

Premium IR Laser Module with extremely Small Circular Laser Dot

VLM-850/940/1050-72 Series



The VLM-850/940/1050-72 Series delivers an ultra-small circular laser dot with exceptional precision, maintaining a dot size under 3 mm across a range of 0 to 5 meters. Housed in a robust stainless steel casing with an industry-standard M12 thread, it ensures reliable performance, easy installation, and seamless integration in industrial environments. Featuring a high-precision glass lens, this module produces sharp and consistent laser spots, ideal for demanding industrial applications. With a long service life of up to 10,000 hours and two selectable laser power output levels (Class 1 and Class 3R), it offers versatility and reliability for diverse precision targeting and alignment needs. Compact in size with an M12 x 68 mm form factor, it operates on 10~36 VDC and connects via lead wire for straightforward integration.

FEATURES:

- Ultra-Small Circular Laser Dot - Precise spot size under 3 mm across 0~5 meters for accurate targeting.
- Robust Stainless Steel Housing with M12 Thread - Durable casing ensures reliable performance, easy installation, and seamless industrial integration.
- High-Precision Glass Optics - Produces sharp and consistent laser spots.
- Long Operational Life - Industrial-grade design with up to 10,000 hours of service.
- Two laser power output level: LPO - Class 1 laser product
LPA - Class 3R laser product
- Dimensions : M12 x 68 mm (M12 x 2.677")
- Wavelength : 850 / 940 / 1050nm
- 10~36 VDC operation.
- Connection type : Lead wire

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850 nm Laser (Near-IR): The most popular NIR wavelength. Invisible to the eye but highly compatible with silicon-based detectors, making it ideal for IR cameras and sensors.

Typical Applications: Night vision illumination, eye tracking, industrial sensing, biometric authentication, medical imaging devices.

940 nm Laser (Near-IR, Deep): Fully invisible to the human eye. Provides reduced interference with visible-light imaging systems and enhanced stealth operation.

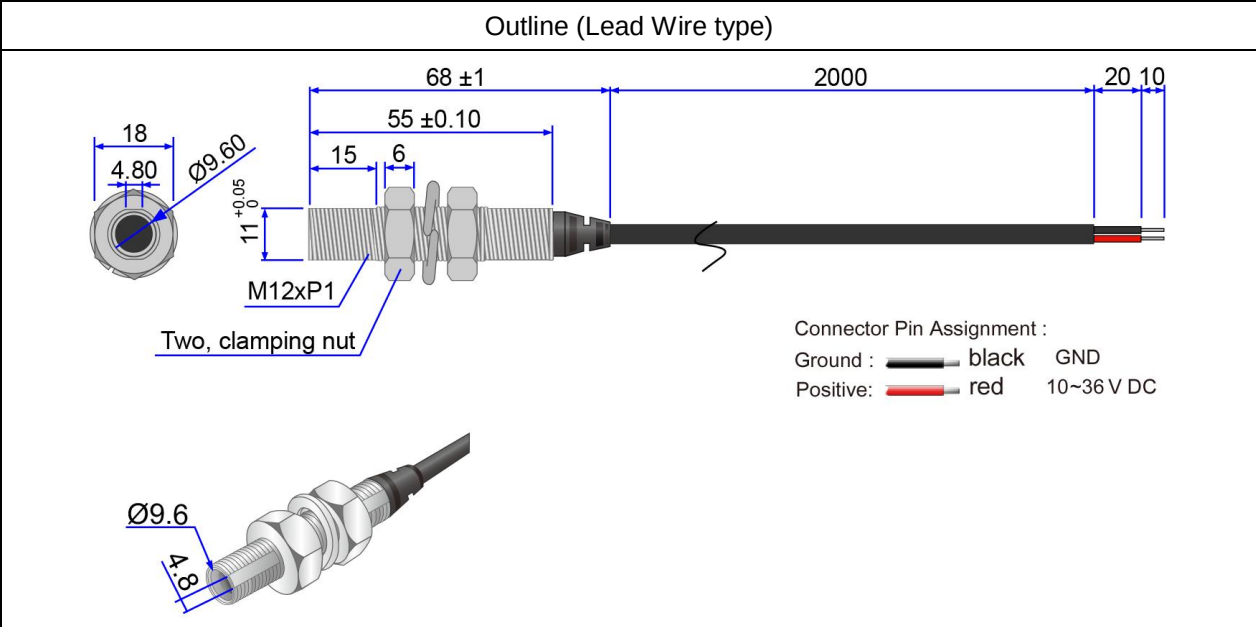
Typical Applications: Security and surveillance, 3D sensing, gesture recognition, consumer electronics (smartphones, AR/VR), covert eye-safe illumination.

1050 nm Laser (SWIR): Fully invisible, operating in the short-wave infrared (SWIR) band. Offers deeper penetration through materials such as silicon wafers, glass, and plastics, with reduced scattering—making it highly suitable for advanced inspection and imaging. Note: Detection requires InGaAs sensors, as standard silicon detectors are not compatible.

Typical Applications: Wafer and material inspection, spectroscopy, industrial sensing, and biomedical imaging.

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OUTLINE DIMENSIONS (UNITS: mm)



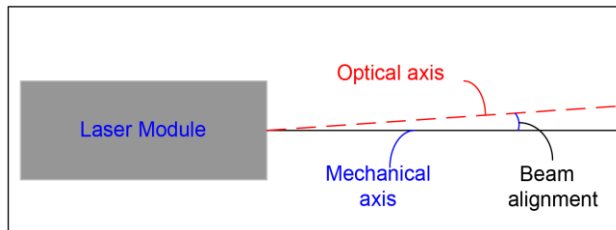
SPECIFICATIONS

Part Number		VLM-850-72		VLM-940-72		VLM-1050-72	
		LPO	LPA	LPO	LPA	LPO	LPA
1	Spot Size	Less than Ø3mm @ 0~5M					
2	Dimensions	M12 x 68 mm (M12 x 2.677")					
3	Weight	100±1g					
4	Operating voltage (Vop)	10~36 VDC					
5	Operating current (Iop)	Less than 30mA at 24V					
6	Laser power output	Less than 0.7mW	Less than 3.5mW	Less than 1.1mW	Less than 6mW	Less than 1.5mW	Less than 10mW
7	Laser class	Class 1	Class 3R	Class 1	Class 3R	Class 1	Class 3R
8	Wavelength (λp)	840~865nm		930~950nm		1050~1075nm	
9	Collimating lens	Aspherical glass lens					
10	Output aperture	2mm					
11	Beam shape	Circular					
12	Divergence (Half Angle)	Less than 0.4 mRad					
13	Beam alignment*	Less than 3°					
14	Operating temp. range	-20°C ~+60°C					
15	Storage temp. range	-20°C ~+85°C					
16	Housing material / Color	Stainless steel / Silver					
17	Potential of housing	Insulated					

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18	Electrostatic discharge (ESD)	30KV / Arc protection
19	Moisture sensitivity level (MSL)	Level 1 - acc to JEDEC J-STD-020E.
20	Protection circuit	Reversed supply circuit protection, over-current protection, surge protection, Short circuit protection
21	Vibration resistance	10 to 55Hz,1.5mm amplitude for 2 hours each in X, Y and Z direction
22	Standard	IEC60825:2014
23	Wire type	UL-2464/22 AWG
24	Cable length	UL2464 D4.2,L=2000±30mm
25	Mount method	M12 screw
26	Mean time to failure (MTTF) 25°C	10000 hrs.
27	International Protection Marking	IP68
28	Application	Industrial alignment
29	Suggestion work distance	0~5 meters / 0~16 feet

* Beam alignment:



ORDER CODE

Order Code	Wavelength	Laser Power Output	Laser Class	Connection Type
VLM-850-72 LPA	850 nm	Less than 3.5mW	Class 3R	Lead Wire
VLM-850-72 LPO	850 nm	Less than 0.7mW	Class 1	Lead Wire
VLM-940-72 LPA	940 nm	Less than 6mW	Class 3R	Lead Wire
VLM-940-72 LPO	940 nm	Less than 1.1mW	Class 1	Lead Wire
VLM-1050-72 LPA	1050 nm	Less than 10mW	Class 3R	Lead Wire
VLM-1050-72 LPO	1050 nm	Less than 1.5mW	Class 1	Lead Wire

SAFETY LABEL

LPO: **CLASS I LASER PRODUCT**

LPA:

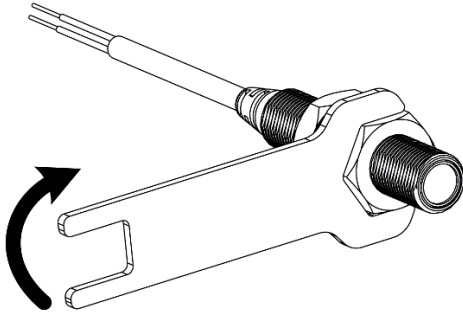


INSTALLATION

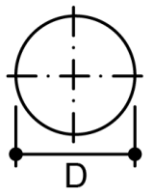
MOUNTING

The module must NOT be subjected to excessive shock with a hammer when it is installed, otherwise the module may be damaged or lose its water resistivity.

Do not tighten the nut with excessive force (Toque 30N.m). A washer must be used with the nut.

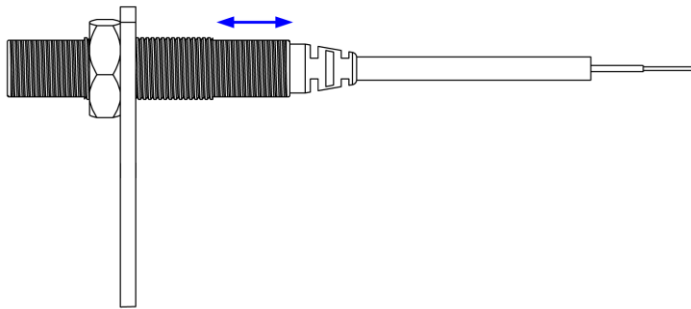


RECOMMENDED MOUNTING HOLE DIMENSIONS

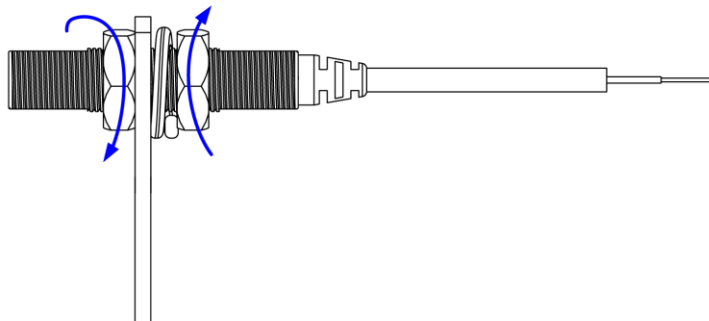


OUTER DIAMETER OF MODULE	M12
DIMENSION D	13 ^{+0.1} ₀ DIA.

1. First, move the laser module to your preferred position.

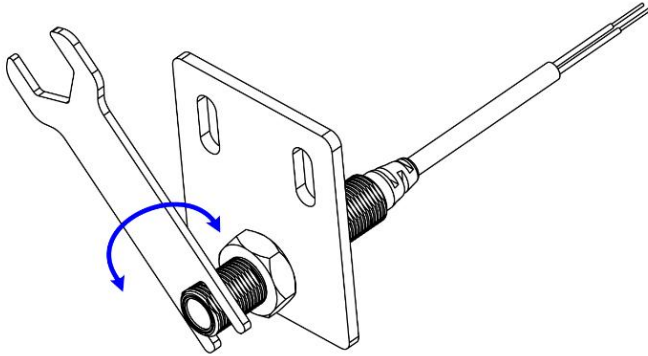


2. Next, tighten the nut with the washer on the plate.



INSTALLATION

3. Then, use the wrench to rotate the laser module, align the datum to your preferred position.



INSTALLATION

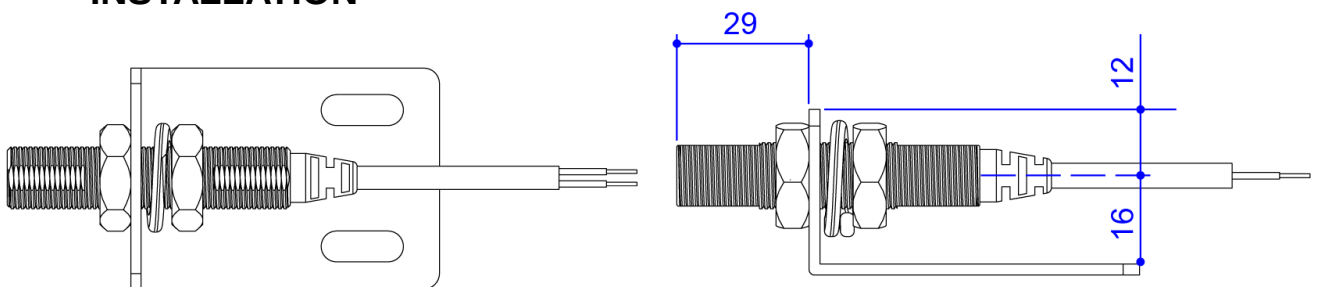


Fig.2 Demonstration with L shape plate (shape plate not included)

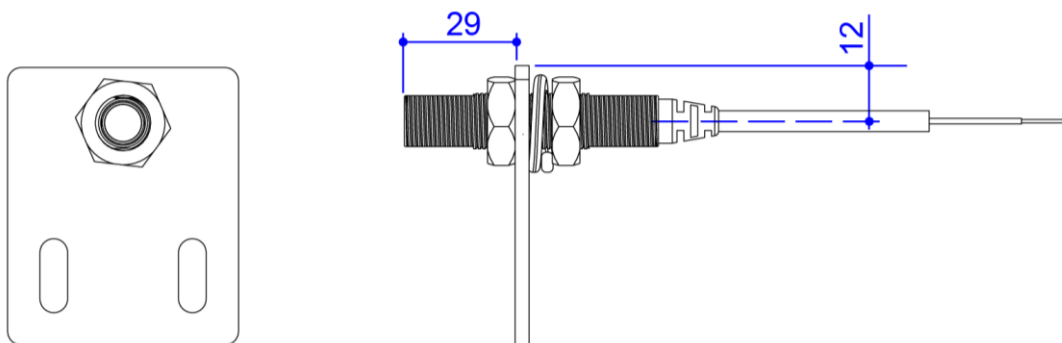


Fig.3 Demonstration with I shape plate (shape plate not included)