

CMOS Laser Displacement Sensor

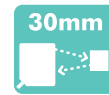
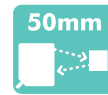
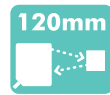
Analogue Output Type

ZXD-B



SALIENT FEATURES

- ◆ 2µm Resolution
- ◆ Standalone Unit
- ◆ ±0.1% F.S Linearity
- ◆ Upto 120mm sensing
- ◆ 4-20mA/ 0-10V outputs
- ◆ High speed response- 1ms



Model Number Legend

ZXD-B - -

1 2 3 4 5

1. Series

ZXD

2. Type

B: Button Teach Type

3. Sensing Distance

30: 30 ±4mm
 50: 50 ±10mm
 85: 85 ±20mm
 120: 120 ±60mm

4. Output

N2: 2 NPN Outputs
 P2: 2 PNP Outputs
 N2C: 2 NPN, 4-20mA Current Output
 P2C: 2 PNP, 4-20mA Current Output
 N2V: 2 NPN, 0-10V Voltage Output
 P2V: 2 PNP, 0-10V Voltage Output

5. Connection

2M: 2m Cable
 M12C: M12 Connector

Example:

ZXD-B-50P2C-2M

ZXD Series - Button Teach Type - 50 ±10mm Sensing Distance, 2 PNP NO/ NC, 4-20mA Current Outputs - 2m Cable

NOTE: Contact us for models not shown in catalogue.
 Connector cables are sold separately; look in CCX series catalogue for the same (www.inno.sg/ccx).

Product Highlights

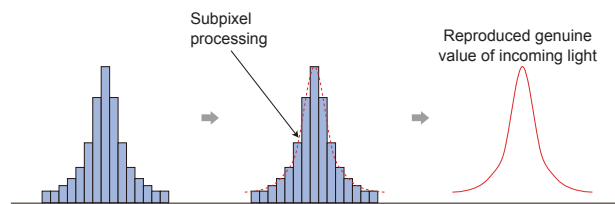
◆ Lightweight Standalone Unit!

The standalone design is both space and cost saving. No separate controller is required due to all in one design and because of its light weight Just 65 grams! the ZXD-B series is ideal for mounting on moving parts.



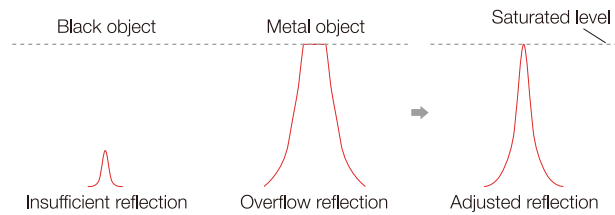
◆ Subpixel Processing

Normal Displacement sensors process the light intensity in each pixel to measure the displacement. The ZXD-B series employs Digital Sub-pixel processing to improve upon the result. Subpixel processing divides one pixel into small pieces that enables accurate measurement by reproducing the genuine value of incoming light. This results in a more accurate displacement measurement or upto 2µm resolution.



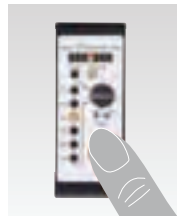
◆ Electronic Shutter

The ZXD-B series uses a High Resolution electronic shutter control to keep a constant light level according to the reflection. This function enables stable peak level detections even in rough/ uneven or unstable surfaces.



◆ Ease of Operation

Just two buttons - SET & SELECT are enough to set and operate the unit. The LED indicator shows which function you have currently selected.

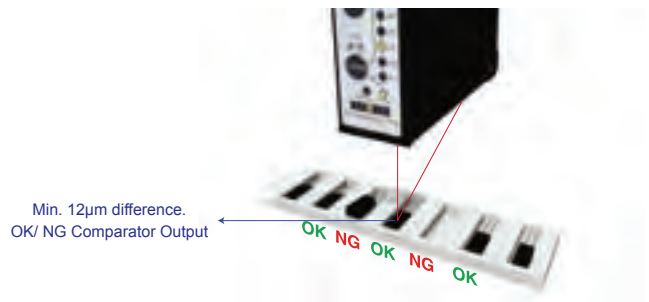


◆ Mount on Moving Parts

The standalone design with its robust housing and IP67 protection make it an ideal sensor for mounting on moving objects like cylinders and robot arm and heads.

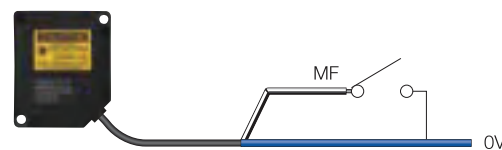
◆ 2 Ch. Output/ Analog Output

The ZXD-B series has 2 channel digital outputs which also can be used as a highly accurate comparator output capable of identifying 12µm. Hysteresis of just 0.15% F.S. Also available is the option of 1 Digital output with 4-20mA current output or 0-10V voltage output.



◆ Multifunction (MF) Input !

Multifunction is provided for further convenience. The programmable remote MF input can be set to one of the following: Laser Control, External Teach, Hold or One-shot Trigger.



Ratings and Specifications

ZXD-B

Models	Cable	2 NPN	ZXD-B-30N2-2M	ZXD-B-50N2-2M	ZXD-B-85N2-2M	ZXD-B-120N2-2M
		2 PNP	ZXD-B-30P2-2M	ZXD-B-50P2-2M	ZXD-B-85P2-2M	ZXD-B-120P2-2M
		2 NPN + Current	ZXD-B-30N2C-2M	ZXD-B-50N2C-2M	ZXD-B-85N2C-2M	ZXD-B-120N2C-2M
		2 PNP + Current	ZXD-B-30P2C-2M	ZXD-B-50P2C-2M	ZXD-B-85P2C-2M	ZXD-B-120P2C-2M
		2 NPN + Voltage	ZXD-B-30N2V-2M	ZXD-B-50N2V-2M	ZXD-B-85N2V-2M	ZXD-B-120N2V-2M
		2 PNP + Voltage	ZXD-B-30P2V-2M	ZXD-B-50P2V-2M	ZXD-B-85P2V-2M	ZXD-B-120P2V-2M
	Connector	2 NPN	ZXD-B-30N2-M12C	ZXD-B-50N2-M12C	ZXD-B-85N2-M12C	ZXD-B-120N2-M12C
		2 PNP	ZXD-B-30P2-M12C	ZXD-B-50P2-M12C	ZXD-B-85P2-M12C	ZXD-B-120P2-M12C
		2 NPN + Current	ZXD-B-30N2C-M12C	ZXD-B-50N2C-M12C	ZXD-B-85N2C-M12C	ZXD-B-120N2C-M12C
		2 PNP + Current	ZXD-B-30P2C-M12C	ZXD-B-50P2C-M12C	ZXD-B-85P2C-M12C	ZXD-B-120P2C-M12C
		2 NPN + Voltage	ZXD-B-30N2V-M12C	ZXD-B-50N2V-M12C	ZXD-B-85N2V-M12C	ZXD-B-120N2V-M12C
		2 PNP + Voltage	ZXD-B-30P2V-M12C	ZXD-B-50P2V-M12C	ZXD-B-85P2V-M12C	ZXD-B-120P2V-M12C
Sensing Distance			30mm	50mm	85mm	120mm
Measurement Range			±4mm	± 10mm	± 20mm	± 60mm
Full Scale			8mm	20mm	40mm	120mm
Light Source		Class II Red Laser Diode (wavelength 650nm)				
Spot Size	Near	0.15 x 0.15mm	0.6 x 1.2mm	0.9 x 1.5mm	1.2 x 1.8mm	
	Middle	0.1 x 0.1mm	0.5 x 1.0mm	0.75 x 1.25mm	1.0 x 1.5mm	
	Far	0.15 x 0.15mm	0.4 x 0.9mm	0.6 x 1.0mm	0.5 x 0.8mm	
Linearity		± 0.1% F.S.				
Temperature Drift		± 0.08% F.S./ C°				
Response Time		500 µs				
Resolution	Fast Mode	4µm	8µm	15µm	45µm	
	Other Modes	2µm	5µm	10µm	30µm	
Response Time	Fast	1ms+ selecting sensitivity (averaging: 1)				
	Standard	8.5ms+ selecting sensitivity (averaging: 16)				
	High Resolution	32.5ms+ selecting sensitivity (averaging: 64)				
	Selecting Sensitivity	max. 4ms				
Supply Voltage		12 - 24 VDC (Ripple Max 10%); Voltage Output Models: 18-24 VDC (-5%, +10%)				
Current Consumption		Control Output: max. 75mA (24 VDC); Analog Output: max. 80mA (24 VDC)				
Control Output		NO, NC - 2 NPN or 2 PNP open collector output (depending on model)				
Control Output Rating		Load Voltage: max. 30 VDC; Load Current: max 100mA (residual voltage max. 1.8V)				
Analog Output		4-20mA; 0-10 V				
Operation Indications		Distance Indication: Bargraph LED; Output Indication: Orange (ON)				
Shock Resistance		50 G; Vibration: 10-55Hz at 1.5mm, 2 hrs for X, Y, Z axes				
Environmental Illuminance		Sunlight: max. 10,000 lux, Lamp: msx. 3,000 lux				
Ambient Temperature		Operation: -10° ~ 45°C; Storage: -20° ~ 60°C (non- freezing; non- condensing)				
Ambient Humidity		Operation: 35 ~ 85% RH; Storage: 35 ~ 95% RH (non- condensing)				
Protection Class		IP67				
Weight		Cable Type: approx. 65g (without cable); Connector Type: approx. 70g				
Material		Housing: PBT, Lens: PMMA or Eqv.				

Proximity Sensors

Photoelectric Sensors

Measurement Sensors

Vision & Safety Sensors

Control

Weighing

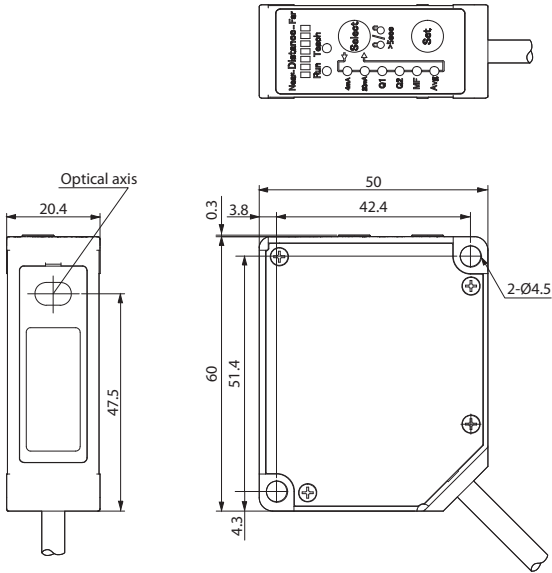
Automation

Components

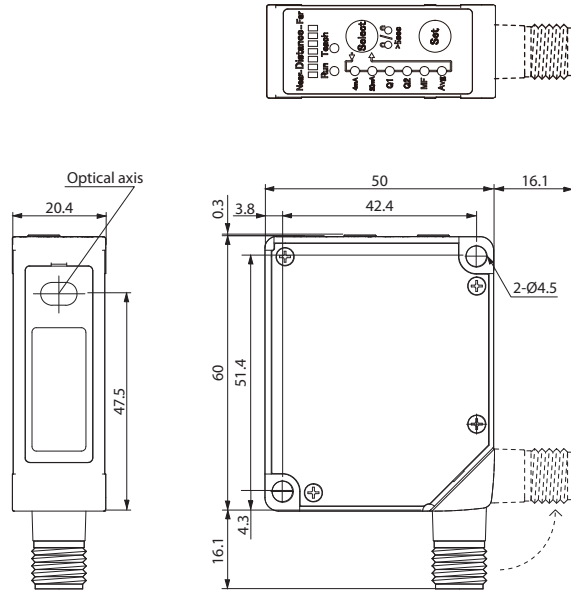
Sensor Dimension Drawing

ZXD-B

◆ Cable Type



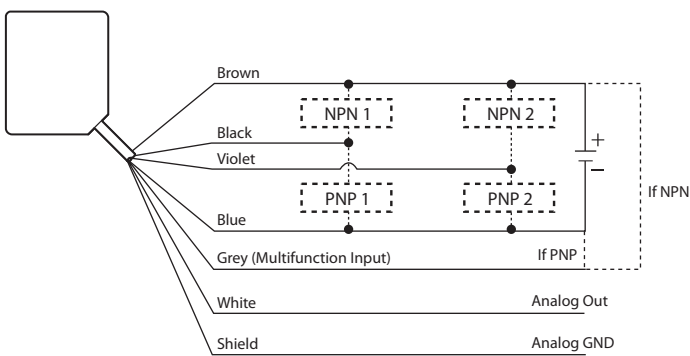
◆ Connector Type



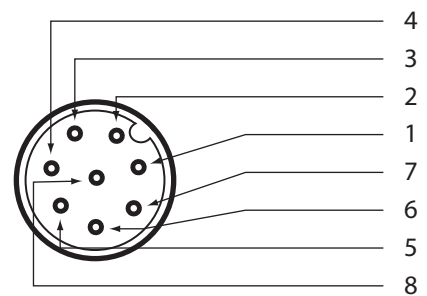
All dimensions are in mm

Connection

• Cable



• Connector

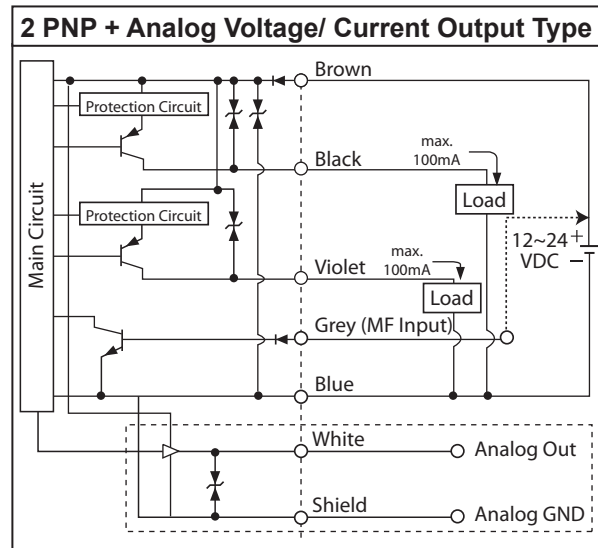
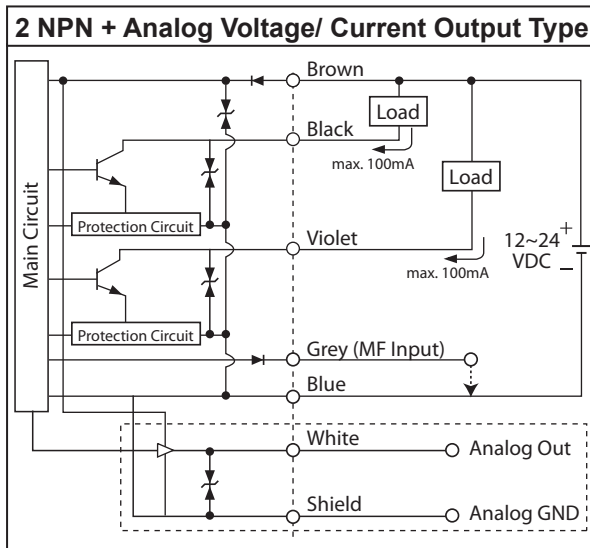
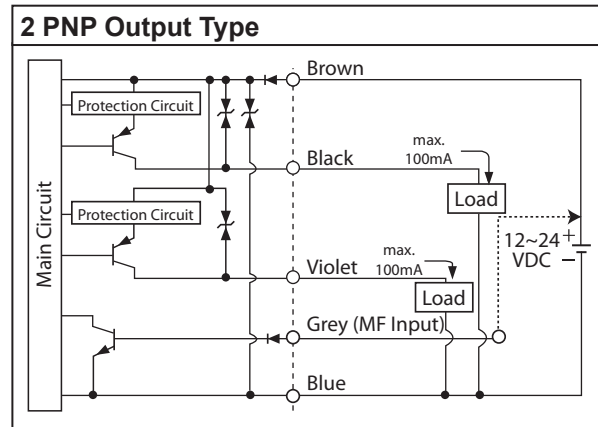
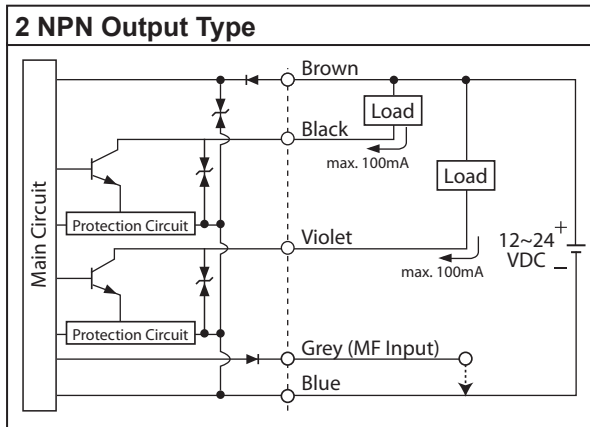


- Brown (1) : DC 10~30V
- White (2) : 0V
- Blue (3) : Control Output
- Black (4) : Memory Bank Remote Selector

- Grey (5) : Memory Bank Remote Selector
- (6) : Memory Bank Remote Selector
- Violet (7) : No Connection
- (8) : No Connection

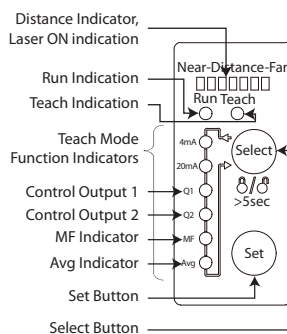
Control Output Diagram

ZXD-B

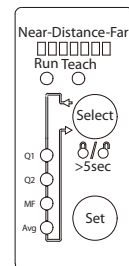
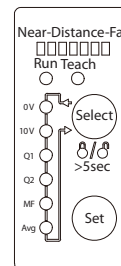
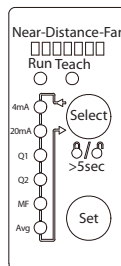


Brown : DC 12~24V Black : Control Output 1 Grey : Multifunction Input Black : Analog GND
 Blue : 0V Violet : Control Output 2 White : Analog (Voltage/ Current) Out

Nomenclature



◆ Digital & Current Output ◆ Digital & Voltage Output ◆ Digital Output



Proximity Sensors

Photoelectric Sensors

Measurement Sensors

Vision & Safety Sensors

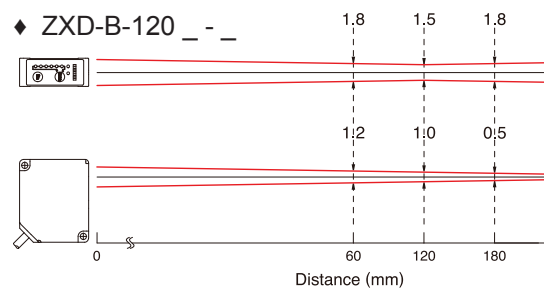
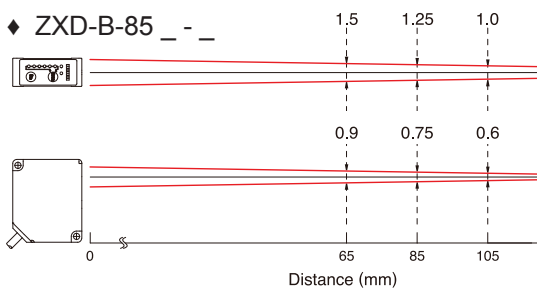
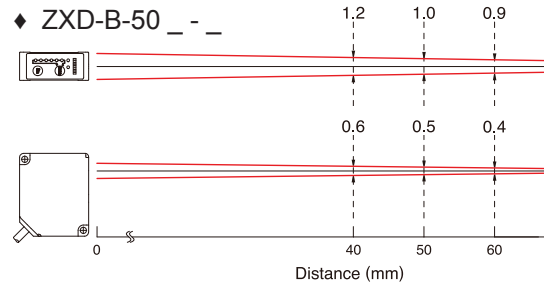
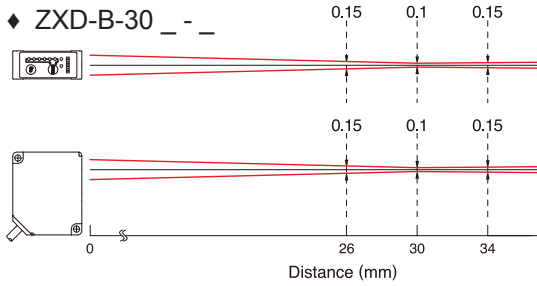
Control

Weighing

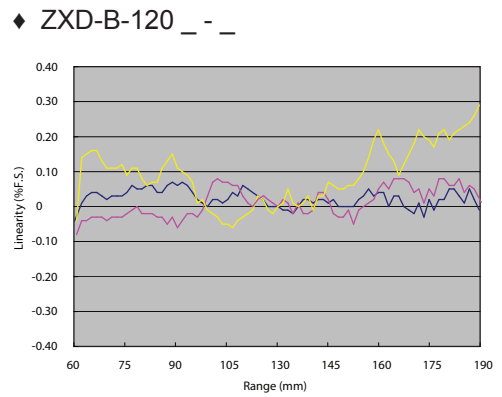
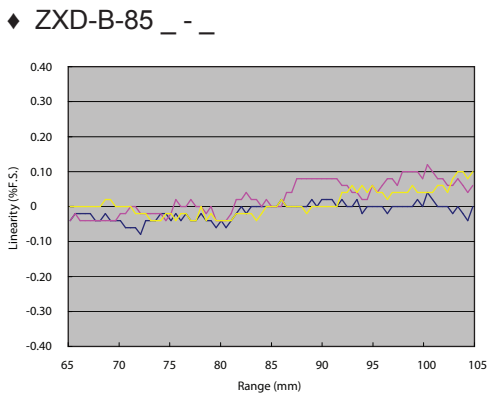
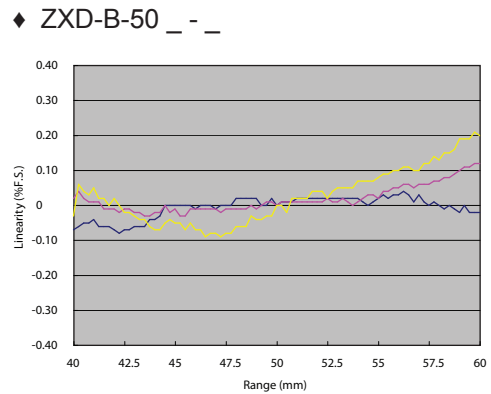
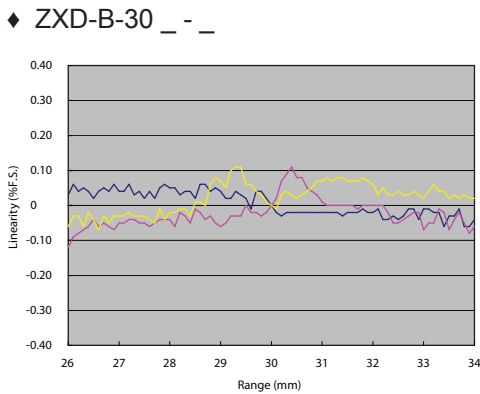
Automation

Components

Spot Size



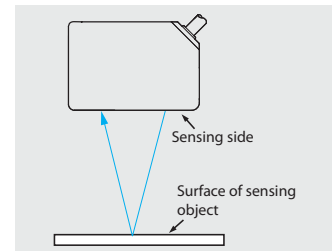
Linearity



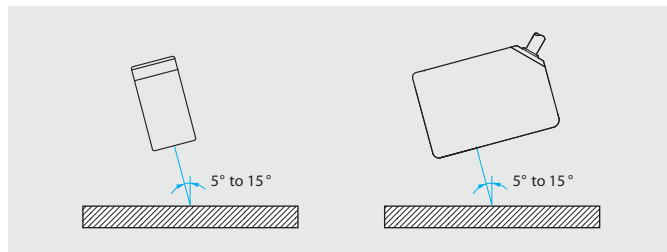
Mounting and Adjustments

ZXD-B

Make sure that the sensing side of the sensor is parallel with the surface of the sensing object. Normally, do not incline the sensor towards the sensing object. The sensor is to be placed at least 10mm away from any glossy or reflective surface.



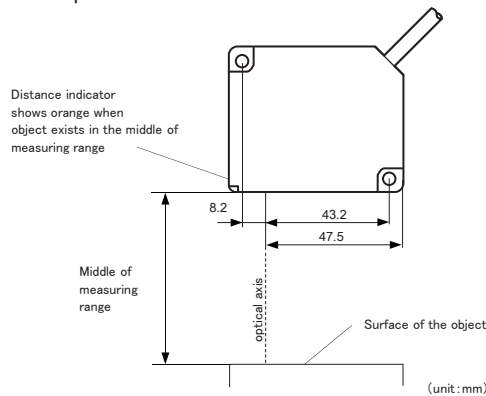
The Linearity of the output changes with the sensing angle. For best results the sensor should be exactly perpendicular to the sensing object. But the sensing will be normal upto to $\pm 15^\circ$



◆ Installation

Install the sensor and adjust the light spot onto the measuring point so that the distance indicator turns ON (Orange) at the middle of the measuring range.

Use M4 screws for tightening the unit. Max. Torque - 0.8Nm



Proximity Sensors

Photoelectric Sensors

Measurement Sensors

Vision & Safety Sensors

Control

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Components

Cat. No. ZXD-B-812

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