Quarton inc.

Industrial Red Dot Laser

VLM-635/650-01 Series

	
Lead Wire type	Spring type

FEATURES:

- Designed and manufactured in Taiwan, ensuring exceptional quality and durability.
- This module is an industrial-grade product that integrates an aspherical plastic collimating lens, a laser diode, and an APC driver circuit into a compact and durable solid brass housing.
- Operating Voltage: 2.6~6VDC
- Wavelength : 635 / 650 nm
- Laser power output: LPA - Class 3R - less than 3mW.
  LPT - Class 2 - less than 1mW.
  LPO - Class 1 - less than 0.39mW.
- Beam Divergence (Full Angle): 0.5 mRad
- Dimensions: D10.5 x L19 mm (D0.413 x L0.748 inches).
- Compact design with an integrated Auto-Power-Control (APC) driver circuit for safe and consistent laser output.
- Built with a patented solid brass structure for superior shock resistance and efficient heat dissipation.
- Connection type: Lead wire / Spring.
- A 650 nm red laser is less visible to the human eye compared to green lasers due to the lower sensitivity of the human eye to red light. Its advantages include lower cost, easier manufacturing, and lower power consumption, making it ideal for battery-operated devices. It also performs well in low-light conditions or indoor environments.

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APPLICATIONS:

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- **Positioning:**
  Lasers with lower cost and lower power consumption are widely used for precise positioning in various industries. These include construction, robotics, and manufacturing, where the goal is to align equipment or products accurately. In such cases, cost-effectiveness and low power usage are important for continuous operation, especially in remote or mobile setups.
- **Measuring:**
  Lasers are commonly used in measuring instruments such as laser distance meters and levelers. Their ability to quickly and accurately measure distances, combined with low energy needs, makes them ideal for handheld devices or equipment used in both industrial and consumer applications. The affordability of these lasers also contributes to their widespread use in compact, portable measuring tools.
- **Pointing:**
  Red lasers, which are cost-effective and have lower power consumption, are commonly used for pointing applications. These lasers are employed in devices like remote controls, presentation tools, and other everyday consumer electronics. In these situations, energy efficiency and visibility in low-light conditions are significant advantages.
- **Laser Sighting Device:**
  Low-cost lasers with good performance in indoor environments are utilized in laser sighting devices, such as scopes in firearms, archery, or even certain sporting applications. Their affordability makes them accessible for consumer-grade products, while their efficiency ensures long-lasting use on battery-operated systems.
- **Automotive Industry:**
  Lasers with lower manufacturing costs and lower power consumption are useful in the automotive industry, particularly in sensors for vehicle positioning, lane departure warnings, and parking assistance systems. These lasers are embedded in affordable, energy-efficient systems that perform well in low-light conditions, improving the vehicle's functionality.
- **Medical & Science:**
  In medical and scientific fields, lasers with these characteristics are often found in diagnostic tools, low-energy surgeries, or measurement devices. Their ability to work efficiently with minimal power usage makes them suitable for portable medical devices or laboratory equipment, where cost and ease of manufacturing play a critical role.

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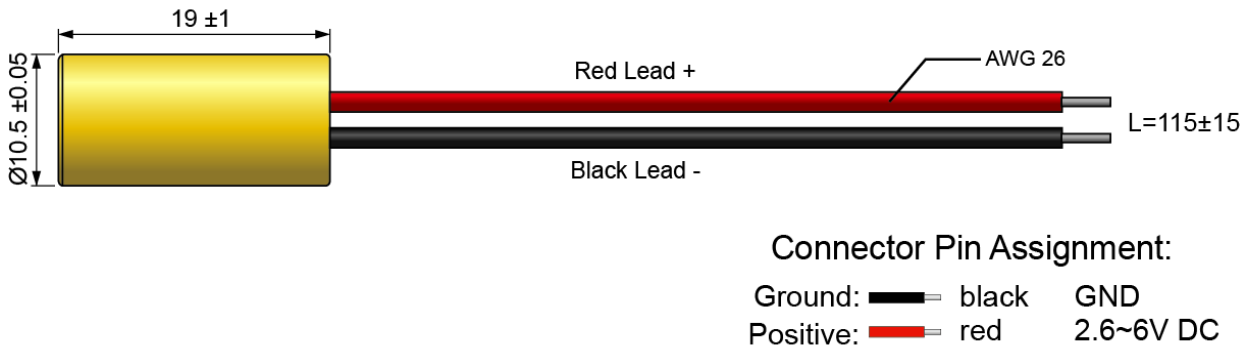
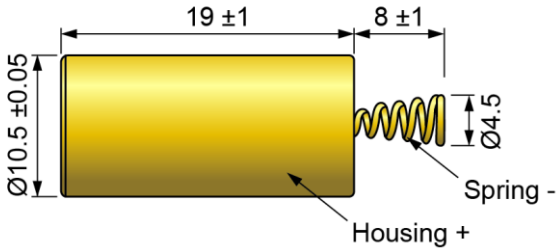
These lasers' combination of lower cost, easier manufacturing, and low power consumption makes them ideal for a range of practical applications in everyday devices, both for consumer use and in industrial or scientific environments. Their efficiency in low-light settings also enhances their versatility and practicality across diverse settings.

OUTLINE DIMENSIONS (UNITS: mm)

Outline (Lead Wire type)



Outline (Spring type)



SPECIFICATIONS

SPECIFICATIONS		VLM-635/650-01					
		LPO	**LPT**	**LPA**	**SPO**	**SPT**	**SPA**
1	Dimensions	Ø10.5 x 19 mm (Ø0.413" x 0.748")					
2	Weight	10±1g					
3	Operating voltage (Vop)	2.6~6 VDC					
4	Operating current (Iop)	Less than 35mA		Less than 50mA	Less than 35mA		Less than 50mA
5	Laser power output	Less than 0.39mW	Less than 1mW	Less than 3mW	Less than 0.39mW	Less than 1mW	Less than 3mW
6	Laser class	Class 1	Class 2	Class 3R	Class 1	Class 2	Class 3R
7	Wavelength at peak emission (λp)	635 series - 630~645nm, 650 series - 645~665nm					

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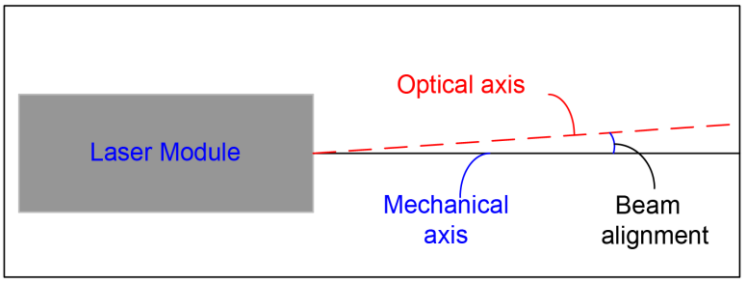
8	Collimating lens	Aspherical plastic lens	
9	Output aperture	5mm	
10	Beam shape	Ellipse	
11	Spot size	5±1mm @ 5M	
12	Divergence (Full Angle)*	0.5 mRad	
13	Beam alignment	Less than 3°	
14	Operating temp. range**	+10°C ~+40°C	
15	Storage temp. range	-20°C ~+65°C	
16	Housing material	Brass	
17	Potential of housing***	VDD(+)	
18	Electrostatic discharge (ESD)	30KV	
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	
21	Vibration resistance	10 to 55Hz,1.5mm amplitude for 2 hours each in X, Y and Z direction	
22	Standard	IEC60825:2014	
20	Connection type	1007-26AWG	Spring
21	Cable length	115±15mm	8±1mm
22	Mean time to failure (MTTF) 25°C	10000hrs	
23	Application	General purpose	
24	Suggestion work distance	1~30 meters / 3~100 feet	

* Beam alignment:



** Operation temperature: it 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.

*** Laser module housing is an electrical positive surface, it is imperative that contact between the laser module and the machine be avoided. This is to prevent damage from the machine electrical leakage. Surge protected power supply to the laser module is strongly recommended.

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ORDER CODE

Order Code	Wavelength	Laser Power Output	Laser Class	Connection Type
VLM-635-01 LPA	635 nm	Less than 3mW	Class 3R	Lead Wire
VLM-635-01 LPT	635 nm	Less than 1mW	Class 2	Lead Wire
VLM-635-01 LPO	635 nm	Less than 0.39mW	Class 1	Lead Wire
VLM-635-01 SPA	635 nm	Less than 3mW	Class 3R	Spring
VLM-635-01 SPT	635 nm	Less than 1mW	Class 2	Spring
VLM-635-01 SPO	635 nm	Less than 0.39mW	Class 1	Spring
VLM-650-01 LPA	650 nm	Less than 3mW	Class 3R	Lead Wire
VLM-650-01 LPT	650 nm	Less than 1mW	Class 2	Lead Wire
VLM-650-01 LPO	650 nm	Less than 0.39mW	Class 1	Lead Wire
VLM-650-01 SPA	650 nm	Less than 3mW	Class 3R	Spring
VLM-650-01 SPT	650 nm	Less than 1mW	Class 2	Spring
VLM-650-01 SPO	650 nm	Less than 0.39mW	Class 1	Spring

SAFETY LABEL