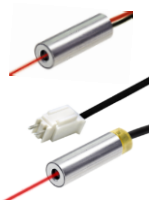
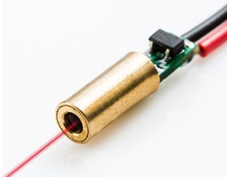
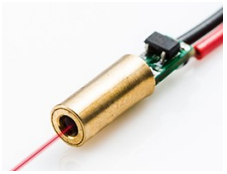
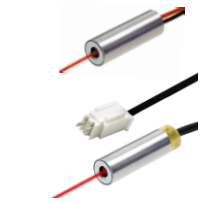
Red Dot Laser Module

Specifications / Model Number	VLM-635-00 VLM-650-00	VLM-635-01 series VLM-650-01 series	VLM-635-01G series VLM-650-01G series	VLM-635-02 series VLM-650-02 series	VLM-635-02G series VLM-650-02G series	VLM-635-03 series VLM-650-03 series
						
Dimensions	Ø10.52 x 17.2 mm	Ø10.5 x 19 mm	Ø10.5 x 19 mm	Ø10.5 x 26 mm	Ø10.5 x 26 mm	Ø7 x 21 mm
Operating voltage	2.2~2.7 VDC / 2.15~2.6 VDC	2.6~6 VDC	2.6~6 VDC	2.6~6 VDC	2.6~6 VDC	2.6~6 VDC
Operating current	Less than 45mA / 35mA	Less than 35mA / 50mA	Less than 35mA / 50mA	Less than 35mA / 50mA	Less than 35mA / 50mA	Less than 35mA / 50mA
Laser power output	Less than 2.5mW	Less than 0.39mW / 1mW / 3mW	Less than 0.39 / 1mW / 2.5mW	Less than 1mW / 3mW	Less than 1mW / 2.5mW	Less than 0.39mW / 1mW / 2.5mW
Laser class		Class 1 / Class 2 / Class 3R	Class 1 / Class 2 / Class 3R	Class 2 / Class 3R	Class 2 / Class 3R	Class 1 / Class 2 / Class 3R
Wavelength	630~645nm / 650~660nm	630~645nm / 645~665nm	630~645nm / 645~665nm	630~645nm / 645~665nm	630~645nm / 645~665nm	630~645nm / 645~665nm
Collimating lens	Plastic lens	Plastic lens	Glass lens	Plastic lens	Glass lens	Plastic lens
Output aperture	5mm	5mm	5mm	4mm	4mm	3mm
Beam shape	Ellipse	Ellipse	Ellipse	Ellipse	Ellipse	Ellipse
Spot size		5±1mm at 5M	4±1mm at 5M	5±1 mm at 5M Adjustment focus	4±1 mm at 5M Adjustment focus	Less than 5mm at 5M
Divergence (Full Angle)	0.5 mRad	0.5 mRad	0.4 mRad	0.5 mRad	0.4 mRad	0.6 mRad
Beam alignment		Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°
Operating temp. range	+10°C ~+40°C	+10°C ~+40°C	-20°C ~+50°C	+10°C ~+40°C	-20°C ~+50°C	+15°C ~+30°C
Storage temp. range	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C
Housing material	Brass	Brass	Brass	Brass	Brass	Steel
Potential of housing	VDD(+)	VDD(+)	VDD(+)	VDD(+)	VDD(+)	VDD(+)
Electrostatic discharge (ESD)		30KV	30KV	30KV	30KV	20KV
Moisture sensitivity level (MSL)		Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
Wire type	3*PIN from LD	1007-26AWG / Spring	1007-26AWG / Spring	1007-26AWG / Spring	1007-26AWG / Spring	1007-26AWG / 2509 connector
Cable length		115±15mm / 8±1mm	115±15mm / 8±1mm	115±15mm / 6.5±1mm	115±15mm / 6.5±1mm	115±15mm / 90mm
Mean time to failure (MTTF) 25°C	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	5000hrs
Application	Lab, without laser driver	General purpose	General purpose	Focus adjustable	Focus adjustable	Economic type
Suggestion work distance		1~30 meters / 3~100 feet	1~30 meters / 3~100 feet	1~30 meters / 3~100 feet	1~30 meters / 3~100 feet	1~10 meters / 3~40 feet

VLM-635-04 series VLM-650-04 series	VLM-635-11 series VLM-650-11 series	VLM-635-12 series VLM-650-12 series	VLM-635-17 series	VLM-635-18 series VLM-650-18 series	VLM-650-21 series	VLM-650-22 series
						
Ø6.55 x 21.1 mm	Ø10.5 x 30 mm	Ø10.5 x 39 mm	Ø13 x 50 mm	Ø13 x 43.5 mm	Ø4 x 15 mm	Ø4 x 15 mm
2.6~6 VDC	2.6~6 VDC	2.6~6 VDC	3~6 VDC	2.6~6 VDC	3~6 VDC	3~6 VDC
Less than 35mA / 50mA	Less than 35mA / 50mA	Less than 35mA / 50mA	Less than 60mA / 70mA / 85mA	Less than 35mA / 50mA	Less than 25mA / 30mA	Less than 25mA / 30mA
Less than 1mW / 2.5mW	Less than 1mW / 2.5mW	Less than 1mW / 2.5mW	0.7~0.9mW / 2~3mW / 5~6mW	2.5±1mW	0.7±0.2mW / 2±0.5mW	0.7±0.2mW / 3±0.5mW
Class 2 / Class 3R	Class 2 / Class 3R	Class 2 / Class 3R	Class 2 / Class 3R / Class 3B	Class 3R	Class 2 / Class 3R	Class 2 / Class 3R
630~645nm / 645~665nm	630~645nm / 645~665nm	630~645nm / 645~665nm	630~645nm	630~645nm / 645~665nm	645~660nm	645~660nm
Plastic lens	Glass lens	Plastic lens	Glass lens	Glass lens	Plastic lens	Glass lens
3mm	5mm	5mm	8mm	6mm	2.1mm	2.1mm
Ellipse	Circular	Circular	Circular	Circular	Ellipse	Ellipse
Less than 5mm at 5M	Less than 16mm at 40M	2.5±0.5 mm at 5M 10±1 mm at 20M	Less than 5.3 mm at 40M Less than 15 mm at 100M	Less than 16mm at 40M	7±1 mm at 5M	10±1 mm at 5M
0.6 mRad	0.2 mRad	0.25 mRad	Less than 0.1 mRad	0.2 mRad	2.5 mRad	2.5 mRad
Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°
+15°C ~+30°C	-20°C ~+50°C	+10°C ~+40°C	-10°C ~+50°C	-20°C ~+50°C	+15°C ~+30°C	-10°C ~+50°C
-20°C ~+65°C	-20°C ~+70°C	-20°C ~+65°C	-20°C ~+80°C	-40°C ~+70°C	-20°C ~+65°C	-20°C ~+65°C
Zinc alloy	Bronze	Bronze	Aluminum	Brass	Brass	Brass
VDD(+)	VDD(+)	VDD(+)	Insulated	VDD(+)	VDD(+)	VDD(+)
20KV	30KV	30KV	30KV	30KV	20KV	20KV
Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
1007-26AWG / Spring	1007-26AWG / Spring	1007-26AWG / Spring	1007-26AWG	1007-26AWG	1007-26AWG	1007-26AWG
115±15mm / 4±1mm	115±15mm / 8±1mm	115±15mm / 4.2±1mm	115±15mm	115±15mm	115±15mm	115±15mm
5000hrs	10000hrs	5000hrs / 10000hrs	10000hrs	5000hrs / 10000hrs	5000hrs	5000hrs
Economic type	Long range application	Long range application	Long range application	Long range application	Small size	Small size
1~10 meters / 3~40 feet	10~100 meters / 30~300 feet	10~100 meters / 30~300 feet	10~500 meters / 40~2000 feet	10~200 meters / 30~600 feet	1~10 meters / 3~40 feet	1~10 meters / 3~40 feet

VLM-650-25 series	VLM-635-31 Series (TTL)	VLM-635-32 Series (TTL)	VLM-635-60 series	VLM-635-61 series (TTL)	VLM-650-62 series	VLM-650-62T series (TTL)
						
Ø7 x 21 mm	Ø8 x 27 mm	Ø8.5 x 30.5 mm	Ø10 x 40 mm	Ø10 x 40 mm	Ø10 x 40 mm	Ø10 x 40 mm
2.6~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC
Less than 30mA	Less than 40mA / 60mA	Less than 40mA / 60mA	Less than 40mA / 80mA	Less than 40mA / 80mA	Less than 80mA / 100mA / 150mA	Less than 80mA / 100mA / 150mA
Less than 1mW	Less than 1mW / 4mW	Less than 1mW / 4mW	Less than 0.39mW / 1mW	Less than 0.39mW / 1mW	0.2±0.1mW / 0.8±0.1mW / 3.5±0.5mW	0.2±0.1mW / 0.8±0.1mW / 3.5±0.5mW
Class 2	Class 2 / Class 3R	Class 2 / Class 3R	Class 1 / Class 2	Class 1 / Class 2	Class 1 / Class 2 / Class 3R	Class 1 / Class 2 / Class 3R
645~665nm	630~645nm	630~645nm	630~645nm	630~645nm	645~665nm	645~665nm
Plastic lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens
3mm	5mm	5mm	0.6mm	0.6mm	2mm	2mm
Ellipse	Ellipse	Ellipse	Circular	Circular	Circular	Circular
Less than 1.1mm at 18~45cm	5±1 mm at 10M	5±1 mm at 10M	Less than 1mm at 0~50cm Less than 2mm at 50~90cm	Less than 1mm at 0~50cm Less than 2mm at 50~90cm	Less than Ø3mm at 0~5M	Less than Ø3mm at 0~5M
	Less than 0.4mRad	Less than 0.4mRad	Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.4 mRad
Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°
+15°C ~+30°C	-20°C ~ +60°C	-20°C ~ +60°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C
-20°C ~+65°C	-40°C ~ +85°C	-40°C ~ +85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C
Steel	Aluminum	Steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
VDD(+)	Insulated	Insulated	Insulated	Insulated	Insulated	Insulated
20KV	30KV	30KV	30KV / Arc protection	30KV / Arc protection	30KV / Arc protection	30KV / Arc protection
Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
1007-26AWG / 2509 connector	1007-26AWG	1007-26AWG	2464 2-WIRE CABLE 26 AWG	2464 3-WIRE CABLE 26 AWG	2464 2-WIRE CABLE 26 AWG	2464 3-WIRE CABLE 26 AWG
115±15mm / 90mm	115±15mm	115±15mm	330±30mm	330±30mm	330±30mm	330±30mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs
Laser engrave machine pilot laser	Modulation	Modulation	Industrial alignment	Industrial alignment with TTL modulation function	Industrial alignment	Industrial alignment with TTL modulation function
18~45 cm / 6"~18"	1~10 meters / 3~40 feet	1~10 meters / 3~40 feet	0~1.2 meters / 0~4 feet	0~1.2 meters / 0~4 feet	0~5 meters / 0~16 feet	0~5 meters / 0~16 feet

VLM-635-63 Series	VLM-650-70 series	VLM-650-71 series (TTL)	VLM-650-72 series	VLM-650-72T series (TTL)	VLM-635-91 LPB	VLM-635-96 LPA
						
Ø10.6 x 12.2 mm	M12 x 68 mm	M12 x 68 mm	M12 x 68 mm	M12 x 68 mm	Ø16 x 25 mm	Ø16.5 x 72.8 mm
3~6 VDC	10~36 VDC	10~36 VDC	10~36 VDC	10~36 VDC	4~6 VDC	3~6 VDC
Less than 40mA	Less than 20mA at 24V	Less than 20mA at 24V	Less than 30mA at 24V	Less than 30mA at 24V	Less than 500mA	Less than 80mA
Less than 0.39mW / 1mW	Less than 0.39mW / 1mW	Less than 0.39mW / 1mW	0.2±0.1mW / 0.8±0.1mW / 3.5±0.5mW	0.2±0.1mW / 0.8±0.1mW / 3.5±0.5mW	150mW	0~4.25±0.25mW (adjustable)
Class 1 / Class 2	Class 1 / Class 2	Class 1 / Class 2	Class 1 / Class 2 / Class 3R	Class 1 / Class 2 / Class 3R	Class 3B	Class 3R
630~645 nm	645~665nm	645~665nm	645~665nm	645~665nm	635nm	630~645nm
Plastic lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens
5mm	0.6mm	0.6mm	2mm	2mm	2.5mm	5mm
Ellipse	Circular	Circular	Circular	Circular	Ellipse	Ellipse
Ø0.1~Ø0.5 ($1/e^2$)	Less than 1mm at 0~50cm Less than 2mm at 50~90cm	Less than 1mm at 0~50cm Less than 2mm at 50~90cm	Less than Ø3mm at 0~5M	Less than Ø3mm at 0~5M	Less than 15mm at 10M	Less than 0.2mm at 10mm Less than 8mm at 10M
	Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.4 mRad		Adjustable 0.4 mRad~12°
Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	
-10°C ~+50°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C	-10°C ~ +60°C
-20°C ~+65°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~ +85°C
Bronze	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Bronze	Aluminum
VDD(+)	Insulated	Insulated	Insulated	Insulated	VDD(+)	Insulated
30KV	30KV / Arc protection	30KV / Arc protection	30KV / Arc protection	30KV / Arc protection	30KV	30KV
Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
1007-26AWG	2464 2-WIRE CABLE 26 AWG	2464 3-WIRE CABLE 26 AWG	2464 2-WIRE CABLE 26 AWG	2464 3-WIRE CABLE 26 AWG	1007-26AWG	2464 2-WIRE CABLE 26 AWG
115±15mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	115±15mm	330±30mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs
Micro dot size	Industrial alignment	Industrial alignment with TTL modulation function	Industrial alignment	Industrial alignment with TTL modulation function	High power	Laboratory or medical research, physical-optic experiments
1~25 cm / 1/2"~10"	0~1 meters / 0~3 feet	0~1 meters / 0~3 feet	0~5 meters / 0~16 feet	0~5 meters / 0~16 feet	1~30 meters / 3~100 feet	Above 10mm

CLM-635-01 LPO	CLM-635-02 LPT	CLM-635-11 LPO	CLM-635-12 LPT
			
Ø19.9 x 60 mm	Ø19.9 x 60 mm	20 x 20 x 60 mm	20 x 20 x 60 mm
3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC
Less than 50mA	Less than 50mA	Less than 50mA	Less than 50mA
Less than 0.39mW	Less than 1mW	Less than 0.39mW	Less than 1mW
Class 1	Class 2	Class 1	Class 2
630~645nm	630~645nm	630~645nm	630~645nm
Glass lens	Glass lens	Glass lens	Glass lens
0.8mm	3mm	0.8mm	3mm
Circular	Circular	Circular	Circular
Less than 1.2mm at 1M	Less than 9mm at 20M	Less than 1.2mm at 1M	Less than 9mm at 20M
0.15 mRad	0.15 mRad	0.15 mRad	0.15 mRad
Less than 1mm	Less than 1mm	Less than 1mm	Less than 1mm
-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C
-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
Stainless steel	Stainless steel	Hard anodized aluminum	Hard anodized aluminum
Insulated	Insulated	Insulated	Insulated
30KV	30KV	30KV	30KV
Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
Type C	Type C	Type C	Type C
10000hrs	10000hrs	10000hrs	10000hrs
Concentricity Laser	Concentricity Laser	Concentricity Laser	Concentricity Laser
0~1 meter / 0~3 feet	1~30 meters / 3~100 feet	0~1 meter / 0~3 feet	1~30 meters / 3~100 feet