

IO-Link
SensorsPhotoelectric
SensorsFiber-optic
Sensors

Standard Fibers

Fiber Sensors
Communication
Units

Mark Sensors

Laser Sensors

Safety Sensors

Pressure &
Flow SensorsInductive
Proximity
SensorsMeasurement
SensorsIonizers/
Electrostatic
Sensors

Accessories



CX-400

A full lineup of world standard photoelectric sensors

Features

Great lineup of 170 models

The **CX-400** series has a high level of basic functionality and excellent cost performance. Moreover, a wide number of variations means that there is sure to be a sensor that fits your needs.

Type	Sensing range
CX-412 □ Thru-beam (long sensing range)	15m
CX-411 □ Thru-beam	10m
CX-493 □ Retroreflective (long sensing range)	5m
CX-491 □ Retroreflective (with polarizing filters)	3m
CX-482 □ Retroreflective (transparent object sensing)	0.1 – 2m
CX-481 □ Retroreflective (transparent object sensing)	50 – 500mm
CX-422 □ Diffuse reflective (800mm type)	800mm
CX-421 □ Diffuse reflective (300mm type)	300mm
CX-424 □ Diffuse reflective (100mm type)	100mm
CX-423 □ Diffuse reflective (narrow-view)	70 – 200mm
CX-442 □ Adjustable range reflective	20 – 300mm
CX-444 □ Adjustable range reflective	15 – 100mm
CX-443 □ Adjustable range reflective	2 – 50mm
CX-441 □ Adjustable range reflective (small spot)	2 – 50mm

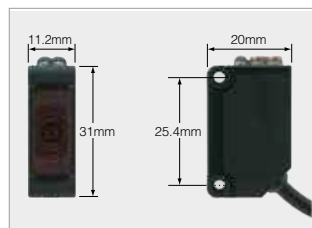
Output	NPN, PNP
Connecting method (note 1)	Cable type, M8 plug-in connector type, M12 pigtailed type
Cable length of cable type (note 2)	0.5m, 2m, 5m

Notes:

- 1.) Only the cable type and M8 plug-in connector type are available for the adjustable range reflective type.
- 2.) Only the 2m cable length type (standard) is available for the adjustable range reflective type.

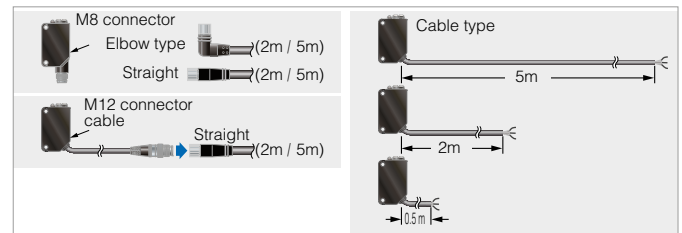
Compact size

The sensors are compact in size at 11.2x31x20mm (WxHxD). The mounting pitch is also at the world standard size of 25.4mm.



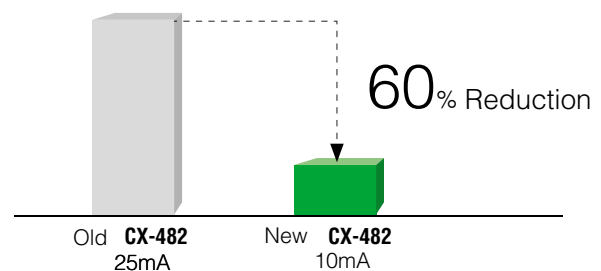
Less processing

M8 plug-in connector type and M12 pigtailed type are available. This contributes to less time spent setting up. In addition, cable types are available with the following cable lengths: 0.5m, 2m, and 5m.



Less power consumed

By relentlessly developing our technologies, we have been able to considerably reduce our sensors' power consumption.



Less resources used

Based on environmental considerations, simplified packaging is used in order to reduce waste.

In addition, the bag is made of polyethylene, which produces no toxic gases even when burned.

CX-41□/42□/49□

Strong against oil and coolant liquids

The lens material for the thru-beam type, retroreflective type (excluding the CX-48□) and the diffuse reflective type is made of a strong acrylic that resists the harmful effects of coolants. These sensors can be used with confidence even around metal processing machinery that disperses oil mists. The protection mechanism also conforms to IP67 (IEC).

CX-44□/48□

Strong against ethanol

A strong, ethanol-resistant polycarbonate is used for the front and display covers. Safe even for installing near food processing machinery that disperses ethanol-based detergents. The protection mechanism also conforms to IP67 (IEC).

Strong against interference

The interference prevention function allows two sensors to be mounted close together.

Typical applications

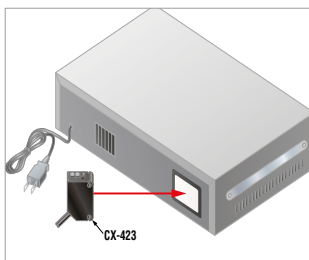
Detecting cars on conveyor lines



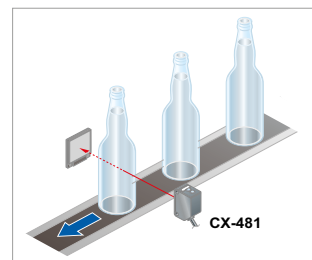
Detecting transparent bottles



Detecting labels



Detecting transparent glass bottles



Thru-beam type CX-412□

Strong infrared beam

It realizes a 15m long-distance sensing range. Remarkable penetrating power enables applications such as package content detection.



Retroreflective type CX-493□

Strongest sensing range in its class

A long 5m sensing range is possible with the red LED type that is easy to align with the beam axis. Can be used for wide automatic door shutters.



Diffuse reflective type CX-423□

Beam axis alignment made easy

These sensors realize a high luminance red LED spot that provides bright visibility enabling the sensing position to be checked at a glance. Because it has the small spot, approx. 2mm, even the minutest object can be accurately detected.



CX-481□/482□

Introducing the transparent object sensing type sensor

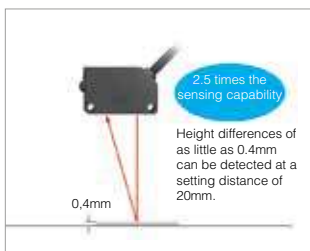
Our unique optical system and transparent object sensing circuitry provide stable sensing of even thinner transparent objects than the conventional models.



CX-441/443□

Can sense differences as small as 0.4mm, with hysteresis of max. 2%

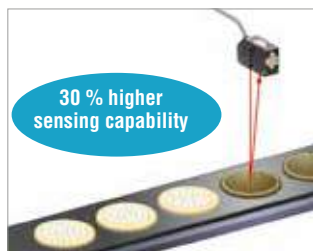
An advanced optical system provides sensing performance that is approx. 2.5 times more precise than conventional models. Even ultra small differences of 0.4mm can be detected accurately.



CX-44□

Not affected by color

Both black and white objects can be sensed at almost the same distances. No adjuster control is needed, even when products of different colors are moving along the production line.

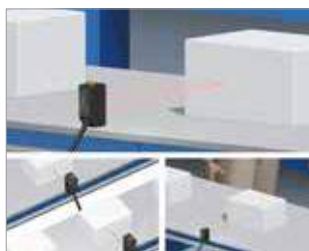


CX-442□

BGS/FGS functions make even the most challenging settings possible!

Background suppression **BGS**

When object and background are separated.



CX-483□

Foreground suppression **FGS**

When object and background are close together.

When the object is glossy or uneven.



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CX-440

Technical specifications

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CX-400

Type		Thru-beam			Retroreflective				
		Long sensing range			With polarizing filter	Long sensing range	For transparent object sensing		
Model no.	NPN output	CX-411(-Z) (note 1)	CX-412(-Z)	CX-413(-Z)	CX-491(-Z)	CX-493(-Z)	CX-481(-Z)	CX-483(-Z)	CX-482(-Z)
	PNP output	CX-411-P(-Z)	CX-412-P(-Z)	CX-413-P(-Z)	CX-491-P(-Z)	CX-493-P(-Z)	CX-481-P(-Z)	CX-483-P(-Z)	CX-482-P(-Z)
Sensing range		10m	15m	30m	3m (note 2)	5m (note 2)	50 to 500mm (note 2)	50 to 1.0m (note 2)	0.1 to 2m (note 2)
Object to be sensed		Min. Ø 12mm (opaque)			Min. Ø 50mm (opaque, transparent) (note 2)	Min. Ø 50mm (opaque, transparent or specular) (note 2)			
Hysteresis		-							
Supply voltage		12 to 24VDC ±10%							
Output		PNP / NPN open-collector transistor, max. 100mA							
Output operation		Switchable either Light-ON or Dark-ON							
Response time		Max. 1ms		Max. 2ms	Max. 1ms				
Emitting element		Red LED	Infrared LED		Red LED			Infrared LED	
Automatic interference prevention function		Two units of sensors can be mounted close together with interference prevention filters. (Sensing range: 5m)		-	Incorporated (two sensor units can be mounted close together.)				
Protection		IP67 (IEC)							
Ambient temperature		-25 to +55°C							
Material		Enclosure: PBT, Lens: Polycarbonate (CX-48□: Polycarbonate), Protection cover: Polycarbonate (CX-48□: Polycarbonate)							
Connection method		2m cable, Suffix - Z: M8 connector (note 3)							
Dimensions (HxWxD)		31x11.2x20mm (-Z connector type: 35.5x11.2x20mm)							
Accessories		-			Reflector: RF-230 1 pc.				

Notes:

- 1.) Suffix -Z = M8 connector type
- 2.) The sensing range is specified for the attached reflector **RF-230**
- 3.) Cable is not included in delivery. Please select under accessories (page 121)

Type		Diffuse reflective				Adjustable range reflective (note 2)			
					Narrow view	Small spot			
Model no.	NPN output	CX-424(-Z) (note 1)	CX-421(-Z)	CX-422(-Z)	CX-423(-Z)	CX-441(-Z)	CX-443(-Z)	CX-444(-Z)	CX-442(-Z)
	PNP output	CX-424-P(-Z)	CX-421-P(-Z)	CX-422-P(-Z)	CX-423-P(-Z)	CX-441-P(-Z)	CX-443-P(-Z)	CX-444-P(-Z)	CX-442-P(-Z)
Sensing range		100mm	300mm	800mm	70 to 300mm	2 to 50mm (adjustable range: 20-50mm)		15 to 100mm (adjustable range: 20-100mm)	20 to 300mm (adjustable range: 40-300mm)
Object to be sensed		Opaque, transparent				-			
Hysteresis		Max. 15% of sensing range				Max. 2% of sensing range			Max. 5% of sensing range
Supply voltage		12 to 24VDC ±10%							
Output		PNP / NPN open-collector transistor, max. 100mA							
Output operation		Switchable either Light-ON or Dark-ON							
Response time		Max. 1ms							
Emitting element		Infrared LED			Red LED	Red LED			
Automatic interference prevention function		Incorporated (two sensor units can be mounted close together.)							
Protection		IP67 (IEC)							
Ambient temperature		-25 to +55°C							
Material		Enclosure: PBT, Lens: Polycarbonate (CX-48□: Polycarbonate), Protection cover: Polycarbonate (CX-48□: Polycarbonate)							
Connection method		2m cable, Suffix - Z: M8 connector (note 3)							
Dimensions (HxWxD)		31x11.2x20mm (-Z connector type: 35.5x11.2x20mm)							

Notes:

- 1.) Suffix -Z = M8 connector type
- 2.) FGS = Foreground suppression
BGS = Background suppression
Selectable by wiring the inputs correspondingly
- 3.) Cable is not included in delivery. Please select under accessories (page 121)

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