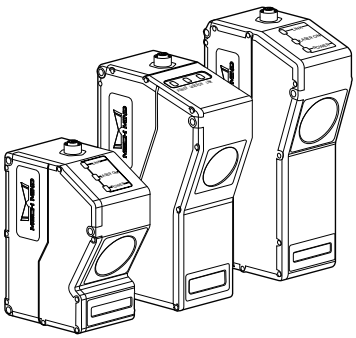
Mech-Eye 3D Laser Profiler

LNX-8000 Series

Technical Specifications V3.0



MECH MIND

Sensor Head

Specifications

Model			LNX-8030-GL	LNX-8080-GL	LNX-8300-GL
Data points per profile			4096		
Scan rate[1]			3.3–15 kHz		
Reference distance (RD)			78 mm	250 mm	325 mm
Measure-ment range	Z-axis		30 mm	100 mm	305 mm
	X-axis	Near	33 mm	76 mm	230 mm
		RD	35 mm	89 mm	310 mm
		Far	37 mm	96 mm	430 mm
X-axis resolution			9 µm	23.5 µm	105 µm
Z-axis repeatability			0.2 µm	0.5 µm	2 µm
Z-axis linearity			± 0.02% of F.S.		
Weight			1.0 kg	1.2 kg	1.4 kg
Dimensions			133 × 61 × 102 mm	182 × 63 × 112 mm	195 × 61 × 109 mm
Light source			Blue laser (405 nm)		
Laser class			Class 2	Class 2M	
Lens inclination[2]			30°	22°	19°
Operating temperature[3]			0–45°C		
Safety and EMC			CE / FCC / VCCI / KC / ISED / NRTL		
IP rating[4]			IP67		
Cooling			Passive		

[1] The maximum scan rate is 3.3 kHz when the “Z-Axis Height” for the “ROI” parameter is set to the largest value and 15 kHz when the “Z-Axis Height” is set to the smallest value.

[2] Please refer to the diagrams in “Field of View”.

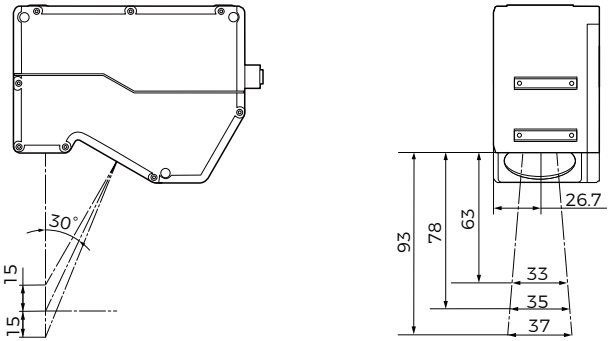
[3] This is the range when the sensor head is mounted on a metal frame and the heat from the sensor head is well dissipated.

[4] Test implemented based on IEC 60529. 6: dust-tight; 7: waterproof.

Field of View

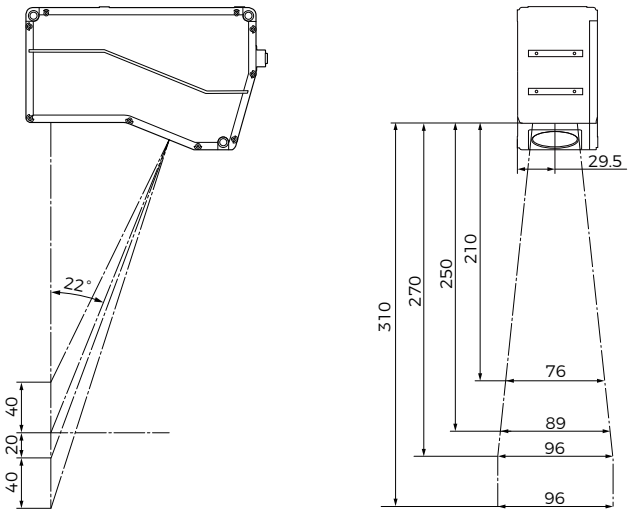
LNX-8030-GL

Unit: mm



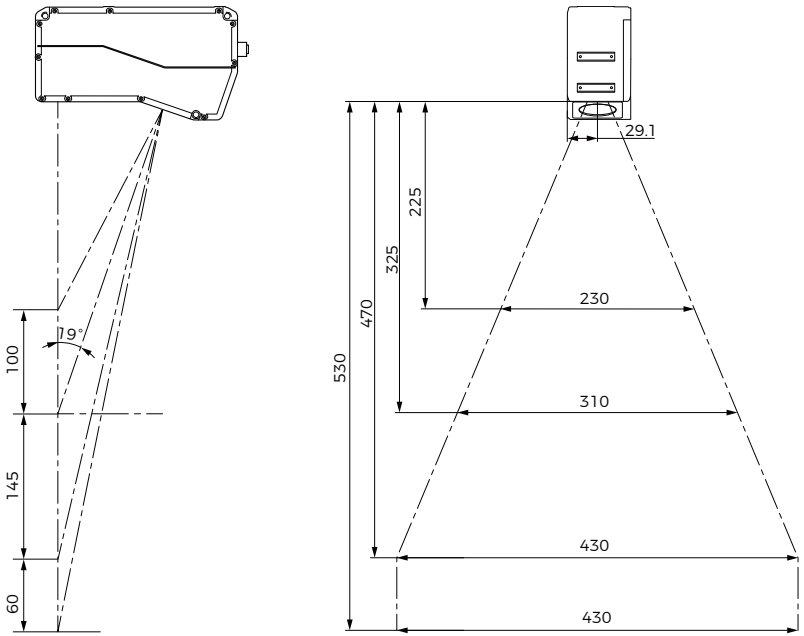
LNX-8080-GL

Unit: mm



LNX-8300-GL

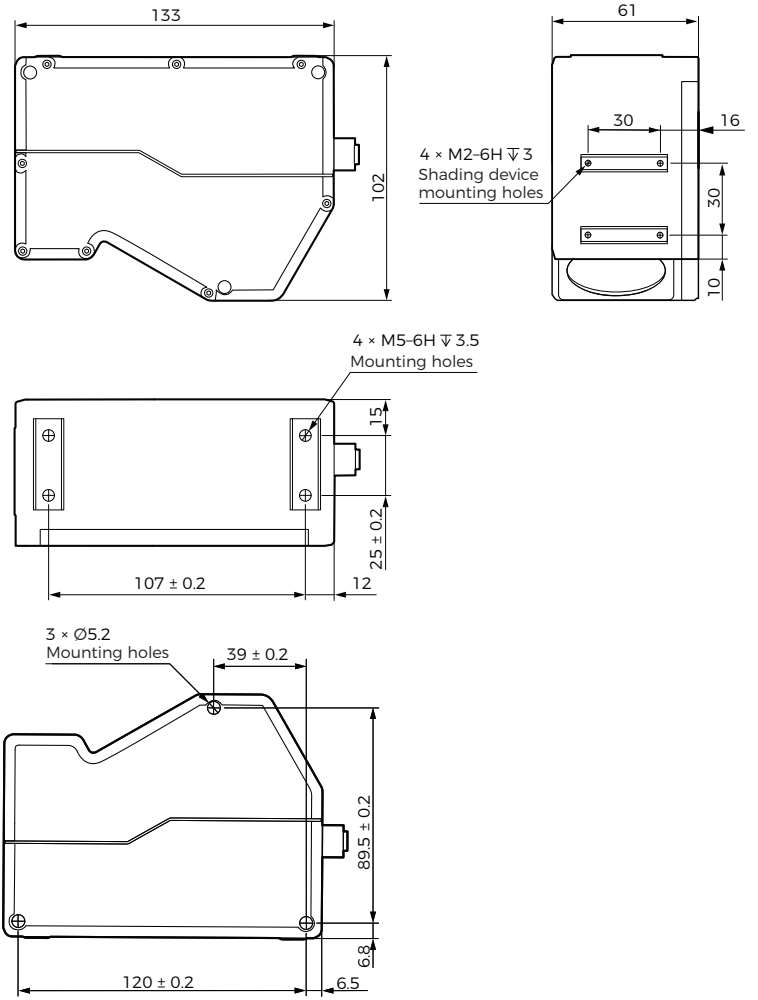
Unit: mm



Dimensions

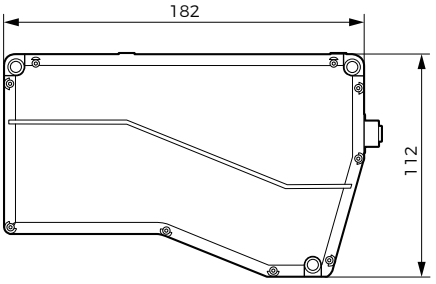
LNX-8030-GL

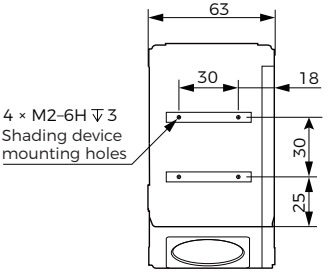
Unit: mm

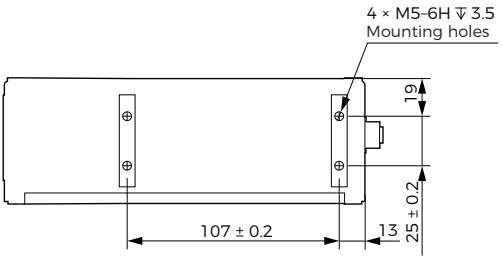


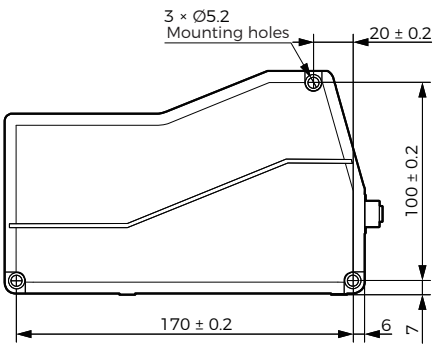
LNX-8080-GL

Unit: mm



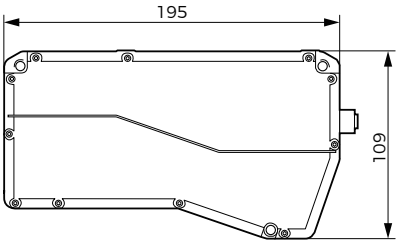


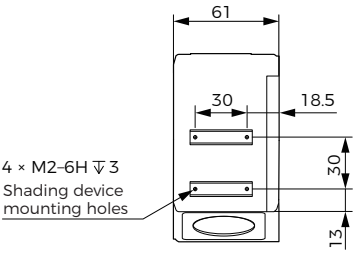


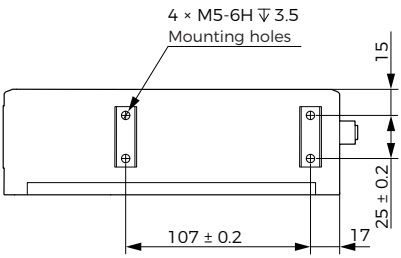


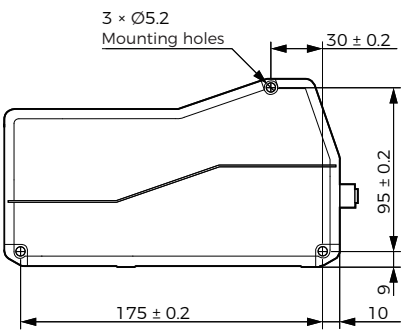
LNX-8300-GL

Unit: mm

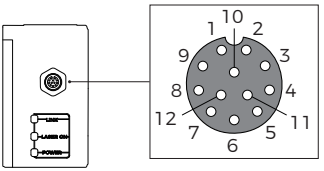








Controller Port



No.	Name	Function	Description
1	GigE_MX1+	Ethernet signal line	2.5GigE
2	GigE_MX1-	Ethernet signal line	2.5GigE
3	GigE_MX2+	Ethernet signal line	2.5GigE
4	GigE_MX2-	Ethernet signal line	2.5GigE
5	GigE_MX3+	Ethernet signal line	2.5GigE
6	GigE_MX3-	Ethernet signal line	2.5GigE
7	GigE_MX4+	Ethernet signal line	2.5GigE
8	GigE_MX4-	Ethernet signal line	2.5GigE
9	DC_12V	12 V power supply	Peak current: 2 A
10	DC_0V	12 V power supply return	Peak current: 2 A
11	Trigger	Trigger signal input	Low speed
12	DIR	Direction signal input	Low speed

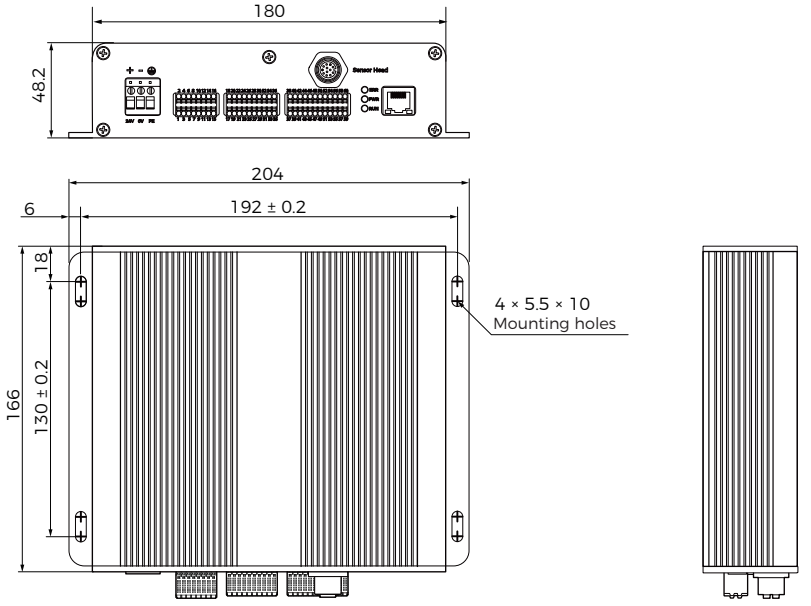
Controller

Specifications

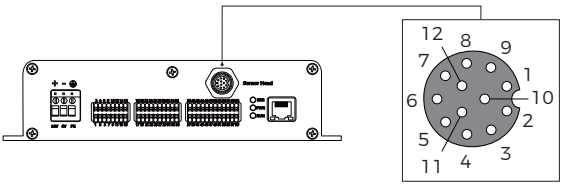
Model	LNX-8000C-GL
Weight	1.2 kg
Dimensions	204 × 48.2 × 166 mm
Input voltage	24 VDC ± 10%
Rated current	2 A
Peak power	48 W
Communication interface	Gigabit Ethernet
Encoder input	Single-ended and differential encoders
Operating temperature	0–45˚C
Storage temperature	-30–70˚C
Safety and EMC	CE / FCC / VCCI / KC / ISED / NRTL
Cooling	Passive

Dimensions

Unit: mm

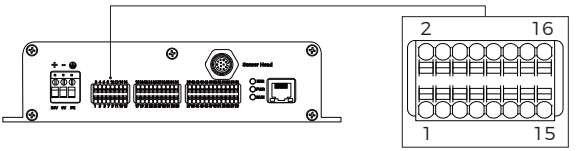


Sensor Head Port



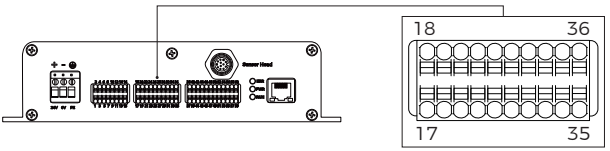
No.	Name	Function	Description
1	GigE_MX1+	Ethernet signal line	2.5GigE
2	GigE_MX1-	Ethernet signal line	2.5GigE
3	GigE_MX2+	Ethernet signal line	2.5GigE
4	GigE_MX2-	Ethernet signal line	2.5GigE
5	GigE_MX3+	Ethernet signal line	2.5GigE
6	GigE_MX3-	Ethernet signal line	2.5GigE
7	GigE_MX4+	Ethernet signal line	2.5GigE
8	GigE_MX4-	Ethernet signal line	2.5GigE
9	DC_12V	12 V power supply	Peak current: 2 A
10	DC_0V	12 V power supply return	Peak current: 2 A
11	Trigger	Trigger signal output	Low speed
12	DIR	Direction signal output	Low speed

Input Signal Terminals



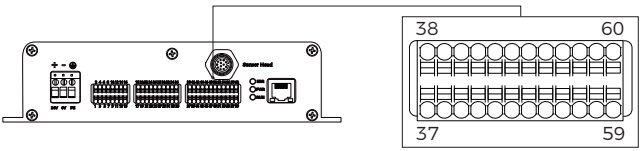
No.	Name	Description
1	IN1	Universal digital input 1, optocoupler isolation, bidirectional input optocoupler.
2	IN2	Universal digital input 2, optocoupler isolation, bidirectional input optocoupler.
3	IN3	Universal digital input 3, optocoupler isolation, bidirectional input optocoupler.
4	IN4	Universal digital input 4, optocoupler isolation, bidirectional input optocoupler.
5	IN5	Universal digital input 5, optocoupler isolation, bidirectional input optocoupler.
6	IN6	Universal digital input 6, optocoupler isolation, bidirectional input optocoupler.
7-8	RESERVED	Reserved terminals.
9	LEVELCONTROL_ ENABLE	LOW level: Only MEASURE_START controls data acquisition; HIGH level: both MEASURE_ START and MEASURE_STOP controls data acquisition. Optocoupler isolation, bidirectional input optocoupler.
10	MEASURE_START	Input signal to start acquisition, optocoupler isolation, bidirectional input optocoupler.
11	MEASURE_STOP	Input signal to stop acquisition, optocoupler isolation, bidirectional input optocoupler.
12	RESERVED	Reserved terminals.
13-16	COM_IN	Common terminals for input signal.

Output Signal Terminals



No.	Name	Function
17-20	COM_OUT	Common terminals for output signal.
21	O1	Universal digital output 1, optocoupler isolation, NPN output.
22	O2	Universal digital output 2, optocoupler isolation, NPN output.
23	O3	Universal digital output 3, optocoupler isolation, NPN output.
24	O4	Universal digital output 4, optocoupler isolation, NPN output.
25	O5	Universal digital output 5, optocoupler isolation, NPN output.
26	O6	Universal digital output 6, optocoupler isolation, NPN output.
27	O7	Universal digital output 7, optocoupler isolation, NPN output.
28	O8	Universal digital output 8, optocoupler isolation, NPN output.
29	READY	Acquisition ready signal, optocoupler isolation, NPN output.
30	ERROR	Acquisition error signal, optocoupler isolation, NPN output.
31	TRG_ERROR	Error signal when start signal is received again after acquisition, optocoupler isolation, NPN output.
32-36	RESERVED	Reserved terminals.

Encoder Signal Terminals



No.	Name	Description
37	A1+	Differential encoder A+ input, optocoupler isolation, RS-422 standard differential input.
38	A1-	Differential encoder A- input, optocoupler isolation, RS-422 standard differential input.
39	B1+	Differential encoder B+ input, optocoupler isolation, RS-422 standard differential input.
40	B1-	Differential encoder B- input, optocoupler isolation, RS-422 standard differential input.
41	Z1+	Differential encoder Z+ input, optocoupler isolation, RS-422 standard differential input.
42	Z1-	Differential encoder Z- input, optocoupler isolation, RS-422 standard differential input.
43	A2+24	Single-ended encoder A+ input, 24 V, optocoupler isolation.
44	A2+12	Single-ended encoder A+ input, 12 V, optocoupler isolation.
45	A2+5	Single-ended encoder A+ input, 5 V, optocoupler isolation.
46	A2-	Single-ended encoder A- input, common, optocoupler isolation.
47	B2+24	Single-ended encoder B+ input, 24 V, optocoupler isolation.
48	B2+12	Single-ended encoder B+ input, 12 V, optocoupler isolation.
49	B2+5	Single-ended encoder B+ input, 5 V, optocoupler isolation.

No.	Name	Description
50	B2-	Single-ended encoder B- input, common, optocoupler isolation.
51	Z2+24	Single-ended encoder Z+ input, 24 V, optocoupler isolation.
52	Z2+12	Single-ended encoder Z+ input, 12 V, optocoupler isolation.
53	Z2+5	Single-ended encoder Z+ input, 5 V, optocoupler isolation.
54	Z2-	Single-ended encoder Z- input, common, optocoupler isolation.
55	R1	RS-232 serial interface 1, input, magnetic isolation.
56	T1	RS-232 serial interface 1, output, magnetic isolation.
57	G1	RS-232 serial interface 1 ground reference.
58	G2	RS-232 serial interface 2 ground reference.
59	R2	RS-232 serial interface 2, input, magnetic isolation.
60	T2	RS-232 serial interface 2, output, magnetic isolation.

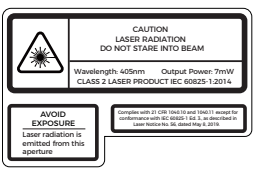
Safety of Laser Products

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).

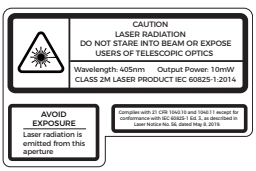
Model	Wavelength	Max. output power	Laser class
LNX-8030-GL	405 nm	7 mW	Class 2
LNX-8080-GL		10 mW	Class 2M
LNX-8300-GL			

Warning Label

- Class 2

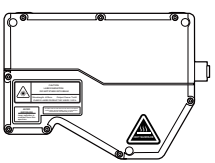


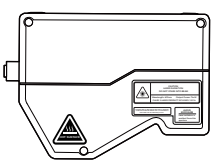
- Class 2M



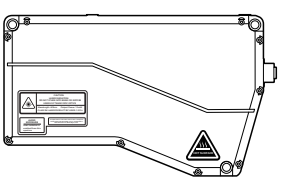
Warning Label Attachment

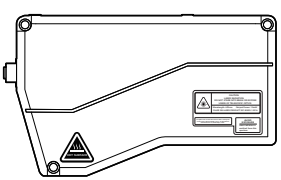
- LNX-8030-GL



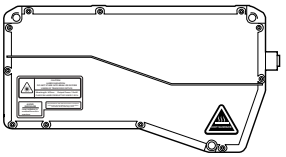


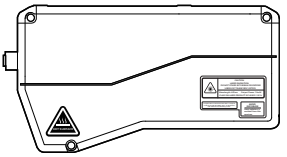
- LNX-8080-GL





- LNX-8300-GL





CE

Hereby [Mech-Mind Robotics Technologies Ltd.] declares that [LNX-8030-GL], [LNX-8080-GL], [LNX-8300-GL], and [LNX-8000C-GL] are 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-MM006 R-R-viz-MM007 R-R-viz-MM008