

TECHNICAL SPECIFICATION

LLE Series Laser Displacement Sensor

Compact triangulation-based laser displacement sensor with RS-485 (Modbus RTU) and analog voltage output. Four reference-distance models cover ± 4 mm to ± 90 mm measuring ranges, with repeatability down to 2 μ m and IP67 protection.



LLE-XXX-485-V-XX

RS-485 · Class 2 laser · 660 nm

MEASURING RANGE	REPEATABILITY	SAMPLING RATE	PROTECTION
$\pm 4 - \pm 90$ mm	from 2 μm	up to 3 kHz	IP67

Specifications

MODEL NUMBER	LLE-030 485-V	LLE-050 485-V	LLE-100 485-V	LLE-195 485-V
Reference distance (CD) ①	30 mm	50 mm	100 mm	195 mm
Measuring range ②	±4 mm	±10 mm	±20 mm	±90 mm
ILLUMINANT				
Light source wavelength	660 nm (visible red)			
Laser class	Class 2 (IEC 60825-1)			
Laser output power	1 mW			
Light-spot diameter @ CD ③	665 μm			
PERFORMANCE				
Repeatability	2 μm	5 μm	10 μm	50 μm
Linearity	±0.1% F.S.			
Temperature characteristic	0.05% F.S. / °C			
Sampling frequency	300 / 500 / 1000 / 2000 / 3000 Hz (5 selectable levels)			
INPUT / OUTPUT				
Communication port	1 × RS-485 (Modbus RTU)			
Analog output	1 × analog voltage output (0–10 V)			
Input	1 × input — laser shutdown, remote teaching, sample hold, single-pulse trigger, zeroing			
Output	1 × output — judgment (determination) status			
POWER				
Supply voltage	DC 12–24 V ±10%			
Current consumption	< 125 mA @ DC 12 V · < 70 mA @ DC 24 V			
ENVIRONMENT				

Operating temperature	-10 to +50 °C
Storage temperature	-20 to +70 °C
Operating humidity	35%–85% RH, no condensation or frost
ESD protection	Contact ±4 kV, air ±8 kV (IEC 61000-4-2)
EFT protection	Power ±2 kV, signal ±1 kV @ 5/100 kHz (IEC 61000-4-4)
Shock	500 m/s ² (≈50 G), 3× in each of X / Y / Z
Vibration	10–55 Hz, 1.5 mm double amplitude, 2 h per X / Y / Z axis
Ingress protection	IP67 (IEC 60529)
Enclosure	Sealed metal housing
PHYSICAL	
Dimensions (W × H × D)	65 × 53 × 24 mm
Weight (incl. cable)	200 g

NOTES

1. Recommended optimal installation distance; this parameter corresponds to the diffuse-reflection mode.
2. Positive values indicate greater distance from the laser reference surface; negative values indicate closer distance.
3. The reference distance was obtained through 4,096-sample static averaging.

Product Dimensions

All dimensions in millimetres (mm). Two mounting configurations are shown: diffuse-reflection setup (left) and specular-reflection setup (right).

