



Digitized Automation for a Changing World

Delta Laser Displacement LD-E Series



www.deltaww.com



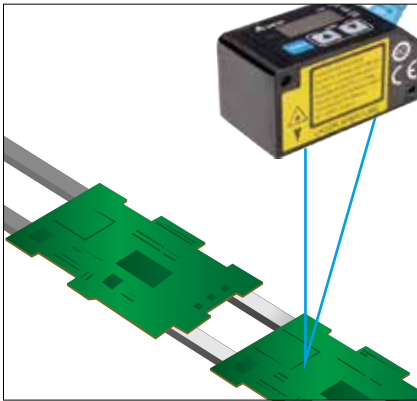
Laser Displacement LD-E Series

The LD-E Series deploys high-resolution CMOS sensors for contactless detection to determine object distance, displacement and size via laser triangulation. The series is suitable for object thickness and width measurement, as well as height, gradient, position, flatness, gap, distance, and runout detection.

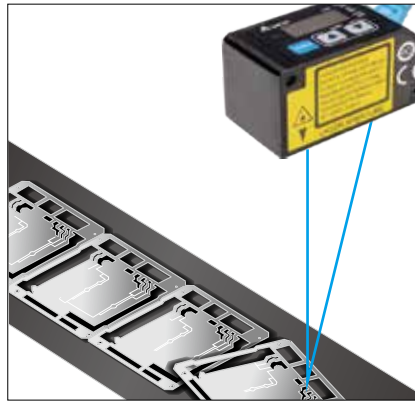


- Measurement range 25 mm ~ 700 mm with five model options:
500 ± 200 mm, 220 ± 100 mm, 100 ± 35 mm, 50 ± 15 mm, 30 ± 5 mm
- Supports digital I/O, analog 4 ~ 20 mA, and Modbus RS-485 communication
- Linearity ± 0.1% ~ ± 0.3%
- Features a space-saving compact size and certified IP67 waterproof rating, suitable for various environments

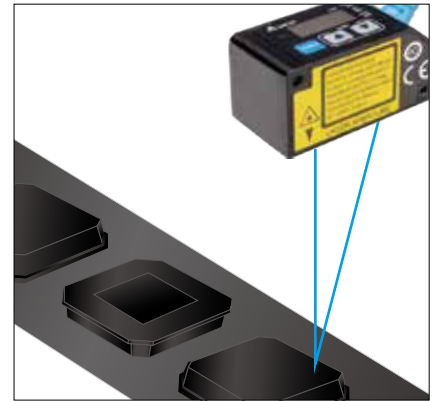
Applications



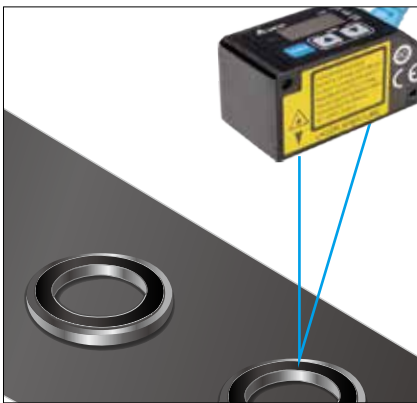
PCB parts presence or absence detection



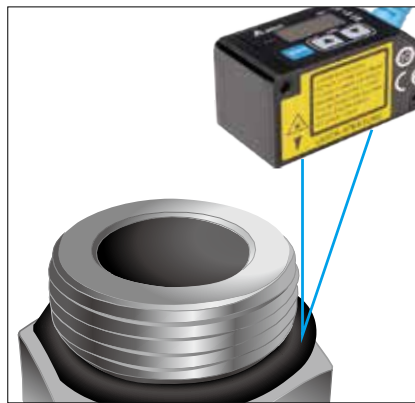
Overlap detection



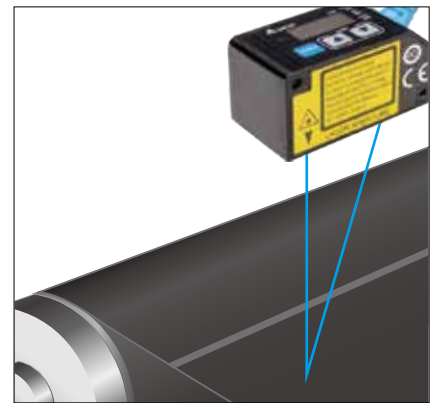
Electric parts front back detection



Completion review



O-ring presence or absence review

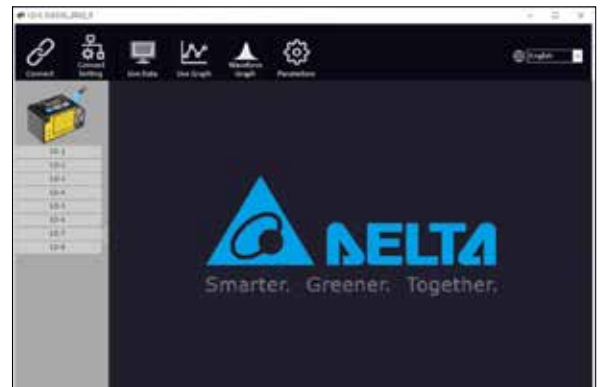


Joint gap detection

Features

Digitized Signals Allows Integration and Remote Management

Supports Modbus RS-485 communication. Generates and displays digitized output of measurement signals on Delta's software interface in real-time. Users can conduct parameter configuration remotely by an HMI or a PC.



Precise Peak Value Imaging Sampling

Delta's self-developed algorithm automatically captures the peak value and calculates the distance to locate the precise position when multiple imaging occurs.



High-Speed Response up to 1.5 ms

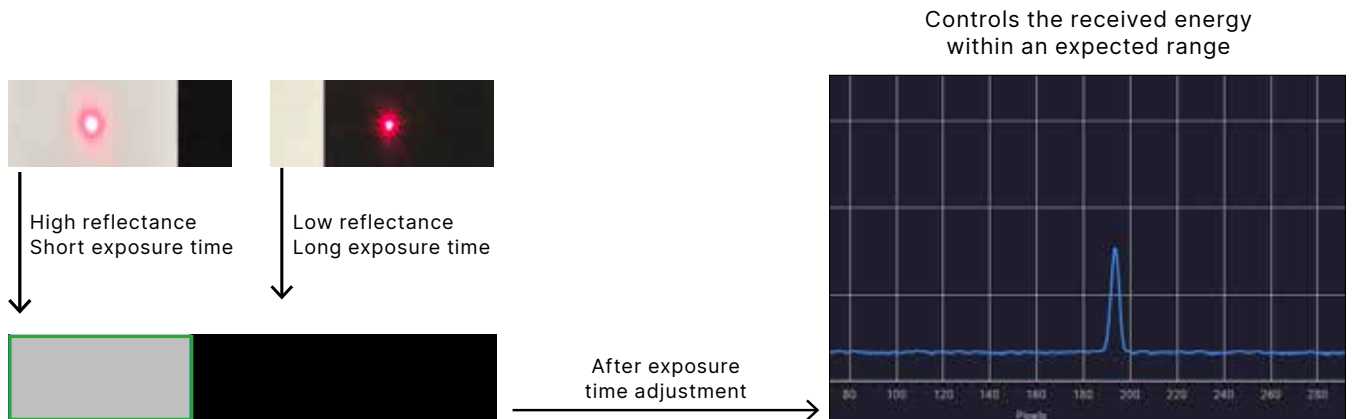
Response speed up to 1.5 ms, with 3 response speed options for different environments. The image on the right indicates when the analog output range is 4 ~ 20 mA, the output response time is 1.5 ms.



Features

Automatically Adjusts Exposure Time to Reduce the Influence of Object Color

Controls exposure time based on object color, minimizing the measurement error caused by different target colors. As the graph shows, no matter how the reflectance changes, the received energy is controlled within an expected range (see below).



Automatic Detection of Ambient Light Interference

When ambient light is detected, the sensor automatically determines the occurrence as an interference, and filters the ambient light to prevent errors (The image on the right indicates the sensor does not generate data when an ambient light interference is detected).



The Panel Buttons Enable Efficient Parameter Configuration and Supports 7-Segment Display

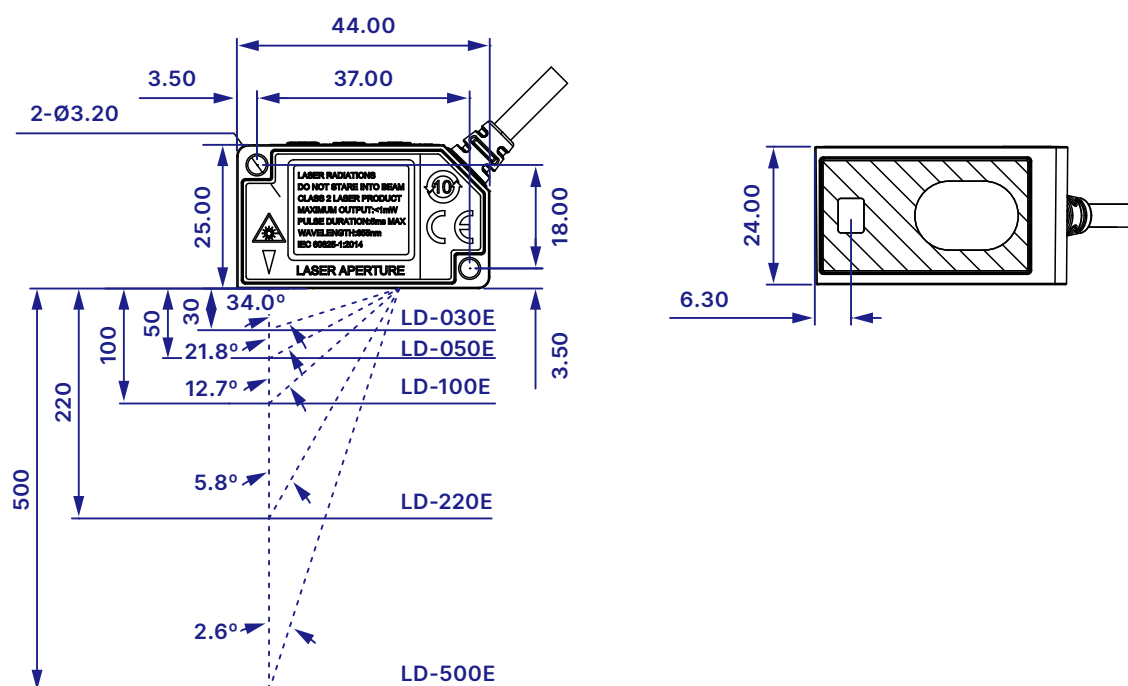


Specifications

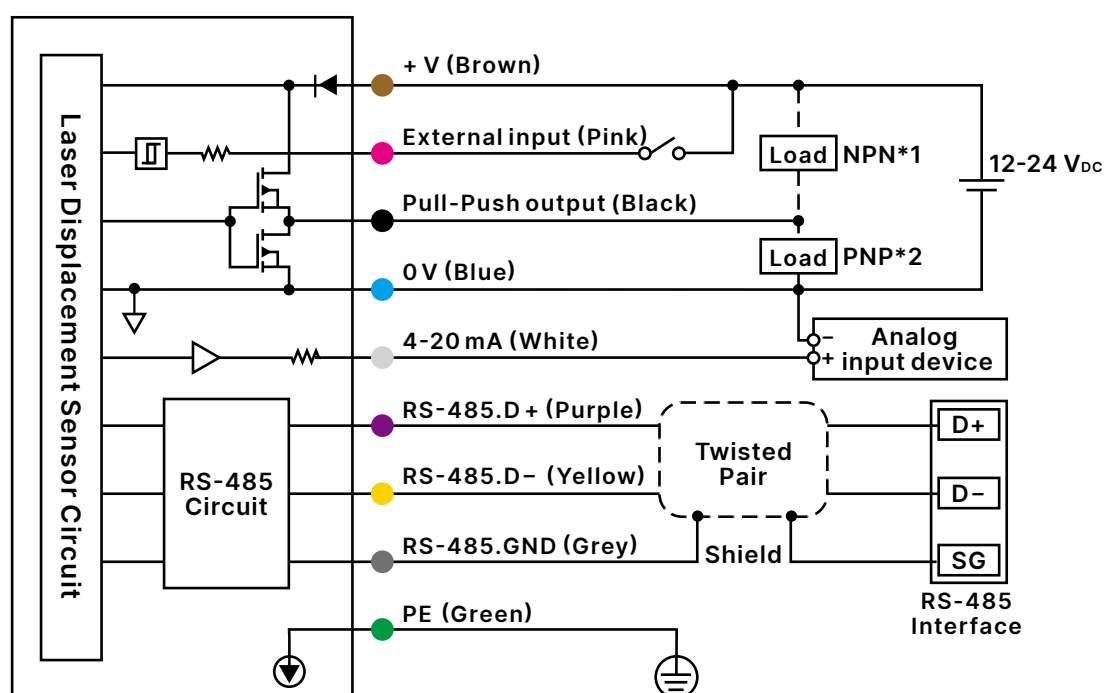
Model	LD-030E-M22	LD-050E-M22	LD-100E-M22	LD-220E-M22	LD-500E-M22
Detection method	Triangular measurement				
Reference Distance (mm)	30	50	100	220	500
Measurement Range (mm)	± 5	± 15	± 35	± 100	± 200
Light spot diameter (center position)	Approx. 100 × 100 μm	Approx. 80 × 70 μm	Approx. 136 × 110 μm	Approx. 290 × 238 μm	Approx. 541 × 330 μm
Interface	Digital I/O / Modbus Communication (RS-485)				
	Support 9,600/14,400/19,200/38,400/57,600/115,200 bps (Factory default: 115,200 bps)				
	Support RTU/ASCII 8,N,1 8,N,2 8,O,1 8,O,2 8,E,1 8,E,2 7,O,1 7,E,1 7,O,2 7,E,2				
Light Source	Laser CLASS 2				
Input Voltage	12 ~ 24 V _{DC} ± 10%, 1W				
Analog Output	Current range: 4 ~ 20 mA, load impedance: ≤ 300 Ω				
Digital Output	Optional function: Measuring range / Comparison output, Push-Pull Output, < 100 mA				
Digital Input	Optional function: Zero point / Teaching, High-level ≤ 2 V, Low-level ≤ 0.8 V				
Repeatability	5 μm	15 μm	70 μm	200 μm	300 μm (300 ~ 500 mm) 800 μm (500 ~ 700 mm)
Linearity	± 0.1% F.S	± 0.1% F.S	± 0.1% F.S	± 0.2% F.S	± 0.2% F.S (300 ~ 500 mm) ± 0.3% F.S (500 ~ 700 mm)
Sampling Rate (ms)	1.5 / 3 / 5 (Default: 1.5)				
Indicator	Laser ON: blue, DO: green, DI: yellow				
Protection Circuit	Protection against reverse power protection, output overcurrent, power supply surge, output surge				
Operating Temperature	-10 ~ 50 °C				
Storage Temperature	-25 ~ 65 °C				
Ambient Humidity	30 ~ 85%				
Enclosure Rating	IP67, UL Type1				
Ambient Light Resistance	3,000 lux or less				
Vibration Resistance	10 ~ 55 Hz, 1.5 mm, 3 axes for 2 hours				
Insulating Resistance	> 20 MΩ (500 V _{DC})				
Withstand Voltage	500 V _{AC} 50/60 Hz, 1 min				
Certification	CE				
Materials	Optical window: PC; Case: Aluminum; Cable: PVC				
Cables	Length: 2 m				
Dimensions	44 × 25 × 24 mm				

Dimensions

Unit: mm



Wiring Instructions



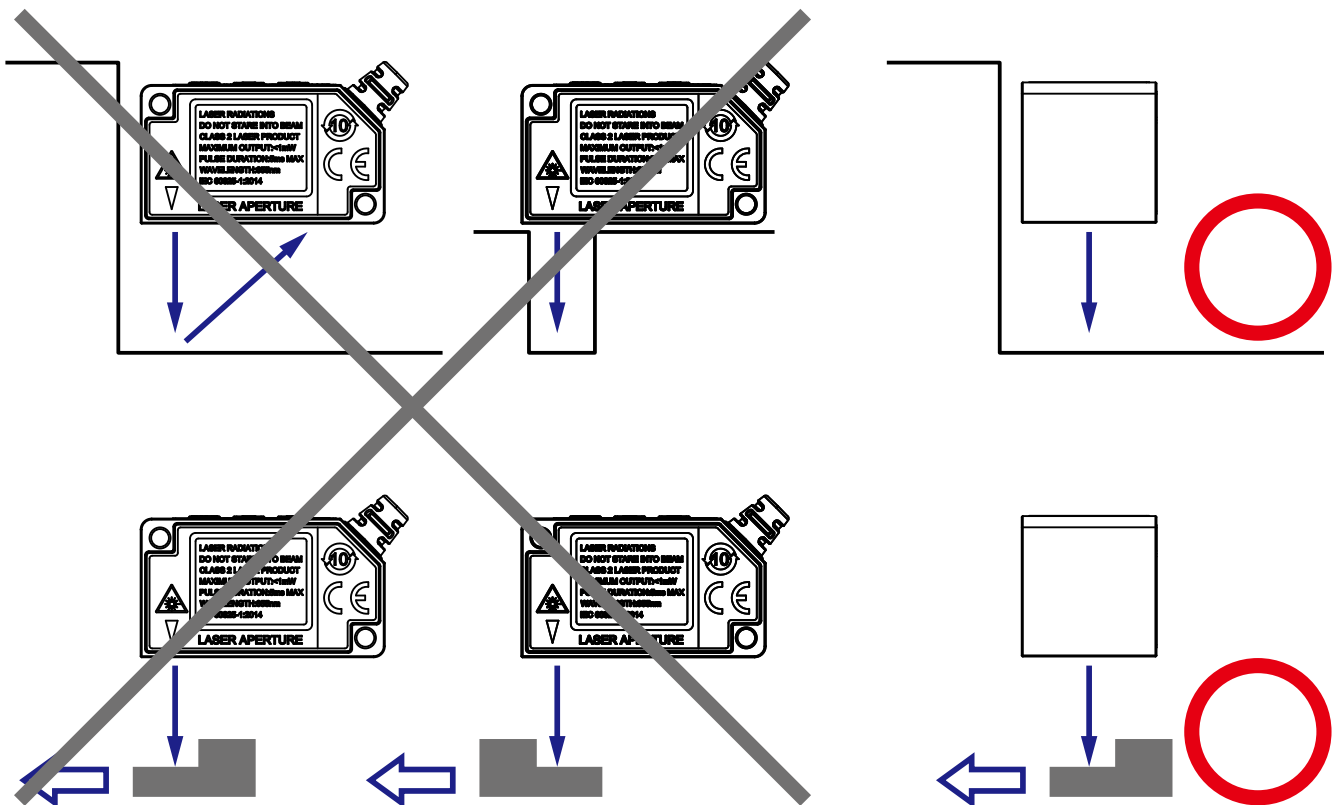
***Note 1:** In case of NPN connection, please connect the load between black and brown pin (+ V)

***Note 2:** In case of PNP connection, please connect the load between black and blue pin (0 V)

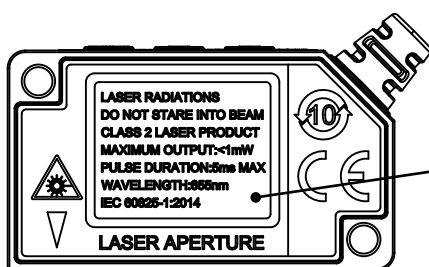
Caution on Mounting Direction

For best product performance, please note the following instructions when installing products:

- When products cling to devices, install the products in parallel with the devices to assure product performance
- When the shape of an inspection object extrudes, ensure the product's lighting route is vertical to the inspection object's path to assure product performance



Laser Label Description



Laser Radiations: Class 2 Product
Maximum Output: <1mW, Pulse
Width: 0.5 ms max.
Wave Length: 655 nm, IEC 60825-1:2014



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