



GuideLine 2 Userguide

1. Product Overview

Thank you for purchasing the GuideLine 2 laser diode module. This module emits a line or cross in the visible wavelength range.

If you have any queries or require help when using the GuideLine 2 Range please call us on +44(0)1495 212213 or contact your local representative.

The GuideLine 2 provides a reliable and robust industrial alignment laser for a wide range applications including the alignment and positioning of materials including garments, cloth, paper, wood and metal. It features IP67 protection, a threaded barrel and the ability to operate from industrial voltage sources such as 24Vdc.

The laser is available in two power levels in 635nm, which is the brightest red wavelength. For more visually demand application a version in 520nm green is available which is ~ 4 times more brighter then the same power in 635nm. For all three models, a range of different line generators with fan angles from 20 to 90° are available. Two different cross projections are also available. The user can also adjust the focus via an external control ring.

The laser features an IP67 rated housing to protect it from dirt and debris and a thread barrel to simply mounting with bulkheads and mounting blocks. Electrical connection is via an IP67 jack plug with an operating voltage input range of 5 to 30Vdc (520nm models 10 to 30Vdc).

A comprehensive range of accessories including mounting clamps and rail systems, mains power supplies and laser safety and enhancement glass are also available to complement the Guideline 2.



2. Product Operation

A: CW Mode

To operate laser in CW mode the Red & Blue leads should be connected to the following:

Lead	Description	GuideLine 2 - Red	GuideLine 2 - Green
Red Lead	+ Volts	+5 to 30Vdc	+10 to 30Vdc
Blue Lead	0 Volts	0 Vdc	0 Vdc

B. Operating with a PS-1 10 Volt

If you have purchased a GuideLine 2 with a 100V/240V to 10 Volt PS1 you will have the following items:

GuideLine 2 Laser

Lyte-MV2 to PS-1 Cable

100V/240V to 10 Volt PS-1

Main socket to PS-1 Power Lead (UK, Euro or US)

1. Connect the DC jack on the GuideLine 2 to PS1 cable into the DC socket on the PS-1 power supply and screw binder connector into the connector on the end of laser.
2. Connect IEC plug to PS-1 power adaptor.
3. Plug the mains plug into a mains socket.
4. Switch on the power supply via key switch (If you have purchased a 10V PS1 fitted with a key switch) or switch on at the mains socket.

3. Mounting

To ensure the lifetime and the stability of the laser it is recommended that it is mounted in a suitable heat sink/mount. The case temperature should be kept within the specified range at all times, failure to do this could result in shortened lifetime or catastrophic failure. As a guide, laser diode lifetime decreases by a factor of two (approx.) for every ten degree increase in operating temperature.

To assist with this requirement the GuideLine 2 has a threaded front barrel (M18x1) which can fit to a bulkhead or threaded hole. The direct contact of the barrel to the mount helps to ensure heat sinking and improve laser diode lifetime. Alternatively a version of Global Laser's heavy duty clamp which has a thread arm is available. To further assist mounting the module is supplied with two nut's which are fitted to the front barrel. A tool to fit a 24mm nut is required for adjustment. To further improve reliability the barrel is isolated from the laser diode supply voltage at all times.

3A Mounting the GuideLine 2 in the Heavy Duty Clamp

1. Un-tighten allen screw A (see drawing B) with the supplied allen key
2. Screw the laser into the mounting hole (see drawing B) and tighten allen key A.
3. For vertical adjustment of the laser un-tighten grub screw A (see drawing B). This will allow the section mounting the laser to be adjusted. When the vertical posting is complete re-tighten grub screw A.
4. For horizontal adjustment of the laser un-tighten grub screw B (see drawing B). This will allow the main body of the mount to be moved. When the horizontal positing is complete re-tighten grub screw B.
5. To secure the heavy duty clamp to a surface machine screw or studs can be used in conjunction with the base section (see drawing B for thread details).

3B Mounting the GuideLine 2 in the Heavy Duty Clamp with the Magnetic Base

1. Un-tighten allen screw A (see drawing B) with the supplied allen key
2. Screw the laser into the mounting hole (see drawing B) and tighten allen key A.
3. For vertical adjustment of the laser un-tighten grub screw A (see drawing B). This will allow the section mounting the laser to be adjusted. When the vertical posting is complete re-tighten grub screw A.
4. For horizontal adjustment of the laser un-tighten grub screw B (see drawing B). This will allow the main body of the mount to be moved. When the horizontal positing is complete re-tighten grub screw B.
5. To secure the magnetic base to the heavy duty clamp simple screw the stud on the top of the magnetic base into the centre hole in the base of the heavy duty clamp until tight.
6. Remove the keeper from the magnetic base and place on a ferrous surface to secure.

4. Cleaning The Optics

The GuideLine 2 is protected against dust and fluid with an ingress protection (IP) rating of 67. The protection level is defined IEC60529 as below:

IP First Number	Protection against solid objects
6	Totally protected against dust
IP Second Number	Protection against liquids
7	Protected against the effects of immersion between 15cm and 1 meter

Please Note that liquids are defined as water. Oil or chemicals may require further protection.

It is recommended that when the GuideLine 2 is not in use the supplied protective cap is placed over the optics to reduce the risk of the being contaminated by dirt.

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

1. Check the laser is in focus (see section 5).
2. Verify the protective window on the front of the laser is clean

If the window is contaminated, the lens can be cleaned with an optical cloth or cleaning kit.

5. Focus Adjustment

The laser will have been focused and tested at the nominal working distance requested at the time of order. If you did not specify a distance or were unsure at the time of order it will be focused at 1000mm (39.37 inches).

Should you need to adjust the focus (alter the spot size line thickness/pattern thickness) please follow the simple instructions below:

Turn the focusing control (brass knurled section) at the middle of the laser (see diagram A) clockwise / anti clockwise until the desired focus is achieved. As a rule of thumb if you wish the focus to be at shorter distance from the laser than it is currently set to turn the focus control anti-clockwise. If you wish the focus to be at longer distance from the laser then it is currently set to turn the focus control clockwise.

6. Working Distances

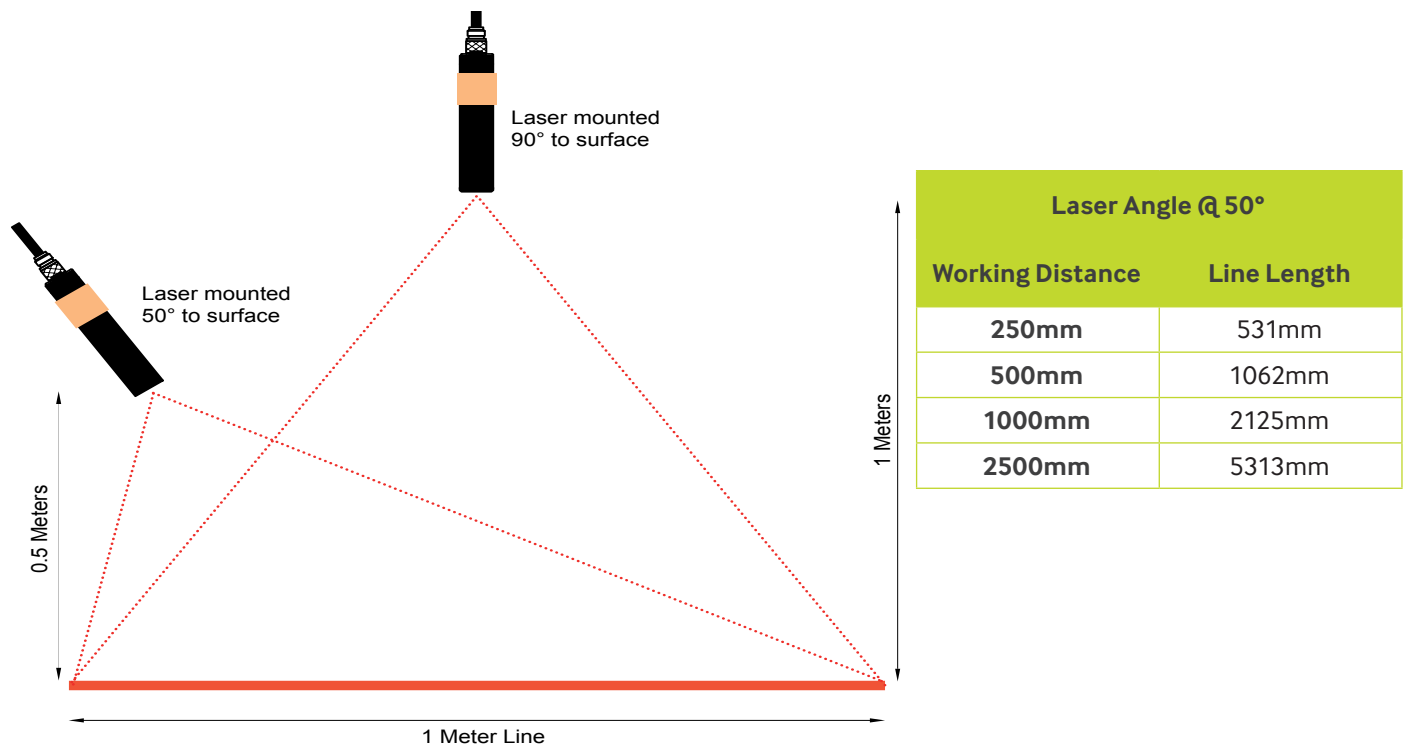
The size of the fan angle (or spread of the beam) will determine how long the line is. When viewed from the same distance and at 90 degrees to the surface a line with a fan angle of 97 degrees will be longer than a line with a fan angle of 20 degrees.

Fan Angle (Degrees)	Distance to Object (mm)	Line Length (mm)
20	100	35
97	100	226

As a guide to relationship between working distance, line length and fan angle please see the table below.

		Fan Angle (Degrees)			
		20	56	65	97
Distance From Object (mm)	250	88	266	319	565
	500	176	532	637	1130
	750	264	798	956	1695
	1000	353	1063	1274	2261
	1250	441	1329	1593	2826
	1500	529	1595	1911	3391
	1750	617	1861	2230	3956
	2000	705	2127	2548	4521
	2250	793	2393	2867	5086
	2500	882	2659	3185	5651
	2750	970	2924	3504	6217
	3000	1058	3190	3822	6782
	3250	1146	3456	4141	7347
	3500	1234	3722	4459	7912
	3750	1322	3988	4778	8477
	4000	1411	4254	5097	9042
	4250	1499	4520	5415	9608
	4500	1587	4785	5734	10173
	4750	1675	5051	6052	10738
	5000	1763	5317	6371	11303
5250	1851	5583	6689	11868	
5500	1940	5849	7008	12433	

If you require a longer line than a 56° fan angle will produce at the working distance then a possible solution may be to change the mounting position and angle of the laser. By moving the laser to end of the working area and angling the laser to a 50° angle to the work surface the line length is increased by a factor of 2. See the table below and the diagram for a comparison.

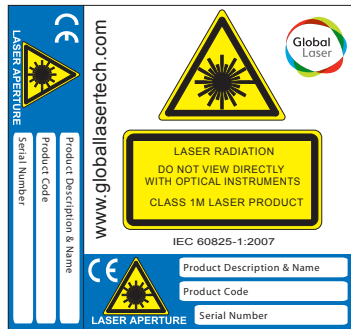


7. Visibility

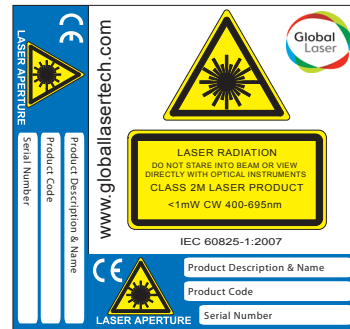
For more visually demand applications it is recommended that the 520nm green models are used. A 520nm model is ~ 4 times brighter then the same model in 635nm. Laser Enhancement Glasses can also be enhance projections from the 635nm models which is useful were there are high levels of ambient light.

8. Safety & Classification

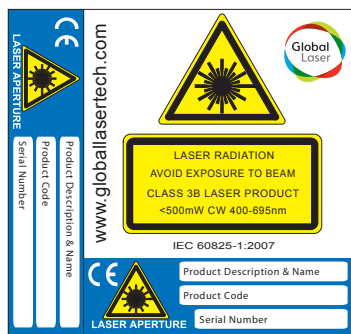
These modules are intended for incorporation into customer equipment. They are classified in accordance with IEC60825-1 2007, which should be consulted prior to designing or using any laser product. The following labels are supplied for attachment to the customer's equipment, but responsibility for compliance with the standard remains with the user.



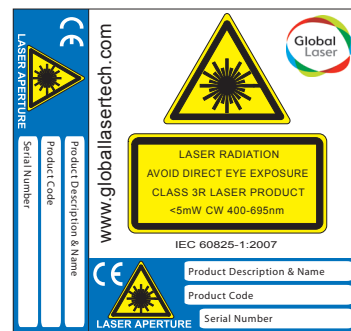
Class 1M Laser Label



Class 2M Laser Label



Class 3B Laser Label



Class 3R Laser Label

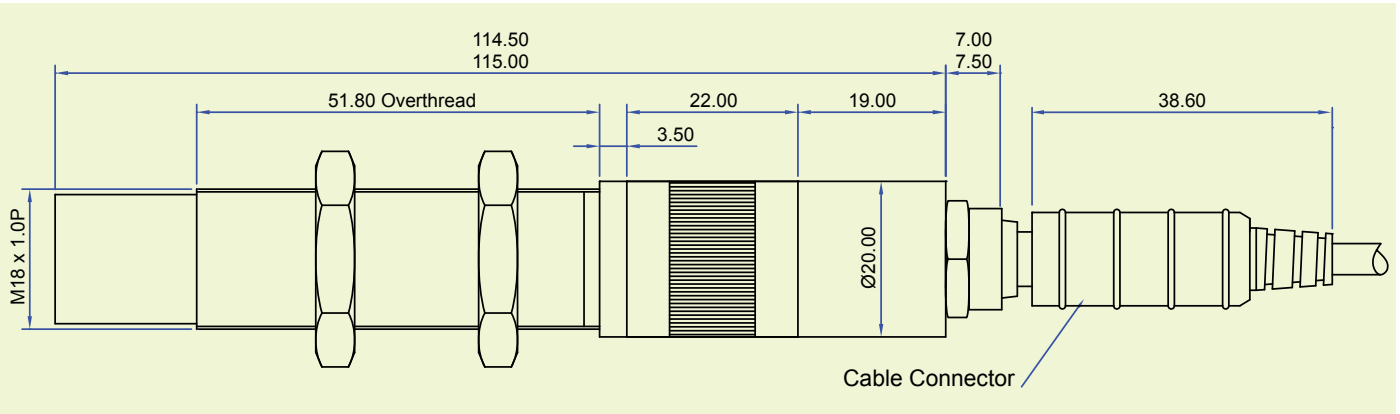
9. Warranty & Repair

If your product develops a fault within 24 months from the date of purchase Global Laser will repair / replace the product. If you wish to return a faulty product contact your local representative or Global Laser to obtain a RMA (Return Material Authorisation code) and return to the address below:

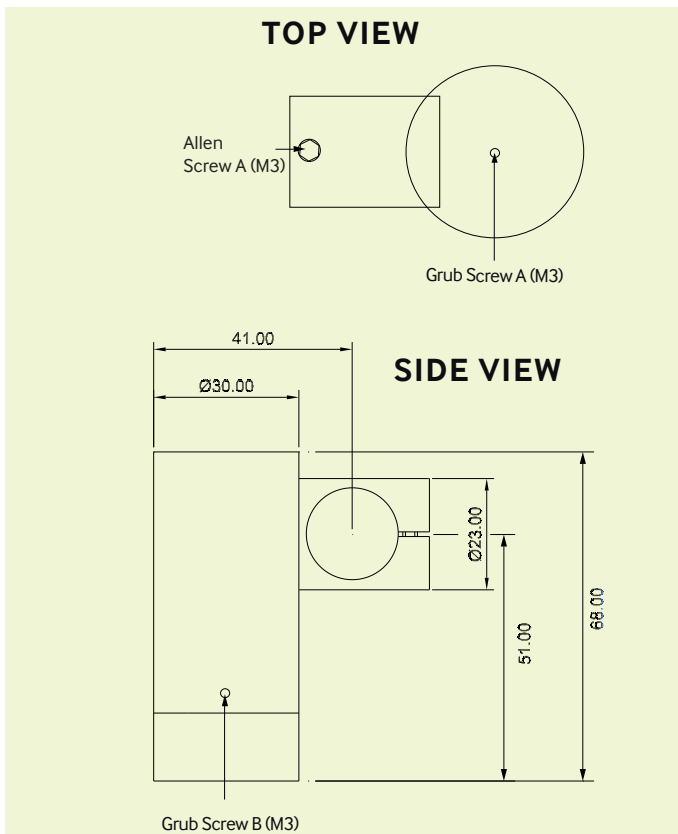
Global Laser Ltd
Units 9-10
Roseheyworth Business Park
Abertillery
Gwent, NP13 1SP
United Kingdom

10. Diagrams

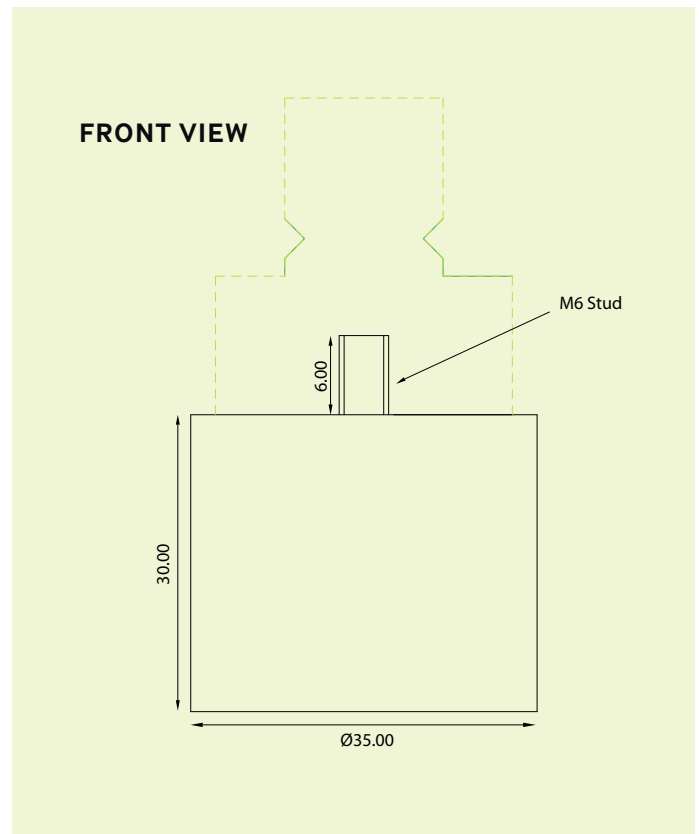
A) GuideLine 2



B) Heavy Duty Mounting Clamp



C) Magnetic Base



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

Drawings are not to scale.



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