

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:

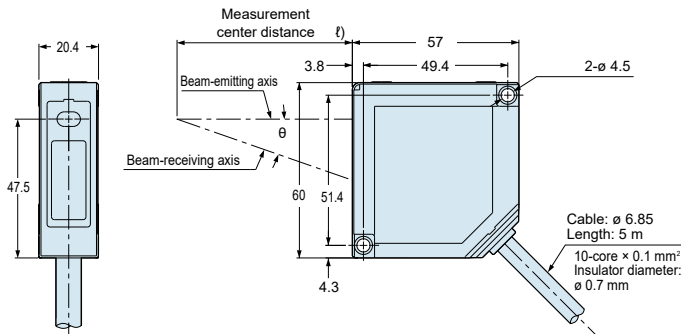
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TECHNICAL DATA

| | | 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 0V) - 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 | | | | | | | |

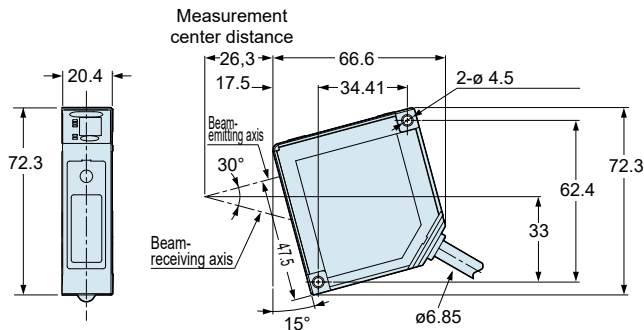
TECHNICAL DRAWING

LAH-G103/105/108/112/125

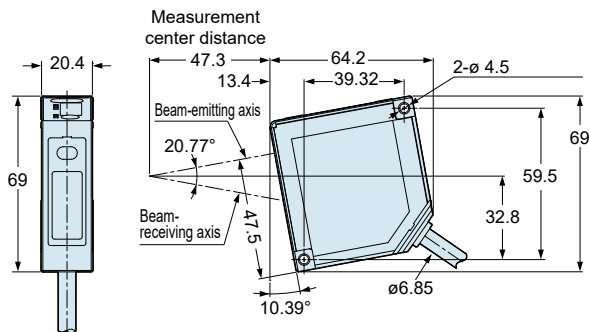


| Order Code | Measurement centre distance (ℓ) | θ |
|------------|---------------------------------|------|
| LAH-G103 | 30 mm | 30° |
| LAH-G105 | 50 mm | 21° |
| LAH-G108 | 85 mm | 15° |
| LAH-G112 | 120 mm | 11° |
| LAH-G125 | 250 mm | 6.2° |

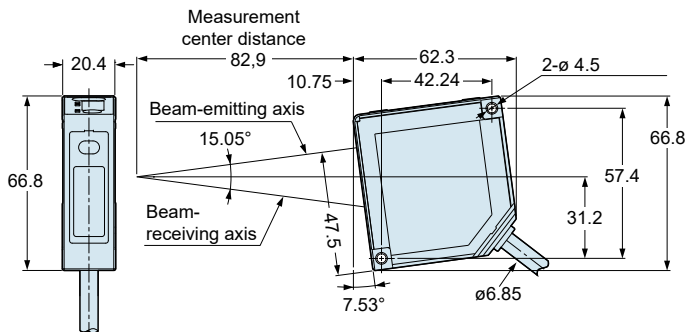
LAH-G103-A-RA-C5



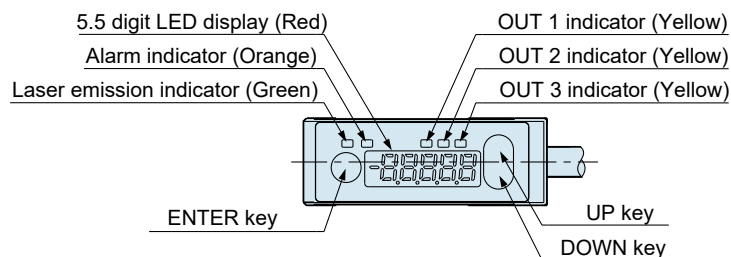
LAH-G105-A-RA-C5



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-S-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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