



iMATRONiC

A Global Laser Brand

LDM150, Sigma, LDM115, LDL175, LCG115 & LLM115



The Imatronic range of laser diode modules from Global Laser are self contained OEM laser modules that emit dots, lines or crosses. They are designed for industrial applications and offer superior ruggedness and reliability within a range of industry standard packages. Package sizes range from the ultra small 7mm diameter LDM150 up to the 25mm (1 inch) diameter LDL175 laser.

A wide range of laser diodes are available with wavelengths from visible red 635 nm to infra-red 850 nm with powers up to 5 mW. The in-built user adjustable lenses provide a range of elliptical and circular dots as well as lines and adjustable crosses. An internal driver board provides stable power control over a wide operating temperature range. An optional TTL enable input is also available.

The Imatronic range of lasers are generally available from stock for immediate delivery.



Selection Guide

This catalogue covers the complete Imatronic range and is broken down into various sections. Please use the guide below to go straight to the relevant section.

Page	Section	Description
3-4	Product Overview	General information on all 6 models of the Imatronic laser diode module range.
5	Product Matrix	Overview of the products, powers and wavelengths.
6-7	Specification	Full and detailed specification for all Imatronic lasers.
8	Optical Information	An in-depth overview of lensing options available.
9	Lifetime Data	Lifetime data for each laser model in the Imatronic Range
9	Laser Safety	Information on laser safety and examples of the safety labels.
10-11	Options & Accessories	A list of optional accessories for the Imatronic range of lasers.
13-15	Dimensional Information	Detailed dimensional drawings of each Imatronic product.

Product Overview

LDM150 (Dot Projection)



Diameter : 7mm

Length : 25mm

The LDM150 is an extremely compact laser module with a housing diameter of only 7mm. Available in wavelengths of 635nm and 650nm with power up-to 3mW as standard, it also features the benefits of an isolated housing. A user adjustable plastic aspheric lens produces an elliptical output beam. An optional TTL enable input is also available. The LDM150 has the smallest housing diameter in the Imatronic range and is suited for applications where space is critical and a cost effect solution is required.

SIGMA (Dot Projection)



Diameter : 10.4mm

Length : 16.5mm

The Sigma laser is a compact 10.4mm diameter, brass body laser diode module available in wavelengths of 635nm and 650nm with power upto 3mW as standard. A user adjustable plastic aspheric lens produces an elliptical output beam. An optional TTL enable input is also available. The Sigma has the smallest housing length in the Imatronic range and is suited for applications where space is critical and a cost effect solution is required.

LDM115 (Dot Projection)



Diameter : 11mm

Length : 37mm

The LDM115 is an 11mm diameter laser module available in wavelengths of 635, 650, 670, 780 & 850nm with power upto 5mW as standard. It also features the benefits of an isolated housing and user adjustable focus. As a further enhancement the LDM115 can be specified with a TTL input. A choice of two collimating lens are offered. The "G" model use a glass lens with an elliptical output beam, the "P" mode use a plastic lens which produces a circular output beam. An optional line generating optic (LGO) is also available which simply fits over the end of the module and converts the output beam in to a line. Fan angles of 15 degree to 120 degrees are available.

LDL175 (Dot Projection)



Diameter : 25mm

Length : 58mm or 67mm

The LDL175 laser module is a stand-alone compact laser system, available in 635, 650, 670, 780 & 850nm with powers up to 5mW. It has an industry standard DC power jack input for 3.5 to 5Vdc and can be supplied with a universal power supply which runs on 100-240Vac input. A user adjustable glass lens with an elliptical output beam is fitted as standard. A model fitted with a plastic lens which produces a circular output beam can also be supplied. It features an on/off switch, LED indicator and safety shutter. The NIR & IR versions also features an interlock and switch on delay. The LDL is designed for industrial, laboratory and educational use .

LCG115 (Cross Projection)



Diameter : 11mm

Length : 37mm

The LCG is an 11mm diameter laser module with an internal cross generator which produces a Gaussian cross with a typical fan angle of 30°. The angle between the lines may also be adjusted to any value between 0° and 90°. It also benefits from being fitted with a more visually intense 635nm laser diode, with output powers of 1 & 3mW. It also features the benefits of an isolated housing and user adjustable focus. An optional TTL enable input is also available.

LLM115 (Line Projection)



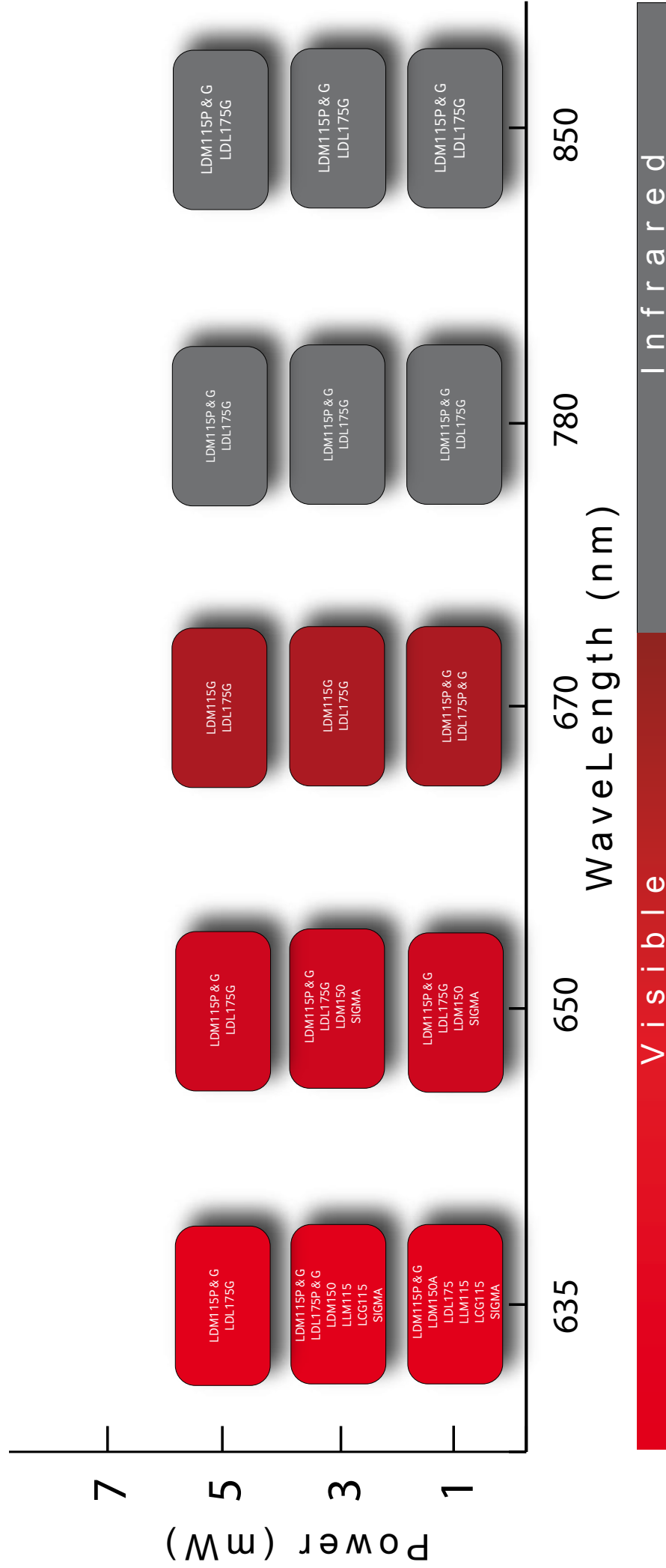
Diameter : 11mm

Length : 37mm

The LLM is an 11mm diameter laser module with an internal line generator which produces a Gaussian line with a typical fan angle of 54°. It also benefits from being fitted with a more visually intense 635nm laser diode, with output powers of 1 & 3mW. It also features the benefits of an isolated housing and user adjustable focus. An optional TTL enable input is also available.

Product Matrix

Customised Versions:- If the power or wavelength is not listed then please contact your local distributor or Global Laser directly.



Specification

	SIGMA	LDM150	LDL175
Mechanical Specification			
Mass (grams)	8	3	55
Dimensions (mm)	10.41 x 16.5	7 x 27.4	Visible - 25 x 58
			NIR & IR - 25 x 67
Housing Material	Brass	Anodised Aluminium	Anodised Aluminium
Isolated Body	Yes	Yes	Yes
Input Lead	Red Lead: (+Ve)	Red Lead: (+Ve)	1 via DC Jack Centre Pin: (+Ve) Outer: (0V)
	Black Lead: (0V)	Black Lead: (0V)	
	Blue Lead: Optional TTL	Blue Lead: Optional TTL	
Lead Length (mm)	205	220	n/a
Optical Options			
G Lens	No	No	Yes
P Lens	No	No	Yes
A Lens	No	Yes	No
Sigma Lens	Yes	No	No
Line Generating Optic (LGO)	No	No	No
Internal Line Optic (54° Fan Angle)	No	No	No
Internal Cross Optic (30° Fan Angle)	No	No	No
Environmental Information			
Operating Case Temperature (°C)	-10 to +45*	-10 to +45*	-10 to +45*
Storage Temperature (°C)	-40 to +85	-40 to +85	-40 to +85
Operating Humidity (%RH)	90	90	90
Dynamic Output			
Frequency Range	≤1Khz	≤1Kz	N/A
Electrical Specification			
Input Voltage +Ve (Vdc)	+ 3.5 to + 5.0	+ 3.5 to + 5.0	+ 3.5 to + 5.0
Input Voltage GND (Vdc)	0	0	0
TTL Input	Off < 50mV on > 2.0V	Off < 50mV on > 2.0V	n/a
TTL Modulation	n/a	n/a	n/a
Reverse Polarity Protection	Yes	Yes	Yes
Typical Operating Current @ 25°C (mA)	20 to 50*	20 to 50*	20 to 90*
Connector Type	Flying Leads	Flying Leads	DC Jack
Optional Mains Adaptor	No	No	Yes
			NOTES
*Varies with models. Please call us for individual data.			

Specification

	LLM115	LCG115	LDM115
Mechanical Specification			
Mass (grams)	9	9	G Lens 9.5
			P Lens 10.5
Dimensions (mm)	11 x 37	11 x 37	G Lens 11 x 37
			P Lens 11 x 47
Housing Material	Anodised Aluminium	Anodised Aluminium	Anodised Aluminium
Isolated Body	Yes	Yes	Yes
Input Leads	Red Lead: (+Ve)	Red Lead: (+Ve)	Red Lead: (+Ve)
	Black Lead: (0V)	Black Lead: (0V)	Black Lead: (0V)
	Blue Lead: Optional TTL Input	Blue Lead: Optional TTL Input	Yellow Lead: Optional TTL Modulation
Lead Length (mm)	230	230	215
Optical Options			
G Lens	No	No	Yes
P Lens	No	No	Yes
A Lens	No	No	No
Sigma Lens	No	No	No
Line Generating Optic (LGO)	No	No	Yes
Internal Line Optic (54° Fan Angle)	Yes	No	No
Internal Cross Optic (30° Fan Angle)	No	Yes	No
Environmental Information			
Operating Case Temperature (°C)	-10 to +45*	-10 to +45*	-10 to +45*
Storage Temperature (°C)	-40 to +85	-40 to +85	-40 to +85
Operating Humidity (%RH)	90	90	90
Dynamic Output			
Frequency Range	≤1Khz	≤1Kz	≤300Kz
Electrical Specification			
Input Voltage +Ve (Vdc)	+ 3.5 to + 5.0	+ 3.5 to + 5.0	+ 3.5 to + 5.0
Input Voltage GND (Vdc)	0	0	0
TTL Input	Off < 50mV on > 2.0V	Off < 50mV on > 2.0V	n/a
TTL Modulation	n/a	n/a	Off < 50mV on > 2.0V
Reverse Polarity Protection	Yes	Yes	Yes
Typical Operating Current @ 25°C (mA)	20 to 50*	20 to 50*	20 to 90*
Connector Type	Flying Leads	Flying Leads	Flying Leads
Optional Mains Adaptor	No	No	No

NOTES

*Varies with models. Please call us for individual data.

Optical Information

Lens Information

The Imatronic laser modules are available in the following lens types.

G Lens Type	Glass Lens The glass lens is a high quality lens producing fine spots. The lens provides high stability over extremes of temperature and is immune to damages such as scratches
P Lens Type	Plastic Lens The long focus plastic lens with a low numerical aperture yields good quality circular collimated beams over larger distances.
A Lens Type	Aspheric Plastic Lens High performance general purpose lens producing good quality spots. Suitable for the range of small body modules only (LDM150 only).

	G Lens	P Lens	A Lens	Sigma
Focus Range	35mm to infinity	150mm to infinity	50mm to infinity	35mm to infinity
Beam Size @ Aperture (mm)	4 x 2*	5 x 5*	3 x 1*	4 x 1*
Beam Divergence (mrad)	<0.5	<0.5	<0.5	<1.2
Bore Sighting (mrad)	<25	<25	<25	<25
Minumum Spot Size (µm)	<25	<50	<40	<40

*Varies with model

Optional Optical Extras

The LDM115 has the option of a LGO lens which allows the LDM115 to emit a line projection. The LGO is designed to simply slip over the end of the LDM115 and is secured in place by tightening a small locking screw. The focus position of the line is adjusted by rotating the lens on the LDM115 module prior to the installation of the LGO to give a highly defined thin line of laser light.



	LGO
Fan Angle	15°, 28°, 40°, 60° & 120°
Operational Wavelength (nm)	630 to 850
Typical Line Width @ 1 Metre (mm)	0.75
Length (mm)	24
Diameter (mm)	17
Mass	8
Length With LDM115 (grams)	51
Diameter With LDM115 (mm)	17
Mass With LDM115 (grams)	17.5

Lifetime

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.

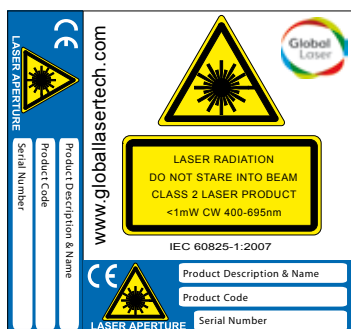
Below is a list of the available standard wavelengths for each model and the relevant MTTF data. All data was measured at 25°C.

		635nm	650nm	670nm	780nm	850nm
Imatronic Models	SIGMA	≥30,000	≥50,000	n/a	n/a	n/a
	LDM150			≥120,000	≥90,000	≥88,000
	LDL175					
	LLM115	n/a	n/a	n/a	n/a	n/a
	LCG115					
	LDM115	≥30,000	≥50,000	≥120,000	≥90,000	≥88,000

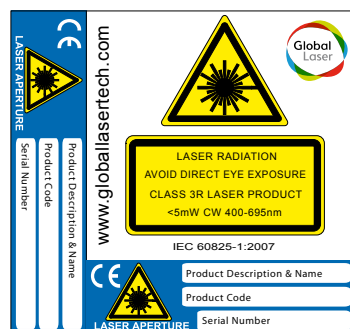
Please Note: This is the minimum MTTF for each wavelength. Other models may have a longer MTTF. Please call us for individual data.

Laser Safety

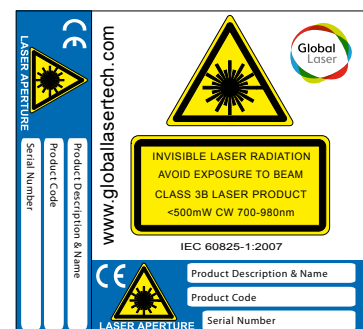
Our lasers are compliant to IEC 60825-1 2007 standards. For further information please contact us.



Class 2 Label



Class 3R Label



Class 3B Label

Options & Accessories

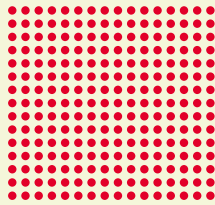
The Imatronic range has a wide range of options to suit a variety of applications. These options include projection optics, power supplies, rail systems and laser safety glasses.

Projection Options

A range of diffractive optical elements (DOE) are available to provide various patterns such as crosses, circles and dot matrix for applications such as 3D mapping, surface texture analysis, alignment and general machine vision applications. Please see the Projection Lens Datasheet for further information.



Circle with center dot



Dot Array



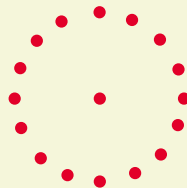
Dot Lines



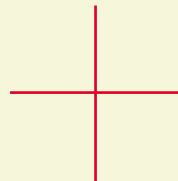
Viewfinders



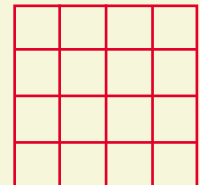
Multiple Lines



Dot Circle



Cross



Grids

Mounting Clamps (LDM115, LCG115, LLM115 & LDL175 Only)

A number of mounting clamps are available for the Imatronic range including a heavy duty mounting clamp which allows the laser to be securely fixed at any required direction or angle. The swivel clamp offers the user up and down movement as well as $\pm 45^\circ$ horizontal swivel. The base plate has of both clamps have a series of holes which allows the clamp to be fixed directly onto a machine or workbench. The MK1 mounting clamp rotates horizontally through 360° and vertically through 180° and the mounting post allows vertical movement. For more information on any of the options please refer to the Accessories Datasheet.



Swivel Clamp



Heavy Duty Clamp



MK1 Clamp



Magnetic Base

Power Supplies and Leads (LDL175 Only)

The LDL can be supplied with a mains adaptor which runs on 110-240Vac input via an IEC mains lead (supplied) and has one output to power the laser (for more information please see our accessories datasheet). A lead to connect the LDL175 to the power adaptor is also required. The standard length is 1.5 meters. If you require a custom lead length please contact us.



110 / 240 Vac Power adaptor



Power Leads

Laser Safety Glasses

To compliment the Imatronic range there are a number of laser safety glasses, below is an example of some of the available glasses (colours may vary). For more information on any of the options please refer to the Laser Safety Glasses Datasheet.



DIA - Protection against Red
(Visible Alignment)



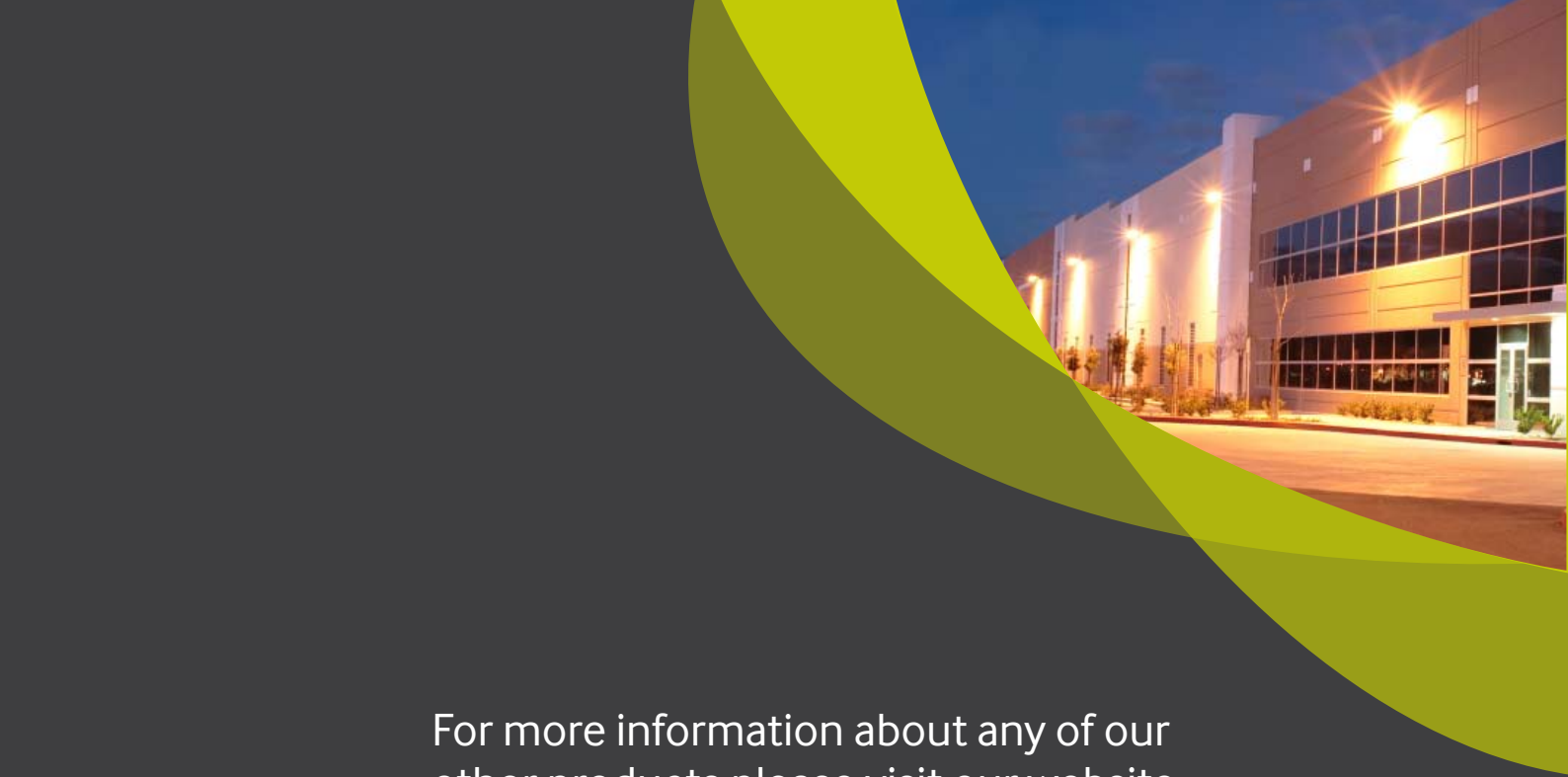
YG2 - Protection against IR Laser
(Block Out)

Mounting Rails

Options range from the simple slide rail system where carriages can be moved by hand and locked into position, to computer controlled, motor driven systems. All systems incorporate long life/ low friction polymer bearings which are self lubricating, removing the need for messy dirt, attracting oils and greases. All rail systems are also available in stainless steel. This makes the systems ideal for aggressive environments with high levels of dirt and dust or areas subject to wash down or high levels of moisture.



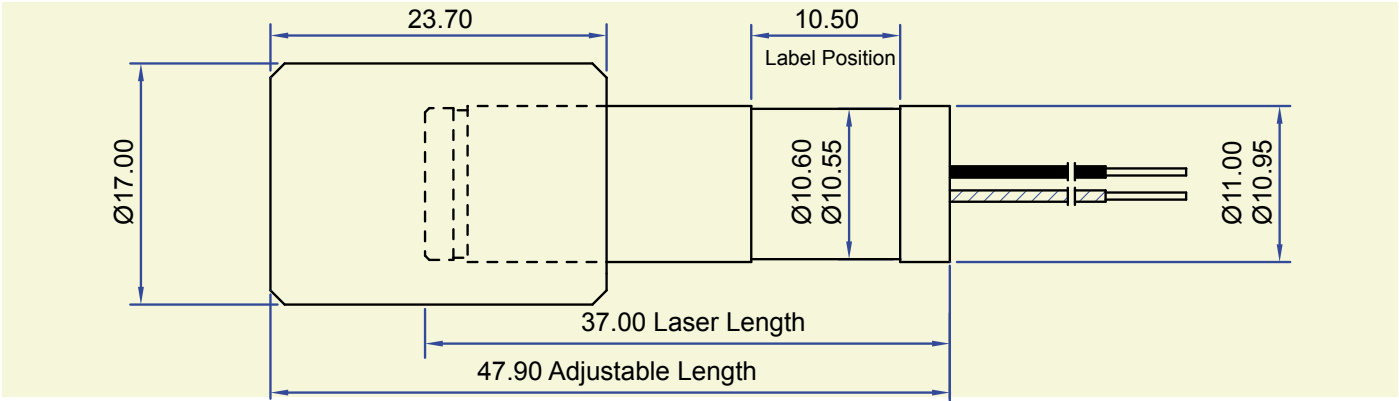
Rail and Mounting Clamp



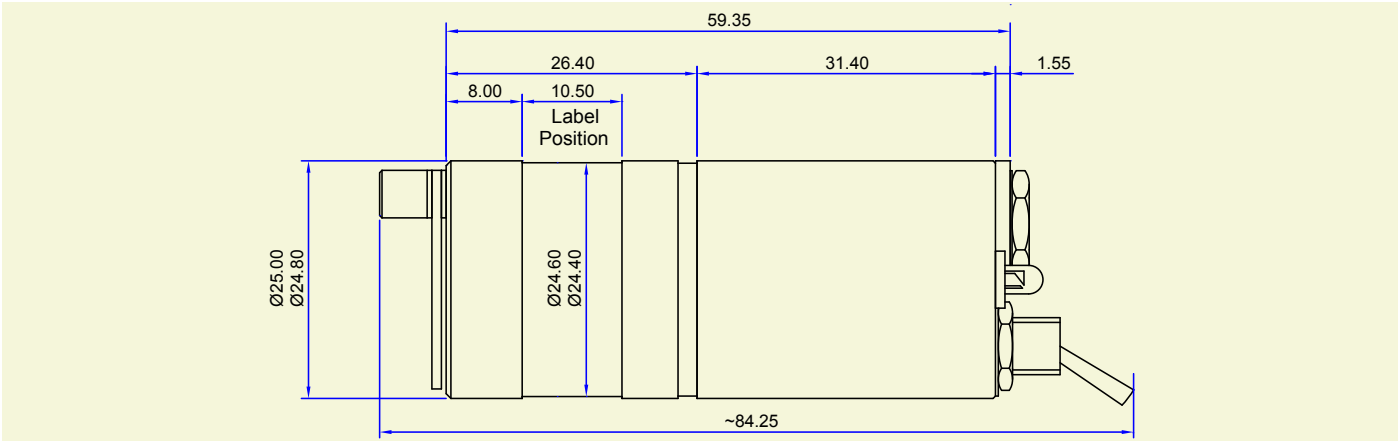
For more information about any of our
other products please visit our website
@ www.globallasertech.com



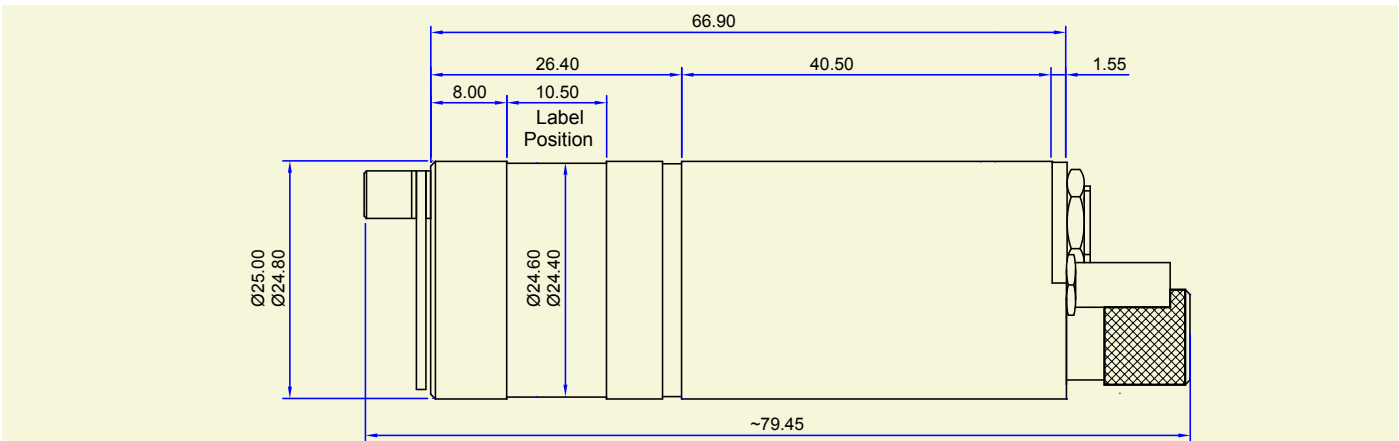
LDM115 fitted with LGO



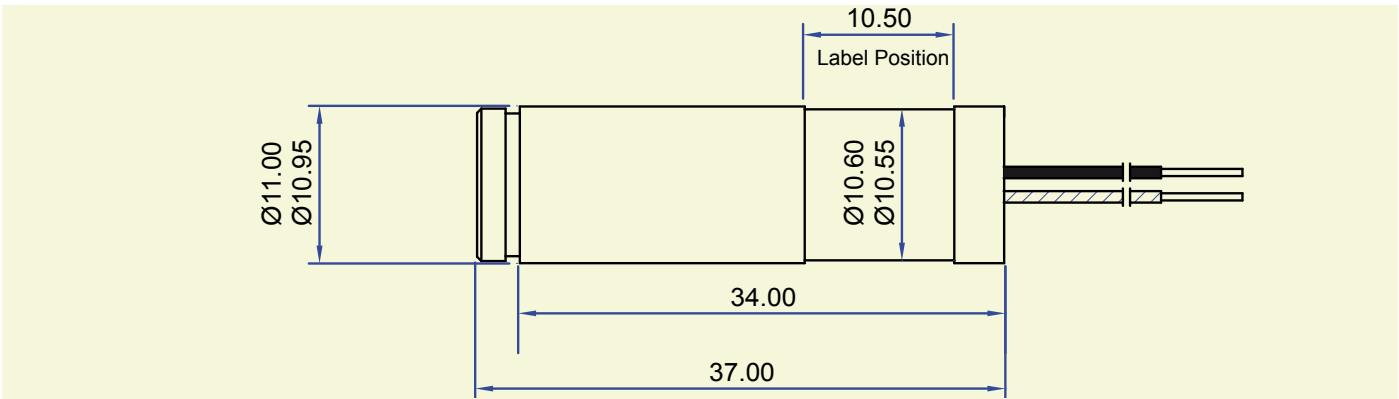
LDL175



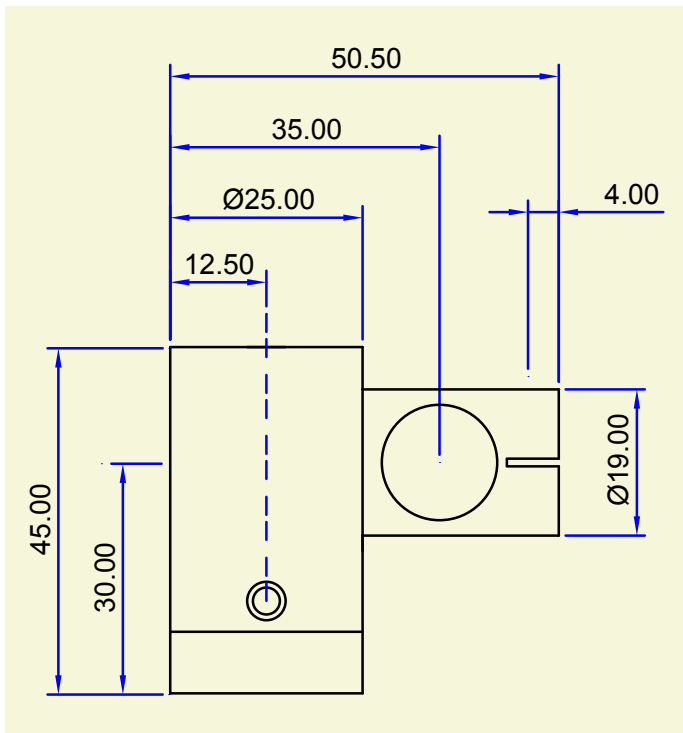
LDL175 (With Interlock)



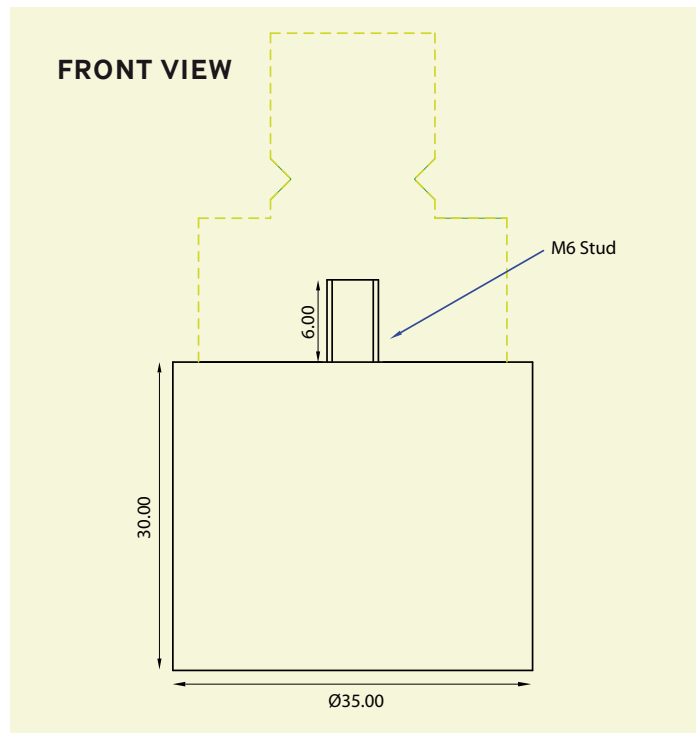
LLM & LCG



Heavy Duty Mounting Clamp



Magnetic Base



Drawings are not to scale

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



For further information about any of our products please contact your local distributor or you can contact Global Laser in the UK. Your Local Distributor is:

T: +44 (0)1495 212213
F: +44 (0)1495 214004
E: sales@globallasertech.com
www.globallasertech.com

Global Laser Ltd
Unit 9-10
Roseheyworth Business Park
Abertillery, Gwent NP13 1SP UK