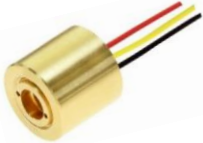


IR Laser Module						
Model Number	VLM-780-01 series	VLM-780-03 series	VLM-780-04 series	VLM-850-01 series	VLM-850-03 series	VLM-850-17 LPB
Specifications						
Dimensions	Ø10.5 x 19 mm	Ø7 x 21 mm	Ø6.55 x 21.1 mm	Ø10.5 x 19 mm	Ø7 x 21 mm	Ø13 x 50 mm
Operating voltage	2.6~6 VDC	2.6~6 VDC	2.6~6 VDC	2.6~6 VDC	2.6~6 VDC	3~6 VDC
Operating current	Less than 40mA	Less than 40mA / 30mA	Less than 40mA	Less than 40mA / 130mA	Less than 30mA / 130mA	Less than 150mA
Laser power output	Less than 0.7mW / 3mW	Less than 0.7mW / 3mW	Less than 0.7mW / 3mW	Less than 0.7mW / 2.5~3.5mW / 45~50mW	Less than 0.7mW / 2.5~3.5mW / 40~45mW	<50mW
Laser class	Class 1 / Class 3R	Class 1 / Class 3R	Class 1 / Class 3R	Class 1 / Class 3R / Class 3B	Class 1 / Class 3R / Class 3B	Class 3B
Wavelength	770~795nm / 840~865nm	770~795nm / 840~865nm	770~795nm	840~865nm	840~865nm	840~865nm
Collimating lens	Plastic lens	Plastic lens	Plastic lens	Plastic lens	Plastic lens	Glass lens
Output aperture	7mm	3mm	5mm	5mm	3mm	8mm
Beam shape	Ellipse	Ellipse	Ellipse	Ellipse	Ellipse	Circular
Spot size	5±1mm at 5M	6±1mm at 5M	6±1mm at 5M	5±1mm at 5M	6±1mm at 5M	Ø5.3mm at 40M Ø15mm at 100M
Divergence (Full Angle)	0.5 mRad	0.6 mRad	0.6 mRad	0.5 mRad	0.6 mRad	Less than 0.1 mRad
Beam alignment	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°
Operating temp. range	+10°C ~+40°C	+15°C ~+30°C	+15°C ~+30°C	+10°C ~+40°C	+15°C ~+30°C	-10°C ~+50°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 ~+80°C
Housing material	Brass	Steel	Zinc alloy	Brass	Steel	Aluminum
Potential of housing	VDD(+)	VDD(+)	VDD(+)	VDD(+)	VDD(+)	Insulated
Electrostatic discharge (ESD)	30KV	20KV	20KV	30KV	20KV	30KV
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.	Level 1 - acc to JEDEC J-STD-020E.
Wire type	1007-26AWG / Spring	1007-26AWG	1007-26AWG / Spring	1007-26AWG / Spring	1007-26AWG	1007-26AWG
Cable length	115±15mm / 8±1mm	115±15mm	115±15mm / 4±1mm	115±15mm / 8±1mm	115±15mm	115±15mm
Mean time to failure (MTTF) 25°C	10000hrs	5000hrs	5000hrs	10000hrs	5000hrs	10000hrs
Application	General purpose	Economic type	Economic type	General purpose	Economic type	Long range application
Suggestion work distance	1~30 meters / 3~100 feet	1~10 meters / 3~40 feet	1~10 meters / 3~40 feet	1~30 meters / 3~100 feet	1~10 meters / 3~40 feet	10~500 meters / 40~2000 feet

VLM-850-52 series	VLM-850-60 LPO	VLM-850-61 LPO (TTL)	VLM-850-62 series	VLM-850-62T series (TTL)	VLM-850-70 LPO	VLM-850-71 LPO (TTL)
						
Ø8.5 x 30.5 mm	Ø10 x 40 mm	Ø10 x 40 mm	Ø10 x 40 mm	Ø10 x 40 mm	M12 x 68 mm	M12 x 68 mm
3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	10~36 VDC	10~36 VDC
Less than 55mA	Less than 60mA	Less than 60mA	Less than 80mA / 150mA	Less than 80mA / 150mA	Less than 20mA at 24V	Less than 20mA at 24V
Less than 0.7mW / Less than 3.5mW	Less than 0.7mW	Less than 0.7mW	Less than 0.7mW / Less than 3.5mW	Less than 0.7mW / Less than 3.5mW	Less than 0.7mW	Less than 0.7mW
Class 1 / Class 3R	Class 1	Class 1	Class 1 / Class 3R	Class 1 / Class 3R	Class 1	Class 1
840~865nm	840~865nm	840~865nm	840~865nm	840~865nm	840~865nm	840~865nm
Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens
5mm	0.6mm	0.6mm	2mm	2mm	0.6mm	0.6mm
Ellipse	Circular	Circular	Circular	Circular	Circular	Circular
5±1 mm at 10M	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 3mm at 0~5M	Less than 3mm at 0~5M	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 1mm within 50cm Less than 2mm at 50~90cm
Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.4 mRad	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°
-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 ~+60°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	-20°C ~+85°C
Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Insulated	Insulated	Insulated	Insulated	Insulated	Insulated	Insulated
30KV	30KV	30KV	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.	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	1007-26AWG	1007-26AWG	1007-26AWG	1007-26AWG	UL-2464/22 AWG	UL-2464/22 AWG
115±15mm	330±30mm	330±30mm	330±30mm	330±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs
Industrial application	Industrial alignment	Industrial alignment	Industrial application	Industrial application	Industrial alignment	Industrial alignment
1~30 meters / 3~100 feet	0~0.9 meters / 0~3 feet	0~0.9 meters / 0~3 feet	0~5 meters / 0~16 feet	0~5 meters / 0~16 feet	0~0.9 meters / 0~3 feet	0~0.9 meters / 0~3 feet

VLM-850-72 series	VLM-850-72T series (TTL)	VLM-850-81 series	VLM-850-82 series	VLM-850-83 series	VLM-940-01 series	VLM-940-03 series
						
M12 x 68 mm	M12 x 68 mm	Ø16 x 17.5 mm	Ø16 x 29 mm	Ø22 x 27 mm	Ø10.5 x 19 mm	Ø7 x 21 mm
10~36 VDC	10~36 VDC	4~6 VDC	9~36 VDC	4~6 VDC	2.6~6 VDC	2.6~6 VDC
Less than 30mA at 24V	Less than 30mA at 24V	Less than 300mA	Less than 600mA	Less than 600mA	Less than 40mA / 130mA	Less than 30mA / 130mA
Less than 0.7mW / Less than 3.5mW	Less than 0.7mW / Less than 3.5mW				Less than 1.1mW / 2.5~3.5mW / 25~30mW	Less than 1.1mW / 2.5~3.5mW / 30~35mW
Class 1 / Class 3R	Class 1 / Class 3R	Class 1, Eye Safe	Class 1, Eye Safe	Class 1, Eye Safe	Class 1 / Class 3R / Class 3B	Class 1 / Class 3R / Class 3B
840~865nm	840~865nm	850nm	850nm	850nm	930~950nm	930~950nm
Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Plastic lens	Plastic lens
2mm	2mm	5mm	5mm	12.6mm	5mm	3mm
Circular	Circular	Round	Round	Round	Ellipse	Ellipse
Less than 3mm at 0~5M	Less than 3mm at 0~5M	15°: 2.4M at 10M 30°: 4M at 10M	15°: 2.4M at 10M 30°: 4M at 10M	Less than 2M at 10M	5±1mm at 5M	6±1mm at 5M
Less than 0.4 mRad	Less than 0.4 mRad	15° / 30°	15° / 30°	6°	0.5 mRad	0.6 mRad
Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°	Less than 3°
-20°C ~+60°C	-20°C ~+60°C	-10°C ~+50°C	-10°C ~+50°C	-10°C ~+50°C	+10°C ~+40°C	+15°C ~+30°C
-20°C ~+85°C	-20°C ~+85°C	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C	-20°C ~+65°C
Stainless steel	Stainless steel	Bronze	Bronze	Bronze	Brass	Steel
Insulated	Insulated	VDD(+)	VDD(+)	VDD(+)	VDD(+)	VDD(+)
30KV	30KV	30KV	30KV	30KV	30KV	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.
UL-2464/22 AWG	UL-2464/22 AWG	1007-26AWG	1007-26AWG	1007-26AWG	1007-26AWG / Spring	1007-26AWG
UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	115±15mm	115±15mm	115±15mm	115±15mm / 8±1mm	115±15mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	5000hrs
Industrial alignment	Industrial alignment	IR high power illumination	IR high power illumination	IR high power illumination	General purpose	Economic type
0~5 meters / 0~16 feet	0~5 meters / 0~16 feet	10~100 meters / 40~300 feet	10~100 meters / 40~300 feet	50~200 meters / 150~600 feet	1~30 meters / 3~100 feet	1~10 meters / 3~40 feet

VLM-940-17 LPB	VLM-940-52 series	VLM-940-60 LPO	VLM-940-61 LPO (TTL)	VLM-940-62 series	VLM-940-62T series (TTL)	VLM-940-70 LPO
						
Ø13 x 50 mm	Ø8.5 x 30.5 mm	Ø10 x 40 mm	Ø10 x 40 mm	Ø10 x 40 mm	Ø10 x 40 mm	M12 x 68 mm
3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC	10~36 VDC
Less than 150mA	Less than 55mA	Less than 60mA	Less than 60mA	Less than 80mA / 150mA	Less than 80mA / 150mA	Less than 20mA at 24V
<50mW	Less than 1.1mW / Less than 5mW	Less than 1mW	Less than 1mW	Less than 1.1mW / Less than 6mW	Less than 1.1mW / Less than 6mW	Less than 1mW
Class 3B	Class 1 / Class 3R	Class 1	Class 1	Class 1 / Class 3R	Class 1 / Class 3R	Class 1
930~950nm	930~950nm	930~950nm	930~950nm	930~950nm	930~950nm	930~950nm
Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens
8mm	5mm	0.6mm	0.6mm	2mm	2mm	0.6mm
Circular	Ellipse	Circular	Circular	Circular	Circular	Circular
Ø5.3mm at 40M Ø15mm at 100M	5±1 mm at 10M	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 3mm at 0~5M	Less than 3mm at 0~5M	Less than 1mm within 50cm Less than 2mm at 50~90cm
Less than 0.1 mRad	Less than 0.4 mRad	Less than 0.4 mRad	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°
-10°C ~+50°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 ~+80°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
Aluminum	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Insulated	Insulated	Insulated	Insulated	Insulated	Insulated	Insulated
30KV	30KV	30KV	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.	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	1007-26AWG	1007-26AWG	1007-26AWG	1007-26AWG	1007-26AWG	UL-2464/22 AWG
115±15mm	115±15mm	330±30mm	330±30mm	330±30mm	330±30mm	UL2464 D4.2,L=2000±30mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs
Long range application	Industrial application	Industrial alignment	Industrial alignment	Industrial application	Industrial application	Industrial alignment
10~500 meters / 40~2000 feet	1~30 meters / 3~100 feet	0~0.9 meters / 0~3 feet	0~0.9 meters / 0~3 feet	0~5 meters / 0~16 feet	0~5 meters / 0~16 feet	0~0.9 meters / 0~3 feet

VLM-940-71 LPO (TTL)	VLM-940-72 series	VLM-940-72T series	VLM-1050-17 LPB	VLM-1050-52 series	VLM-1050-60 LPO	VLM-1050-61 LPO (TTL)
						
M12 x 68 mm	M12 x 68 mm	M12 x 68 mm	Ø13 x 50 mm	Ø8.5 x 30.5 mm	Ø10 x 40 mm	Ø10 x 40 mm
10~36 VDC	10~36 VDC	10~36 VDC	3~6 VDC	3~6 VDC	3~6 VDC	3~6 VDC
Less than 20mA at 24V	Less than 30mA at 24V	Less than 30mA at 24V	Less than 150mA	Less than 55mA	Less than 60mA	Less than 60mA
Less than 1mW	Less than 1.1mW / Less than 6mW	Less than 1.1mW / Less than 6mW	<50mW	1.2±0.3mW / 8±1mW	Less than 1.5mW	Less than 1.5mW
Class 1	Class 1 / Class 3R	Class 1 / Class 3R	Class 3B	Class 1 / Class 3R	Class 1	Class 1
930~950nm	930~950nm	930~950nm	1050~1075nm	1050~1075nm	1050~1075nm	1050~1075nm
Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens
0.6mm	2mm	2mm	8mm	5mm	0.6mm	0.6mm
Circular	Circular	Circular	Circular	Ellipse	Circular	Circular
Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 3mm at 0~5M	Less than 3mm at 0~5M	Ø5.3mm at 40M Ø15mm at 100M	5±1 mm at 10M	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 1mm within 50cm Less than 2mm at 50~90cm
Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.4 mRad	Less than 0.1 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°
-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C	-10°C ~+50°C	-20°C ~+60°C	-20°C ~+60°C	-20°C ~+60°C
-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+80°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C
Stainless steel	Stainless steel	Stainless steel	Aluminum	Stainless steel	Stainless steel	Stainless steel
Insulated	Insulated	Insulated	Insulated	Insulated	Insulated	Insulated
30KV	30KV	30KV	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.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
UL-2464/22 AWG	UL-2464/22 AWG	UL-2464/22 AWG	1007-26AWG	1007-26AWG	1007-26AWG	1007-26AWG
UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	115±15mm	115±15mm	330±30mm	330±30mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs
Industrial alignment	Industrial alignment	Industrial alignment	Long range application	Industrial application	Industrial alignment	Industrial alignment
0~0.9 meters / 0~3 feet	0~5 meters / 0~16 feet	0~5 meters / 0~16 feet	10~500 meters / 40~2000 feet	1~30 meters / 3~100 feet	0~0.9 meters / 0~3 feet	0~0.9 meters / 0~3 feet

VLM-1050-62 series	VLM-1050-62T series (TTL)	VLM-1050-70 LPO	VLM-1050-71 LPO (TTL)	VLM-1050-72 series	VLM-1050-72T series (TTL)
					
Ø10 x 40 mm	Ø10 x 40 mm	M12 x 68 mm	M12 x 68 mm	M12 x 68 mm	M12 x 68 mm
3~6 VDC	3~6 VDC	10~36 VDC	10~36 VDC	10~36 VDC	10~36 VDC
Less than 80mA / 150mA	Less than 80mA / 150mA	Less than 20mA at 24V	Less than 20mA at 24V	Less than 30mA at 24V	Less than 30mA at 24V
Less than 1.5mW / Less than 10mW	Less than 1.5mW / Less than 10mW	Less than 1.5mW	Less than 1.5mW	Less than 1.5mW / Less than 10mW	Less than 1.5mW / Less than 10mW
Class 1 / Class 3R	Class 1 / Class 3R	Class 1	Class 1	Class 1 / Class 3R	Class 1 / Class 3R
1050~1075nm	1050~1075nm	1050~1075nm	1050~1075nm	1050~1075nm	1050~1075nm
Glass lens	Glass lens	Glass lens	Glass lens	Glass lens	Glass lens
2mm	2mm	0.6mm	0.6mm	2mm	2mm
Circular	Circular	Circular	Circular	Circular	Circular
Less than 3mm at 0~5M	Less than 3mm at 0~5M	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 1mm within 50cm Less than 2mm at 50~90cm	Less than 3mm at 0~5M	Less than 3mm at 0~5M
Less than 0.4 mRad	Less than 0.4 mRad	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°
-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 ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C	-20°C ~+85°C
Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Insulated	Insulated	Insulated	Insulated	Insulated	Insulated
30KV	30KV	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.	Level 1 - acc to JEDEC J-STD-020E.	Level 1 - acc to JEDEC J-STD-020E.
1007-26AWG	1007-26AWG	UL-2464/22 AWG	UL-2464/22 AWG	UL-2464/22 AWG	UL-2464/22 AWG
330±30mm	330±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm	UL2464 D4.2,L=2000±30mm
10000hrs	10000hrs	10000hrs	10000hrs	10000hrs	10000hrs
Industrial application	Industrial application	Industrial alignment	Industrial alignment	Industrial alignment	Industrial alignment
0~5 meters / 0~16 feet	0~5 meters / 0~16 feet	0~0.9 meters / 0~3 feet	0~0.9 meters / 0~3 feet	0~5 meters / 0~16 feet	0~5 meters / 0~16 feet