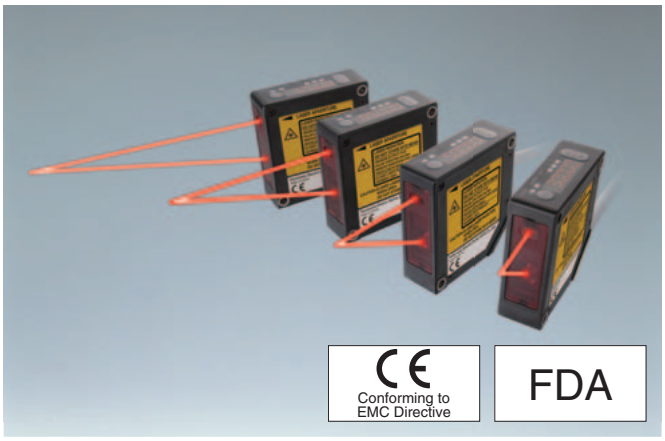
# Measurement Sensors

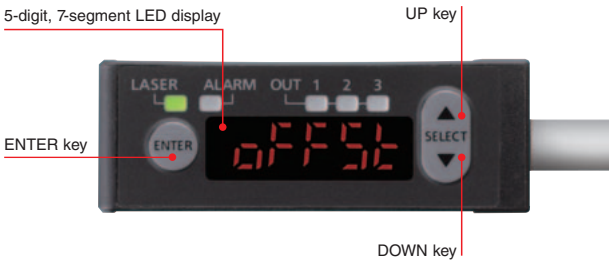
## Compact Laser Displacement Sensor New
## HL-G1 SERIES

**A variety of high-end functions are included in a compact, self-contained body for exceptional ease of use.**

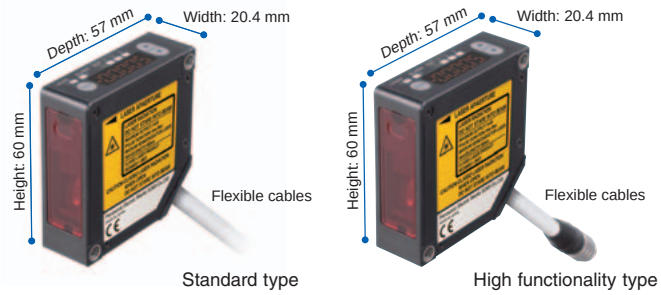



### Easy configuration using the digital display

The built-in digital display makes it easy to configure sensor operation while checking displacement values.




### Compact size despite the built-in controller and digital readout




### Support for both NPN and PNP polarity

A single model number accommodates both NPN and PNP wiring polarity, reducing the number of model numbers that must be registered for maintenance purposes.

### I/O to accommodate multiple needs

#### Timing input and multi input

Inaddition to timing input select the desired input according to your application:
• Zero set on/off • Laser control • Reset • Teaching

#### Featuring 3 outputs and an analog 2 outputs

With three outputs, the **HL-G1** can be used to generate HI/GO/LOW judgment output or alarm output. The analog output can be used in both current and voltage modes.

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### Software tool for sensor configuration and evaluation (High functionality type only)

In addition to configuring up to 16 sensors at once, this free tool makes it easy to gather data needed for analysis, including received light waveform monitoring and data buffering. The interface language can be selected at the time of installation.

- **Data buffering**
- **Received light waveform display**
- **Measured value display**

### HMI screen for HL-G1 (High functionality type only)

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The **GT02** / **GT12** HMI operator pannel can be used in combination with the **HL-G1** to allow easy confirmation of sensor status and configuration of sensor settings from a remote location. Japanese, English, Chinese (upcoming), and Korean are supported.

**Select from the following HMI operator pannels:**
Power supply: 24 V
Communications port: RS422 (RS485)
- AIG02GQ 14D
- AIG02MQ 15D
- AIG12GQ 14D/15D
- AIG12MQ 14D/15D

| Item \ Type | Standard type | High functionality | Standard type | High functionality | Standard type | High functionality | Standard type | High functionality |
|---|---|---|---|---|---|---|---|---|
| Model No. | **HL-G103-A-C5** | **HL-G103-S-J** | **HL-G105-A-C5** | **HL-G105-S-J** | **HL-G108-A-C5** | **HL-G108-S-J** | **HL-G112-A-C5** | **HL-G112-S-J** |
| Measurement center distance | 30 mm | | 50 mm | | 85 mm | | 120 mm | |
| Measuring range | ±4 mm | | ±10 mm | | ±20 mm | | ±60 mm | |
| Resolution | 0.5 µm | | 1.5 µm | | 2.5 µm | | 8 µm | |
| Linearity | ±0.1 % F.S. | | | | | | | |
| Tempreratureure characteristics | ±0.08 % F.S. / °C | | | | | | | |
| Light source | Red semiconductor laser, Class 2 (IEC / JIS), Class Ⅱ (FDA, Laser Notice No. 50)<br>Max. output: 1 mW (Peak emission wavelength: 655 nm 0.026 mil) | | | | | | | |
| Beam diameter (Note 2) | 0.1 × 0.1 mm | | 0.5 ×1 mm | | 0.75 × 1.25 mm | | 1.0 × 1.5 mm | |
| Receiving element | CMOS image sensor | | | | | | | |
| Supply voltage | 24 V DC ±10 % including ripple 0.5 V (P-P) | | | | | | | |
| Current consumption | 100 mA or less | | | | | | | |
| Sampling rate | 200 µs, 500 µs, 1 ms, 2 ms | | | | | | | |
| Analog output: Voltage | Output range: 0 to+10.5 V (normal), 11 V (alarm)<br>Output impedance: 100 Ω | | | | | | | |
| Analog output: Current | Output range: 3.2 to 20.8 mA (normal), 21.6 mA (alarm)<br>Load impedance: 300 Ω or less | | | | | | | |
| Output (OUT 1, OUT 2, OUT 3) | Judgment output or alarm output (Setting can be selected)<br>Selectable NPN transistor open collector or PNP transistor open collector | | | | | | | |

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were as follows: supply voltage 24 V DC, ambient temperature +20 °C, sampling rate 200 µs, average number of samples: 1024, measurement center distance, object measured is made of white ceramic and digital measurement values.
2) This beam diameter is the size at the measurement center distance. These values were defined by using $1/e^2$ (13.5 %) of the center light intensity. If there is a slight leakage of light outside the normal spot diameter and if the periphery surrounding the sensing point has a higher reflectivity than the sensing point itself, then the results may be affected.