

M405L2



### Description

Thorlabs' Mounted High-Power LED M405L2 has a dominant wavelength of 405 nm, outputs more than 410 mW of power, and is mounted to the end of a heat sink equipped with internal SM1 (1.035"-40) threads. This LED needs to be supplied with a constant current that must not exceed 1000 mA. The current source must be able to deliver this current at a Forward Voltage of 3.8 V.

### Specifications

Specification	Value
Color	UV
Nominal Wavelength	405 nm
Power LED Output (Min)	410 mW
Power LED Output (Typical)	760 mW
Test Current for Typical LED Power	1000 mA
Maximum Current (CW)	1000 mA
Forward Voltage	3.8 V
Bandwidth (FWHM)	13 nm
Viewing Angle	85°
Typical Lifetime	100,000 h

### 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 M405L2 has a unique thermal design that reduces the power decay to a minimum.

The drawing to the bottom right shows the M405L2'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.

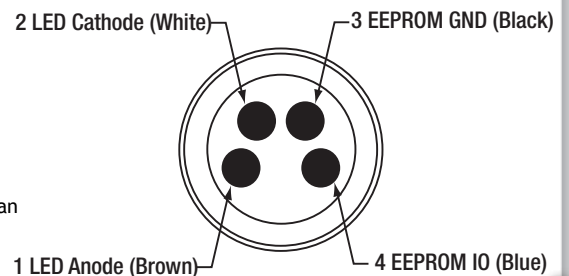
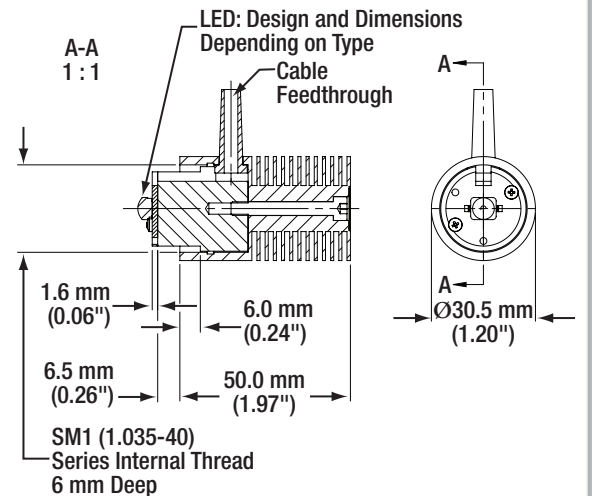
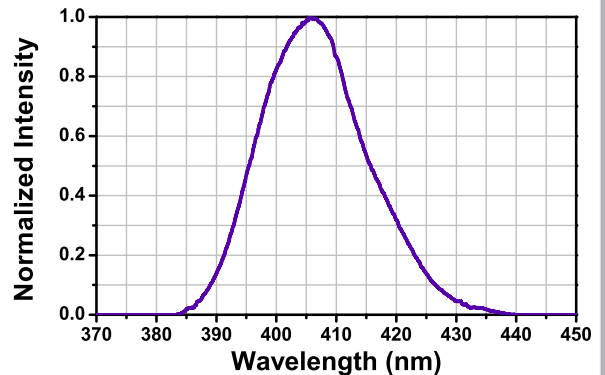
After an LED is switched on, it will warm up which can cause a decay in optical power. The heat sink of the M405L2 provides good thermal management, reducing the loss of power as the LED reaches its equilibrium temperature.

### Power Supply

We recommend using Thorlabs' DC2100 or LEDD1B LED current drivers (for control of a single LED). Alternatively, the DC4100 or DC4104 current 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.

M405L2 Spectrum



## Maintenance and Service

The M405L2 is not water resistant and must be protected from adverse weather conditions. To avoid damage, do not expose it to spray, liquids, or solvents. The M405L2 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, 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" CEI IEC 62471.

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 will 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 fans.

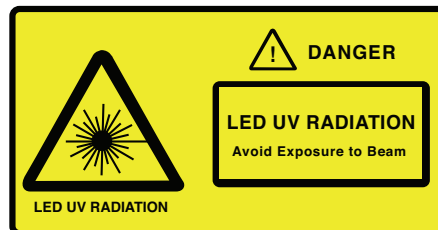
All statements regarding safety of operation and technical data only apply when the unit is operated correctly according to its specifications.

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

### UV Warning Statement

The M405L2 contains a UV light LED. The LED radiates intense UV light during operation. Precautions must be taken to prevent looking directly at the UV light. If viewing the UV light is necessary, UV light protective glasses must be worn to avoid eye damage.

Do not look directly into the UV 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 UV light.



## Warranty

Thorlabs warrants material and production of the M405L2 for a period of 24 months starting with the date of shipment. During this warranty period Thorlabs will see to defaults by repair or by exchange if these are entitled to warranty.

For warranty repairs or service the unit must be sent back to Thorlabs. The customer will carry the shipping costs to Thorlabs, in case of warranty repairs Thorlabs will carry the shipping costs back to the customer.

If no warranty repair is applicable the customer also has to carry the costs for back shipment.

In case of shipment from outside EU duties, taxes etc. which should arise have to be carried by the customer.

Thorlabs warrants the hard- and software determined by Thorlabs for this unit to operate fault-free provided that they are handled according to our requirements. However, Thorlabs does not warrant a fault-free and uninterrupted operation of the unit, of the software or firmware for special applications nor this instruction manual to be error free. Thorlabs is not liable for consequential damages.

### Restriction of Warranty

The warranty mentioned before does not cover errors and defects being the result of improper treatment, software or interface not supplied by us, modification, misuse or operation outside the defined ambient stated by us or unauthorized maintenance.

Further claims will not be consented to and will not be acknowledged. Thorlabs does explicitly not warrant the usability or the economical use for certain cases of application.

Thorlabs reserves the right to change this instruction manual or the technical data of the described unit at any time.

