### 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



### VLM-850/940/1050-72 Series

**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.

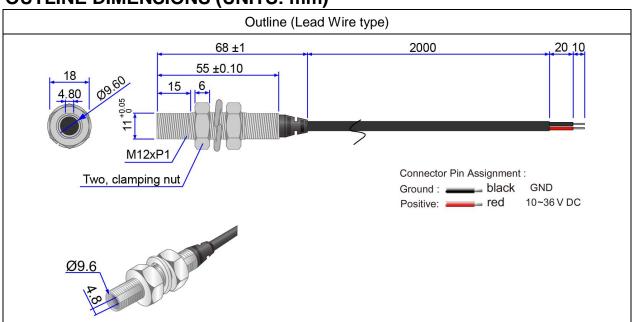
940 nm Laser (Near-IR, Deep): Fully invisible to the human eye. Provides reduced interference with visible-light imaging systems and enhanced stealth operation.Typical Applications: Security and surveillance, 3D sensing, gesture recognition, consumer

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.

## VLM-850/940/1050-72 Series

### **OUTLINE DIMENSIONS (UNITS: mm)**



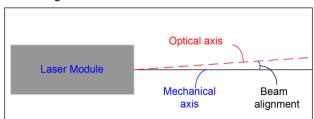
### **SPECIFICATIONS**

Part Number		VLM-850-72		VLM-940-72		VLM-1050-72	
	T are realised		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 (lop)	Less than 30mA at 24V					
6	Laser power output	Less than	Less than	Less than	Less than	Less than	Less than
0		0.7mW	3.5mW	1.1mW	6mW	1.5mW	10mW
7	Laser class	Class 1	Class 3R	Class 1	Class 3R	Class 1	Class 3R
8	Wavelength (λp)	840~865nm 930~950nm 1050~1075		075nm			
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					

## VLM-850/940/1050-72 Series

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		
21		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		

<sup>\*</sup> 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

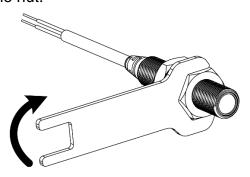




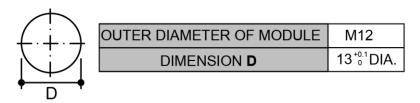
## **INSTALLATION**

#### **MOUNTING**

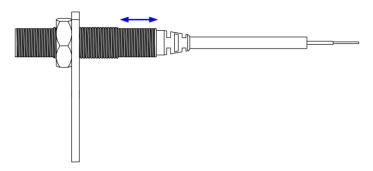
The module must NOT be subjected to excessive shock with a hammer when it is installed, otherwise the module may be damaged or lose its water resistivity. Do not tighten the nut with excessive force (Toque 30N.m). A washer must be used with the nut.



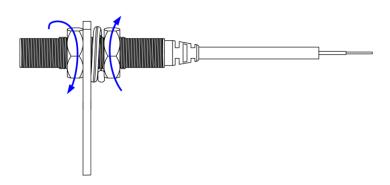
#### RECOMMENDED MOUNTING HOLE DIMENSIONS



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

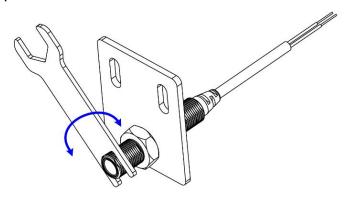


2. Next, tighten the nut with the washer on the plate.



## **INSTALLATION**

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



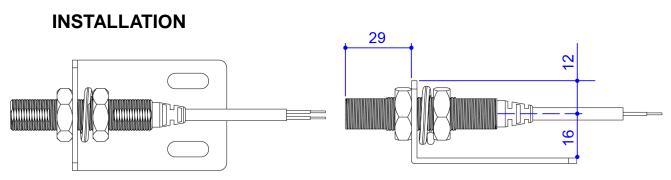


Fig.2 Demonstration with L shape plate (shape plate not included)

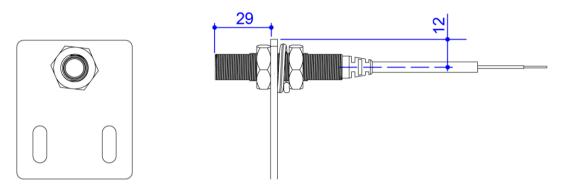


Fig.3 Demonstration with I shape plate (shape plate not included)