Premier PWM Userguide

Product Overview

Thank you for purchasing the Premier PWM laser. This emits a visible/IR spot/projection If you have any problems or require help when using the Premier PWM please call us on +44 (0)1495 212213 or contact your local representative

The Premier laser diode modules represent the highest level of optical and electrical performance at an economical price, a combination that is unmatched in the marketplace.

The secret of their superiority is a control circuit design that not only gives you excellent output power stability over time and temperature, but also offers fast, closed-loop modulation with an extinction ratio as high as 10,000:1. The PWM version allows you to use pulse width modulation of the output intensity from a TTL level input signal, within the limits of the laser module's maximum rise and fall time. You can therefore control the mean intensity of the laser beam simply by changing the mark to space ratio or modulate the laser with coded information. A wide range of wavelengths, powers and lens options are available, each combination having been carefully selected to provide you optimum performance, while ensuring the laser diode is never over driven.

Product Operation

A: CW Mode

To operate the laser in CW mode connect 4 way JST (see diagram A) to back of laser module. The Red, Black and Blue leads should be connected as below. If you have purchased a DNI (Digital non inverted) model, connect the yellow lead to supply, if you have purchased a DI model (Digital inverted) model connect the yellow lead to 0 volts.

Pin	Lead	Red & IR Models	Green & Blue Models
Pin 1	Red Lead	+5 Vdc ±250mV	+10 Vdc ±250mV
Pin 2	Black Lead	0 Vdc	0 Vdc
Pin 3	Yellow Lead (DNI)	Supply	Supply
	Yellow Lead (DI)	0 Volts	0 Volts
Pin 4	Green/Yellow Lead	V Supply if not using as enable	V Supply if not using as enable

B: TTL Mode

The Premier PWM allows the unit to be gated on and off, or pulse-width modulated at TTL voltage levels via the yellow control lead. The standard version (DNI) offers non inverting TTL where an input signal of < 0.4 V = off and > 2 V = on and vice versa for the inverted (DI) model. Frequency bandwidth for red and IR models is typically 1 MHz. Rise Time: 0.5 µs (typical) and for green and blue models is 500 kHz. Rise Time: 1 µs (typical).

Pin	Lead	Red & IR Models	Green & Blue Models
Pin 1	Red Lead	+5 Vdc ±250mV	+10 Vdc ±250mV
Pin 2	Black Lead	0 Vdc	0 Vdc
Pin 3	Yellow Lead	Input TTL Signal	Input TTL Signal
Pin 4	Green/Yellow Lead	V Supply if not using as enable	V Supply if not using as enable

Blue Lead (Enable Switch)

An on/off switch function is available via the blue wire. Applying 0V will switch the laser off whilst applying Vsupply leaves the laser on. This is partially useful for safety interlocks or enable switch's required for laser safety systems. A TTL switch can also be utilised via this lead. TTL High = on and TTL Low = off. Maximum frequency is typically 100 Hz. If not using these function please connect the lead to the V supply or the laser will not switch on.

Focus Adjustment

The focus of the of the Premier can by using the supplied focus key. Should you need to adjust the focus please follow these simple instructions.

Premier fitted with dot optics

1. Insert focus key into laser barrel and align with focus control groves.
2. Turn the focus key until desired focus is achieved.

Premier fitted with projection optics

1. Remove any external optics, where fitted (see drawing B).
2. Insert focus key into laser barrel and align with focus control groves.
3. Turn the focus key until desired focus is achieved.
4. Replace the external optics if fitted and rotate to achieve the desired projection.

Mounting

The lifetime and stability of your laser can be optimised when mounted on a suitable heat sink. This allows the case temperature to be kept within its specified range. Failure to properly heat sink your laser device could result in shortened lifetime or failure of the diode. As a general guideline, the lifetime of a laser diode decreases by a factor of two (approx.) for every 10°C increase in operating temperature.

There are three mounting clamps available for the Premier: heavy duty clamp (with/without magnetic, swivel clamp and pillow block bearing mount.

Mounting the Premier in the Heavy Duty Clamp (See drawing C)

1. Secure the clamp to a surface. There are two methods:
   a. Screw an M5 stud to the bottom of the base, or
   b. Remove the base by removing 2 x grub screw B with the supplied Allen key, then thread an M5 cap screw through the top of the base. Then re-attach the base to the body of the clamp.
2. Loosen Allen screw A with the supplied Allen key
3. Slide your laser into the mounting hole and then tighten Allen screw A
4. Loosen grub screw A
5. Adjust the vertical angle of your laser and then tighten grub screw A
6. Loosen 2 x grub screw B. This will allow the main body of the mount to be rotated independently of the base
7. Adjust the horizontal angle of your laser and then tighten 2 x grub screw B

Mounting the Premier in the Heavy Duty Clamp with Magnetic Base (See drawing C & D)

1. Secure the magnetic base to the Heavy Duty Clamp
   a. Screw the stud on the top of the magnetic base into the centre hole at the bottom of the Heavy Duty Clamp

2. Remove the keeper from the magnetic base and place on a ferrous surface
3. Loosen Allen screw A with the supplied Allen key
4. Slide your laser into the mounting hole and then tighten Allen screw A
5. Loosen grub screw A
6. Adjust the vertical angle of your laser and then tighten grub screw A
7. Loosen 2 x grub screw B. This will allow the main body of the mount to be rotated independently of the base
8. Adjust the horizontal angle of your laser and then tighten 2 x grub screw B

Mounting the Premier in the Swivel Mounting Clamp (See drawing E)

1. Secure the mounting base to a surface
   a. You can use 2 x Ø9 mm slots, 4 x Ø4.5 mm holes, and/or 2 x Ø3.5 mm countersunk holes to achieve this. If mounting via Ø3.5mm countersunk holes, the swivel bracket must be removed from the base and then reattached after mounting.
2. Loosen A llen screw A (M3)
3. Slide your laser into the mounting hole and then tighten Allen screw A
4. Loosen Allen screw B (M5)
5. Adjust tilt angle and then tighten Allen screw B
6. Loosen 2 x M4 screws attaching swivel bracket to base
7. Adjust swivel angle and then tighten 2 x M4 screws remains with the user.

Mounting the Premier in the Pillow Block Bearing Mount (See Drawing F)

1. Secure the mount to your workbench or surface using the 20 x 11 mm oval slots in the base
2. Unscrew the M6 or M8 socket head screws to remove the clamp from the base
3. Separate the black mounting cylinder from the spherical rolling element
4. Insert your laser into the mounting cylinder
5. Replace both halves of the spherical rolling element around the cylinder and hold in place
6. Position the spherical rolling element and mounting cylinder in the curved section of the clamp and hold in place
7. Replace the other half of the clamp and hold in place
8. Screw the M6 or M8 socket head screws through the clamp and into the base
9. Manually adjust the direction of your laser

Cleaning The Optics

If the laser pattern becomes fuzzy or unclear, please check the following:

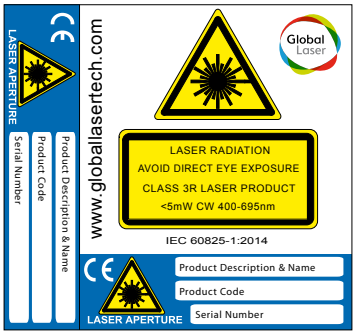
1. Check the laser is in focus.
2. Remove contaminants with a compressed air duster.
3. Contact Global Laser or your local representative if you still have issues.

Note: Handle optics with care using powder-free latex or nitrile gloves. These prevent the transfer of oils and debris from hands to optics.

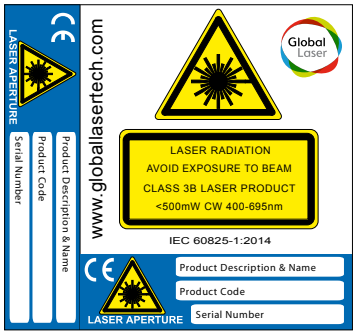
Safety & Classification

These modules are intended for incorporation into customer equipment. They are classified in accordance with IEC60825-1 2014, which should be consulted prior to designing or using any laser product. The following labels are supplied for attachment to the customer's equipment, but responsibility for compliance with the standard remains with the user.

Class 2 Laser Label



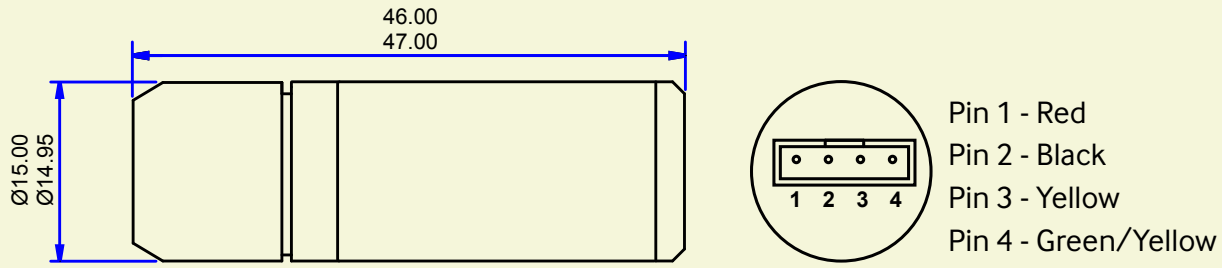
Class 3R Laser Label



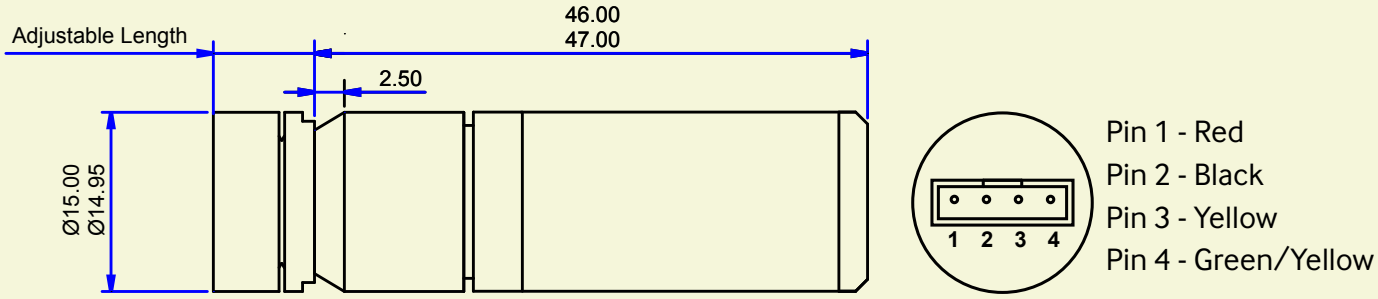
Class 3B Laser Label

Diagrams

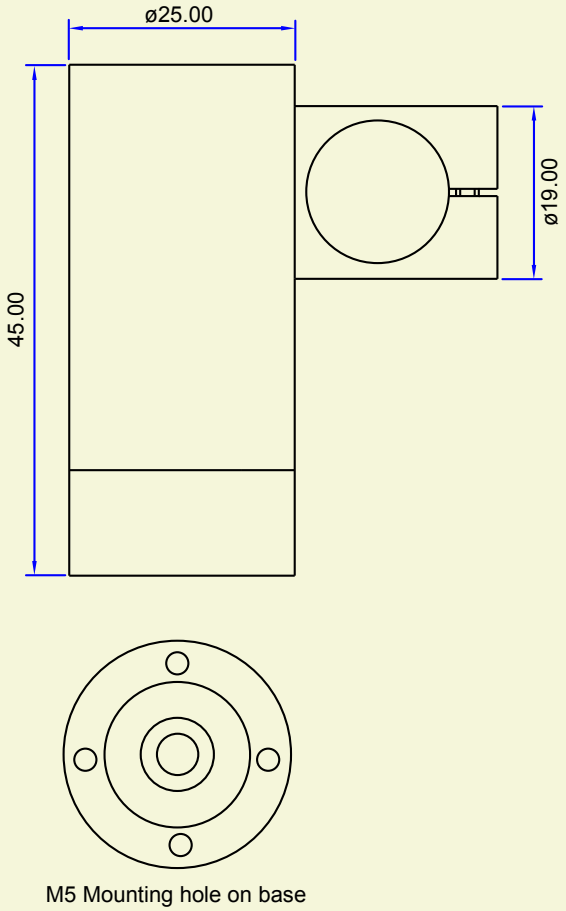
A) Premier LC



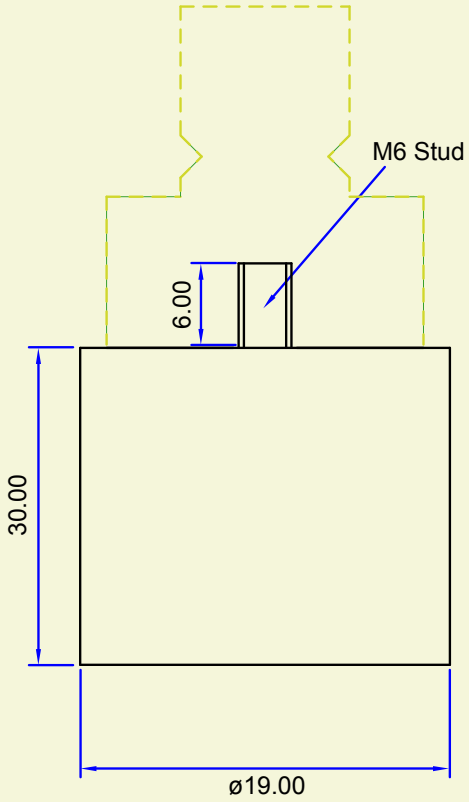
B) Premier LC with External Optic



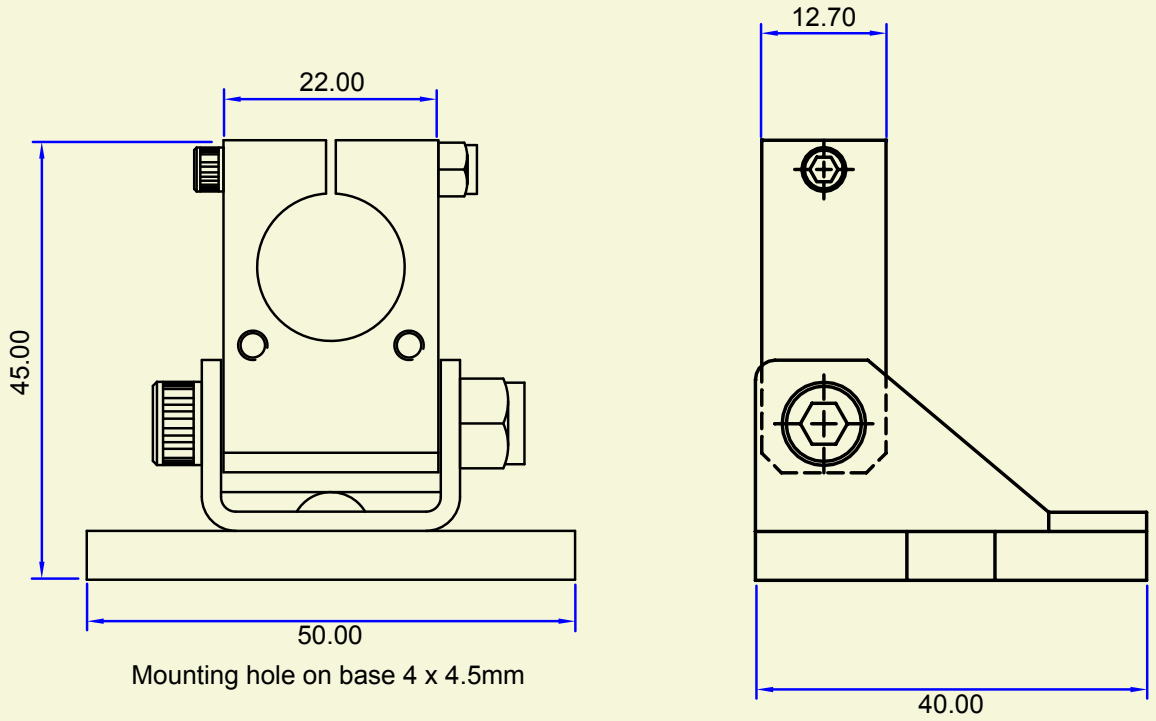
C) Heavy Duty Mounting Clamp



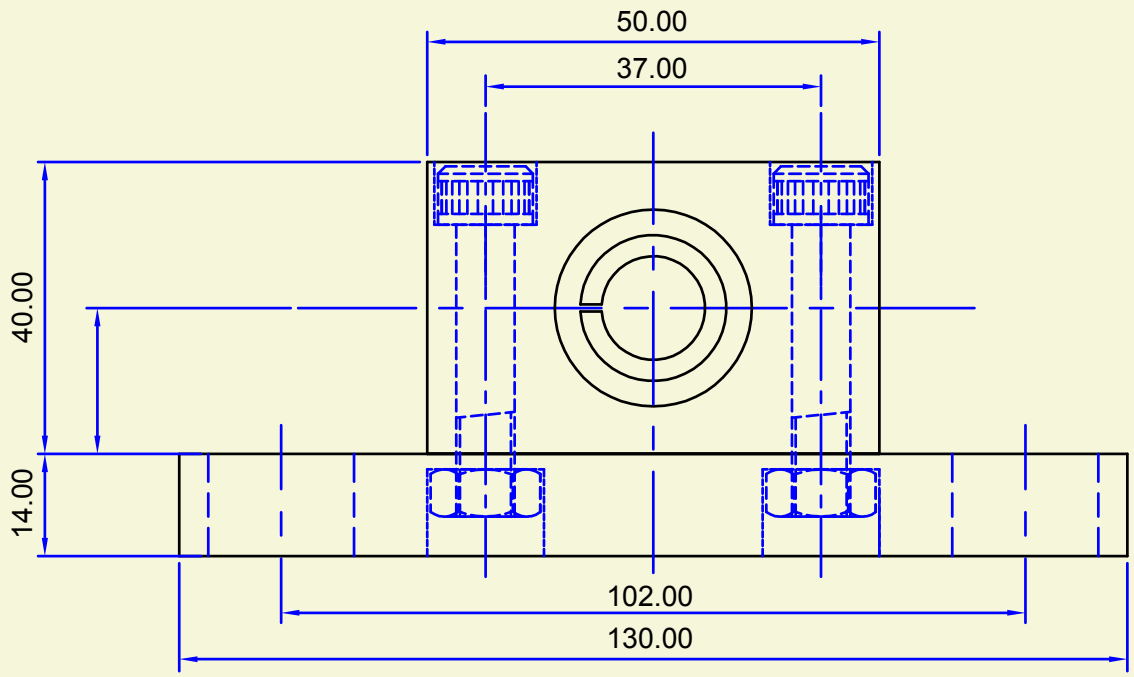
D) Magnetic Base



E) Swivel Mounting Clamp



F) Pillow Block Bearing Clamp



Please Note: Global Laser reserve the right to change descriptions and specifications without notice.

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