

Smart Sensors Laser Sensors CMOS Type ZX2

CSM_ZX2_DS_E_6_3

Stable measurement that is unaffected by workpiece changes. The simple setting for everyone.



- High-precision measurement to approx. 10 μm .
- Stable measurement regardless of movement or changes in workpiece color or material.
- Smart tuning for optimal setting with one button for essentially any user.
- The 11-segment display enables reading characters at a glance.
- Four built-in banks make changeovers easy.
- Stable measurement in harsh environments with IP67 protection for Sensor Head and robot cable.
- Laser life indicator to prevent line stoppage through visualization.



Be sure to read *Safety Precautions* on page 11



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Features

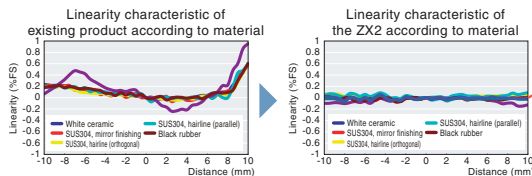
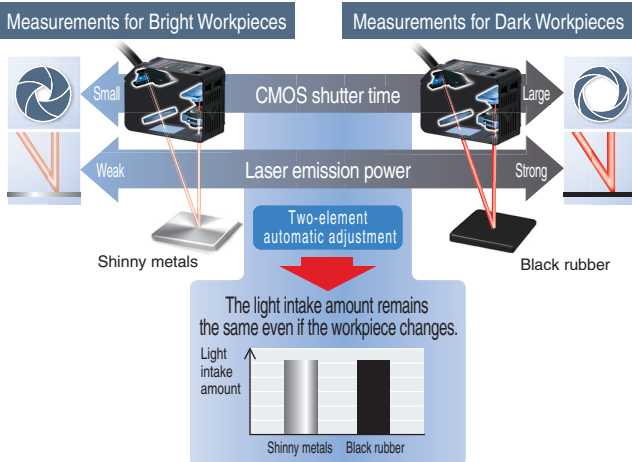
Stability

Measurements to a Precision in the Order of 10 μm for any Workpiece

Stable measurement even for changes in colors and materials or for moving workpieces with CMOS that has a dynamic range of two million times **Patented** *2

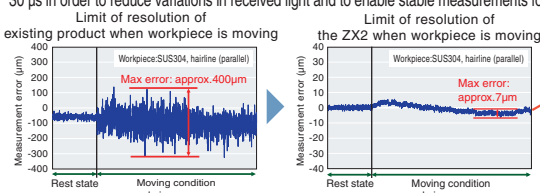
The use of a unique OMRON HSDR-CMOS (high-speed and dynamic range) image sensor and a step-less laser power adjustment algorithm enable stable measurements for any color or surface conditions, from metals to substrates, rubber, and transparent objects. Linearity of $\pm 0.05\text{--}0.3\%$ F.S. achieves a measurement precision in the order of $\pm 10\text{--}30\mu\text{m}$. *1

Stable measurements on objects with changing color/material



Stable measurements on moving objects

A line beam is used in addition to an emitter beam when dealing with rough surfaces to average out the amount of reflected light and to offset the amount of light received at a high-speed measurement period of 30 μs in order to reduce variations in received light and to enable stable measurements for moving objects.



*1. The resolution, angle characteristic, measuring range, linearity, spot diameter, and other specifications differ among models. Refer to *Ratings and Specifications* for details.
The 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. Before final installation, test the sensor required for the application to validate that the desired measurements have been obtained.

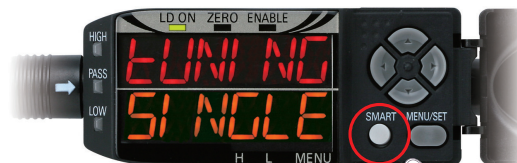
*2. "Patented" means that we obtained a patent in Japan. (As of October 2019)

Easy

Essentially Anyone Can Set Optimum Conditions

Easily select smart tuning with one button. **Patented** *2

The optimum settings for stable measurement can be achieved with one smart tuning button. The settings will not rely on the skill of the user.



Sensor configuration by just a pushing the SMART button

Three selectable tunings

More accurate settings are made possible by the three tuning methods for different workpiece types and surface conditions.

Scene.1

One type of workpiece



Single smart tuning

Best configuration for stable detection in case of objects do not change by pushing the button for one second

Scene.2

Several types of workpiece



Multi-smart tuning

Ideal configuration for stable detection of changing objects by pushing the button for three seconds

Scene.3

Surface conditions of the workpiece are variable



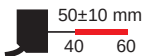
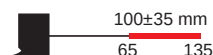
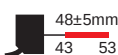
Active smart tuning

Continuous configuration improvement for the stable detection of all locations by pushing the button for five seconds

Ordering Information

Units

Sensor Heads [\[Dimensions → page 11\]](#)

Appearance	Sensing method	Beam shape	Sensing distance	Resolution	Model
Diffuse reflection type 	Diffuse-reflective	Line beam	 50±10 mm 40 60	1.5 μm	ZX2-LD50L 0.5M
		Spot beam			ZX2-LD50 0.5M
		Line beam	 100±35 mm 65 135	5 μm	ZX2-LD100L 0.5M
		Spot beam			ZX2-LD100 0.5M
	Regular-reflective	Spot beam	 48±5 mm 43 53	1.5 μm	ZX2-LD50V 0.5M

Amplifier Units [\[Dimensions → page 11\]](#)

Appearance	Power supply	Output type	Model
	DC	NPN	ZX2-LDA11 2M
		PNP	ZX2-LDA41 2M

Accessories (sold separately) These are not included with the Sensor Head or Amplifier Unit. Please order as necessary.

Calculating Unit [\[Dimensions → page 12\]](#)

Appearance	Model
	ZX2-CAL

Communications Interface Unit [\[Dimensions → page 12\]](#)

Appearance	Type	Model
	RS-232C	ZX2-SF11

Sensor Head Extension Cables [\[Dimensions → page 12\]](#)

Cable Length	Model
1 m	ZX2-XC1R
4 m	ZX2-XC4R
9 m	ZX2-XC9R
20 m	ZX2-XC20R

Note: Extension cables cannot be coupled and used together.

Mounting Brackets [\[Dimensions → page 13\]](#)

Applicable Sensor Head	Appearance	Model	Remarks
ZX2-LD50V ZX2-LD50L ZX2-LD50		E39-L178	Mounting Brackets (1) Nut Plate (1) Phillips screws (M30 × 30) (2)
ZX2-LD100L ZX2-LD100		E39-L179	