED properties and environment conditions. An important criterion is the heat dissipation. The M385LP1-C LEDs have a unique thermal design that reduces the power decay to a minimum.

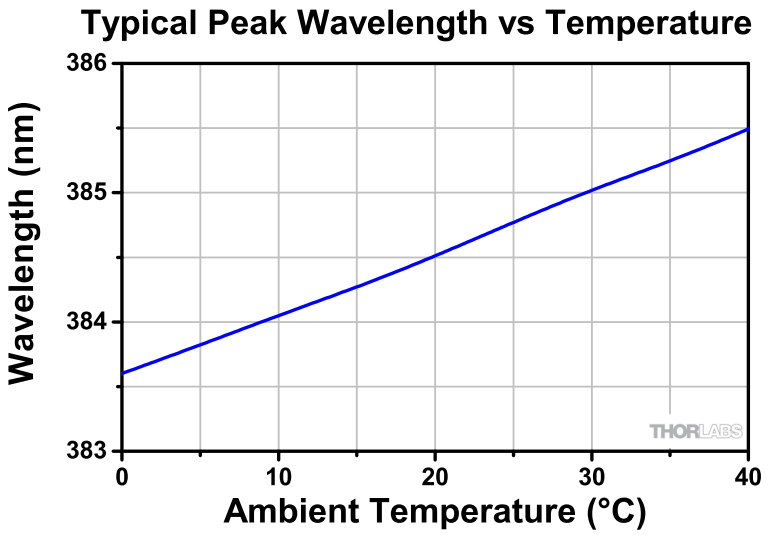
The image below shows the M385LP1-C's male connector, which is a standard M8x1 sensor circular connector. Pins 1 and 2 connect to the LED. Pins 3 and 4 are used for the internal EEPROM. Only use these connections when using a Thorlabs LED driver.

After an LED is switched on, it will warm up which can cause the optical power to decay. The heat sink of the M385LP1-C provides good thermal management, reducing the loss of power as the LED reaches its equilibrium temperature.

Performance Plots

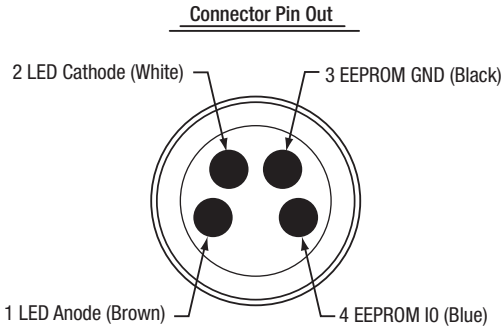






For the bare LED.

Drawings



Power Supply

We recommend using Thorlabs' DC2200 or LEDD1B LED current drivers (for control of a single LED). Alternatively, the DC4100 or DC4104 driver can be used with the DC4100-HUB, which allows simultaneous control of up to 4 individual LEDs.

If you decide to use your own DC source, please make sure that the operation current does not exceed the maximum allowed value, sufficient forward voltage is supplied, and that the correct connection is made to Pins 1 and 2.

Maintenance and Service

The M385LP1-C LEDs are not water resistant and must be protected from adverse weather conditions. To avoid damage, do not expose them to spray, liquids, or solvents. The M385LP1-C LEDs do not contain any parts serviceable by the user and does not require regular user maintenance. Do not open the enclosure. If a malfunction occurs, contact Thorlabs for return instructions.

Warnings and Safety

Inappropriate use of any High-Power LED product may result in permanent eye damage. To prevent injury, use this product in accordance with the International Standard "Photobiological Safety of Lamps & Lamp Systems" IEC 62471. This product falls under Risk Group RG3 – High Risk Group in accordance to the standard IEC 62471:2006.

If using this LED in a microscope application as a replacement for mercury vapor lamp, the same precautions should be taken.

During normal operations, the casing temperature may exceed ambient temperature by as much as 25 °C (45 °F). To prevent higher case temperatures, the products should be operated without anything hindering air movement around the convective cooling fins.

Please note that these LEDs are not suitable for household room illumination.

This LED must not be operated in explosive environments and should only be used with shielded connection cables.

All statements regarding safety of operation and technical data only apply when the unit is operated correctly according to its specifications. The safety of any system incorporating the equipment is the responsibility of the assembler of the system.

UV Warning Statement
The M385LP1-C LEDs contain a source that radiates intense UV radiation during operation. Precautions must be taken to prevent looking directly at the UV light with unprotected eyes. Do not look directly into the UV light or look through the optical system during operation, as this can be harmful to eyes, even for brief periods, due to the high intensity of the UV light.