

# LD SERIES

- FIBER SENSORS
- LASER SENSORS
- PHOTOELECTRIC SENSORS
- MICRO PHOTOELECTRIC SENSORS
- AREA SENSORS
- LIGHT CURTAINS / SAFETY COMPONENTS
- PRESSURE / FLOW SENSORS
- INDUCTIVE PROXIMITY SENSORS
- PARTICULAR USE SENSORS
- SENSOR OPTIONS
- SIMPLE WIRE-SAVING UNITS
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Related Information

- General terms and conditions..... F-7
- About laser beam..... P.1499~
- Sensor selection guide..... P.1055~
- General precautions..... P.1501



**!** This product is classified as a Class 1 Laser Product in IEC / JIS standards and a Class II Laser Product in FDA regulations 21 CFR 1040.10. Do not look at the laser beam though optical system such as a lens.

[panasonic.net/id/pidsx/global](http://panasonic.net/id/pidsx/global)

## Easy measurement of outer diameter

### SPECIFICATIONS

The CAD data in the dimensions can be downloaded from our website.

#### Sensor heads

Item	Conforming standards / regulations	
	IEC / JIS standards	FDA regulations / IEC / JIS standards
Model No.	LD-600	LD-601
Applicable controller	<b>LD-C60</b>	
Distance between emitter and receiver	40 mm <b>1.575 in</b> (fixed)	
Sensing width	15 mm <b>0.591 in</b> (beam width: 20 mm <b>0.787 in</b> )	
Min. sensing object	ø0.5 mm <b>ø0.020 in</b>	
Resolution	11 μm <b>0.433 mil</b>	
Scan time	0.6 ms approx.	
Emitting element	Red semiconductor laser Class 1 (IEC / JIS standards) (Max. output: 0.2 mW, Peak emission wavelength: 670 nm <b>0.026 mil</b> )	Red semiconductor laser Class II (FDA regulations) (Max. output: 0.2 mW, Peak emission wavelength: 670 nm <b>0.026 mil</b> ) (IEC / JIS standards: Class 1)
Power indicator	Red LED (lights up when the power is ON)	—
Laser emission indicator	—	Green LED (Lights up during laser emission)
Ambient temperature	0 to +40 °C <b>+32 to +104 °F</b> (No dew condensation) Storage: -10 to +60 °C <b>+14 to +140 °F</b>	
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH	
Enclosure earthing	Capacitor earth	
Material	Emitter enclosure: Die-cast zinc Receiver enclosure: Aluminum, Base: Aluminum Top cover: PPO, Front protection cover: Glass	
Cable	6-core (0.22 mm <sup>2</sup> × 4, 0.18 mm <sup>2</sup> × 2) cabtyre cable, 1 m <b>3.281 ft</b> long (with connector on one end)	
Weight	Net weight: 420 g approx.	
Accessories	M4 (length 12 mm <b>0.472 in</b> ) hexagon-socket-head bolt: 2 pcs.	M4 (length 12 mm <b>0.472 in</b> ) hexagon-socket-head bolt: 2 pcs. Laser attenuator: 1 pc.
Dimensions	W32 × H50 × D145.5 mm <b>W1.260 × H1.969 × D5.728 in</b>	

#### Controller

Model No.	LD-C60
Item	
Applicable sensor heads	<b>LD-600, LD-601</b>
Sensing modes	Width measurement, edge measurement
Measuring accuracy	Width measurement: ±44 μm <b>±1.732 mil</b> Edge measurement: ±22 μm <b>±0.866 mil</b>
Supply voltage	24 V DC ±10 % Ripple P-P 10 % or less
Current consumption	250 mA or less (including sensor head)
Input (REQ, SHD)	Signal conditions: Low...0 to 1 V High...5 to 30 V, or open Applied voltage: 30 V DC or less
Output (ACK, D0 to D10)	NPN open-collector transistor • Maximum sink current: 20 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1 V or less (at 20 mA sink current)
Output operation	ACK: ON during data output, D0 to D10: pixel binary output
Response time	1.2 ms or less
Indicators	Power: Red LED (lights up when the power is ON) REQ: Red LED (lights up when the REQ input is Low) ACK: Red LED (lights up when the ACK output is ON)
Measurement display	4 digit LED (letter height 8 mm <b>0.315 in</b> )
Display resolution	10 μm <b>0.394 mil</b>
Ambient temperature	0 to +40 °C <b>+32 to +104 °F</b> (No dew condensation) Storage: -10 to +60 °C <b>+14 to +140 °F</b>
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH
Material	Enclosure: ABS, Front panel: ABS Display panel: Polycarbonate, Terminal cover: Polycarbonate
Weight	Net weight: 230 g approx.
Accessory	Connector: 1 pc.
Dimensions	W35 × H170 × D80 mm <b>W1.378 × H6.693 × D3.150 in</b>

Note: Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C **+68 °F**.

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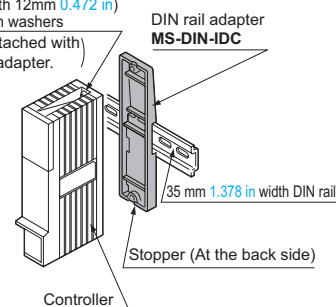
- MEASUREMENT SENSORS
- STATIC ELECTRICITY PREVENTION DEVICES
- LASER MARKERS
- PLC
- HUMAN MACHINE INTERFACES
- ENERGY CONSUMPTION VISUALIZATION COMPONENTS
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- Selection Guide
- Laser Displacement
- Magnetic Displacement
- Collimated Beam
- Digital Panel Controller
- Metal-sheet Double-feed Detection
- HL-T1
- LA
- LD

**OPTIONS**

Designation	Model No.	Description
DIN rail adapter	<b>MS-DIN-IDC</b>	Adapter for mounting the controller on a 35 mm <b>1.378 in</b> width DIN rail

**DIN rail adapter**• **MS-DIN-IDC**

2-M4 (length 12mm **0.472 in**) screws with washers  
(2 pcs. attached with DIN rail adapter.)

**PRECAUTIONS FOR PROPER USE**

Refer to p.1501 for general precautions and p.1499~ for information about laser beam.

- This catalog is a guide to select a suitable product. Be sure to read instruction manual attached to the product prior to its use.



- Never use this product as a sensing device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

- This product is classified as a Class 1 Laser Product in IEC / JIS standards and a Class II Laser Product in FDA regulations 21 CFR 1040.10. Do not look at the laser beam though optical system such as a lens.
- The following label is attached to the product. Handle the product according to the instruction given on the warning label.



(The English warning label based on FDA regulations is pasted on the FDA regulations conforming type.)



- This product has been designed to meet the specifications when it is used along with the optional exclusive controller. If a controller other than the exclusive controller is used, not only the specifications may not be met, but it may also be a cause for malfunction or break down. Hence, please ensure to use this product along with the optional exclusive controller.
- Before using this product, please allow a warming up time of 3 min. approx. after the power supply is switched on.
- Never disassemble the sensor head.

**Safety standards for laser beam products**

- A laser beam can harm human being's eyes, skin, etc., because of its high energy density. IEC has classified laser products according to the degree of hazard and the stipulated safety requirements. The **LD** series is classified as Class 1 laser. (**LD-601** is classified as Class II in FDA regulations.)

**Safe use of laser products**

- For the purpose of preventing users from suffering injuries by laser products, IEC 60825-1 (Safety of laser products). Kindly check the standards before use. (Refer to p.1499~ for information about laser beam.)

**Conditions in use for CE conformity**

- The **LD** series is CE compliant and complies with EMC directives. EN 61000-6-2 is the applicable standard that covers immunities relating to use of this product, but in order to comply with this standard, the following conditions must be satisfied.

**Conditions**

- This controller should be connected less than 10 m **32.808 ft** from the power supply.
- The signal line to connect with this controller should be less than 30 m **98.425 ft**.

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**HL-T1****LA****LD**