Mech-Eye Industrial 3D Camera

LSR L-GL

Technical Specifications V3.0

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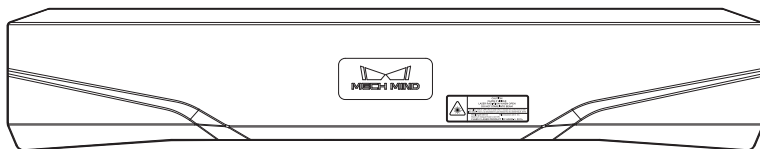
Physical Specifications

Model	LSR L-GL
Dimensions	459 × 77 × 86 mm
Weight	2.9 kg
Baseline	380 mm
Light source	Red laser (638 nm, Class 2)
Operating temperature	-10–45°C
Operating humidity	0–85%RH, non-condensing
Storage temperature	-20–60°C
Communication interface	Gigabit Ethernet
Input	24 VDC, 3.75 A
Power	Idle: 22 W Average: 30 W Peak: 60 W
IP rating[1]	IP65
Cooling	Passive
Flatness tolerance for mounting surface[2]	± 0.05 mm
Vibration resistance[3]	Sinusoidal vibration along the X-, Y-, and Z-axes, 10–57 Hz, 1.5 mm peak-to-peak value, 3 hours per axis
Shock resistance[4]	Half sine shock pulses along the positive and negative directions of the X-, Y-, and Z-axes, 147 m/s^2 (15 g), 11 ms, 3 shocks per direction, 18 shocks in total

[1] Test implemented based on IEC 60529. 6: dust-tight; 5: waterproof.
[2] The flatness of the surface used to mount the camera should satisfy this requirement.
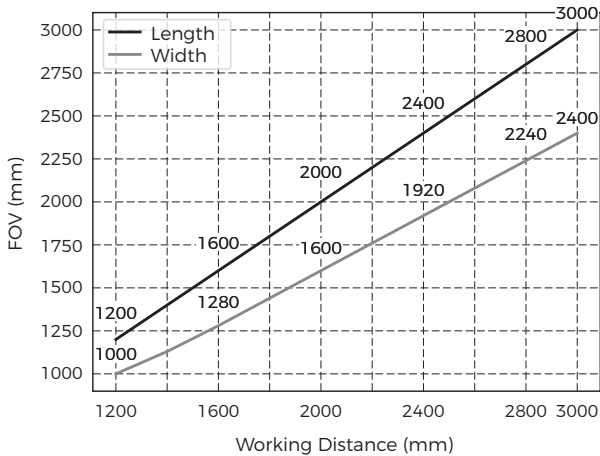[3] Test implemented based on IEC 60068-2-6.
[4] Test implemented based on IEC 60068-2-27.
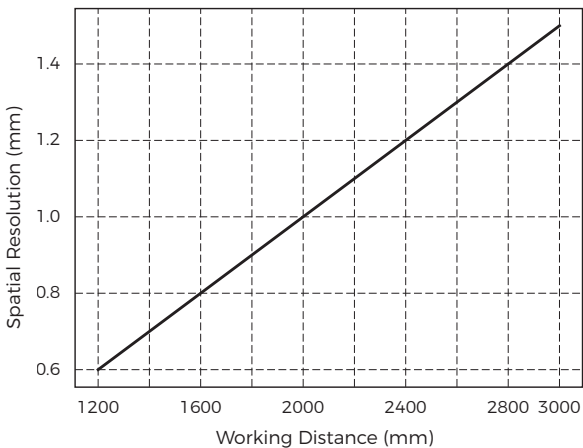
Performance Specifications

Working distance	1200–1800 mm	1800–3000 mm
Recommended working distance	1200–1800 mm	1800–3000 mm
Object focal distance[1]	1500 mm	2500 mm
FOV (near)	1200 × 1000 mm @ 1.2 m	
FOV (far)	3000 × 2400 mm @ 3.0 m	
Depth map resolution	2048 × 1536	
RGB image resolution[2],[3]	4000 × 3000	
Typical capture time[4],[5]	0.5–0.9 s	
Recommended warm-up time[4],[6]	30 min	
Point Z-value repeatability (1σ)[4],[7]	0.5 mm @ 3.0 m	
Measurement accuracy (VDI/VDE)[4],[8]	1.0 mm @ 3.0 m	

[1] The object focal distance of the 2D camera inside the product.

[2] Can be changed to 2000 × 1500 through Mech-Eye Viewer.

[3] "RGB image" refers to the "2D image (texture)" in Mech-Eye Viewer.

[4] Unless otherwise specified, this test was conducted under the standard test conditions listed on page 7.

[5] The range of time taken to acquire depth data in the "Fast" and "Accurate" fringe coding mode.

[6] The recommended warm-up time required to guarantee data accuracy to the listed values. For the warm-up method, refer to the user manual (The data acquisition interval is 10 s). Please adjust the warm-up time based on the actual data acquisition interval, ambient temperature, and heat-dissipation conditions.

[7] The standard deviation of the 100 measured depth values of each point on the target object was calculated, and then the median of all the standard deviations was taken. The target object was a white 95% alumina ceramic plate with a rough surface. The Point Cloud Processing parameters were set to "Off".

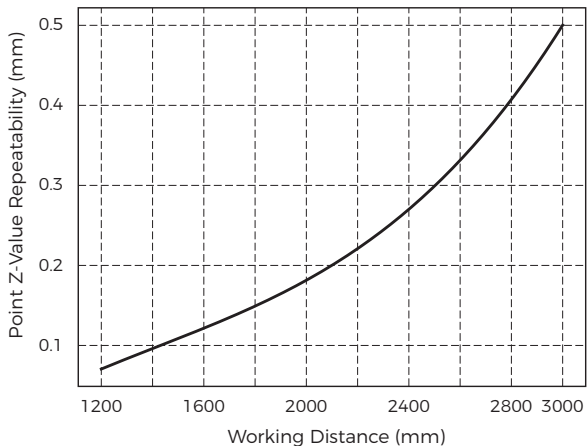[8] Test implemented with reference to VDI/VDE 2634 Part 2.
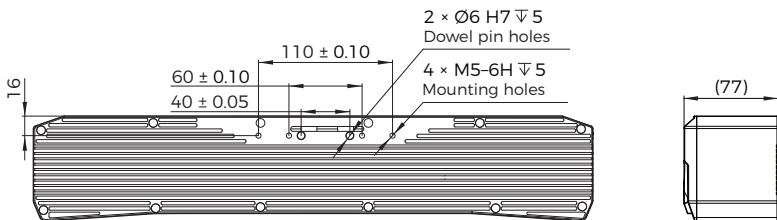
FOV

Spatial Resolution

Point Z-Value Repeatability

Dimensions

Unit: mm

2 × Ø9
Mounting holes

2 × Ø6 H7
Dowel pin holes

4 × M5–6H

211

180 ± 0.10

50 50 50

31 14

13

77

125

180 ± 0.05

Camera bracket

7

10

2 × Ø6 H7 ⍌ 5
Dowel pin holes

4 × M5–6H ⍌ 5
Mounting holes

110 ± 0.10

60 ± 0.10

40 ± 0.05

16

(77)

86

459
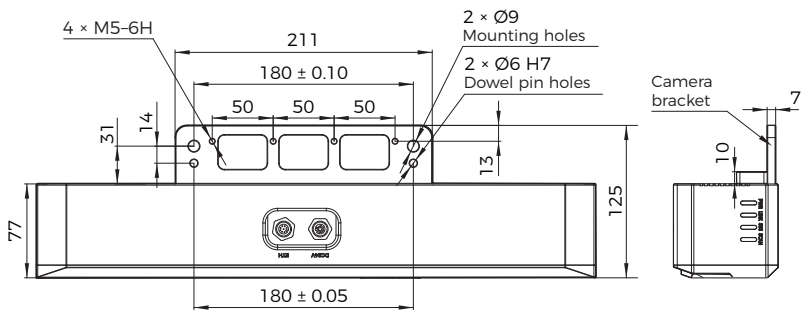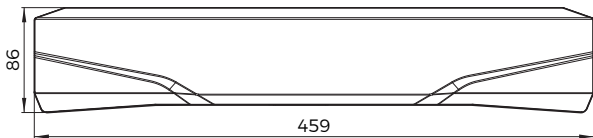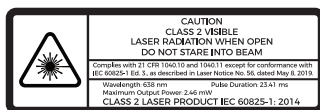
* Without the camera bracket
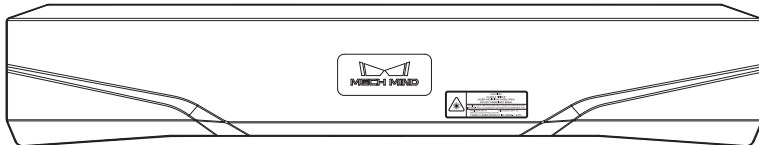
Certifications

Laser Product Safety

The Laser classification is implemented based on IEC 60825-1:2014 in accordance with the requirements of Laser Notice No. 56 of the FDA (CDRH).

Model	Wavelength	Maximum output power	Laser class
LSR L-GL	638 nm	2.46 mW	Class 2

Warning Label

CAUTION
CLASS 2 VISIBLE
LASER RADIATION WHEN OPEN
DO NOT STARE INTO BEAM
Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3, as described in Laser Notice No. 56, dated May 8, 2019.
Wavelength: 638 nm   Pulse Duration: 23.41 ms
Maximum Output Power: 2.46 mW
CLASS 2 LASER PRODUCT IEC 60825-1: 2014

Warning Label Attachment

 C E

Hereby [Mech-Mind Robotics Technologies Ltd.] declares that [LSR L-GL] is in compliance with the Electromagnetic Compatibility Directive 2014/30/EU.
The full text of the EU Declaration of Conformity is available at:
https://downloads.mech-mind.com/?tab=tab-eu-dec

R-R-viz-LSR-L

Standard Testing Conditions

Working distance[1]			1200–1800 mm 1800–3000 mm
Ambient temperature			15–30℃
Ambient humidity			0–85%RH, non-condensing
Ambient light			200–1000 lx
Camera parameters[2]	Exposure Time: 3D		8 ms
	Exposure Mode: 2D image (texture)		Timed (Exposure Time: 50 ms)
	Exposure Mode: 2D image (depth source)		Flash (Flash Acquisition Mode: Fast)
	Gain		0 dB
	Laser Power		100%
	Fringe Coding Mode		Accurate
	Point Cloud Processing	Outlier Removal	Normal
		Noise Removal	Normal
		Surface Smoothing	Normal
Tested region[3]			Length: 90% of FOV length Width: 90% of FOV width Position: center of FOV
RGB image resolution			4000 × 3000

[1] For the object focal distance of 1500 mm, the working distance used in tests is 1200–1800 mm. For the object focal distance of 2500 mm, the working distance used in tests is 1800–3000 mm.
[2] Parameters not listed are set to their default values.
[3] Test data was obtained from this region.