

ZX1 LASER MEASUREMENT SENSOR

with build-in Amplifier

Precise, Stable
Easy displacement measurements



Highest performance is now available in matchbox size. Omron is defining a new class of measurement sensors using an advanced HSDR-CMOS (High Speed and Dynamic Range) camera chip.

Features

- Stable measurement for objects with any surface
- Best in class performance for accuracy and speed
- Compact size for quick mounting
- Increased measurement range
- Simple configuration by one-button, Smart Tuning
- Reliable measurement in harsh environments
- Integrated display



Specifications

	NPN output	ZX1-LD50A61 ZX1-LD50A66	ZX1-LD100A61 ZX1-LD100A66	ZX1-LD300A61 ZX1-LD300A66	ZX1-LD600A61 ZX1-LD600A66
	PNP output	ZX1-LD50A81 ZX1-LD50A86	ZX1-LD100A81 ZX1-LD100A86	ZX1-LD300A81 ZX1-LD300A86	ZX1-LD600A81 ZX1-LD600A86
Measurement range		50±10 mm	100±35 mm	300±150 mm	600±400 mm
Light source (wave length)		Visible-light semiconductor laser with a wavelength of 660 nm and an output of 1 mV max. JIS class 2, IEC/EN class 2, FDA class II ^{*1}			
Beam size (Typical value) (Specified by the measurement center distance)^{*2}		0.17-mm dia	0.33-mm dia	0.52-mm dia	0.56-mm dia
Power supply voltage		10 to 30 VDC, including 10% ripple (p-p)			
Power consumption		250 mA max. with power supply voltage of 10 VDC			
Control output		Load power supply voltage: 30 VDC max. load current: 100 mA max. (Residual voltage: 1 V max. for load current 10 mA max., 2 V max. for load current 10 to 100 mV)			
Analog output		Current output: 4 to 20 mA, Max. load resistance: 300 Ω			
Indications		Output, zero reset, Mode, laser ON, Smart Tuning			
Response time	Judgement outputs	Super-high-speed mode: 1 ms; High-speed mode: 10 ms; Standard mode: 100 ms			
	Laser OFF input	200 ms max.			
	zero reset input	200 ms max.			
Temperature characteristic^{*3}		0.03%F.S./°C			0.04%F.S./°C
Linearity^{*4}		±0.15%F.S.		±0.2%F.S.	±0.4%F.S. ±0.2%F.S. (200-600 mm)
Resolution^{*5}		2 μm	7 μm	30 μm	80 μm
Ambient illumination		Incandescent lamp: 7,500 lx max. (on light receiving side)		Incandescent lamp: 5,000 lx max. (on light receiving side)	
Ambient temperature		Operating: -10 to +55°C, Storage: -15 to +70°C (with no icing or condensation)			
Ambient humidity		Operating and storage: 35% to 85% (with no condensation)			
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min			
Vibration resistance		10 to 55 Hz, 1.5-mm double amplitude, each in X, Y, and Z directions			
Shock resistance		500 m/s ² , 3 times each in X, Y, and Z directions			
Degree of protection^{*6}		IEC50529, IP67			
Connection method		Prewired (standard cable length: 2 m); connector connection (standard cable length: 500 mm)			
Weight	Prewired (2 m)	Approx. 240 g/Approx. 180 g		Approx. 270 g/Approx. 210 g	
(Packed state/Unit only)	Connector (500 mm)	Approx. 170 g/Approx. 110 g		Approx. 200 g/Approx. 140 g	
Materials		Case and cover: PBT (polybutylene terephthalate), Optical window: Glass, Cable: PVC			
Accessories		Instruction sheet, Laser warning label (English)			

Note: False detection outside the measurement range can occur in the case of an object with high reflectance.

^{*1} Classified as Class 2 by EN60825-1 criteria in accordance with the FDA standard provisions of Laser Notice No.50. Notification to CDRH planned.

^{*2} Beam size: Defined as 1/e² (13.5%) of the central intensity at the smallest value of diameter for the measurement range (typical value)

False detections can occur in the case there is light leakage outside the defined region.

And the surroundings of the target object have a high reflectance in comparison to the target object.

^{*3} Temperature characteristic: Value for the case the space between the sensor head and Omron's standard target object is secured by an aluminum jig. (Measured at the measurement center distance)

^{*4} Linearity: indicates the error with respect to the ideal straight line of the displacement output in the case of measuring Omron's standard target object. Linearity and measured value may vary depending on target object.

^{*5} Resolution: Defined by setting in standard mode and executing Smart Tuning with Omron's standard target object (white ceramics).

Indicates the repetition accuracy for when the workpiece is in a state of rest. Not an indication of distance accuracy.

Resolution performance may not be satisfied in a strong electromagnetic field.

^{*6} Degree of protection is IP67 when the connector is connected to the extension cable.

Contact us for more information.

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