

Green Dot Laser Module with TTL function

VLM-520-61 Series



FEATURES:

- Extremely small circular laser dot optimized for applications within 1 meter.
- Rugged stainless steel housing for enhanced durability and protection.
- Equipped with a high-precision glass lens for superior beam quality.
- Stable CW to 10 kHz modulation performance - ideal for applications requiring consistent power and fast response.
- Two laser power output level: LPO - Class 1 laser product
LPT - Class 2 laser product
- Dimensions : Ø10 x 40 mm (Ø0.39" x 1.575")
- Wavelength : 515~530 nm
- 3~6 VDC operation.
- Connection type : Lead wire
- Designed for general-purpose short-range applications; customized focusing options are available for achieving the smallest possible laser dot.

520 nm Laser (Green): The most visible wavelength to the human eye, appearing much brighter than red or blue at the same power. Provides a sharp, round dot with excellent beam quality, ideal for outdoor and long-distance visibility.

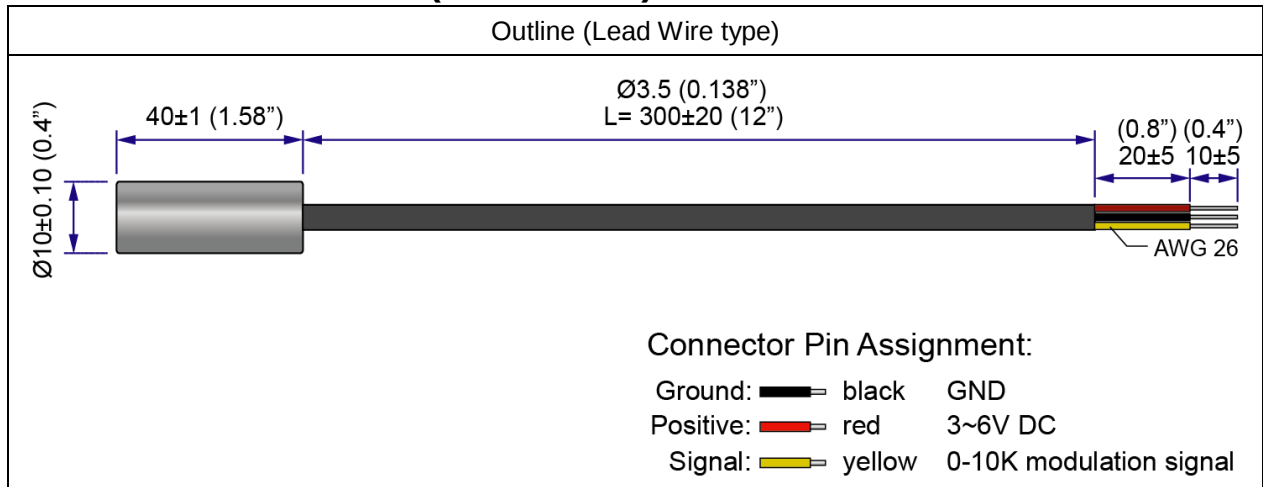
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Typical Applications:

- **Precision Alignment & Positioning**
Close-range alignment and calibration tasks.
Used in robotics, assembly automation, and micro-positioning equipment.
Ideal for setup of mechanical jigs, nozzles, or fixtures requiring sub-millimeter accuracy.
- **Machine Vision & Optical Systems**
Provides a bright reference point or marker for vision inspection systems.
Used for object detection, dimensional measurement, or focus referencing.
Green wavelength gives excellent contrast for most industrial camera sensors.
- **Medical & Laboratory Equipment**
Used as a low-power aiming or targeting beam in diagnostic, dental, or laboratory devices.
Class 1 / Class 2 ensures eye-safe operation during normal use.
Suitable for instrument calibration or visible indication of optical alignment.
- **Consumer & Educational Devices**
Integrated into safe, low-power devices such as teaching aids, visual indicators, or optical demonstrators.
Green visibility makes it easier for human observation and training use.
- **Automation & Robotics**
Used as a reference beam for pick-and-place robots, nozzle alignment (e.g., dispensing, spraying, or inspection systems).
Modulation capability (up to 10 kHz) allows synchronization with sensors or cameras.

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OUTLINE DIMENSIONS (UNITS: mm)



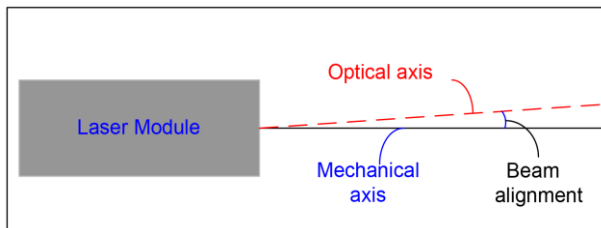
SPECIFICATIONS

Part Number		VLM-520-61 LPO	VLM-520-61 LPT
1	Spot Size	$< 1\text{mm}$, From 0 to 50cm $< 2\text{mm}$, From 50cm to 90cm	
2	Dimensions	$\varnothing 10 \times 40 \text{ mm}$ ($\varnothing 0.39" \times 1.575"$)	
3	Weight	$16 \pm 1\text{g}$	
4	Operating voltage (Vop)	3~6 VDC	
5	Operating current (Iop)	Less than 60mA	Less than 150mA
6	Laser power output	Less than 0.39mW	Less than 1mW
7	Laser class	Class 1	Class 2
8	Wavelength (λ_p)	515~530nm	
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°	
14	Operating temp. range	$-20^\circ\text{C} \sim +60^\circ\text{C}$	
15	Storage temp. range	$-20^\circ\text{C} \sim +85^\circ\text{C}$	
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	

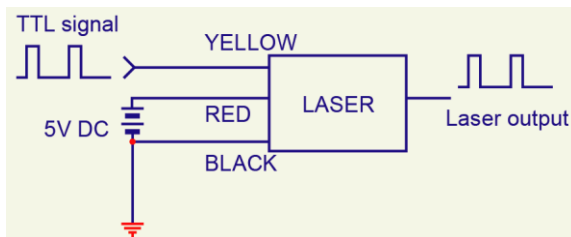
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21	Electrostatic discharge (ESD)	30KV / Arc protection
22	Moisture sensitivity level (MSL)	Level 1 - acc to JEDEC J-STD-020E.
23	Protection circuit	Reversed supply circuit protection, over-current protection, surge protection, Short circuit protection
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	2464 3-WIRE CABLE 26 AWG
27	Cable length	330±30mm
28	Mean time to failure (MTTF) 25°C	10000 hrs
29	International Protection Marking	IP65
30	Application	Industrial alignment with modulation function
31	Suggestion work distance	0~0.9 meters / 0~3 feet

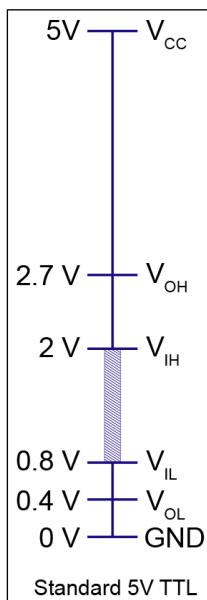
* Beam alignment:



** TTL Operation Function Diagram



*** TTL Level



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ORDER CODE

Order Code	Wavelength	Laser Power Output	Laser Class	Connection Type
VLM-520-61 LPT	520 nm	Less than 1mW	Class 2	Lead Wire
VLM-520-61 LPO	520 nm	Less than 0.39mW	Class 1	Lead Wire

SAFETY LABEL

LPO:

CLASS I LASER PRODUCT

LPT:



Optional Accessories

Quarton offers mounts, power supply boards, battery pack and USB cable switch to help you running as quickly as possible. For more information, please visit www.quarton.com, www.quarton.com/contact or email contact@quarton.com.

QLM-1125 - Laser Module Mount/Holder for diameter 6mm to 12.5mm, it's an ideal choose for mounted onto optical tables.

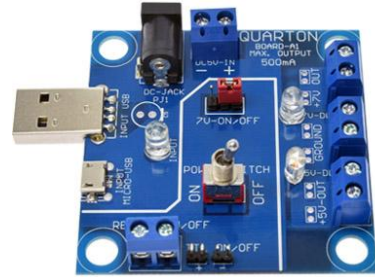
Feature:

- 4 directions adjustable.
- Can be mounted onto the optical table with screws (Screws not included).
- Engraved scale for precision adjustable.



Optional Accessories

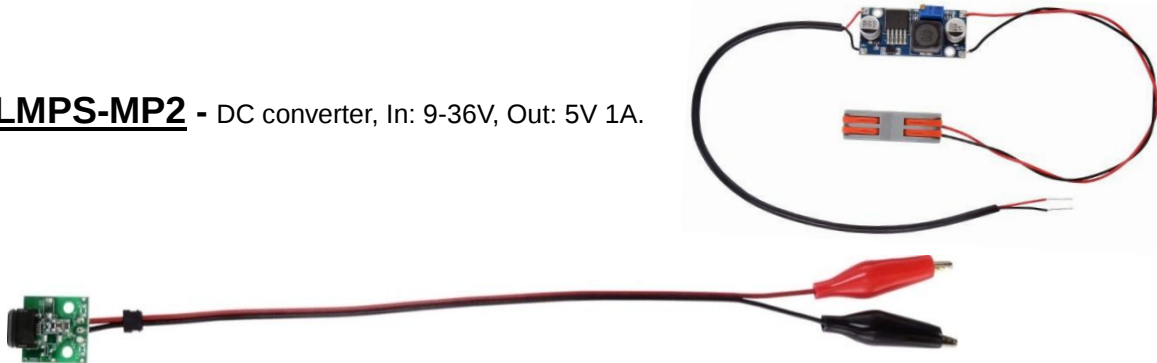
LMPS-MP1 - Multi-function Laser Module Power Supply Board. Four input : USB, micro USB, DC Power Jack(5.5 x 2.1), and terminal block. Two channel output : 7 VDC 500mA and 5 VDC 1A. Three switches-toggle switch, remote switch and TTL signal.



Feature:

- Allow four kinds of power input: USB, micro USB, DC Power Jack(5.5x2.1) and terminal block.
- Two Channel output: 7 VDC 500mA and 5 VDC 1A.
- Built-in three switches: toggle switch, terminal block remote switch and TTL signal switch by on-board connect point.
- 7 VDC output work for all Quarton Laser Modules with 7-12 V operation Voltage (Vop).
- 5 VDC output work for all Quarton Laser Modules with 3-6 V operation Voltage (Vop).
- Three LED indicators: Input power indicator, 7V output indicator and 5V output indicator.

LMPS-MP2 - DC converter, In: 9-36V, Out: 5V 1A.



LMPS-mUSB1 - Laser Module Power Supply Board, Input: micro USB, Output: 5 VDC 500mA.

Feature:

- Micro USB connector power input. Output 5 VDC 500mA with alligator clips.
- For all Quarton Laser Modules that require 3-6V operation Voltage.



LMPS-DC1 - Laser Module Power Supply Board, Input: DC Power Jack(5.5 x 2.1), Output: 5 VDC 500mA.

Feature:

- DC Power Jack(5.5 x 2.1) power input. Output 5 VDC 500mA with alligator clips.
- For all Quarton Laser Modules that require 3-6V operation voltage.

Optional Accessories



CLM-BP4N3 - Battery pack (4* AA batteries)

*** AA Batteries are **NOT** included in package.

Feature:

- USB Output Voltage: 5 VDC.
- Color: Black.



CLM-UM3M - USB to micro USB Cable.

Feature:

- Length: 3 meters.
- Color: Black.