

LASER DISPLACEMENT SENSOR



Series LAH-G1

Key-Features:

- Measurement ranges up to 300 mm
- Resolution up to 0.5 μm
- Protection class IP67
- Working temperature -10...+45 °C
- External input setting function
- Analog output 0...10 V, 3.2...20.8 mA
- PNP or NPN output type

Content:

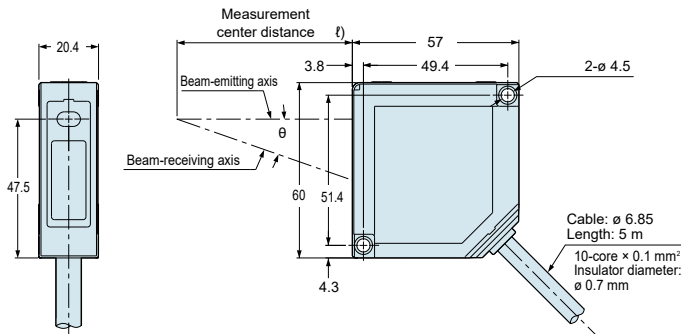
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TECHNICAL DATA

		Diffuse reflection type					Specular reflection type		
		LAH-G103-A-C5	LAH-G105-A-C5	LAH-G108-A-C5	LAH-G112-A-C5	LAH-G125-A-C5	LAH-G103-A-RA-C5	LAH-G105-A-RA-C5	LAH-G108-A-RA-C5
Measurement centre distance	[mm]	30	50	85	120	250	26.3	47.3	82.9
Measuring range	[mm]	±4	±10	±20	±60	±150	±2	±5	±10
Resolution	[µm]	0.5	1.5	2.5	8	20	0.5	1.5	2.5
Linearity	[%]	±0.1				±0.3	±0.2		
Temperature characteristics	[%/°C]	±0.08							
Light source		Red semiconductor laser							
Output power max.	[mW]	1					0.39		
Wavelength max.	[nm]	655							
Laser class		2					1		
Beam diameter	[mm]	0.1 × 0.1	0.5 × 0.1	0.75 × 1.25	1.0 × 1.5	1.75 × 3.5	0.1 × 0.1		0.2 × 0.2
Receiving element		CMOS image sensor							
Supply voltage	[VDC]	24 ±10 % including ripple 0.5 (P-P)							
Current consumption	[mA]	max. 100							
Measurement frequency	[kHz]	5 / 2 / 1 / 0.5 (adjustable via display)							
Sampling rate	[ms]	0.2 / 0.5 / 1 / 2 (adjustable via display)							
Analog output		Voltage: 0...10.5 V (normal), 11 V (Alarm) Output impedance: 100 Ω Current: 3.2...20.8 mA (normal), 21.6 mA (Alarm) Load impedance: max. 300 Ω							
Output (OUT 1, OUT 2, OUT 3)		Judgment output or alarm output (setting selectable), NPN transistor, open-collector / PNP transistor, open-collector (selectable): In case of using NPN output - Maximum sink current : 50 mA - Applied voltage : 3...24 VDC (between output and 0 V) - Residual voltage : <2 V (at 50 mA of sink current) In case of using PNP output - Maximum source current : 50 mA - Residual voltage : < 2.8 V (at 50 mA of source current)							
Output operation		Open when the output is ON.							
Short circuit protection		Incorporated (automatic restoration)							
Output polarity setting input		NPN open collector output operates when 0 V is connected. PNP open collector output operates when 24 VDC is connected.							
Timing input		NPN output operates when 0 V is connected and NPN is set (depending on settings). PNP output operates when external power (+) is connected and PNP is set (depending on settings).							
Multi input		Zero set, zero set off, reset, memory switching, teaching, saving, and laser control according to the input time. In case NPN output is selected, function varies according to the time 0 V is connected NPN. In case PNP output is selected, function varies according to the time external power (+) is connected.							
Indicator-Laser emission		Green LED (lights up during laser emission)							
Indicator-Alarm		Orange LED (lights up when this product cannot measure because of insufficient or excessive light intensity)							
Indicator-Output		Yellow LED × 3							
Digital display		Red LED, 5.5 digit							
Protection		IP67 (IEC)							
Ambient temperature	[°C]	operating: -10...+45 (no dew condensation) storage: -20...+60 (no dew condensation)							
Humidity	[% RH]	operating: 35...85 storage: 35...85							
Ambient light	[lx]	max. 3000							
Insulation resistance		min. 20 MΩ at 250 VDC between all connections and housing							
Dielectric strength		1000 VAC (Period: 1 min) between all connections and housing							
Vibration resistance		10 up to 55 Hz (period: 1 min.) frequency, 1.5 mm amplitude in X-,Y- and Z-direction (for 2 h)							
Shock resistance		500 m/s ² acceleration (ca. 50 G) per three times in X-,Y- and Z-direction							
Material		housing: PBT front cover: acrylic cable: PVC							
Cable		10 wires, shielded, length: 5 m, wire diameter: 0.1 mm ²							
Weight	[g]	net weight: ≈70 (without cable), ≈320 (with cable), gross weight: ≈380							

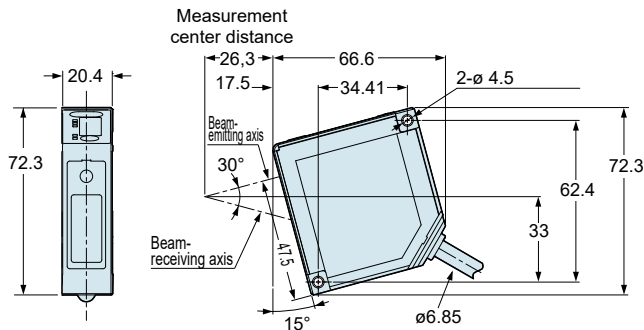
TECHNICAL DRAWING

LAH-G103/105/108/112/125

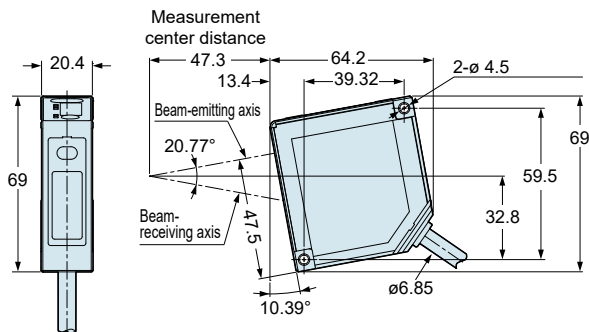


Order Code	Measurement centre distance (ℓ)	θ
LAH-G103	30 mm	30°
LAH-G105	50 mm	21°
LAH-G108	85 mm	15°
LAH-G112	120 mm	11°
LAH-G125	250 mm	6.2°

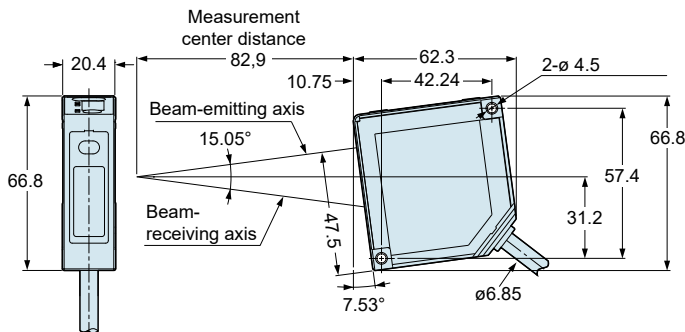
LAH-G103-A-RA-C5



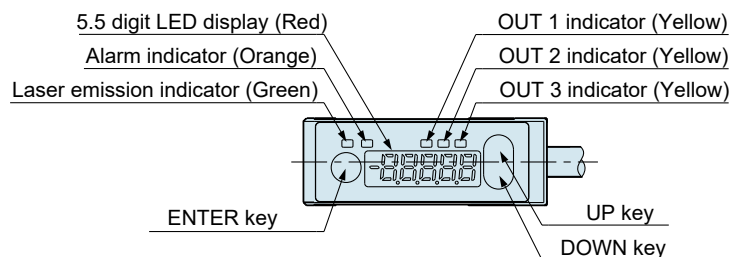
LAH-G105-A-RA-C5



LAH-G108-A-RA-C5



OPERATING ELEMENTS



ORDER CODE DIFFUSE REFLECTION TYPE

LAH — — A — C5

Measurement range [mm]		
26...34	(8)	G103
40...60	(20)	G105
65...105	(40)	G108
60...180	(120)	G112
100...400	(300)	G125

ORDER CODE SPECULAR REFLECTION TYPE

LAH — — A — RA — C5

Measurement range [mm]		
24.3...28.3	(4)	G103
42.3...52.3	(10)	G105
72.9...92.9	(20)	G108

ACCESSORIES

Digital displays for sensors with analog output, 2 channel

WAY-AX-S touch screen, supply: 18...30 VDC

WAY-AX-AC touch screen, supply: 115...230 VAC

For more information and options please refer to the [WAY-AX data sheet](#).

Subject to change without prior notice.

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