

## Powell Line Laser Module

### VLM-POWELL series



#### FEATURES:

- Homogeneous laser line module.
- **Compact size and light weight.**
- **Dimension: Ø10 x 68 mm (Ø0.39" x 2.68"), 2 meters (78.74") cable with open leads.**
- Industrial use laser modules have 10,000 hours working life.
- This module has integrated optic, direct green laser diode, and APC driver circuit.
- APC driver circuit enables the Laser output power safe and constant.
- Wavelength : 450nm / 520nm / 650nm
- 3~6 VDC / 10~36 VDC operation.
- Laser class: Class I Laser product.
- Fan Angle :  $45^{\circ} \pm 5^{\circ}$  /  $75^{\circ} \pm 5^{\circ}$

#### APPLICATIONS:

- Scanning.
- Machine vision & Image processing.
- Medical & Science application.
- Automatic industry.
- Robotic arm.

#### Model No:

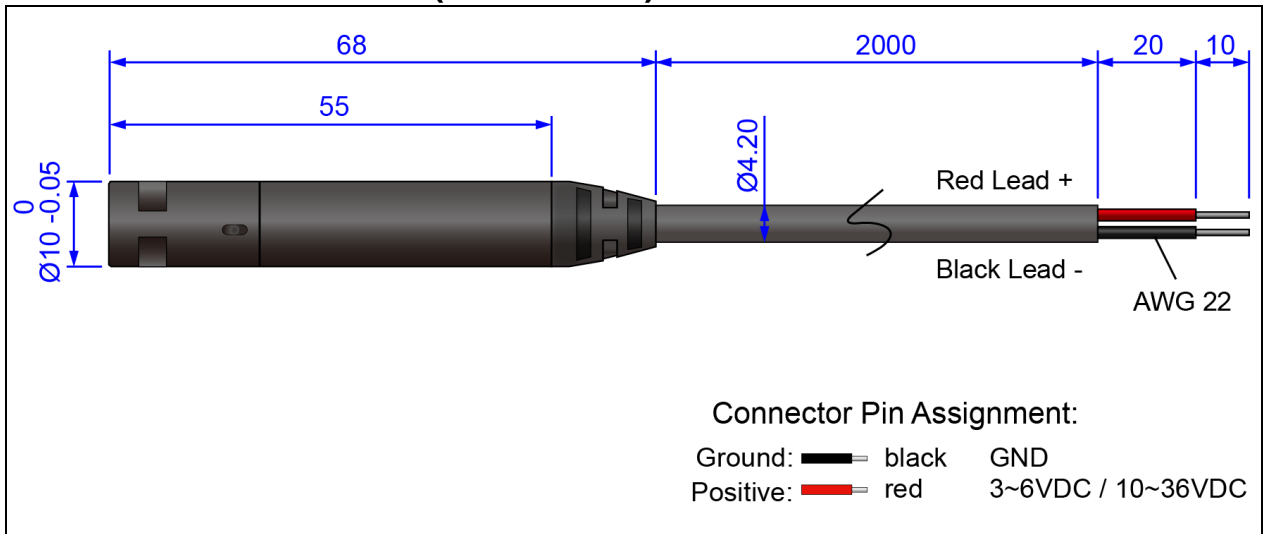
##### VLM-POWELL-XXX-DXX-FXXX-DAXX-OPXX

Wavelength	Fan angle	Focus length	Dimension	Voltage
450 450nm	45 45°	30 30cm	10 Ø10	5 3~6V
520 520nm	75 75°	100 100cm	M12 M12 thread	24 10~36V
650 650nm				

\* The fan angle and focus length can be customized.

## VLM-POWELL series

### OUTLINE DIMENSIONS (UNITS: mm)



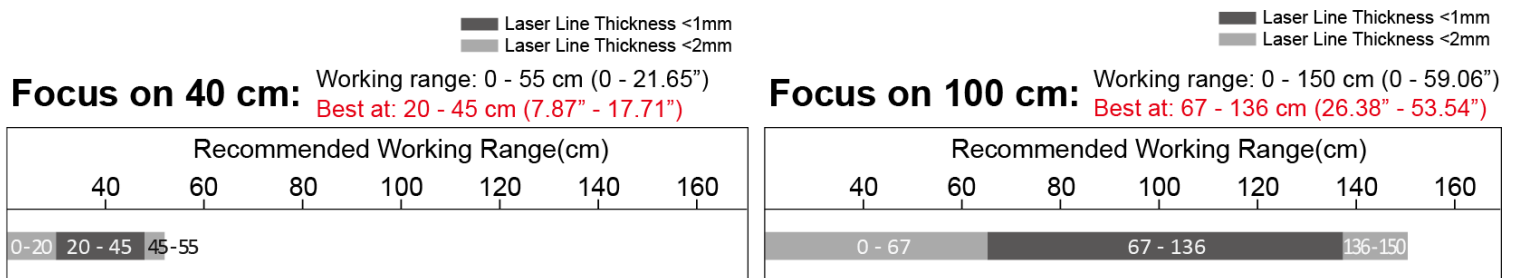
### SPECIFICATIONS

Part Number		VLM-POWELL-450/520/650-D45/D75-F30/F100-DA10/DA12-OP5/OP24		
1	Fan angle	45°±5° / 75°±5°		
2	Focus length	30 cm / 100 cm		
3	Laser line thickness at 1/e <sup>2</sup> *	AS TABLE A		
4	Dimensions	Ø10 x 68 mm (Ø0.39" x 2.68") / M12 x 68 mm (M12 x 2.68")		
5	Weight	55g (Cable is including)		
6	Operating voltage (Vop)	3~6 VDC / 10~36 VDC		
7	Optical power**	8±0.5mW		
		Min	Type	Max
8	Operating current (Iop)	20mA	45mA	55mA
9	Laser power output***	0.12mW	0.18mW	0.24mW
10	Laser class	Class I, eye safe		
11	Wavelength (λp)	450nm / 505~535nm / 640~665nm		
12	Collimating lens	Aspherical glass lens		
13	Output aperture	5.5mm		
14	Beam shape	Uniformity Line		
15	Line uniformity**** ( $\frac{I_{max} - I_{min}}{I_{max} + I_{min}}$ )	≤ 20%		
16	Laser line accuracy*****	4/1000(<1.6mm @400mm)		

## VLM-POWELL series

17	Operating temp. range	-20°C ~+60°C
18	Storage temp. range	-20°C ~+85°C
19	Housing material / color	Aluminum / Black
20	Potential of housing	Isolated
21	Electrostatic discharge (ESD)	30KV
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	Protection Class	IP54
25	Vibration resistance	10 to 55Hz, 1.5mm amplitude for 2 hours each in X, Y and Z direction
26	Standard	IEC60825:2014
27	Connection Type	Lead wire
28	Wire type	UL-2464/22 AWG
29	Cable length	D4.2, L=2000±30mm
30	Mean time to failure (MTTF) 25°C	10000hrs
31	Warranty	1 year
32	Application	Scanning, Machine vision, Image processing, Medical & Science application, Automatic industry, Robotic arm
33	Suggestion work distance	1~50 cm / 50~150 cm

**TABLE A: line thickness at 1/e<sup>2</sup>:**

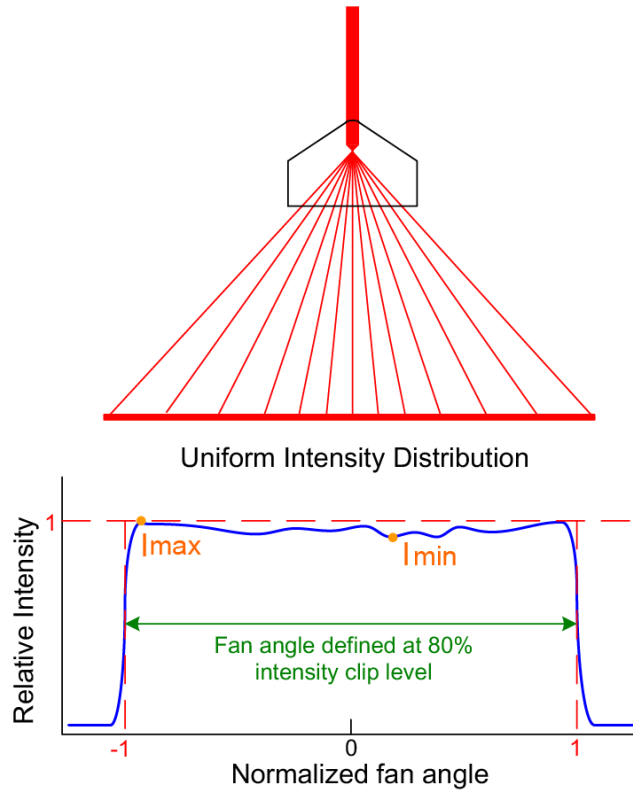


\* Laser line thickness at 1/e<sup>2</sup> as the distance between diametrically opposed points in that cross-section of a beam where the power per unit area is 1/e<sup>2</sup> times that of the peak power per unit area. This is the Laser line thickness definition that is used for computing the maximum permissible exposure to a Laser line thickness. Be measured the full intensity profile of a laser line by Beam profiler.

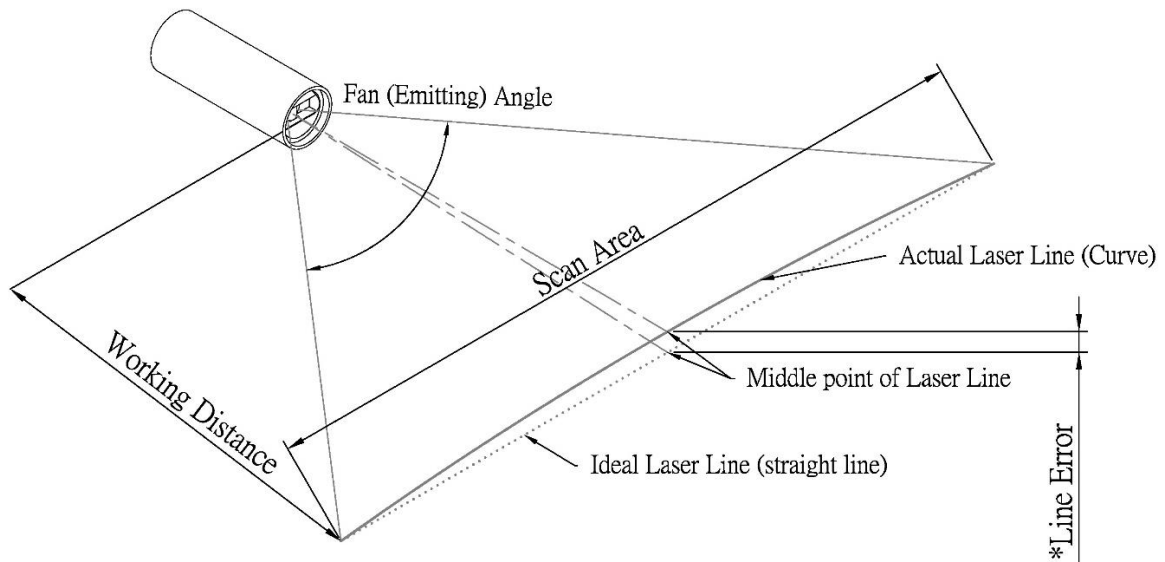
\*\* Total output power measured at the aperture of the laser.

\*\*\* According to IEC 60825-1 regulations, laser power is measured by 7 mm aperture stop at the position of 10cm.

## \*\*\*\* Line uniformity



## \*\*\*\* Laser Line Accuracy



$$* \text{Laser Line Accuracy} = \frac{\text{Line Error at middle point}}{\text{Scan Area}}$$

## SAFETY LABEL

CLASS I LASER PRODUCT