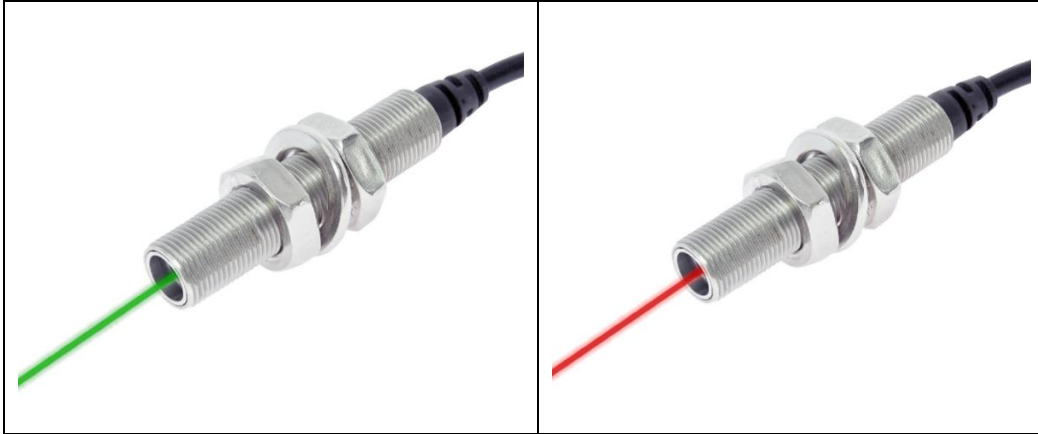


Premium Green/Red Laser Module with TTL Modulation and Ultra-Small Circular Laser Dot

VLM-520/650-71 Series



The VLM-520/650-71 Series features TTL modulation and delivers an ultra-small circular laser dot, making it ideal for high-precision targeting and alignment within a 1-meter range. Equipped with a high-precision glass lens, it is housed in a rugged stainless steel casing with an industry-standard M12 thread, ensuring reliable performance, easy installation, and seamless integration into industrial systems. The built-in TTL modulation function allows for fast and precise on/off control, making it suitable for automated and synchronized operations. Available in green and red wavelengths, the module offers selectable laser power output levels to meet different safety standards. Customized focus options within 1 meter are also available upon request.

FEATURES:

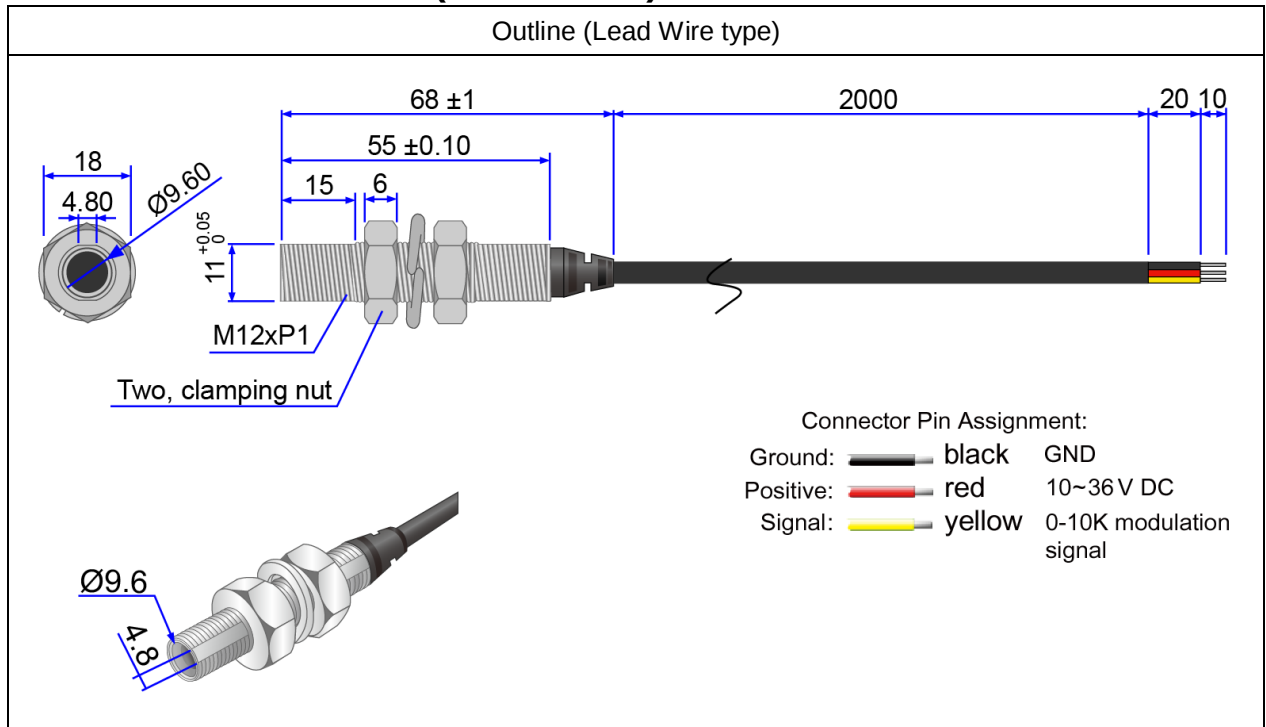
- Ultra-small circular laser dot optimized for precise alignment within 1 meter.
- Built-in TTL modulation (CW to 10 kHz) for fast and stable power control.
- Precision glass lens in a rugged stainless steel M12 x 68 mm housing.
- Available in 520 nm (green) and 650 nm (red) wavelengths with 10~36 VDC input.
- Custom focus within 1 meter available upon request.
- Two laser power output level: LPO - Class 1 laser product
LPT - Class 2 laser product
- Dimensions : M12 x 68 mm (M12 x 2.677")
- Wavelength : 520 series - 515~530 nm / 650 series - 645~665 nm
- 10~36 VDC operation.
- Connection type : Lead wire

APPLICATIONS:

- **Industrial alignment**
Positioning, edge detection, and machine setup where high accuracy is critical.
- **Visual targeting and positioning systems**
Ensures pinpoint accuracy for assembly lines, automation, or robotic arms.
- **Marking and measurement systems**
Acts as a visual guide or reference point for distance or location.
- **Sensor triggering and optical switching**
TTL modulation allows fast on/off control for automation.
- **Compact equipment integration**
Its M12 form factor fits easily into tight spaces or existing machinery.
- **Precision testing and inspection tools**
Projects a clear, small dot ideal for focusing, aiming, or calibrating instruments.

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OUTLINE DIMENSIONS (UNITS: mm)



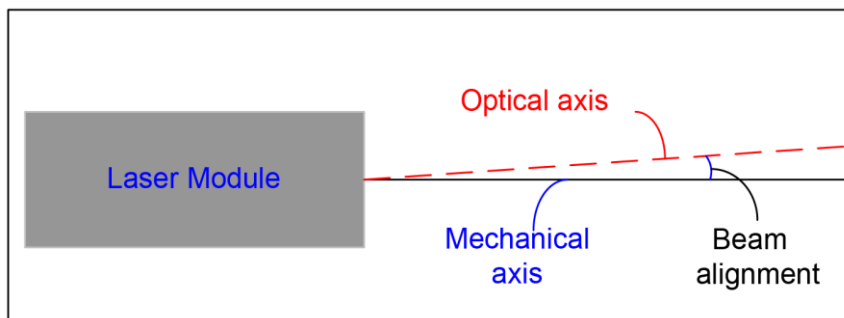
SPECIFICATIONS

Part Number		VLM-520-71		VLM-650-71	
		LPO	LPT	LPO	LPT
1	Spot Size	< 1mm, From 0 to 50cm < 2mm, From 50cm to 90cm			
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 20mA at 24V			
6	Laser power output	Less than 0.39mW	Less than 1mW	Less than 0.39mW	Less than 1mW
7	Laser class	Class 1	Class 2	Class 1	Class 2
8	Wavelength (λp)	515~530 nm		645~665 nm	
9	Collimating lens	Aspherical glass lens			
10	Output aperture	0.6mm			
11	Beam shape	Circular			
12	Divergence (Half Angle)	Less than 0.4 mRad			
13	Beam alignment*	Less than 3°			

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14	Operating temp. range**	-20°C ~+60°C
15	Storage temp. range	-20°C ~+85°C
16	Housing material	Stainless steel
17	Potential of housing	Insulated
18	Mod. Frequency range	0-10kHz
19	Operation mode***	TTL(High on)****
20	EN input current	1 to 20mA
21	Electrostatic discharge (ESD)	30KV / Arc protection
22	Moisture sensitivity level (MSL)	Level 1 - acc to JEDEC J-STD-020E.
23	Protection circuit	Reversed supply circuit protection, over-current protection, surge protection, Short circuit protection
24	Vibration resistance	10 to 55Hz,1.5mm amplitude for 2 hours each in X, Y and Z direction
25	Standard	IEC60825:2014
26	Wire type	UL-2464/22 AWG
27	Cable length	UL2464 D4.2,L=2000±30mm
28	Mount method	M12 screw
29	Mean time to failure (MTTF) 25°C	10000 hrs
30	International Protection Marking	IP68
31	Application	Industrial alignment with modulation function
32	Suggestion work distance	0~0.9 meters / 0~3 feet

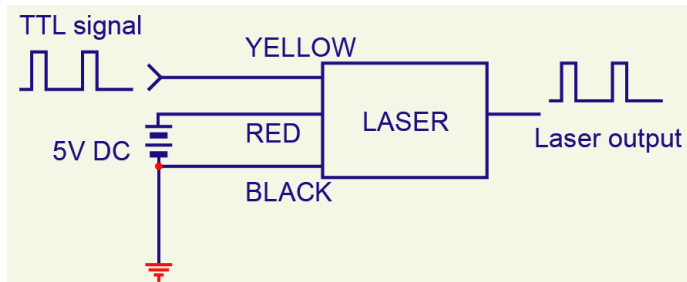
* Beam alignment:



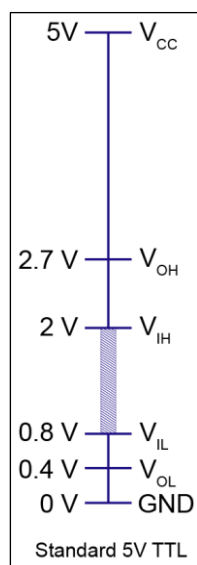
** Operation temperature means within this temperature range, the laser spot/line will not be affected to change the spot size/line width. It can still work over this range, but the laser spot size or laser line width will be larger.

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*** TTL Operation Function Diagram



**** TTL Level



ORDER CODE

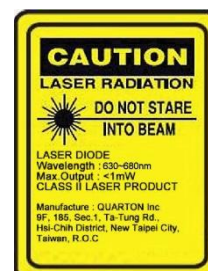
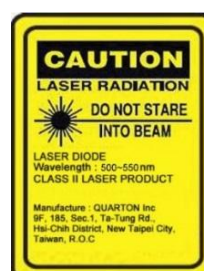
Order Code	Wavelength	Laser Power Output	Laser Class	Connection Type
VLM-520-71 LPT	520 nm	Less than 1mW	Class 2	Lead Wire
VLM-520-71 LPO	520 nm	Less than 0.39mW	Class 1	Lead Wire
VLM-650-71 LPT	650 nm	Less than 1mW	Class 2	Lead Wire
VLM-650-71 LPO	650 nm	Less than 0.39mW	Class 1	Lead Wire

SAFETY LABEL

LPO:

CLASS I LASER PRODUCT

LPT:

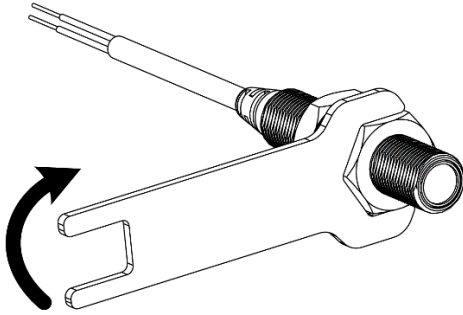


INSTALLATION

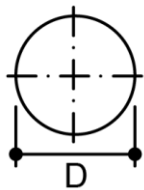
MOUNTING

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.

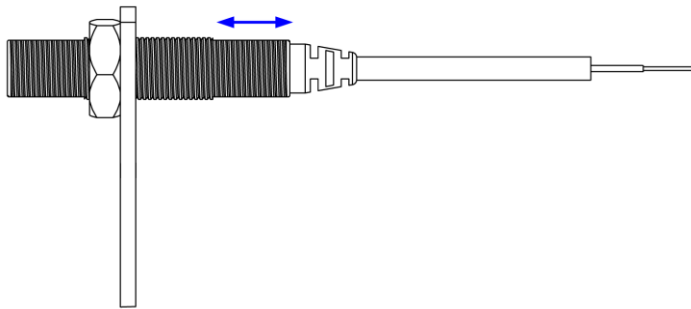


RECOMMENDED MOUNTING HOLE DIMENSIONS

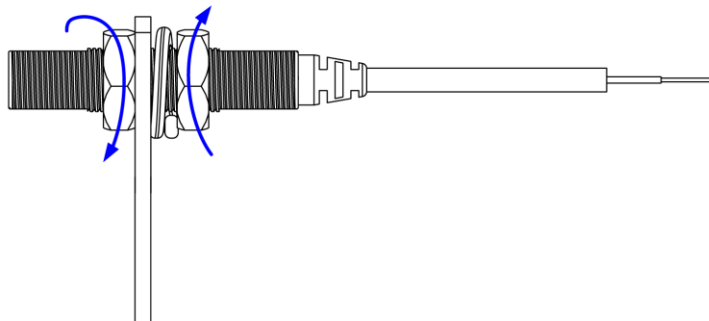


OUTER DIAMETER OF MODULE	M12
DIMENSION D	13 ^{+0.1} ₀ DIA.

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

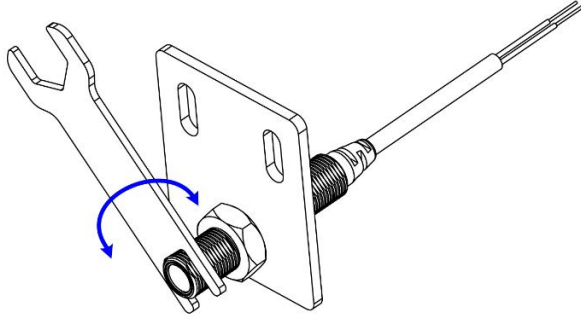


2. Next, tighten the nut with the washer on the plate.



INSTALLATION

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



INSTALLATION

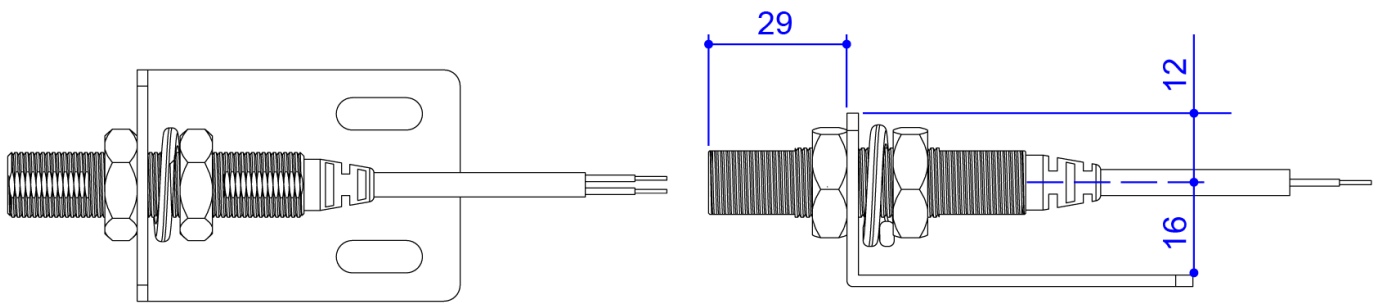


Fig.2 Demonstration with L shape plate (shape plate not included)

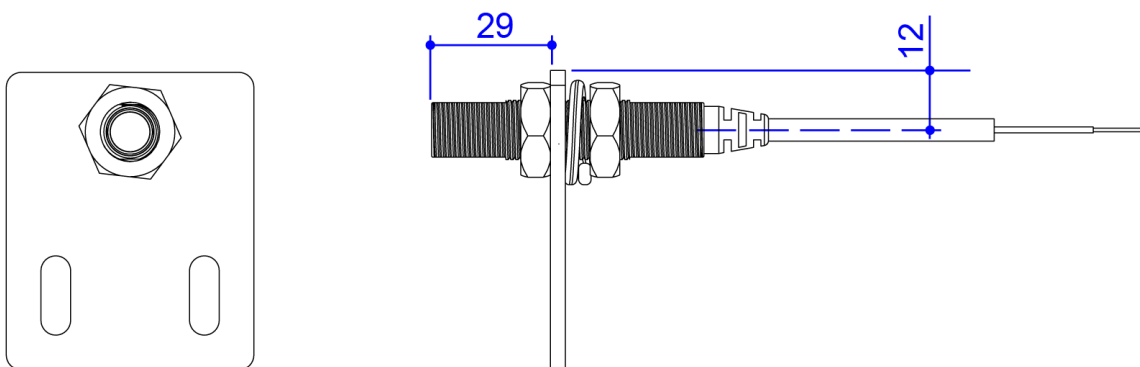


Fig.3 Demonstration with I shape plate (shape plate not included)