

The M30 Microlaser is not certified in accordance with IEC 60825-1 or 21CFR1040.10/21CFR1040.11 and is solely intended to be integrated into a laser product certified by the Purchaser. The Purchaser acknowledges that their product must comply with the applicable regulations or standards before it can be sold to an end user.



WEAR LASER SAFETY EYEWEAR

M30 Head

**MAX PULSE ENERGY: 250 μ J
PULSE DURATION: 4.5 ns
WAVELENGTH: 1064 nm**

M30 Driver

**MAX POWER: 30 W
WAVELENGTH: 885 nm**

CAUTION: Devices are ESD sensitive and appropriate protocols must be in place before unpacking.

CAUTION: The fiber is a sensitive optical element, which should not be pulled on, twisted, coiled below the minimum recommended bend radius (see Table 1), or have the optical surface exposed to contamination if connectorized. Do not pick up package by either the fiber or the fiber boot.

Fiber Core / Clad (μ m) [NA]	Minimum Short Term Bend Radius (mm)	Minimum Long Term Bend Radius (mm)	Minimum Operational Bend Radius (mm)
400 / 480 [0.22]	65	75	100

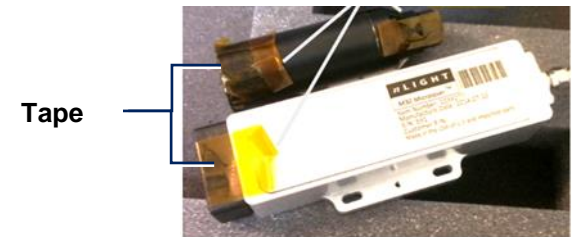
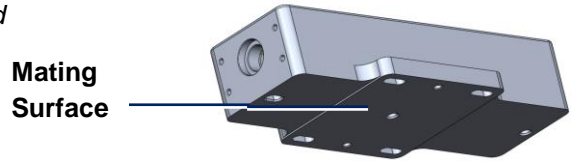
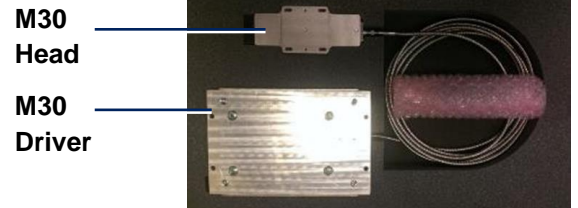
Table 1 – Fiber Bend Radius

Unpacking

1. Open shipping container and remove individual components.
2. Protect M30 head mating surface from contamination, scratches or dents.

Steps 3 . 5 apply only if the beam expander accessory is purchased

3. Open wrapped beam expander.
4. Remove tape from beam expander and M30 head.
5. Connect beam expander to M30 head.



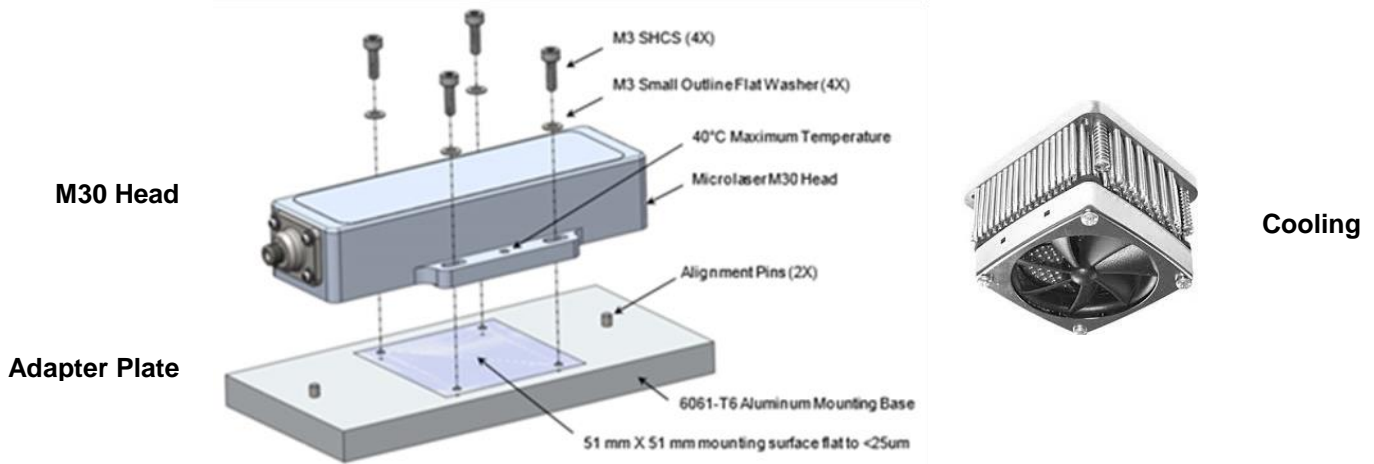
Installation

1. Review datasheet accompanying unit to ensure system or equipment is capable of driving unit properly (i.e. meets current/voltage requirements).
2. Prepare mounting surface for M30 head (Table 2 has required heat sink specifications).

Specification	Value	Units
Flatness	25	µm
Expected Heat Load	25	W
Temperature ¹ (min/max)	10 / 40	°C

¹Head temperature impacts performance. Datasheet values measured at 25°C.

Table 2 – M30 Head Heat Sink Specifications



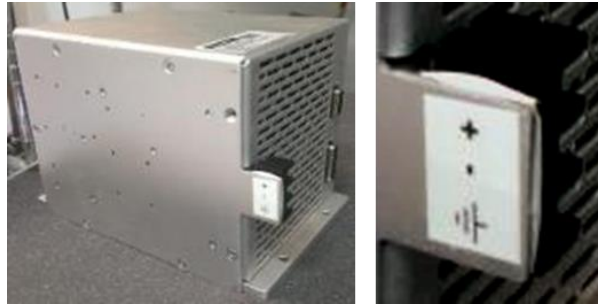
3. Inspect the base of the M30 head for damage, then clean and place on a clean mounting surface and align to the mounting holes. **CAUTION:** Device must not be exposed to any paste- or grease-based compounds in the event that factory servicing is ever required.
4. Mount the M30 head to mounting surface using either #4 or M3 SHCS, 3/8” or 10 mm minimum length. Gradually tighten screws with a torque wrench to 0.5 N*m (4.4 in-lb or 71 in-oz max). The first pass should be to 50% of the final torque value and the second pass to the final torque value.
5. The M30 head arrives connected to the M30 driver and should not require cleaning. However, if the two components are separated after receipt, and if there is a risk that the fiber facet has become contaminated, inspect the end of the fiber prior to use and clean if necessary. **CAUTION:** nLIGHT recommends the use of methanol and lens tissue for cleaning to avoid damage to the buffer layer. Move housing and fiber assembly together so as not to stress the fiber.



WARNING: Connecting the M30 driver to a current source could result in inadvertent laser operation, so use of appropriate laser safety eyewear is required.

6. Connect +24V DC power supply to M30 driver (22-26V, 13A maximum).

- < +24V Top terminal
- < +24V return Middle terminal
- < Ground Bottom terminal



7. The M30 driver is controlled through a female DB-26 connector.

Pin#	Name	Function
1	Interlock	TTL High is closed (may connect to pin 9 for operation).
2-8	Reserved	Do not connect to these pins.
9	+5V	+5V reference, 10 mA maximum (referenced to Common).
10	Enable	TTL high enables laser output (referenced to Common).
11,13,14,17	Reserved	Do not connect to these pins.
12,15,18,20,25	Common	Common reference return pins.
16	LaserTemp	0-5V CMOS; High is Temp OK (referenced to Common).
19	Intensity	Laser intensity; 0V to +10V for 0% to 100% output power (referenced to Common).
21-24, 26	Reserved	Do not connect to these pins.

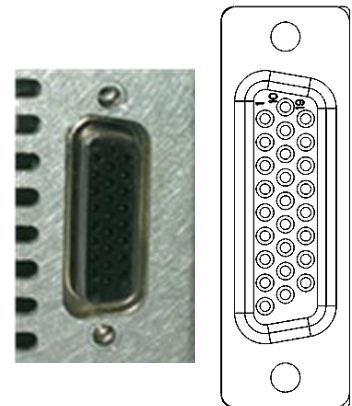


Table 3 – DB-26 Connector Pin-Out

Operation

1. Energize the 24V DC power supply.
2. Apply TTL high signal to pin 1 of the DB-26 connector (close interlock).
3. Apply 0-10V to pin 19 for intensity level control. 10V will output 5.5W from the M30 head. Changing the intensity level will also change the operating temperature of the driver. After changing the intensity level, wait for the green LED to stop flashing, indicating that the driver temperature has stabilized, before enabling the laser.



WARNING: Enabling current source will generate Class 4 laser emission, so use of appropriate laser safety eyewear is required.

4. Apply TTL high to pin 10 to enable laser emission.







LED		Interlock	Message
Flashing green		Closed	Laser temperature is stabilizing. All M30 performance specifications apply at the stabilized operating temperature.
Alternating red/green		Open	Laser temperature is stabilizing and the interlock is open. All M30 performance specifications apply at the stabilized operating temperature.
Flashing orange		Closed	Laser emission.
Green		Closed	Laser temperature is stabilized and the interlock is closed.
Red		Open	Laser temperature is stabilized and the interlock is open.
Red		Closed	Laser fault. Turn off the 24V DC power supply, wait 10 seconds, then re-energize the 24V DC power supply. If problem persists, contact nLIGHT.

Table 4 – LED Color Codes