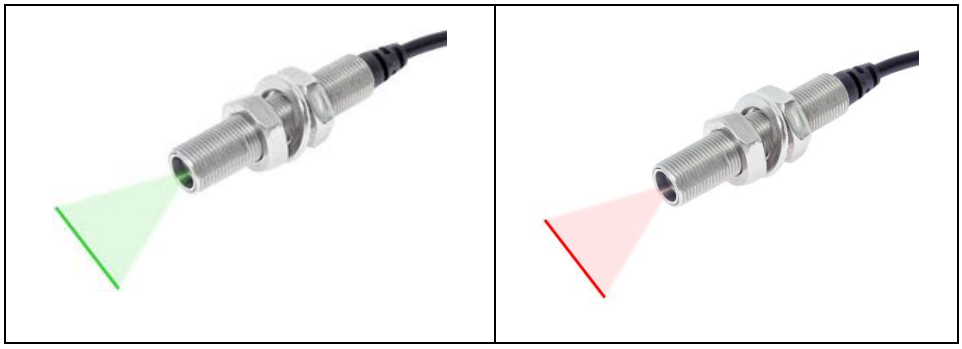
Quarton inc.

Uniform Line Laser Module with Various Fan Angles and (66 series) without / (67 series) with TTL-modulation

VLM-520/650-66/67 Series



The newly developed glass line lens come with various fan angles and they produce high quality uniform laser line in a robust stainless housing, ideal for automation, machine vision, image processing, digital data acquisition, counting, precision 3D scanner and science & medical application. They are available at 20 cm, 1 meter and 5 meters focus length, red & green wavelength to cover various task. For customized focus length or wavelength, please contact us.

FEATURES:

- Built with high precision glass line lens and glass laser collimating lens.
- Fan Angle : 5°, 15°, 30°, 60°, 110° (15% tolerance)
- Focus range: 20 cm, 1 meter, 5 meters
- Customized focus or length are available, please direct contact us.
- Without / With TTL-modulation: 66 series without modulation
  67 series with modulation
- Power output level: Class I laser product
- Dimensions : M12 x 68 mm (M12 x 2.677")
- Wavelength : 520 series - 515~530 nm / 650 series - 630~665 nm
- 10~36 VDC operation.
- Connection type : Lead wire

APPLICATIONS: ideal for

- Machine vision.
- Automation industry.
- Image processing.
- Medical & Science.
- Scanning.
- Precision 3D scanner.
- Counting.
- Measurement.

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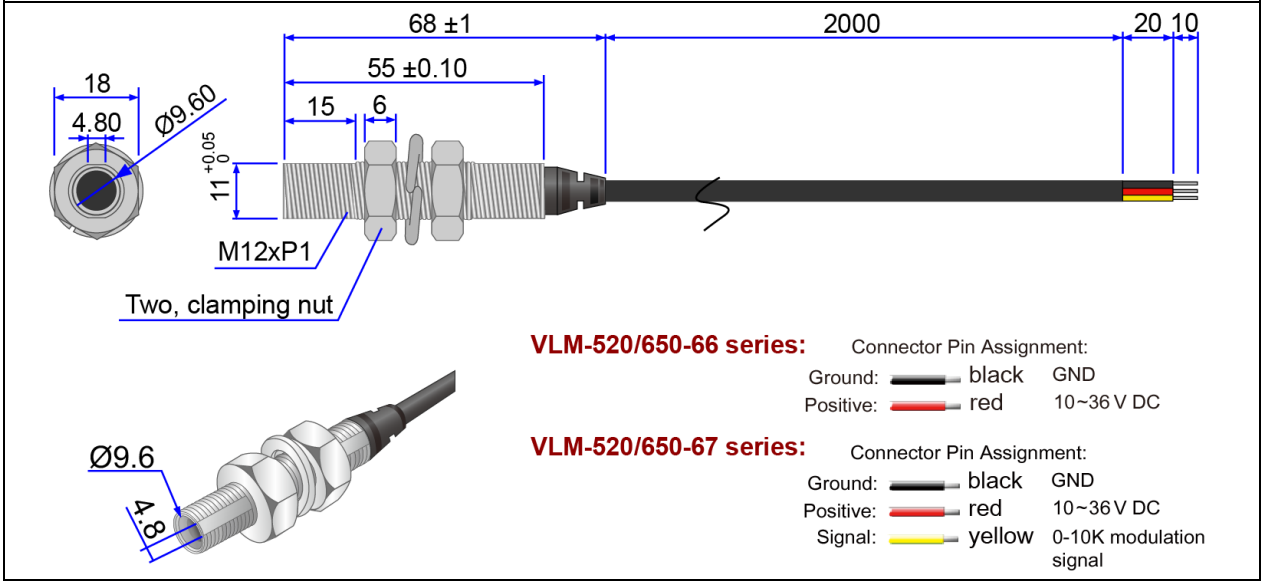
VLM-520/650-66/67 Series

OUTLINE DIMENSIONS (UNITS: mm)

Outline (Lead Wire type)



SPECIFICATIONS

Part Number		VLM-520/650-66/67 LPO-				
1	Fan angle* (D) **(15% tolerance)**	5°	15°	30°	60°	110°
2	Focus length	20 cm	1 meter or 5 meters			
3	Fan angle / Laser line length	AS **TABLE A**				
4	Laser line width	AS **TABLE B**				
5	Recommended working range	AS **TABLE B**				
6	Modulation	66 series - without TTL modulation 67 series - with TTL modulation. High ON, 0-10K Hz				
7	Dimensions	M12 x 68 mm (M12 x 2.677")				
8	Weight	100±1g				
9	Operating voltage (Vop)	10~36 VDC				
10	Operating current (Iop)	Less than 20mA at 24V				
11	Optical power**	Less than 0.39mW	520 series - 7~9mW 650 series - 5~7mW			
12	Laser power output	Less than 0.39mW				
13	Laser class	Class I				
14	Wavelength (λp)	520 series - 515~530 nm / 650 series - 630~665 nm				
15	Collimating lens / Line generating lens	Aspherical glass lens				
16	Output aperture	8 mm				

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17	Beam shape	Line
18	Laser line accuracy	4/1000(<1.6mm @400mm)
19	Operating temp. range***	-20°C ~+60°C
20	Storage temp. range	-20°C ~+85°C
21	Housing material / color	Stainless steel / Silver
22	Potential of housing	Insulated
23	Electrostatic discharge (ESD)	30KV
24	Moisture sensitivity level (MSL)	Level 1 - acc to JEDEC J-STD-020E.
25	Protection circuit	Reversed supply circuit protection, over-current protection, surge protection, Short circuit protection
26	Vibration resistance	10 to 55Hz,1.5mm amplitude for 2 hours each in X, Y and Z direction
27	Standard	IEC60825:2014
28	Wire type	UL-2464/22 AWG
29	Cable length	UL2464 D4.2,L=2000±30mm
30	Mount method	M12 screw
31	Mean time to failure (MTTF) 25°C	Above 10000 hrs
32	International Protection Marking	IP68
33	Application	Precision fine line for Automation, Machine vision and Medical
34	Suggestion work distance	0~5 meters / 0~16 feet
35	Part No.	VLM-520/650-66/67 LPO-Dxx-Fyy 520 = green laser 650 = red laser 66 = without TTL modulation 67 = with TTL modulation D= Fan angle xx=5/15/30/60/110 F= Focus length yy=20(Only for D5)/100/500 Example: VLM-520-66 LPO-D5-F20 VLM-650-67 LPO-D30-F100

* **The fan angle has a tolerance of 15%.**

** **Optical power is total power output measured at the aperture of the laser.**

*** **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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SAFETY PRECAUTIONS

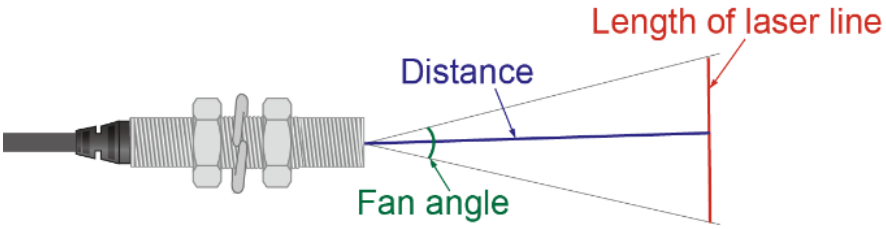
POWER SUPPLY -

Do not impose an excessive voltage on the laser module, otherwise it may be damaged. Do not impose AC current (100 to 380 V AC) on any DC module, otherwise it may be damaged.

SAFETY LABEL

CLASS I LASER PRODUCT

TABLE A: Laser Line Length Table: (15% tolerance)



Length of Laser Line: (15% tolerance)

Distance / Fan angle	20 cm (8 inch)	100 cm (40 inch)	500 cm (197 inch)
5°	2 cm (0.79”)	10 cm (3.94”)	50 cm (19.69”)
15°	5.6 cm (2.2”)	26.8 cm (10.55”)	134 cm (52.76”)
30°	11.2 cm (4.41”)	55 cm (21.65”)	275 cm (108.27”)
60°	24 cm (9.45”)	116 cm (45.67”)	580 cm (228.35”)
110°	60 cm (23.62”)	300 cm (118.11”)	1500 cm (590.55”)

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TABLE B: Recommended working range:

Focus on 20 cm:

Laser Line Width <1mm
Laser Line Width <2mm

Laser Fan Angle	Recommended Working Range(cm) 10 20 30 40 50
5°	5 - 12 - 27 - 34
15°	1 - 18 - 30 - 43
30°	1 - 18 - 30 - 43
60°	1 - 18 - 30 - 43
110°	1 - 18 - 30 - 43

Focus on 100 cm:

Laser Line Width <1mm
Laser Line Width <2mm

Laser Fan Angle	Recommended Working Range(cm) 35 70 105 140 175
5°	14 - 43-104 - 130
15°	3 - 36 - 170 - 195
30°	3 - 36 - 170 - 195
60°	3 - 36 - 170 - 195
110°	3 - 36 - 170 - 195

Focus on 500 cm:

Laser Line Width <1mm
Laser Line Width <2mm

Laser Fan Angle	Recommended Working Range(cm) 125 250 375 500 625
5°	16- 70 - 210 -260
15°	5- 120 - 300 - 730
30°	5- 120 - 300 - 730
60°	5- 120 - 300 - 730
110°	5- 120 - 300 - 730

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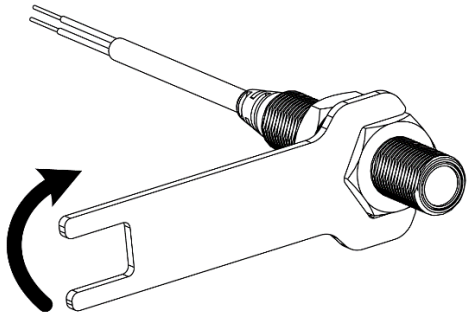
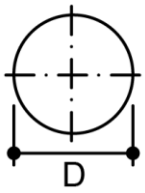
INSTALLATION

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.

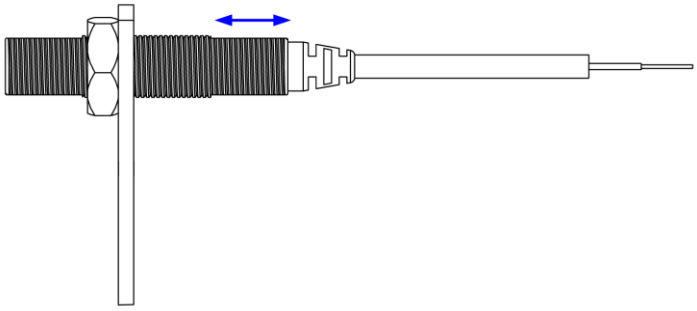


RECOMMENDED MOUNTING HOLE DIMENSIONS

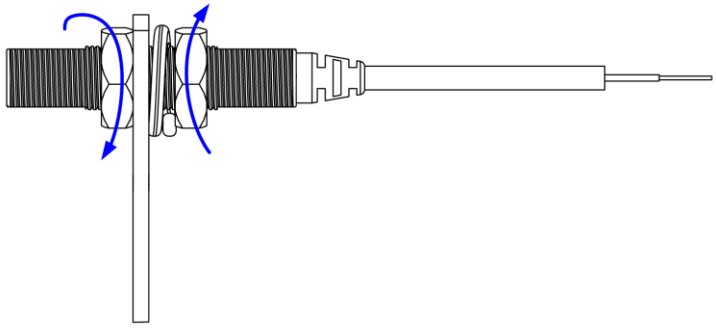


OUTER DIAMETER OF MODULE	M12
DIMENSION **D**	$13^{+0.1}_{0}$ DIA.

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



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



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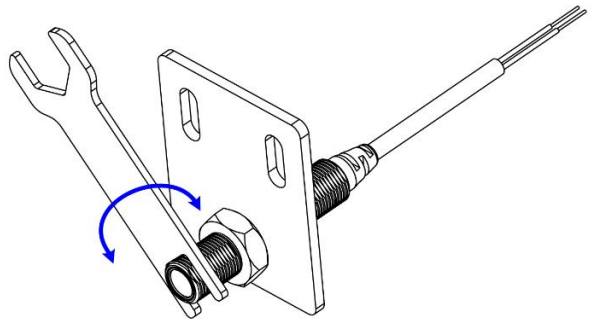
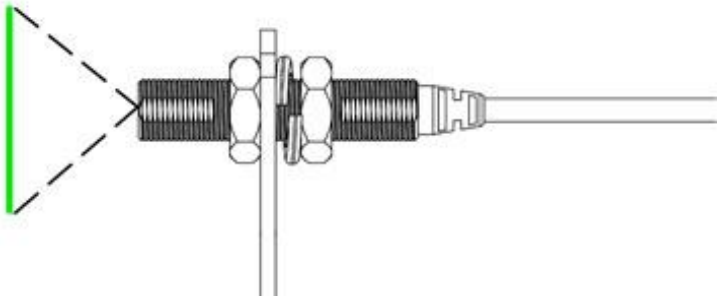
INSTALLATION

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



4. Lastly, check if the projected laser line is at the right position to your need.
   Rotate the laser module again if the laser line isn't aligned with your preferred position.



INSTALLATION

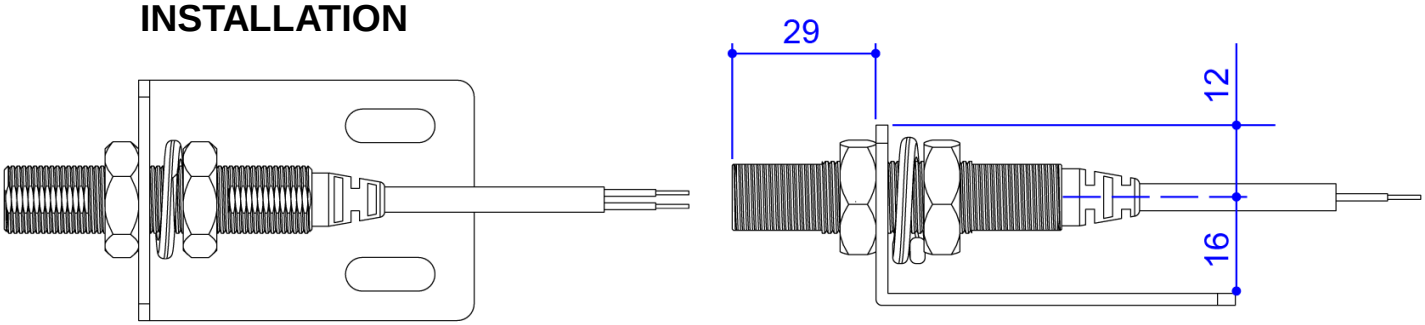


Fig.2 Demonstration with L shape plate (shape plate not included)

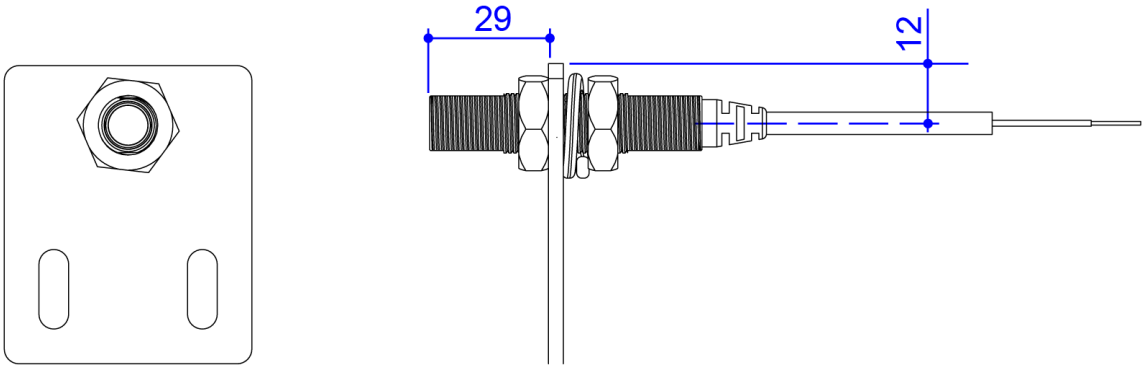


Fig.3 Demonstration with I shape plate (shape plate not included)

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