Fiber-Coupled LED, 395 nm

M395FP1

Description

This Fiber-Coupled LED is mounted to the end of a heat sink. The output is compatible with SMA fiber connectors. This LED needs to be supplied with a constant current that must not exceed the maximum current. The current source must be able to deliver this current at the specified forward voltage. For specifications, please see the table below.

Specifications

Specification	Value
Color	UV
Nominal Wavelength	395 nm
Bandwidth (FWHM)	11 nm
Emitter Size	2.5 mm x 2.5 mm
Maximum Current (CW)	1400 mA
Electrical Power	5600 mW
Typical Lifetime	>10 000 h
Operating Temperature (Non-Condensing)	0 to 40 °C
Storage Temperature	-40 to 70 °C
Risk Group[a]	RG2 – Moderate Risk Group

a. According to the Standard IEC 62471:2006, Photobiological Safety of Lamps and Lamp Systems

	Symbol	Min	Typical	Max
Peak Wavelength[a]	-	390 nm	395 nm	400 nm
LED Output Power (Ø400 µm Fiber)[a,b]	P_{out}	20.1 mW	29.8 mW	-
LED Output Power (Ø200 µm Fiber)[a,c]	P_{out}	-	7.7 mW	-
Forward Voltage[a]	V_F	-	4.0 V	-

a. When Driven with the Maximum Current
b. For multimode fiber with a Ø400 µm core and 0.39 NA (Item # FT400EMT).
c. For multimode fiber with a Ø200 µm core and 0.22 NA (Item # FG200UCC).

Operating Instructions

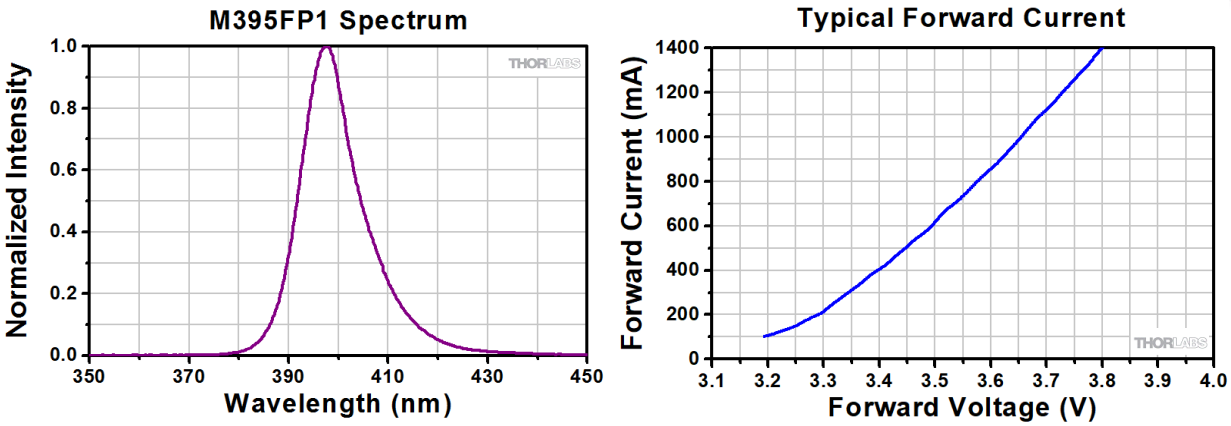
Be sure to provide air ventilation in order to avoid overheating, drops in optical power, and reduced lifetime. Be aware that each LED has a characteristic switch-on behavior, which depends on the LED properties and environment conditions. To supply sufficient heat dissipation, this LED has a unique thermal design that reduces the power decay to a minimum.

The drawing on page two shows the LED's male connector which is a standard M8x1 sensor circular connector. Pins 1 and 2 are connected to the LED. Pins 3 and 4 are used for the internal EEPROM. This pin assignment is valid for all Thorlabs LED drivers. For use of third party LED drivers, please ensure the correct pin assignment.

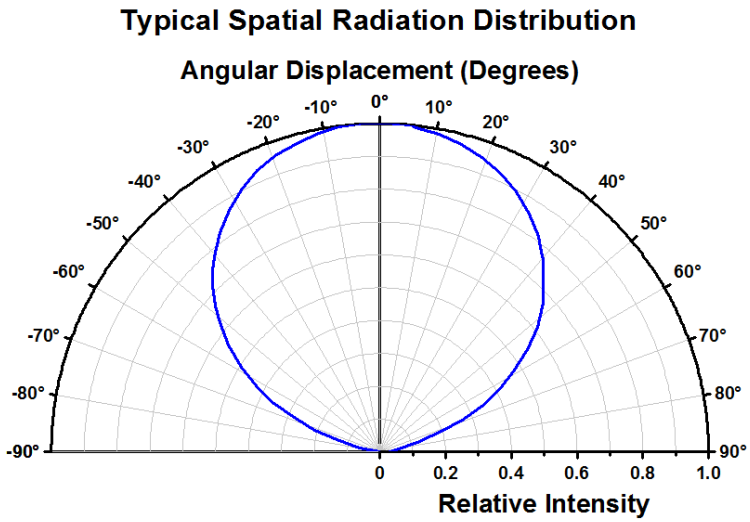
Optical Fiber

Fiber connection to the LED must be made via an SMA fiber connector. We recommend using a multimode (MM) fiber. Optical power increases proportionally with the core diameter and nearly proportionally to the square of the NA.

Performance Plot

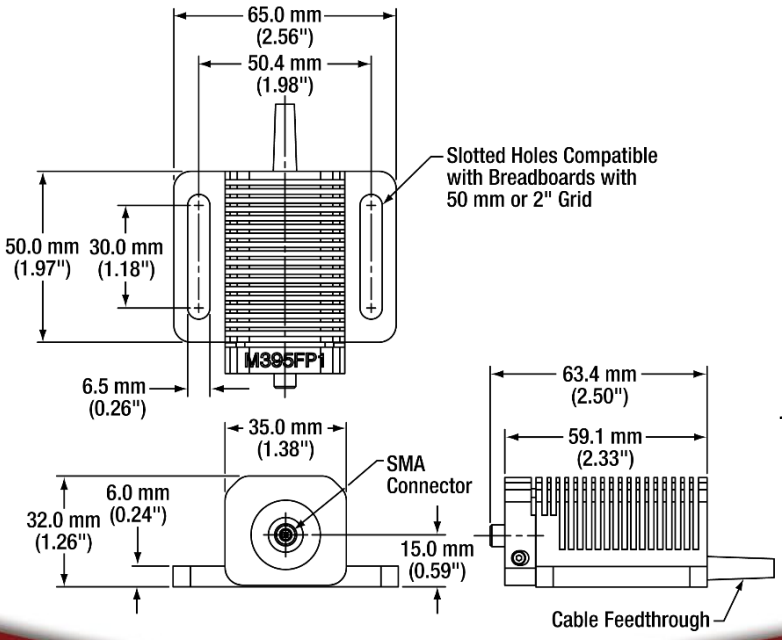


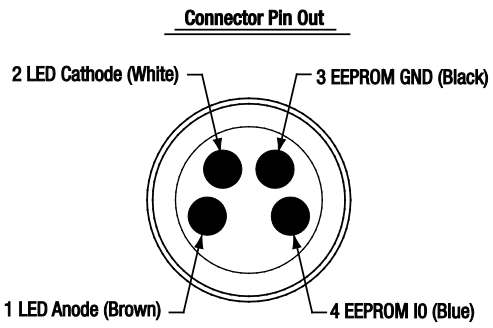
Typical performance for the bare LED.



Typical performance for the bare LED.

Drawings





Power Supply

Please see the Thorlabs website for the available LED drivers. When selecting the LED driver, ensure that:

- The operating current never exceeds the maximum current specified in the LED specification table.
- Sufficient forward voltage is supplied.

If you decide to use your own DC source, please ensure that the correct connection is made to Pins 1 and 2.

Maintenance and Service

Do not stick any items into the SMA connector aperture – you may damage the LED.

This LED is not water resistant and must be protected from adverse weather conditions. To avoid damage, do not expose it to spray, liquids, or solvents. This LED does not contain any parts serviceable by the user and does not require regular user maintenance. Do not open the enclosure. If a malfunction occurs or if your fiber-coupled LED needs repair, contact Thorlabs for return instructions.

Warnings and Safety

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

Please note that this product is 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.

Inappropriate use of any Mounted 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 LED falls under the Risk Group RG2 – Moderate Risk Group in accordance to the standard IEC 62471:2006.

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

UV / Visible Radiation Warning Statement
This LED emits intense UV / visible radiation during operation. Do not look directly into the UV / visible light or look through the optical system during operation, as this can be harmful to the eyes, even for brief periods of exposure, due to the high intensity of the light. If viewing the UV / visible light directly is necessary, protective glasses must be worn to avoid eye damage.