

Application Examples

Evaluation

HI
PASS
LOW

NG OK NG

8.888 8.888 8.888

Measurement

8.888 mm

8.888 mm

- Height
- Length
- Thickness
- Diameter
- Width
- Gap
- Eccentricity
- Surface fluctuations
- Unevenness, warping
- Level

Positioning

- Distance
- Direction
- Position

Height

Determining workpiece height (self-triggered detection)

ZX-LD40 Sensor Head

ZX-LDA11 Amplifier Unit

Height

Shape inspection for tracer control of welding robots

ZX-Series

Thickness

Thickness measurement (continuous)

Operational unit

$T = K - (A + B)$

42345
48000

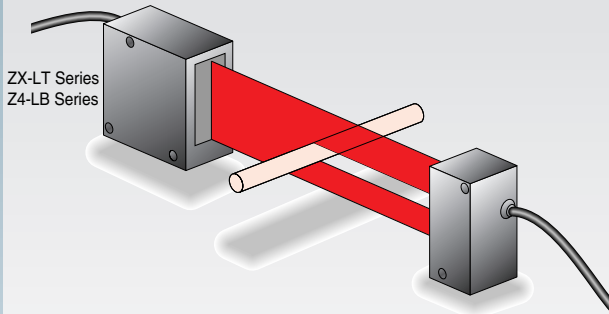
10000
9000

Counting

Connector pin count

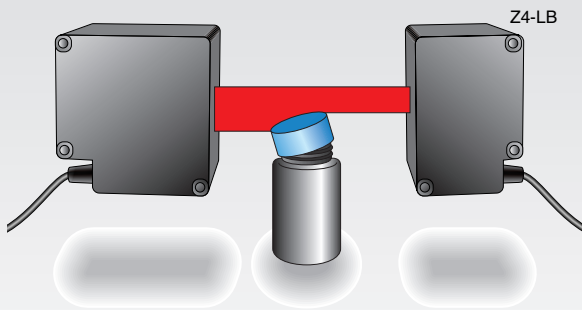
Diameter

Diameter measurement for cables and rods



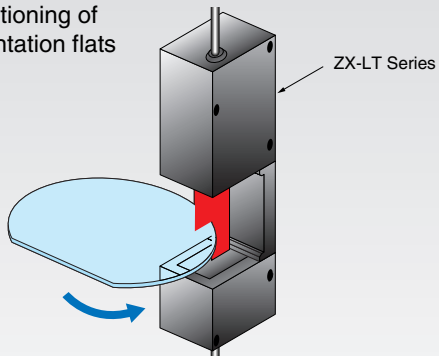
Unevenness, Warping

Inspection for incorrectly tightened container caps



Positioning

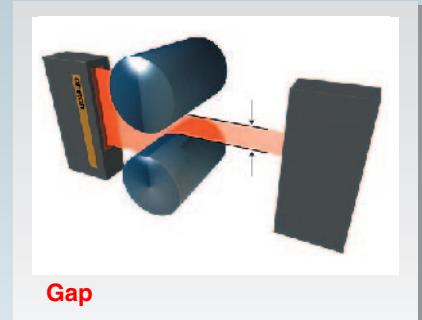
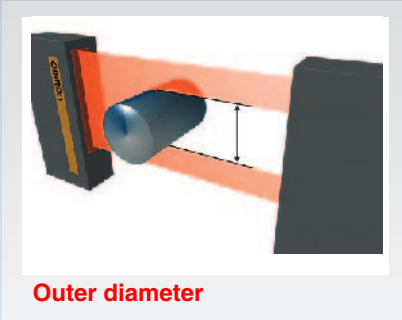
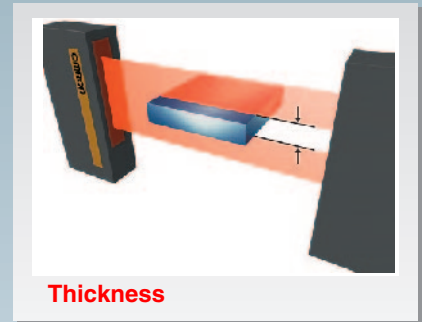
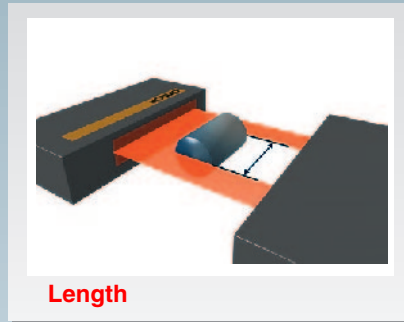
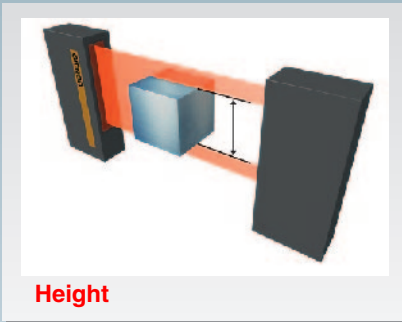
Positioning of orientation flats



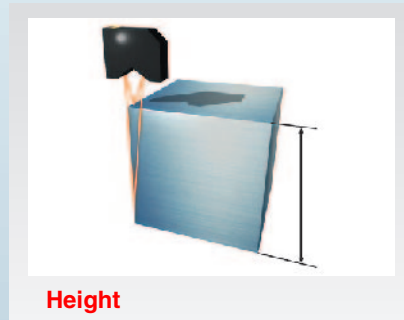
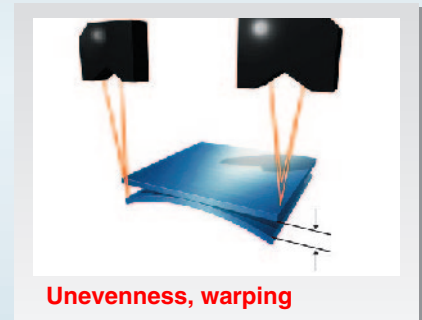
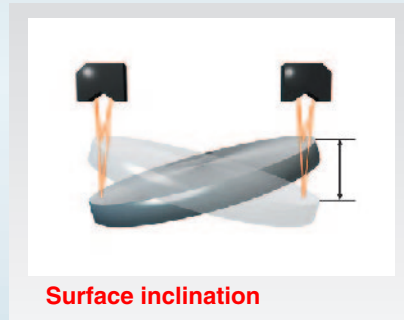
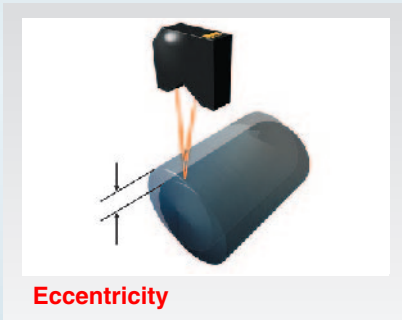
Variations

Select the Sensor According to the Application

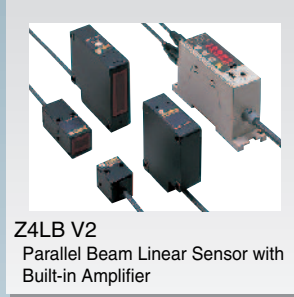
Parallel Light Applications



Triangulation Applications



Width-measuring Sensors (Detection Using Parallel Light)





Displacement Sensor (Detection Using Triangulation)



Selection Guide

■ Smart Sensors

Classification		Optical		
Sensor model		ZX-LD□	ZX-LD□L	ZX-LT□
Applicable Amplifier Unit		ZX-LDA□□		
Appearance (Sensor and Amplifier)		 NEW		 NEW
Measurement objects *1	Magnetic metals	△	○	Opaque materials
	Glossy objects	△	○	
	Diffuse objects *2	○	○	
	Transparent objects	X	△	
	Liquids	△	△	
Sensing method		Reflective		Through-beam
Linearity		±0.2% FS to ±2% FS		
Beam shape		Spot	Line	<ul style="list-style-type: none"> • Screen beam • Spot
Beam diameter		50 μm dia. to 300 μm dia.	75 μm x 2 mm to 450 μm x 2 mm	---
Measurement range	The figures in parentheses indicate the resolution for reflective models.			<ul style="list-style-type: none"> • Models with 1 mm dia. spot: 1 mm dia.: 0 to 500 mm 1 to 2.5 mm dia.: 500 to 2,000 mm • Models with 5 mm width screen beam: 0 to 500 mm • Models with 10 mm width screen beam: 0 to 500 mm
	Regular reflective			

*1. ○: Ideal. △: Suitable depending on conditions. X: Not suitable.

*2. Diffuse objects: White ceramic, white paper, and objects with white coating.

Width-measuring Sensors

Classification	Model	Measurement object		Resolution/ repeating accuracy	Linearity	Measurement range	Features
		Opaque	Transpar- ent				
Optical	Z4LB -S10V2 *1 (Sensor)	O	X	5 μm (5 ms) 10 μm (0.3 ms)	---		<ul style="list-style-type: none"> • Miniature sensor head • Visible-light laser • Digital display • Compatibility between sensor and amplifier
	Z4LB -A1040□V2 *2 (Set)					±0.5% FS	
	Z4LB -S30V2 *1 (Sensor)			15 μm (5 ms) 30 μm (0.3 ms)	---		<ul style="list-style-type: none"> • Large width: 30 mm • Visible-light laser • Digital display • Compatibility between sensor and amplifier
	Z4LB -A3040□V2 *2 (Set)					±0.5% FS	

O: Suitable. X: Not suitable.

*1. Applicable Amplifiers: Z4LB-CV2 (NPN), Z4LB-CPV2 (PNP)

*2. Model number for set consisting of sensor and amplifier. Nothing in □ indicates NPN output model; P in □ indicates PNP output model.