



LDM145 Datasheet

LDM145



The LDM45 is a CW laser diode module capable of emitting lines of different lengths and a variety of shapes and patterns using interchangeable projection optics. It emits an optional circular or elliptical beam that can be converted into lines, crosses, circles, grids, viewfinders, dot arrays, and more.

An innovative approach to structured illumination, you can easily interchange line-generating optics (LGO) and diffractive optical elements (DOE) by hand. The resulting projections can be used to align, position, and target objects of different shapes and surface profiles.

Wavelengths of green (520nm), red (635, 650, 670nm), and infrared (780, 850nm) are available with output powers up to 5mW. The green model emits light that appears more than 2X brighter to the human eye than the equivalent power in 635nm. As a result, you're more likely to see these projections against dark materials, in high ambient light levels, or from long distances.

Housed in an electrically-isolated and ruggedised metallic body measuring 16mm in diameter, the LDM145 is recommended for industrial environments and integration with OEM equipment.



Optical Information

The LDM145 laser diode modules are available with 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.

Line Generating Optic (LGO)

The LDM145 has the option of a LGO lens which allows the LDM145 to emit a line projection. The LGO is designed to simply slip over the end of the LDM145 and be secured in place by tightening a small locking screw. The focus position of the line is adjusted by rotating the lens on the LDM145 module prior to the installation of the LGO to give a highly defined thin line of laser light.

LGO Specification	
Fan Angle (°)	15, 28, 40, 60 & 120
Operational Wavelength (nm)	520 to 850
Typical Line Width At 1 Metre (mm)	0.75
Length (mm)	24
Diameter (mm)	22
Mass (grams)	8
Length with LDM145 (mm)	60
Diameter with LDM145 (mm)	22
Mass with LDM145 (mm)	30.8

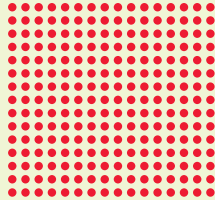
Diffraction Optical Elements

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. Please see the Projection Lens Datasheet for further information.



Circle with center dot



Dot Array



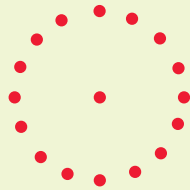
Dot Lines



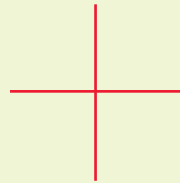
Viewfinders



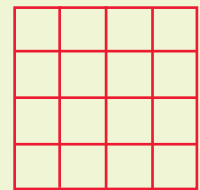
Multiple Lines



Dot Circle



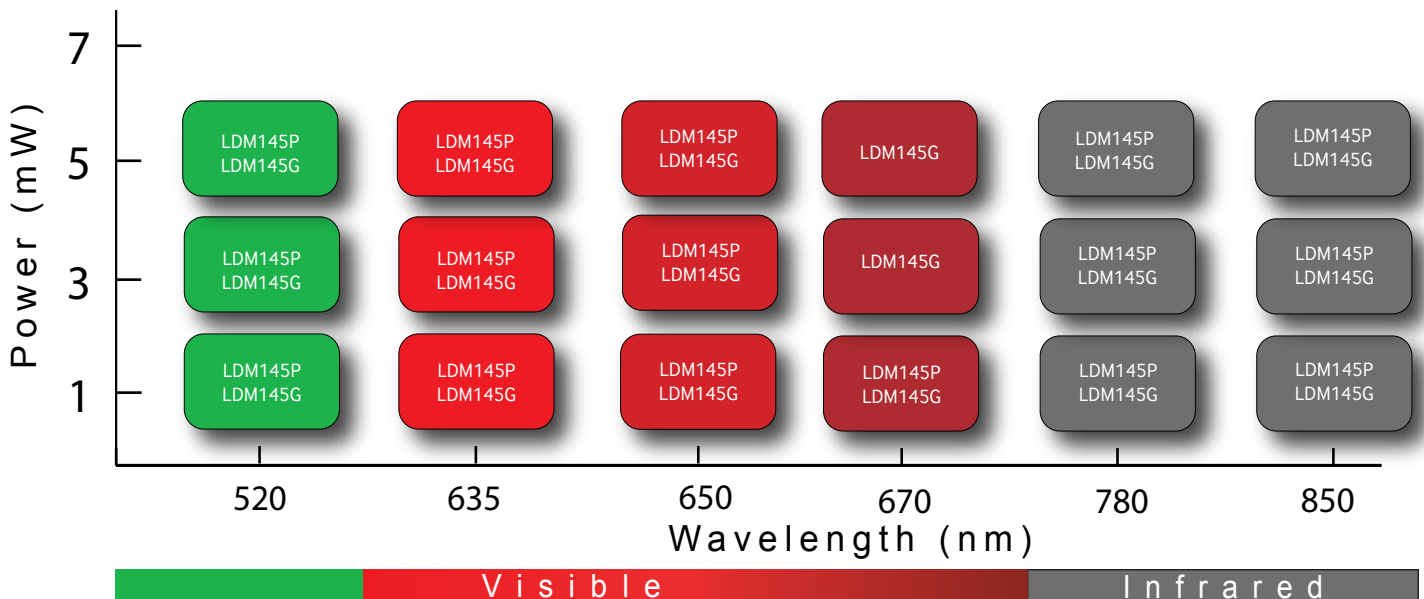
Cross



Grids

Product Matrix

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

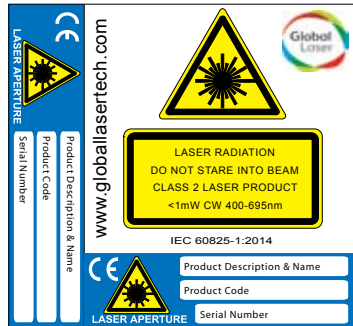


Specifications

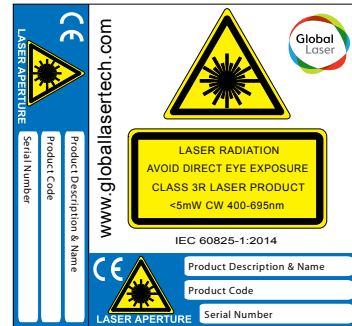
Mechanical Information						
Mass (grams)	22.8					
Dimensions (mm)	Ø16.00 x 49.25					
Housing Material	Black Anodised Aluminium					
Power Stability Over Temperature	±2%#					
Focus	User Adjustable					
Isolated Body	Yes					
Input leads	2 Leads, / Red (+Ve) /Black (0 V)					
Lead Length (mm)	215					
Optical Information						
Diode Power (mW)	1, 3 & 5					
Wavelength (nm)	520 to 850					
	G Lens			P Lens		
Focus Range	35mm to Infinity			150mm to Infinity		
Beam Size at Aperture (Typical) (mm)	4 x 2			5 x 5		
Beam Divergence (Typical) (mrad)	<0.5			<0.2		
Beam Size @ Nearest Focus (1e2) (µm)	<25			<50		
Bore Sighting (mrad)	≤20			≤10		
Environmental Information						
	520nm	635nm	650nm	670nm	780nm	850nm
Operating Case Temperature (°C)	-10 to +55*	-10 to +45*	-10 to +45*	-10 to +55*	-10 to +55*	-10 to +55*
Storage Temperature (°C)	-20 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
Operating Humidity (%RH)	90	90	90	90	90	90
MTTF @ 25°C (hrs)	≥40,000	≥30,000	≥50,0000	≥120,000	≥90,000	≥88,000
Electrical Specifications						
	Green Models			Red & IR Models		
Input Voltage (Vdc)	+10 ±5%			+3.5 to +5.0		
Input Voltage GND (Vdc)	0					
Reverse - Polarity	Yes					
Typical Operating Current (mA)	20 to 140*					
Connector Type	Flying Leads					
NOTES * The operating temperature range is dependant on the laser diode fitted. The quoted information is the minimum range. Some powers may have a wider operating temperature range. Please contact us for temperature range for individual models. #Varies with laser diode type and output power. This data is based on the LDM145G/635/1. All specifications are typical @ 25°C						

Laser Safety

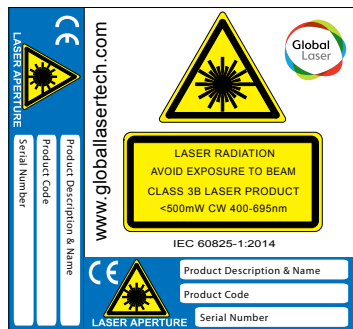
Our laser diode modules are compliant to IEC 60825-1: 2014 standards. The lasers will fall within one of the following classifications depending on power, wavelength and fan angle. The labels supplied with the units are shown below.



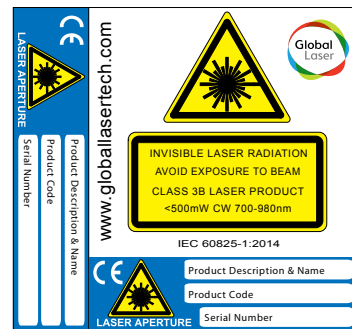
Class 2 Laser Label



Class 3R Laser Label



Class 3B Laser Label



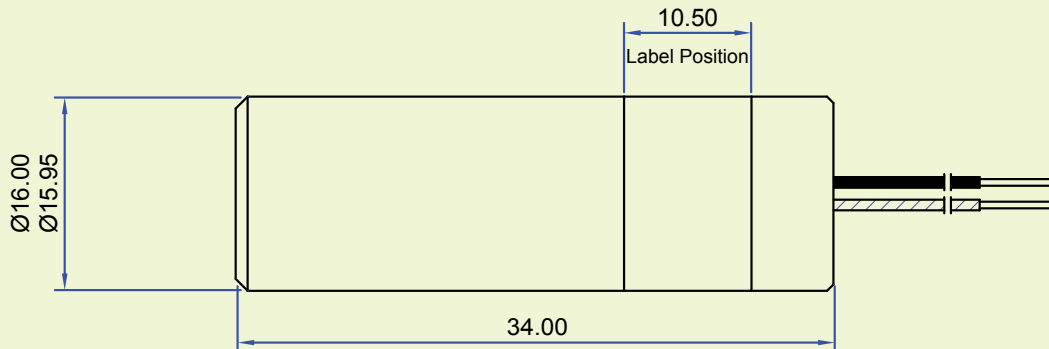
Class 3B IR Laser Label

Quality & Warranty

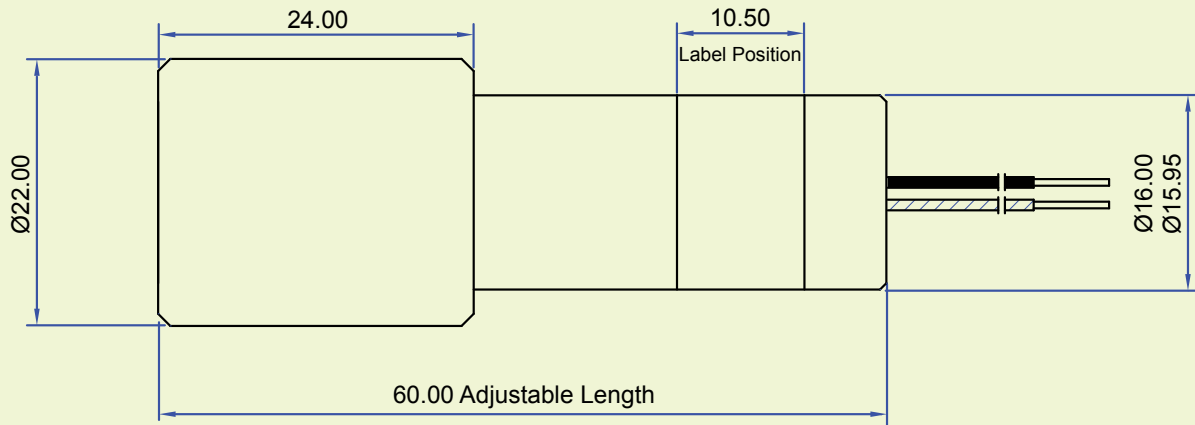
The LDM145 is supplied with a 12 month parts and labour warranty. Our manufacturing operations are certified to ISO9001.

Mechanical Drawings

LDM145 Outline



LDM145 Fitted With LGO Outline



Drawings not to scale

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:

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



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