SUNX

PHOTOELECTRIC SENSOR

COMPACT PHOTOELECTRIC SENSOR **Amplifier Built-in**

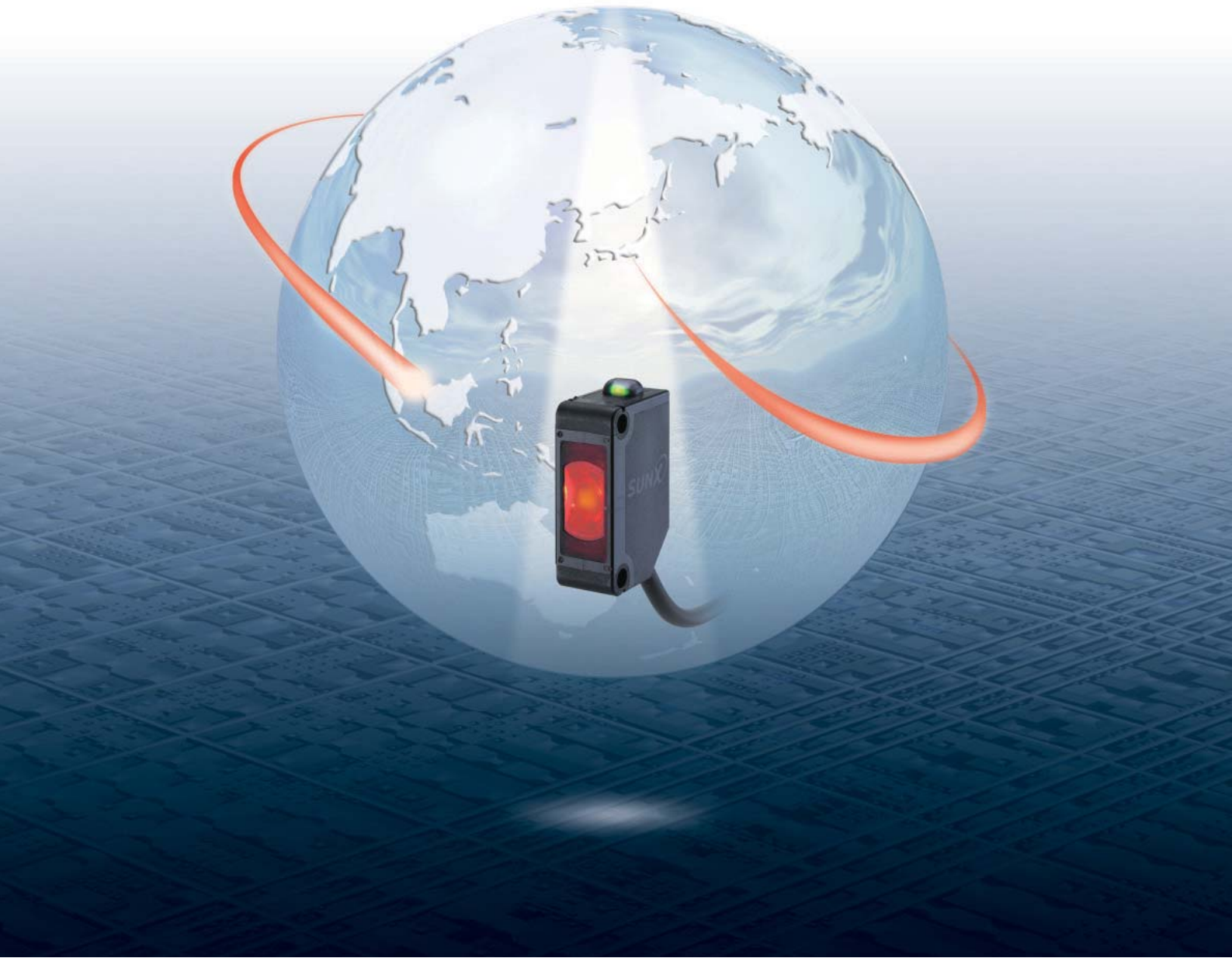
CX-400 SERIES

CE Conforming to EMC Directive

UL Recognition

World Standard

"Strong", "High" and "Less" are the keywords understood internationally



We have a full lineup of world standard photoelectric sensors!

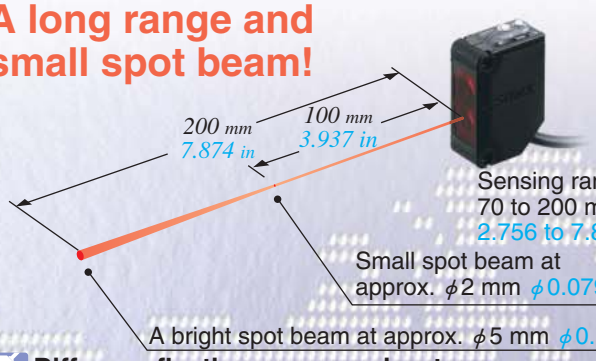
"Strong", "High" and "Less": three keywords that reflect the fundamental concepts in the design and operation of our sensors.
Strong: meaning being able to maintain fully reliable and stable levels of performance, no matter how adverse the work environment becomes.
High: meaning technology-backed high detectability.
Less: meaning less waste, less time lost, less power consumption, less human and natural resources needed.
We have brought you with the ideal standard sensors for the 21st century.

Full lineup 116 models!

- Output...NPN, PNP
- Connecting method...Cable type, M8 Plug-in connector type, M12 Pigtailed type
- Cable type of different lengths...0.5 m 1.640 ft, 2 m 6.562 ft, 5 m 16.404 ft

Refer to p.9 ～ for "**ORDER GUIDE**".

A long range and small spot beam!



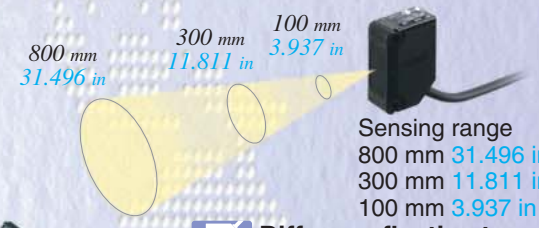
Diffuse reflective • narrow-view type
CX-423

Special transparent object circuit enhances detectability!

Retroreflective type for transparent object sensing
CX-482/481

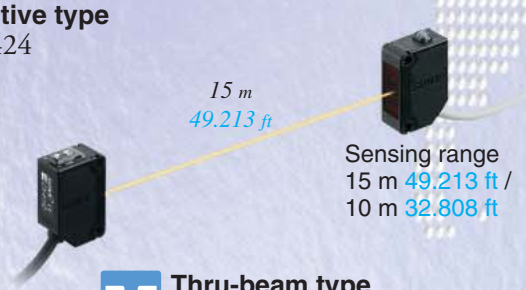
The difference in height of one business card can be detected!

Adjustable range reflective type
CX-442/444/443/441



Diffuse reflective type
CX-422/421/424

Retroreflective type
CX-493/491



Thru-beam type
CX-412/411

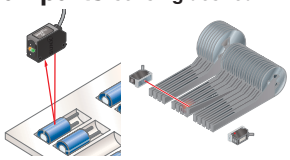
CX-400 Series Selection

■ **CX-400** series sensors solve all your sensing troubles.

Long range sensing desired

Thru-beam type	Longest in its class with a range of 15 m 49.213 ft	CX-412
Rertroreflective type	Longest in its class with a range of 5 m 16.404 ft	CX-493
Diffuse reflective type	Long sensing range 800 mm 31.496 in	CX-422

Small parts sensing desired



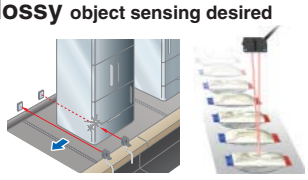
Fit slit for thru-beam type	Minimum size for sensing object ϕ0.5 mm ϕ0.020 in with slit fitted	CX-411
Diffuse reflective • narrow-view type	LED light source realizes a spot diameter of approx. ϕ2 mm ϕ0.079 in	CX-423
Adjustable range reflective type	Approx. ϕ2 mm ϕ0.079 in spot unaffected by background objects	CX-441

Minute height difference recognition desired

(Background objects present)

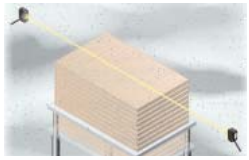
Adjustable range reflective type	High precision, 0.4 mm 0.016 in height difference sensing possible	CX-441/443
	Long sensing range 300 mm 11.811 in / 100 mm 3.937 in	CX-442/444

Glossy object sensing desired



Thru-beam type	Sensing range 15 m 49.213 ft / 10 m 32.808 ft	CX-411/412
Rertroreflective type	Polarizing filter built-in	CX-491
Adjustable range reflective type	FGS function ensures stable sensing	CX-44□

Area prone to dirt and dust



Thru-beam type	Uses penetrating infrared light	CX-412
Adjustable range reflective type	Judgement based on incidence angle to avoid light-receiving amount swaying	CX-44□

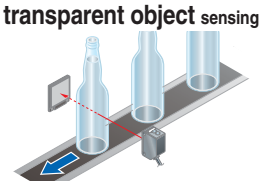
Oil is scattered about

Thru-beam type	Uses acrylic for lens surface for superior oil resistance	CX-41□
Diffuse reflective type	Uses acrylic for lens surface for superior oil resistance	CX-42□
Rertroreflective type	Uses acrylic for lens surface for superior oil resistance	CX-49□

Simple light beam axis adjustment desired

Diffuse reflective • narrow-view type	The bright spot beam makes the beam axis clearly visible	CX-423
Adjustable range reflective type	The bright spot beam makes the beam axis clearly visible	CX-44□

Precise transparent object sensing desired



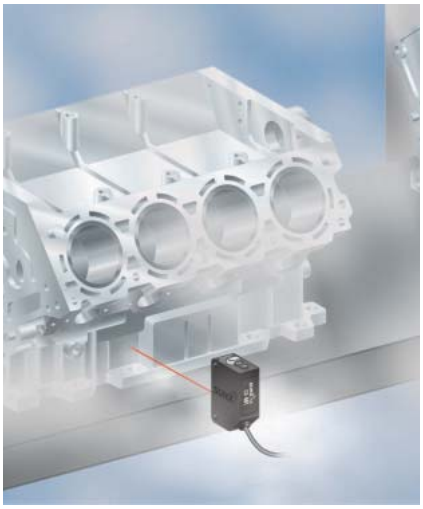
Rertroreflective type	High precision type with built-in special transparent object circuit	CX-481
	Built-in special transparent object circuit. Long sensing range 2 m 6.562 ft.	CX-482

“Strong” against extreme conditions; reliability guarantee.

Strong against oil and coolant liquids

CX-41□/42□/49□

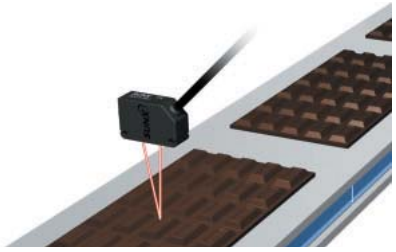
The lens material for the thru-beam type, retroreflective type (excluding the **CX-48□**) and the diffuse reflective type are made of strong acrylic that resists harmful effects of coolants. These sensors can be used with confidence even around metal processing machineries that disperse oil mists. The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



Strong against ethanol

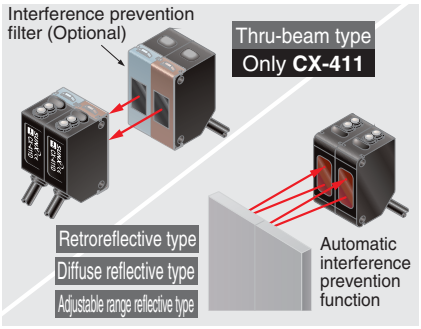
CX-44□/48□

A strong ethanol resistant polycarbonate is used for the front cover and display cover. Installation is safe even near food processing machineries that disperse ethanol based detergents. The protection mechanism also conforms to IP67 (IEC).



Strong against interference

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

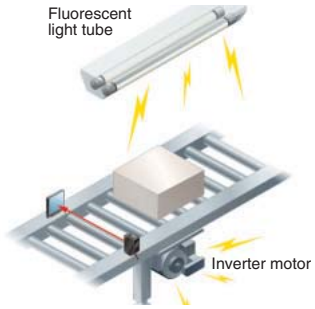


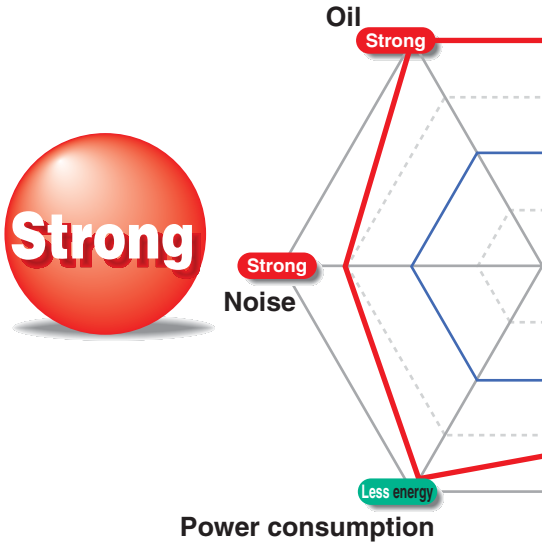
Strong even against cold environment

Stable performance can be maintained even at a temperature of environment of −25 °C −13 °F.

Strong against noise

Significantly stronger against inverter light and other extraneous light as well as high frequency and electromagnetic noise generated by high-pressure inverter motors and other devices.

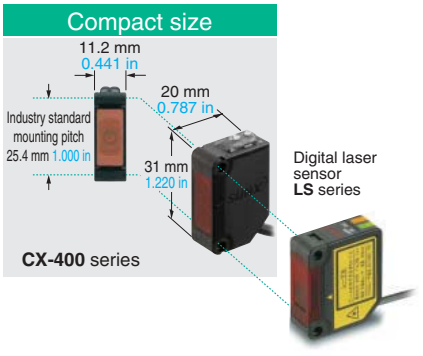




The ideal sensors that are user and environmentally friendly derived from the concept of “less” waste.

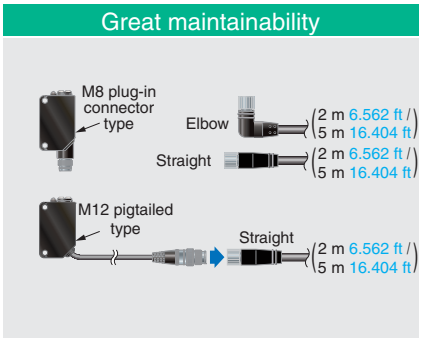
Less space

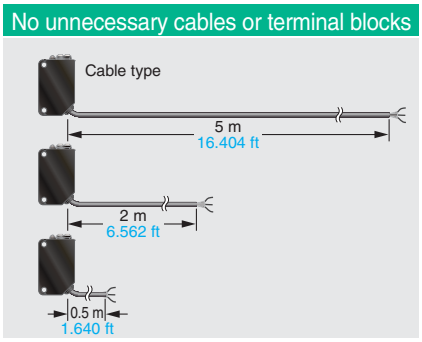
The sensors are compact in size at W11.2 × H31 × D20 mm W0.441 × H1.220 × D0.787 in. The mounting pitch is also at the world standard size of 25.4 mm 1.000 in.



Less processing

M8 plug-in connector type and M12 pigtailed type are available. This contributes to less time spent on setting up. In addition, cable types are available with cable lengths of 0.5 m 1.640 ft, 2 m 6.562 ft and 5 m 16.404 ft. This results in less wastage.





The new standard sensors for the 21st Century equipped with "high" detection performance.

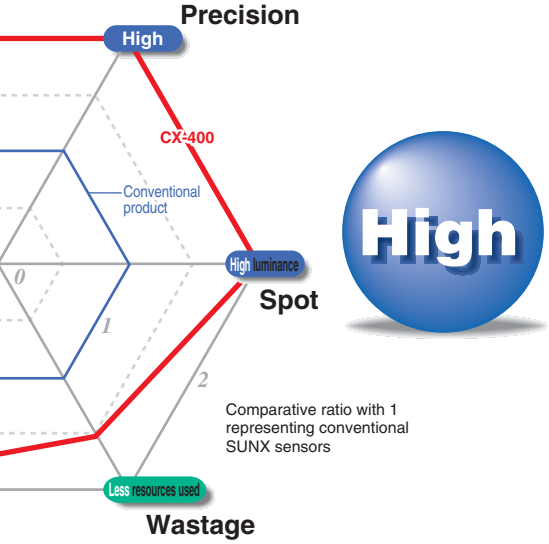
High precision optics and high performance special circuit

SUNX's unique optical systems and specially designed electronic circuits provide stable sensing of even the most minutest height difference and the thinnest transparent film.

CX-441/443

Detection of the difference in height of even as thin as 0.4 mm 0.016 in is possible (equivalent to one business card).

2.5 times the sensing capability!

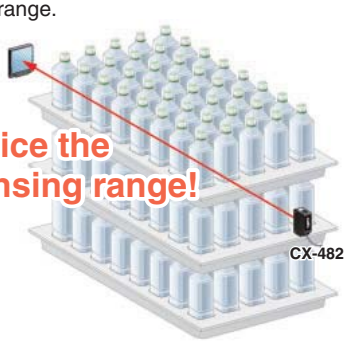


Comparative ratio with 1 representing conventional SUNX sensors

CX-481/482

A full range of 2 m 6.562 ft sensing range types are available. They are capable of sensing a 10 μm transparent film even at a long range.

Twice the sensing range!

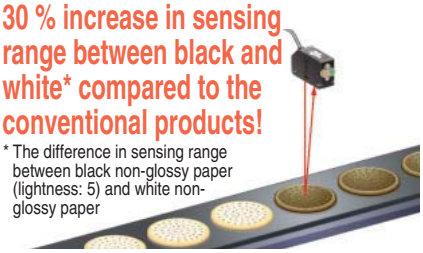


CX-44□

- Even different colored objects can be sensed at roughly the same distance. No adjuster control is needed when the setup is changed.

30 % increase in sensing range between black and white* compared to the conventional products!

* The difference in sensing range between black non-glossy paper (lightness: 5) and white non-glossy paper



- BGS / FGS functions make even the most challenging settings possible. These functions controls the adverse effects of background objects.

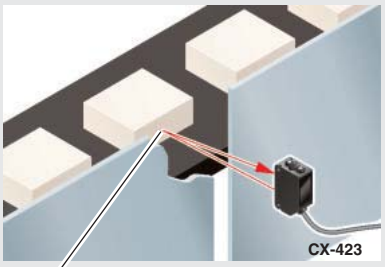
Refer to p.8 for details.

Easy to use high-level functions!

High luminance spot

CX-423/44□

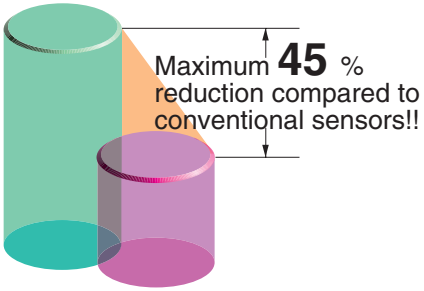
These sensors deliver a high luminance red spot beam that provides bright visibility. The sensing position can be checked at a glance.
Because it has a small spot beam at approx. φ2 mm φ0.079 in (**CX-423/441**), even the minutest object can be accurately detected.



Great visibility approx. φ2 mm φ0.079 in high luminance spot beam

Less power consumed

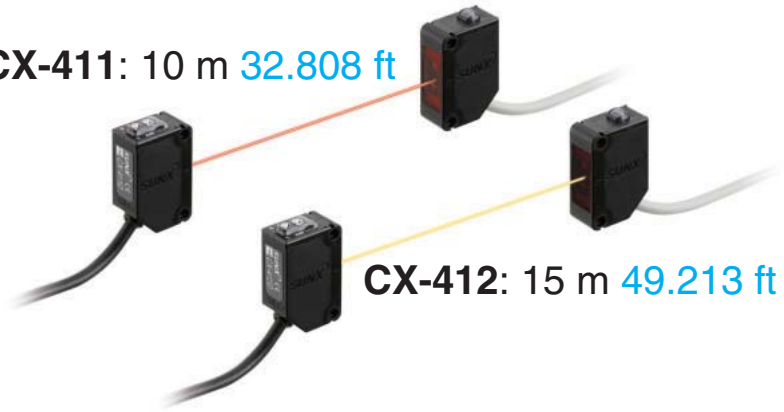
The **CX-400** series sensors achieve a maximum of approx. 55 % the power consumption of conventional sensors.
Contributes to preserving the environment.



Less resources used

Based on environmental considerations, simplified packaging is used in order to reduce waste.
In addition, the bag is made from polyethylene which produces no toxic gases even when burned.

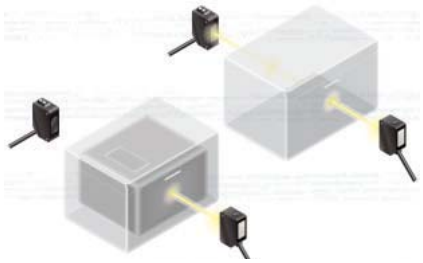
Thru-beam type



Strong infrared beam

CX-412

A 15 m 49.213 ft long-distance sensing range.
Remarkable penetrating ability enables applications such as package content detection come into practice. (Note)



Note: When sensing utilizing penetrating power, make sure to verify using the actual sensor.

Strong in dust and dirt

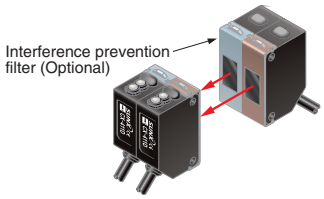
CX-412

The infrared light source is strong in dust and dirt compared to the red beam type.

Even the thru-beam type is strong at mutual interference

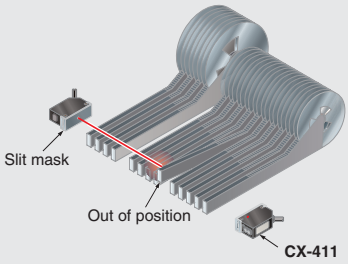
CX-411

Two **CX-411** sensors, with their red beam light source, can be installed close together by inserting an interference prevention filter.

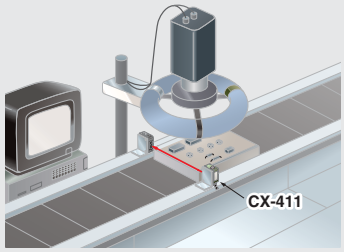


Applications

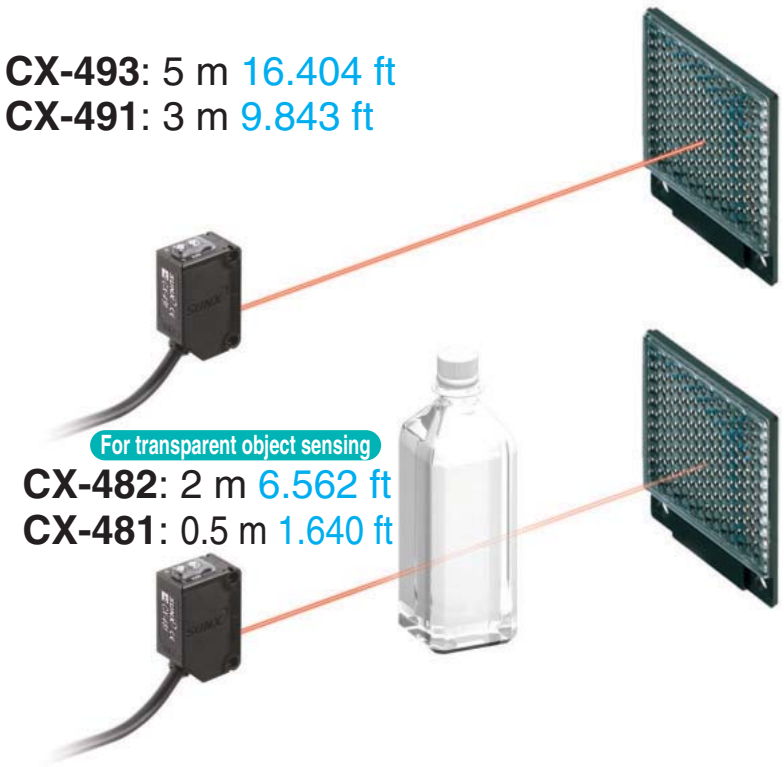
- Detecting tape feeder cassette that is out of position



- Synchronizing sensor for image processing systems



Retroreflective type



Long sensing range of 5 m 16.404 ft

CX-493

A long 5 m 16.404 ft sensing range is possible with the red LED type that is easy to align with the beam axis. The sensors can be used for wide automatic door shutters.

Retroreflective type with polarizing filters

CX-491

Built-in polarizing filters ensure stable sensing even on a mirror surface object.

Strong against extraneous light and noise

CX-491

Hardly affected by extraneous lights or noises, these sensors provide stable sensing.

Two sensors can be mounted close together

The interference prevention function lets two sensors of any type to be mounted close together precisely.

Diffuse reflective type

CX-422: 800 mm 31.496 in
CX-421: 300 mm 11.811 in
CX-424: 100 mm 3.937 in

CX-423: 70 to 200 mm 2.756 to 7.874 in
Narrow-view type

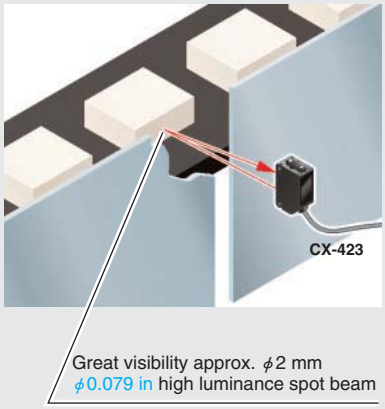
Beam axis alignment made easy with a high luminance spot beam

CX-423

These sensors have a high luminance red LED spot beam which provides bright visibility enabling the sensing position to be checked at a glance.
Because it has the smallest spot in its class, approx. ϕ2 mm ϕ0.079 in, even the minutest object can be accurately detected.

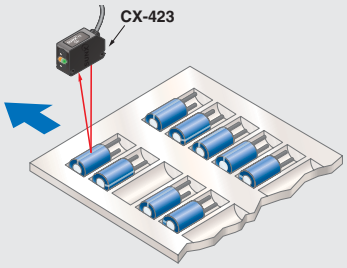
Reduction of volume adjustment labor

Because these sensors possess many variations depending on the sensing range, they enable you to make optimal volume adjustment easily.

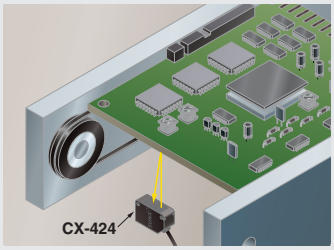


Applications

- Small parts detection



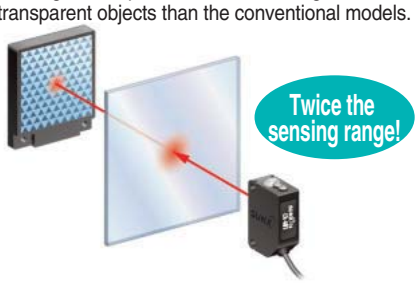
- Passage confirmation on substrate conveyor equipment



Introducing transparent object sensing type sensor

CX-48□

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



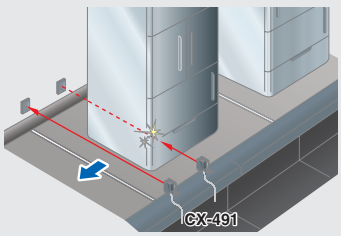
Transparent objects detectable with CX-48□ (Typical examples)

Sensing object	Sensing object size (mm in)
Glass sheet	□50 □1.969 t = 0.7 t = 0.028
Cylindrical glass	ϕ50 ϕ1.969 ℓ = 50 ℓ = 1.969 t = 1.3 t = 0.051
Acrylic board	□50 □1.969 t = 1.0 t = 0.039
Styrol (Floppy case)	□50 □1.969 t = 0.9 t = 0.035
Food wrapping film	□50 □1.969 t = 10 μm t = 0.394 mil
Cigarette case film	□50 □1.969 t = 20 μm t = 0.787 mil
Vinyl bag	□50 □1.969 t = 30 μm t = 1.181 mil
Pet bottle (500mℓ)	ϕ66 ϕ2.598

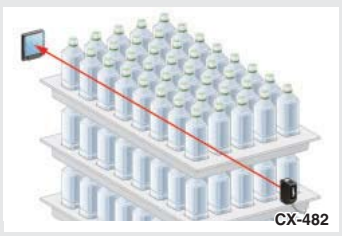
Reflector setting range **CX-481**: 300 to 500 mm 11.811 to 19.685 in,
CX-482: 1 to 2 m 3.281 to 6.562 ft
[with the **RF-230** reflector at the optimum condition (Note)]
Each object should pass across the beam at the center between the sensor and the reflector.
ℓ: Length of cylindrical glasses
t : Thickness of sensing object
Note: The optimum condition is defined as the condition in which the sensitivity level is set such that the stability indicator just lights up when the object is absent.

Applications

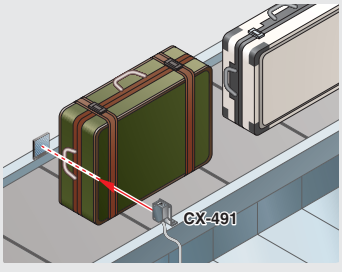
- Detecting glossy white electric appliances



- Detecting plastic bottles stacked on pallets

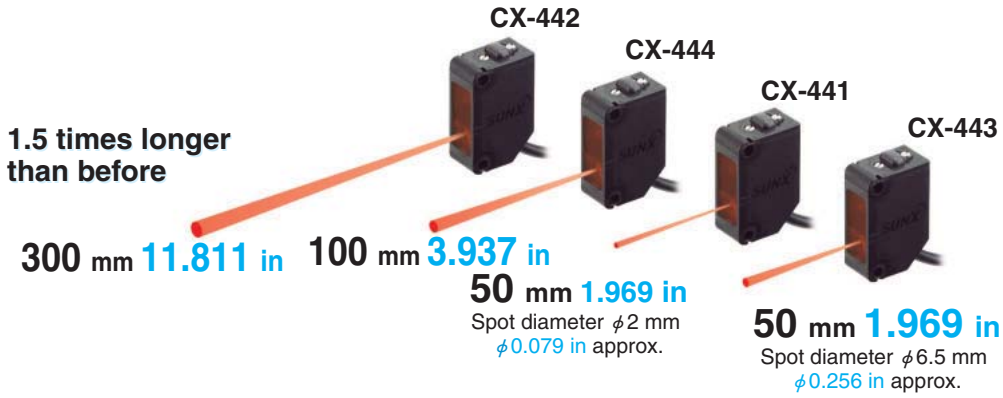


- Passage confirmation of object on a conveyor belt



- Detecting transparent film

Adjustable range reflective type

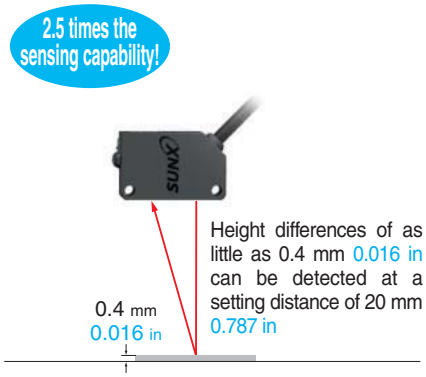


High precision type

CX-441/443

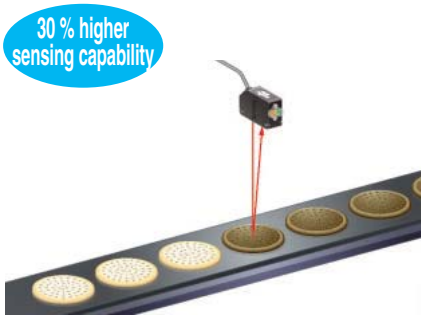
- **Can sense height differences as small as 0.4 mm 0.016 in, with hysteresis of 2 % or less**

  An advanced optical system provides sensing performance that is approx. 2.5 times than conventional models. Even ultra-small differences of 0.4 mm 0.016 in can be detected accurately.



- **Not affected by colors. The difference in sensing range between black and white is 1 % or less.** (Note)

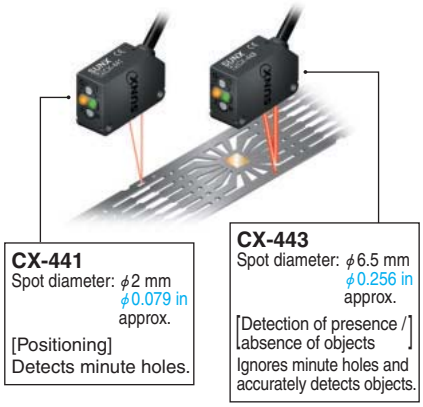
  Both black and white objects can be sensed at the same distances. No adjuster control is needed, even when products of different colors are moving along the production line.



Note: The difference in sensing range between black non-glossy paper (lightness: 5) and white non-glossy paper

- **Select from 2 spot diameters as per application**

  Within the choice of 50 mm 1.969 in sensing range sensors, we offer small spot type of approx. ϕ2 mm ϕ0.079 in optimal for detecting minute objects and large spot type of approx. ϕ6.5 mm ϕ0.256 in capable of sensing objects covered with holes and grooves.

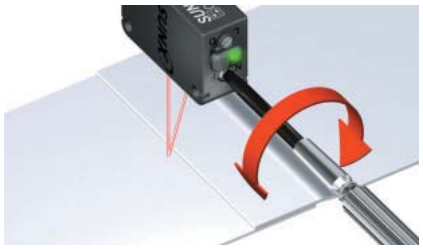


The bright spot makes beam axis alignment easy

These sensors have a high luminance red spot that provides bright visibility. The sensing position can be checked at a glance. Because the **CX-441** sensor has a small spot beam, at approx. ϕ2 mm ϕ0.079 in, even the minutest object can be accurately detected.

Can be used for sensing minute differences

Equipped with a 5-turn adjuster so that even challenging range settings can be handled with ease.

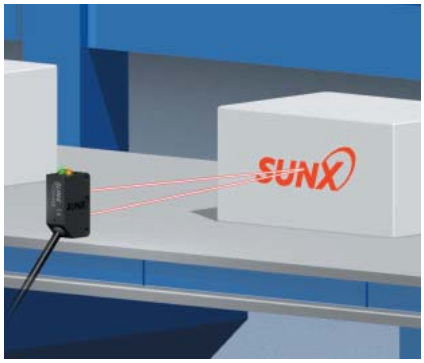


BGS / FGS functions make even the most challenging settings possible!

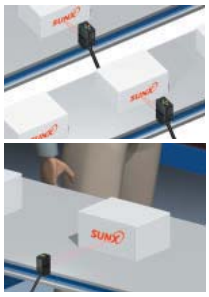
The BGS function is best suited for the following case

BGS **Background not present**

When object and background are separated



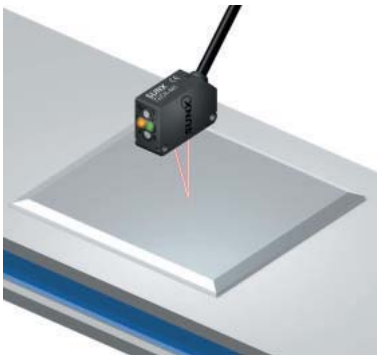
Not affected if the background color changes or someone passes behind the conveyor.



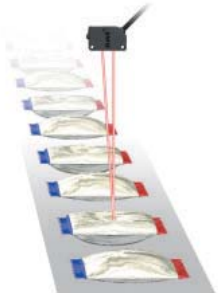
The FGS function is best suited for the following case

FGS **Background present**

When object and background are close together
When the object is glossy or uneven

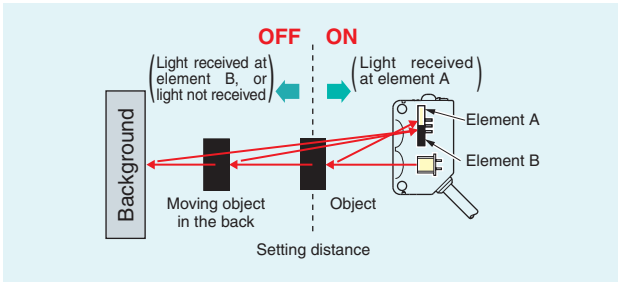


Unaffected by gloss, color or uneven surfaces when sensing objects present on a conveyor belt.



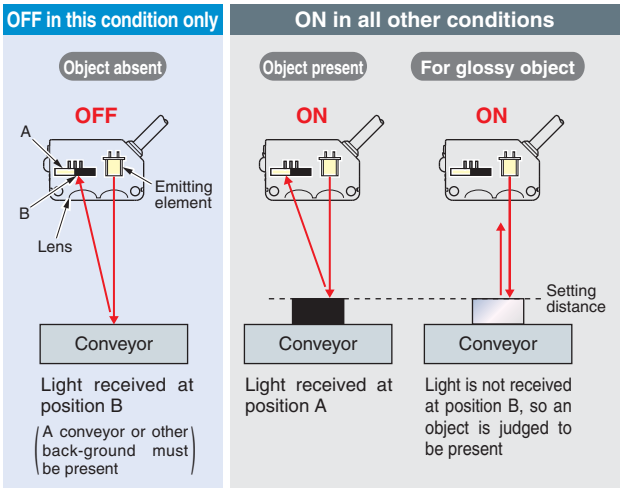
BGS (Background suppression) function

The sensor judges that an object is present when light is received at position A of the light-receiving element (2-segment element). This is useful if the object and background are far apart. The distance adjustment method is the same as the conventional adjustment method for adjustable range reflective type sensors.



FGS (Foreground suppression) function

The sensor judges that an object is present when no light is received at position B of the light-receiving element (2-segment element). Accordingly, even objects that are glossy can be sensed. This is useful if the object and background are close together, or if the object being sensed is glossy.

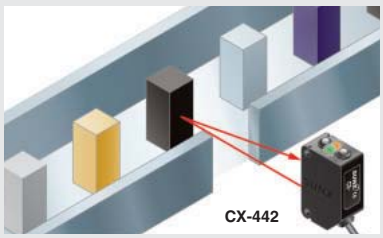


Applications

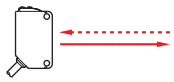
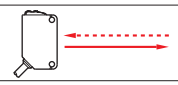
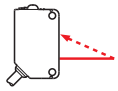
- **Small tablet detection**
  Detects minute objects unaffected by glossy background objects. Uses FGS function.

- **Biscuit detection**
  Stable sensing even for thin objects. Uses FGS function.

- **Passage confirmation**
  Not affected by color variations in objects and background objects. Uses BGS function.

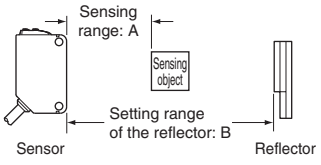


ORDER GUIDE

Type	Appearance	Sensing range	Model No. NPN output	Model No. PNP output	Emitting element
Thru-beam, Long sensing range		10 m 32.808 ft	**CX-411**	**CX-411-P**	Red LED
Thru-beam, Long sensing range		15 m 49.213 ft	**CX-412**	**CX-412-P**	Infrared LED
Retroreflective, With polarizing filters		3 m 9.843 ft (Note 1)	**CX-491**	**CX-491-P**	Red LED
Retroreflective, Long sensing range		5 m 16.404 ft (Note 1)	**CX-493**	**CX-493-P**	
Retroreflective, For transparent object sensing		50 to 500 mm 1.969 to 19.685 in (Note 1)	**CX-481**	**CX-481-P**	Infrared LED
		0.1 to 2 m 0.328 to 6.562 ft (Note 1)	**CX-482**	**CX-482-P**	
Diffuse reflective		100 mm 3.937 in (Note 2)	**CX-424**	**CX-424-P**	
		300 mm 11.811 in (Note 2)	**CX-421**	**CX-421-P**	Infrared LED
		800 mm 31.496 in (Note 2)	**CX-422**	**CX-422-P**	
Diffuse reflective, Narrow-view		70 to 200 mm 2.756 to 7.874 in (Note 2)	**CX-423**	**CX-423-P**	Red LED
Adjustable range reflective, Small spot		2 to 50 mm 0.079 to 1.969 in	**CX-441**	**CX-441-P**	Red LED
			CX-443	**CX-443-P**	
		15 to 100 mm 0.591 to 3.937 in	**CX-444**	**CX-444-P**	
		20 to 300 mm 0.787 to 11.811 in	**CX-442**	**CX-442-P**	

NOTE: Mounting bracket is not supplied with the sensor. Please select from the range of optional sensor mounting brackets.

Notes: 1) The sensing range of the retroreflective type sensor is specified for the **RF-230** reflector. The sensing range represents the actual sensing range of the sensor. The sensing ranges itemized in "A" of the table below may vary depending on the shape of sensing object. Be sure to check the operation with the actual sensing object.



	CX-491□	CX-493□	CX-481□	CX-482□
A	3 m 9.843 ft	5 m 16.404 ft	50 to 500 mm 1.969 to 19.685 in	0.1 to 2 m 0.328 to 6.562 ft
B	0.1 to 3 m 0.328 to 9.843 ft	0.1 to 5 m 0.328 to 16.404 ft	100 to 500 mm 3.937 to 19.685 in	0.8 to 2 m 2.625 to 6.562 ft

2) The sensing range of the diffuse reflective type sensor is specified for white non-glossy paper (200 × 200 mm 7.874 × 7.874 in) as the object.

ORDER GUIDE

0.5 m 1.640 ft / 5 m 16.404 ft cable length type, M8 plug-in connector type, M12 pigtailed type

0.5 m 1.640 ft / 5 m 16.404 ft cable length type (standard: 2 m 6.562 ft), M8 plug-in connector type and M12 pigtailed type are available.

Type		Output	Standard	0.5 m 1.640 ft cable length type	5 m 16.404 ft cable length type	M8 plug-in connector type (Note)	M12 pigtailed type (Note)
Thru-beam		NPN output type	**CX-411**	**CX-411-C05**	**CX-411-C5**	**CX-411-Z**	**CX-411-J**
		PNP output type	**CX-411-P**	**CX-411-P-C05**	**CX-411-P-C5**	**CX-411-P-Z**	**CX-411-P-J**
	Long sensing range	NPN output type	**CX-412**	**CX-412-C05**	**CX-412-C5**	**CX-412-Z**	**CX-412-J**
		PNP output type	**CX-412-P**	**CX-412-P-C05**	**CX-412-P-C5**	**CX-412-P-Z**	**CX-412-P-J**
Retro-reflective	With polarizing filters	NPN output type	**CX-491**	**CX-491-C05**	**CX-491-C5**	**CX-491-Z**	**CX-491-J**
		PNP output type	**CX-491-P**	**CX-491-P-C05**	**CX-491-P-C5**	**CX-491-P-Z**	**CX-491-P-J**
	Long sensing range	NPN output type	**CX-493**	**CX-493-C05**	**CX-493-C5**	**CX-493-Z**	**CX-493-J**
		PNP output type	**CX-493-P**	**CX-493-P-C05**	**CX-493-P-C5**	**CX-493-P-Z**	**CX-493-P-J**
	For transparent object sensing	NPN output type	**CX-481**	**CX-481-C05**	**CX-481-C5**	**CX-481-Z**	**CX-481-J**
		PNP output type	**CX-481-P**	**CX-481-P-C05**	**CX-481-P-C5**	**CX-481-P-Z**	**CX-481-P-J**
		NPN output type	**CX-482**	**CX-482-C05**	**CX-482-C5**	**CX-482-Z**	**CX-482-J**
		PNP output type	**CX-482-P**	**CX-482-P-C05**	**CX-482-P-C5**	**CX-482-P-Z**	**CX-482-P-J**
Diffuse reflective		NPN output type	**CX-424**	**CX-424-C05**	**CX-424-C5**	**CX-424-Z**	**CX-424-J**
		PNP output type	**CX-424-P**	**CX-424-P-C05**	**CX-424-P-C5**	**CX-424-P-Z**	**CX-424-P-J**
		NPN output type	**CX-421**	**CX-421-C05**	**CX-421-C5**	**CX-421-Z**	**CX-421-J**
		PNP output type	**CX-421-P**	**CX-421-P-C05**	**CX-421-P-C5**	**CX-421-P-Z**	**CX-421-P-J**
		NPN output type	**CX-422**	**CX-422-C05**	**CX-422-C5**	**CX-422-Z**	**CX-422-J**
		PNP output type	**CX-422-P**	**CX-422-P-C05**	**CX-422-P-C5**	**CX-422-P-Z**	**CX-422-P-J**
	Narrow-view	NPN output type	**CX-423**	**CX-423-C05**	**CX-423-C5**	**CX-423-Z**	**CX-423-J**
		PNP output type	**CX-423-P**	**CX-423-P-C05**	**CX-423-P-C5**	**CX-423-P-Z**	**CX-423-P-J**
Adjustable range reflective	Small spot	NPN output type	**CX-441**	———	———	**CX-441-Z**	———
		PNP output type	**CX-441-P**	———	———	**CX-441-P-Z**	———
		NPN output type	**CX-443**	———	———	**CX-443-Z**	———
		PNP output type	**CX-443-P**	———	———	**CX-443-P-Z**	———
		NPN output type	**CX-444**	———	———	**CX-444-Z**	———
		PNP output type	**CX-444-P**	———	———	**CX-444-P-Z**	———
		NPN output type	**CX-442**	———	———	**CX-442-Z**	———
		PNP output type	**CX-442-P**	———	———	**CX-442-P-Z**	———

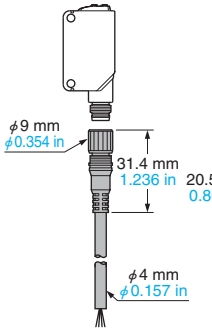
Note : Please order the suitable mating cable separately for M8 plug-in connector type and M12 pigtailed type.

• Mating cables (2 cables are required for the thru-beam type.)

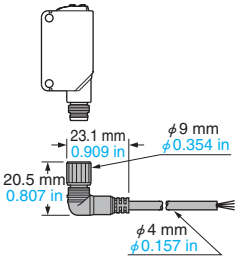
Type		Model No.	Cable length	Description
For M8 plug-in connector type	Straight	**CN-24A-C2**	2 m 6.562 ft	Can be used with all models
		CN-24A-C5	5 m 16.404 ft	
	Elbow	**CN-24AL-C2**	2 m 6.562 ft	
		CN-24AL-C5	5 m 16.404 ft	
For M12 pigtailed type	2-core	**CN-22-C2**	2 m 6.562 ft	For thru-beam type emitter (2-core)
		CN-22-C5	5 m 16.404 ft	
	4-core	**CN-24-C2**	2 m 6.562 ft	Can be used with all models
		CN-24-C5	5 m 16.404 ft	

Mating cables

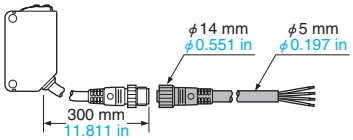
• CN-24A-C2
• CN-24A-C5



• CN-24AL-C2
• CN-24AL-C5



• CN-22-C2, CN-22-C5
CN-24-C2, CN-24-C5



Package without reflector

NPN output type: **CX-491-Y**
PNP output type: **CX-491-P-Y**

Accessory

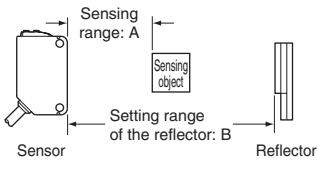
RF-230 (Reflector)

OPTIONS

Designation	Model No.		Slit size	Sensing range		Min. sensing object	
	Slit	Sensor		Slit on one side	Slit on both sides	Slit on one side	Slit on both sides
Round slit mask (For thru-beam type sensor only)	**OS-CX-05**	**CX-411□**	ϕ0.5 mm ϕ0.020 in	400 mm 15.748 in	20 mm 0.787 in	ϕ12 mm ϕ0.472 in	ϕ0.5 mm ϕ0.020 in
		CX-412□		600 mm 23.622 in	30 mm 1.181 in		
	OS-CX-1	**CX-411□**	ϕ1 mm ϕ0.039 in	900 mm 35.433 in	100 mm 3.937 in	ϕ12 mm ϕ0.472 in	ϕ1 mm ϕ0.039 in
		CX-412□		1.35 m 4.429 ft	150 mm 5.906 in		ϕ1.5 mm ϕ0.059 in
	OS-CX-2	**CX-411□**	ϕ2 mm ϕ0.079 in	2 m 6.562 ft	400 mm 15.748 in	ϕ12 mm ϕ0.472 in	ϕ2 mm ϕ0.079 in
		CX-412□		3 m 9.843 ft	600 mm 23.622 in		ϕ3 mm ϕ0.118 in
Rectangular slit mask (For thru-beam type sensor only)	**OS-CX-05 × 6**	**CX-411□**	0.5 × 6 mm 0.020 × 0.236 in	2 m 6.562 ft	400 mm 15.748 in	ϕ12 mm ϕ0.472 in	0.5 × 6 mm 0.020 × 0.236 in
		CX-412□		3 m 9.843 ft	600 mm 23.622 in		
	OS-CX-1 × 6	**CX-411□**	1 × 6 mm 0.039 × 0.236 in	3 m 9.843 ft	1 m 3.281 ft	ϕ12 mm ϕ0.472 in	1 × 6 mm 0.039 × 0.236 in
		CX-412□		4.5 m 14.764 ft	1.5 m 4.921 ft		
	OS-CX-2 × 6	**CX-411□**	2 × 6 mm 0.079 × 0.236 in	5 m 16.404 ft	2 m 6.562 ft	ϕ12 mm ϕ0.472 in	2 × 6 mm 0.079 × 0.236 in
		CX-412□		7.5 m 24.606 ft	3 m 9.843 ft		

Designation	Model No.		Sensing range	Min. sensing object
Interference prevention filter (For **CX-411□** only)	**PF-CX4-V** (Vertical)		5 m 16.404 ft (Note 1)	ϕ12 mm ϕ0.472 in (Note 1)
	PF-CX4-H (Horizonal)		5 m 16.404 ft (Note 1)	ϕ12 mm ϕ0.472 in (Note 1)
Reflector (For retro-reflective type sensor only)	**RF-210**	**CX-491□**	1 m 3.281 ft (Note 2)	ϕ30 mm ϕ1.181 in
		CX-493□	1.5 m 4.921 ft (Note 2)	
		CX-481□	———	
		CX-482□	0.1 to 0.6 m 0.328 to 1.969 ft (Note 2)	
	RF-220	**CX-491□**	1.5 m 4.921 ft (Note 2)	ϕ35 mm ϕ1.378 in
		CX-493□	3 m 9.843 ft (Note 2)	
		CX-481□	50 to 300 mm 1.969 to 11.811 in (Note 2)	
		CX-482□	0.1 to 1.3 m 0.328 to 4.265 ft (Note 2)	

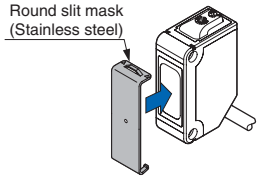
Notes: 1) Value when attached to both sides.
2) Set the distance between the **CX-491□/493□** and the reflector to 0.1 m 0.328 ft or more.
However, see the table below for **CX-48□**.
The sensing range "A" may vary depending on the shape of sensing object.
Be sure to check the operation with the actual sensing object.



Model No.		A	B
Sensor	Reflector		
CX-481□	**RF-220**	50 to 300 mm 1.969 to 11.811 in	100 to 300 mm 3.937 to 11.811 in
CX-482□	**RF-220**	0.1 to 1.3 m 0.328 to 4.265 ft	0.5 to 1.3 m 1.640 to 4.265 ft
	RF-210	0.1 to 0.6 m 0.328 to 1.969 ft	0.3 to 0.6 m 0.984 to 1.969 ft

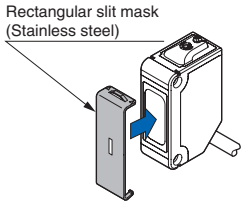
Round slit mask

• **OS-CX-□**
Fitted on the front face of the sensor with one-touch.



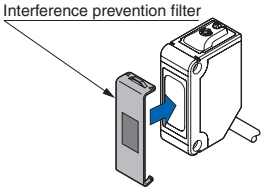
Rectangular slit mask

• **OS-CX-□ × 6**
Fitted on the front face of the sensor with one-touch.



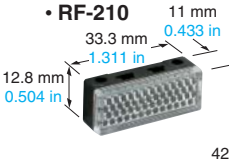
Interference prevention filter

• **PF-CX4-V**
• **PF-CX4-H**
Two sets of **CX-411□** can be mounted close together.



Reflector

• **RF-210**



• **RF-220**

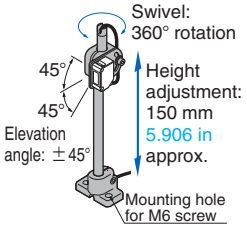
OPTIONS

Designation	Model No.	Description	
Reflector mounting bracket	**MS-RF21-1**	Protective mounting bracket for **RF-210** It protects the reflector from damage and maintains alignment.	
	MS-RF22	For **RF-220**	
	MS-RF23	For **RF-230**	
Reflective tape	**RF-11**	• Sensing range (Note 4): 0.5 m 1.640 ft [**CX-491**□] 0.8 m 2.625 ft [**CX-493**□]	• Ambient temperature: −25 to +50 °C −13 to +122 °F • Ambient humidity: 35 to 85 % RH Notes: 1) Keep the tape free from stress. If it is pressed too much, its capability may deteriorate. 2) Do not cut the tape. It will deteriorate the sensing performance.
	RF-12	• Sensing range (Note 4): 0.7 m 2.297 ft [**CX-491**□] 1.2 m 3.937 ft [**CX-493**□] 0.1 to 0.6 m 0.328 to 1.969 ft [**CX-482**□]	
	RF-13	• Sensing range (Note 5): 0.5 m 1.640 ft [**CX-491**□]	• Ambient temperature: −25 to +55 °C −13 to +131 °F • Ambient humidity: 35 to 85 % RH
Sensor mounting bracket (Note 1)	**MS-CX2-1**	Foot angled mounting bracket It can also be used for mounting **RF-210**.	The thru-beam type sensor needs two brackets.
	MS-CX2-2	Foot biangled mounting bracket It can also be used for mounting **RF-210**.	
	MS-CX2-4	Protective mounting bracket	
	MS-CX2-5	Back biangled mounting bracket	
	MS-CX-3	Back angled mounting bracket	
Universal sensor mounting stand (Note 2)	**MS-AJ1**	Horizontal mounting type	Basic assembly
	MS-AJ2	Vertical mounting type	
	MS-AJ1-A	Horizontal mounting type	Lateral arm assembly
	MS-AJ2-A	Vertical mounting type	
	MS-AJ1-M	Horizontal mounting type	Assembly for reflector
	MS-AJ2-M	Vertical mounting type	
Sensor checker (Note 3)	**CHX-SC2**	It is useful for beam alignment of thru-beam type sensors. The optimum receiver position is given by indicators, as well as an audio signal.	

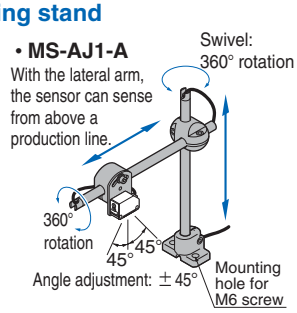
Notes: 1) The plug-in connector type sensor does not allow use of some sensor mounting brackets because of the protrusion of the connector.
2) Refer to the Sensor general catalog 2003-2004 for details of the universal sensor mounting stand.
3) Refer to the Sensor general catalog 2003-2004 for details of the sensor checker **CHX-SC2**.
4) Set the distance between the sensor and the reflective tape to 0.1 m 0.328 ft (**CX-482**□: 0.4 m 1.312 ft) or more.
5) Set the distance between the sensor and the reflective tape to 0.2 m 0.656 ft or more.

Universal sensor mounting stand

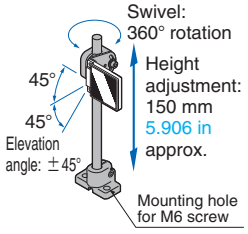
• **MS-AJ1**



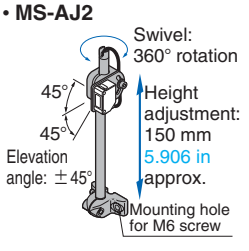
• **MS-AJ1-A**



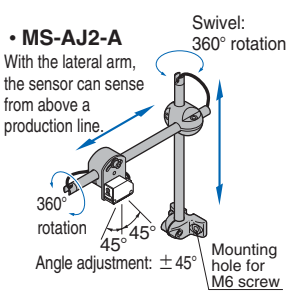
• **MS-AJ1-M**



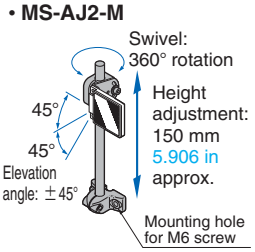
• **MS-AJ2**



• **MS-AJ2-A**

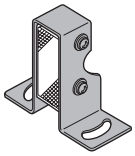


• **MS-AJ2-M**



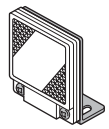
Reflector mounting bracket

• **MS-RF21-1**



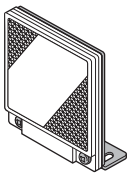
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

• **MS-RF22**



Two M3 (length 8 mm 0.315 in) screws with washers are attached.

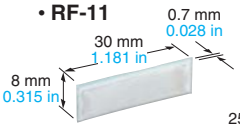
• **MS-RF23**



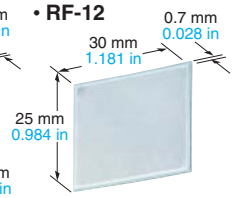
Two M4 (length 10 mm 0.394 in) screws with washers are attached.

Reflective tape

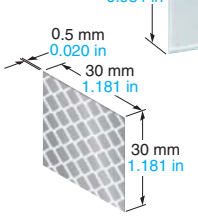
• **RF-11**



• **RF-12**

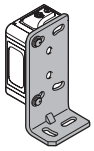


• **RF-13**



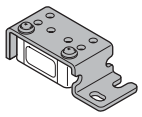
Sensor mounting bracket

• **MS-CX2-1**



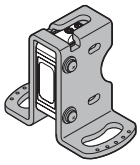
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

• **MS-CX2-2**



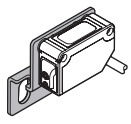
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

• **MS-CX2-4**



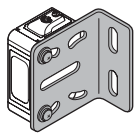
Two M3 (length 14 mm 0.551 in) screws with washers are attached.

• **MS-CX2-5**



Two M3 (length 12 mm 0.472 in) screws with washers are attached.

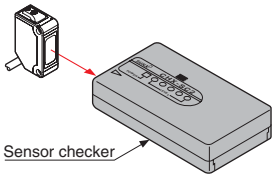
• **MS-CX-3**



Two M3 (length 12 mm 0.472 in) screws with washers are attached.

Sensor checker

• **CHX-SC2**

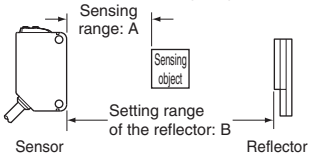


SPECIFICATIONS

Item \ Type		Thru-beam		Retroreflective				Diffuse reflective			
			Long sensing range	With polarizing filters	Long sensing range	For transparent object sensing					Narrow-view
Model No.	NPN output	CX-411	CX-412	CX-491	CX-493	CX-481	CX-482	CX-424	CX-421	CX-422	CX-423
	PNP output	CX-411-P	CX-412-P	CX-491-P	CX-493-P	CX-481-P	CX-482-P	CX-424-P	CX-421-P	CX-422-P	CX-423-P
Sensing range		10 m 32.808 ft	15 m 49.213 ft	3 m 9.843 ft (Note 2)	5 m 16.404 ft (Note 2)	50 to 500 mm 1.969 to 19.685 in (Note 2)	0.1 to 2 m 0.328 to 6.562 ft (Note 2)	100 mm 3.937 in (Note 3)	300 mm 11.811 in (Note 3)	800 mm 31.496 in (Note 3)	70 to 200 mm 2.756 to 7.874 in (Note 3)
Sensing object		ϕ12 mm ϕ0.472 in or more opaque object (Note 4)		ϕ50 mm ϕ1.969 in or more opaque, translucent or specular object (Note 2, 5)	ϕ50 mm ϕ1.969 in or more opaque or translucent object (Note 2, 5)	ϕ50 mm ϕ1.969 in or more transparent, translucent or opaque object (Note 2, 5)		Opaque, translucent or transparent object (Note 5)			Opaque, translucent or transparent object (Note 5) Min. sensing object: ϕ0.5 mm ϕ0.020 in copper wire
Hysteresis		———						15 % or less of operation distance (Note 3)			
Repeatability (perpendicular to sensing axis)		0.5 mm 0.020 in or less						1 mm 0.039 in or less			0.5 mm 0.020 in or less
Supply voltage		12 to 24 V DC±10 % Ripple P-P 10 % or less									
Current consumption		Emitter: 20 mA or less Receiver: 20 mA or less	Emitter: 25 mA or less Receiver: 20 mA or less	20 mA or less			25 mA or less	25 mA or less			20 mA or less
Output		<NPN output type> NPN open-collector transistor • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current)				<PNP output type> PNP open-collector transistor • Maximum source current: 100 mA • Applied voltage: 30 V DC or less (between output and +V) • Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current)					
	Output operation	Switchable either Light-ON or Dark-ON									
	Short-circuit protection	Incorporated									
Response time		1 ms or less									
Operation indicator		Orange LED (lights up when the output is ON)(incorporated on the receiver for thru-beam type)									
Stability indicator		Green LED (lights up under stable light received condition or stable dark condition)(incorporated on the receiver for thru-beam type)									
Power indicator		Green LED (lights up when the power is ON) (incorporated on the emitter)		———							
Sensitivity adjuster		Continuously variable adjuster (incorporated on the receiver for thru-beam type)									
Automatic interference prevention function		Two units of sensors can be mounted close together with interference prevention filters. (Sensing range: 5 m 16.404 ft)	———	Incorporated (Two units of sensors can be mounted close together.)							
Environmental resistance	Protection	IP67 (IEC)									
	Ambient temperature	−25 to +55 °C −13 to +131 °F (No dew condensation or icing allowed), Storage: −30 to +70 °C −22 to +158 °F									
	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH									
	Ambient illuminance	Incandescent light: 3,000 ℓx at the light-receiving face									
	EMC	EN 60947-5-2									
	Voltage withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure									
	Insulation resistance	20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure									
	Vibration resistance	10 to 500 Hz frequency, 1.5 mm 0.059 in double amplitude (10 G max.) in X, Y and Z directions for two hours each									
	Shock resistance	500 m/s² acceleration (50 G approx.) in X, Y and Z directions for three times each									
Emitting element (modulated)		Red LED	Infrared LED	Red LED		Infrared LED					Red LED
Material		Enclosure: PBT (Polybutylene terephthalate), Lens: acrylic (**CX-48**□: polycarbonate), Front cover: acrylic (**CX-48**□: polycarbonate)									
Cable		0.2 mm² 3-core (thru-beam type emitter: 2-core) cabtyre cable, 2 m 6.562 ft long									
Cable extension		Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable (thru-beam type: both emitter and receiver)									
Weight		50 g approx. (Emitter of thru-beam type: 45 g approx.)									
Accessories		———		**RF-230** (Reflector): 1 pc.				———			

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.

2) The sensing range and the sensing object of the retroreflective type sensor are specified for the **RF-230** reflector. The sensing range represents the actual sensing range of the sensor. The sensing ranges itemized in "A" of the table below may vary depending on the shape of sensing object. Be sure to check the operation with the actual sensing object.



	CX-491□	CX-493□	CX-481□	CX-482□
A	0 to 3 m 0 to 9.843 ft	0 to 5 m 0 to 16.404 ft	50 to 500 mm 1.969 to 19.685 in	0.1 to 2 m 0.328 to 6.562 ft
B	0.1 to 3 m 0.328 to 9.843 ft	0.1 to 5 m 0.328 to 16.404 ft	100 to 500 mm 3.937 to 19.685 in	0.8 to 2 m 2.625 to 6.562 ft

3) The sensing range and hysteresis of the diffuse reflective type sensor are specified for white non-glossy paper (200 × 200 mm 7.874 × 7.874 in) as the object.

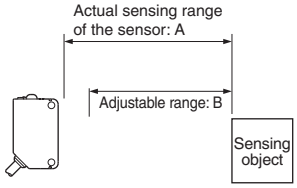
4) If slit masks (optional) are fitted, an object of ϕ0.5 mm ϕ0.020 in (using round slit mask) can be detected.

5) Make sure to confirm detection with an actual sensor before use.

SPECIFICATIONS

Item \ Type		Small spot	Adjustable range reflective		
Model No.	NPN output	**CX-441**	**CX-443**	**CX-444**	**CX-442**
	PNP output	**CX-441-P**	**CX-443-P**	**CX-444-P**	**CX-442-P**
Adjustable range (Note 2)		20 to 50 mm 0.787 to 1.969 in		20 to 100 mm 0.787 to 3.937 in	40 to 300 mm 1.575 to 11.811 in
Sensing range (with white non-glossy paper)		2 to 50 mm 0.079 to 1.969 in		15 to 100 mm 0.591 to 3.937 in	20 to 300 mm 0.787 to 11.811 in
Hysteresis (with white non-glossy paper)		2 % or less of operation distance			5 % or less of operation distance
Repeatability		Along sensing axis: 1 mm 0.039 in or less, Perpendicular to sensing axis: 0.2 mm 0.008 in or less (with white non-glossy paper)			
Supply voltage		12 to 24 V DC ± 10 % Ripple P-P 10 % or less			
Current consumption		25 mA or less			
Output		<NPN output type> NPN open-collector transistor • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current)		<PNP output type> PNP open-collector transistor • Maximum source current: 100 mA • Applied voltage: 30 V DC or less (between output and + V) • Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current)	
	Output operation	Switchable either Detection-ON or Detection-OFF			
	Short-circuit protection	Incorporated			
Response time		1 ms or less			
Operation indicator		Orange LED (lights up when the output is ON)			
Stability indicator		Green LED (lights up under stable operating condition)			
Distance adjuster		5-turn mechanical adjuster			
Sensing mode		BGS / FGS functions Switchable with wiring of sensing mode selection input			
Automatic interference prevention function (Note 3)		Incorporated			
Environmental resistance	Protection	IP67 (IEC)			
	Ambient temperature	− 25 to + 55 °C − 13 to + 131 °F (No dew condensation or icing allowed), Storage: − 30 to + 70 °C − 22 to + 158 °F			
	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH			
	Ambient illuminance	Incandescent light: 3,000 ℓx at the light-receiving face			
	EMC	EN 60947-5-2			
	Voltage withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure			
	Insulation resistance	20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure			
	Vibration resistance	10 to 500 Hz frequency, 3 mm 0.118 in double amplitude in X, Y and Z directions for two hours each			
	Shock resistance	500 m/s^2 acceleration (50 G approx.) in X, Y and Z directions for three times each			
Emitting element		Red LED (modulated)			
Spot diameter		ϕ2 mm ϕ0.079 in approx. (at 50 mm 1.969 in distance)	ϕ6.5 mm ϕ0.256 in approx. (at 50 mm 1.969 in distance)	ϕ9 mm ϕ0.354 in approx. (at 100 mm 3.937 in distance)	□15 mm □0.591 in approx. (at 300 mm 11.811 in distance)
Material		Enclosure: PBT (Polybutylene terephthalate), Front cover: Polycarbonate, Indicator cover: Polycarbonate			
Cable		0.2 mm^2 4-core cabtyre cable, 2 m 6.562 ft long			
Cable extension		Extension up to total 100 m 328.084 ft is possible with 0.3 mm^2, or more, cable.			
Weight		55 g approx.			

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of + 23 °C + 73.4 °F.
2) The adjustable range stands for the maximum sensing range which can be set with the distance adjuster. The sensor can detect an object 2 mm 0.079 in [**CX-444(-P)**: 15 mm 0.591 in, **CX-442(-P)**: 20 mm 0.787 in], or more, away.
3) Note that detection may be unstable depending on the mounting conditions or the sensing object. In the state that this product is mounted, be sure to check the operation with the actual sensing object.

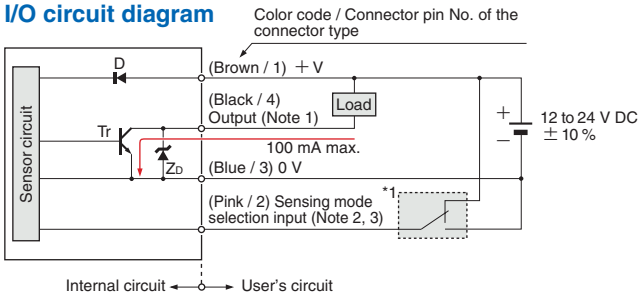


	CX-441□/443□	CX-444□	CX-442□
A	2 to 50 mm 0.079 to 1.969 in	15 to 100 mm 0.591 to 3.937 in	20 to 300 mm 0.787 to 11.811 in
B	20 to 50 mm 0.787 to 1.969 in	20 to 100 mm 0.787 to 3.937 in	40 to 300 mm 1.575 to 11.811 in

I/O CIRCUIT AND WIRING DIAGRAMS

NPN output type

I/O circuit diagram



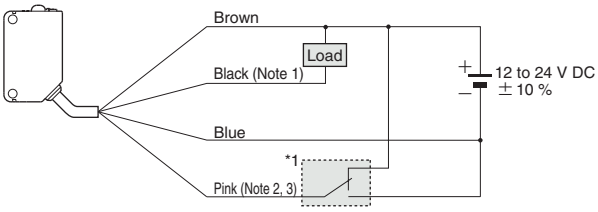
Notes: 1) The emitter of the thru-beam type sensor does not incorporate the output.
2) Sensing mode selection input is incorporated only for the **CX-44**□ adjustable range reflective type. When using the **CX-44**□, be sure to wire the sensing mode selection input (pink / 2). Unstable operation may occur.
3) When the mating cable is connected to the plug-in connector type of **CX-44**□, its color is white.

*1

- Sensing mode selection input
  BGS function: Connect to 0 V
  FGS function: Connect to + V

Symbols ... D : Reverse supply polarity protection diode
ZD: Surge absorption zener diode
Tr : NPN output transistor

Wiring diagram



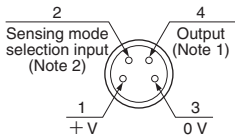
Notes: 1) The emitter of the thru-beam type sensor does not incorporate the black wire.
2) The pink wire is incorporated only for the **CX-44**□ adjustable range reflective type. When using the **CX-44**□, be sure to wire the pink wire. Unstable operation may occur.
3) When the mating cable is connected to the plug-in connector type of **CX-44**□, its color is white.

*1

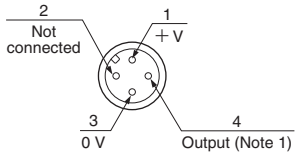
- Sensing mode selection input
  BGS function: Connect to 0 V
  FGS function: Connect to + V

Connector pin position

M8 plug-in connector type



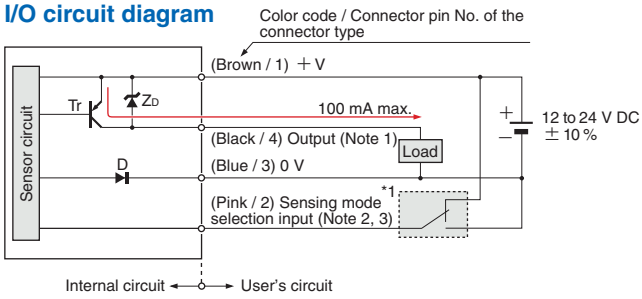
M12 pigtailed type



Notes: 1) The emitter of the thru-beam type sensor does not incorporate the output.
2) Sensing mode selection input is incorporated only for the **CX-44**□ adjustable range reflective type. When using the **CX-44**□, be sure to wire the sensing mode selection input (pink / 2). Unstable operation may occur.

PNP output type

I/O circuit diagram



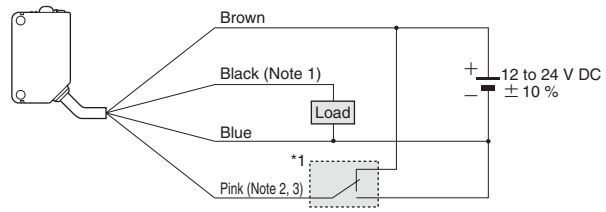
Notes: 1) The emitter of the thru-beam type sensor does not incorporate the output.
2) Sensing mode selection input is incorporated only for the **CX-44**□**-P** adjustable range reflective type. When using the **CX-44**□**-P**, be sure to wire the sensing mode selection input (pink / 2). Unstable operation may occur.
3) When the mating cable is connected to the plug-in connector type of **CX-44**□**-P**, its color is white.

*1

- Sensing mode selection input
  BGS function: Connect to 0 V
  FGS function: Connect to + V

Symbols ... D : Reverse supply polarity protection diode
ZD: Surge absorption zener diode
Tr : PNP output transistor

Wiring diagram



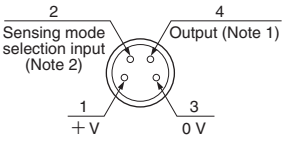
Notes: 1) The emitter of the thru-beam type sensor does not incorporate the black wire.
2) The pink wire is incorporated only for the **CX-44**□**-P** adjustable range reflective type. When using the **CX-44**□**-P**, be sure to wire the pink wire. Unstable operation may occur.
3) When the mating cable is connected to the plug-in connector type of **CX-44**□**-P**, its color is white.

*1

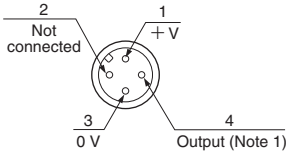
- Sensing mode selection input
  BGS function: Connect to 0 V
  FGS function: Connect to + V

Connector pin position

M8 plug-in connector type



M12 pigtailed type



Notes: 1) The emitter of the thru-beam type sensor does not incorporate the output.
2) Sensing mode selection input is incorporated only for the **CX-44**□**-P** adjustable range reflective type. When using the **CX-44**□**-P**, be sure to wire the sensing mode selection input (pink / 2). Unstable operation may occur.

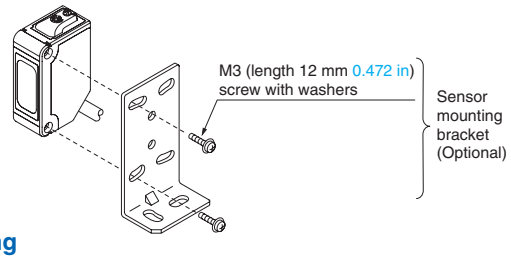
PRECAUTIONS FOR PROPER USE

All models

This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

Mounting

• The tightening torque should be 0.5 N·m or less.



Wiring

- Make sure that the power supply is off while wiring.
- Take care that wrong wiring will damage the sensor.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this product, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Do not run the wires together with high-voltage lines or power lines or put them in the same raceway.
  This can cause malfunction due to induction.
- Extension up to total 100 m 328.084 ft (thru-beam type: both emitter and receiver) is possible with 0.3 mm^2, or more, cable.
  However, in order to reduce noise, make the wiring as short as possible.
- Make sure that stress by forcible bend or pulling is not applied directly to the sensor cable joint.

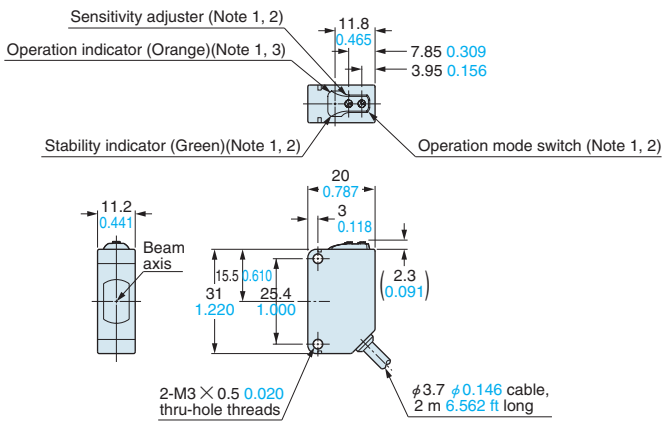
Others

- Do not use during the initial transient time (50 ms) after the power supply is switched on.
- Take care that the sensor is not directly exposed to fluorescent light from a rapid-starter lamp or a high frequency lighting device, as it may affect the sensing performance.
- This sensor is suitable for indoor use only.
- Do not use this sensor in places having excessive vapor, dust, etc., or where it may come in direct contact with water or corrosive gas.
- Take care that the sensor does not come in direct contact with water, oil, grease or organic solvents, such as, thinner, etc.
- This sensor cannot be used in an environment containing inflammable or explosive gases.
- Never disassemble or modify the sensor.

DIMENSIONS (Unit: mm in)

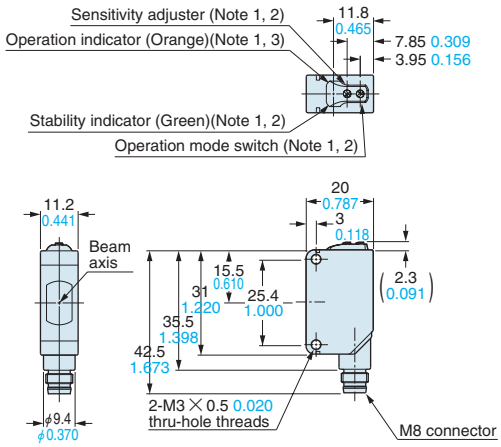
The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

CX-41□ Sensor



Notes: 1) The shapes of sensitivity adjuster, operation / stability indicator, and operation mode switch have been changed starting from the production in October 2007.
2) Not incorporated on the emitter.
3) It is the power indicator (green) on the emitter.

CX-41□-Z Sensor

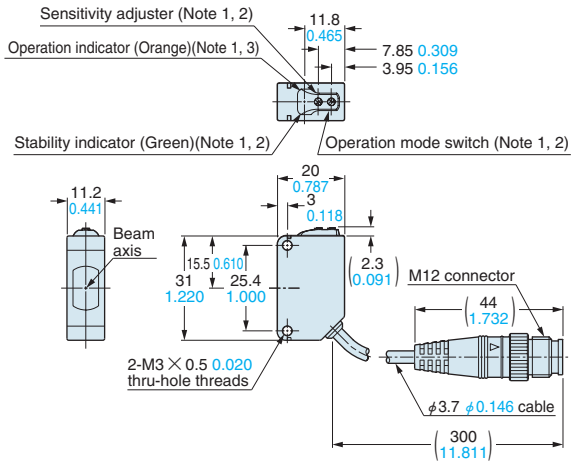


Notes: 1) The shapes of sensitivity adjuster, operation / stability indicator, and operation mode switch have been changed starting from the production in October 2007.
2) Not incorporated on the emitter.
3) It is the power indicator (green) on the emitter.

DIMENSIONS (Unit: mm in)

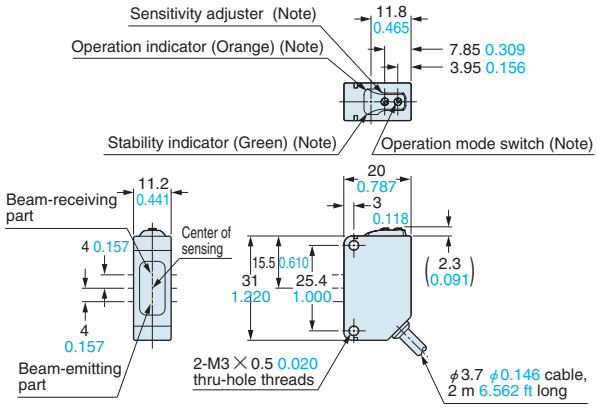
The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

CX-41□-J Sensor



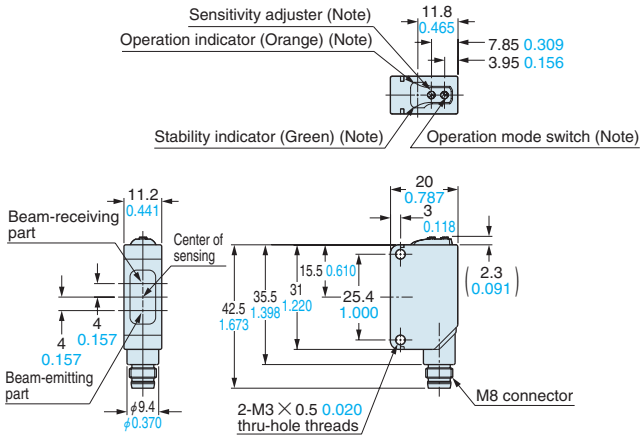
Notes: 1) The shapes of sensitivity adjuster, operation / stability indicator, and operation mode switch have been changed starting from the production in October 2007.
2) Not incorporated on the emitter.
3) It is the power indicator (green) on the emitter.

CX-49□ CX-48□ CX-42□ Sensor



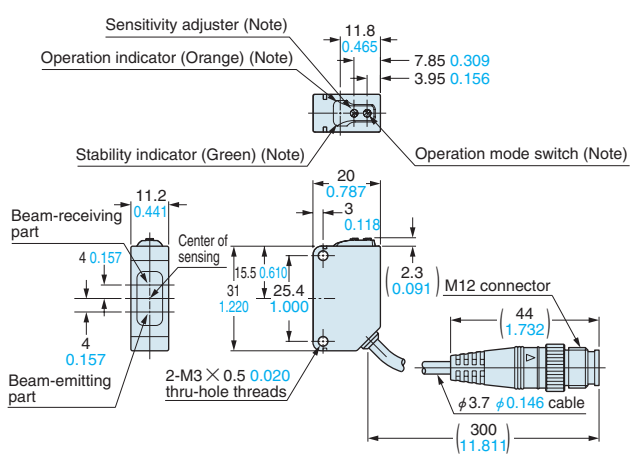
Note: The shapes of sensitivity adjuster, operation / stability indicator, and operation mode switch have been changed starting from the production in October 2007.

CX-49□-Z CX-48□-Z CX-42□-Z Sensor



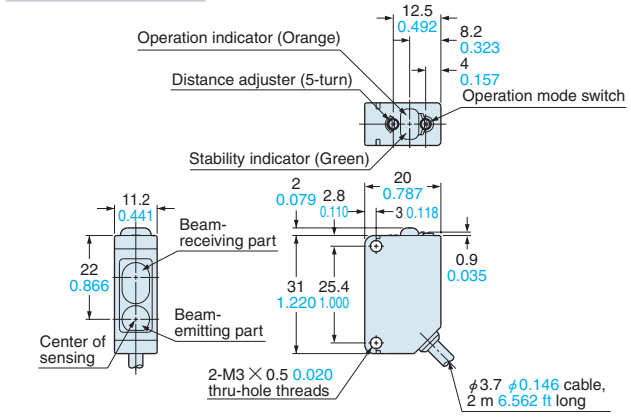
Note: The shapes of sensitivity adjuster, operation / stability indicator, and operation mode switch have been changed starting from the production in October 2007.

CX-49□-J CX-48□-J CX-42□-J Sensor

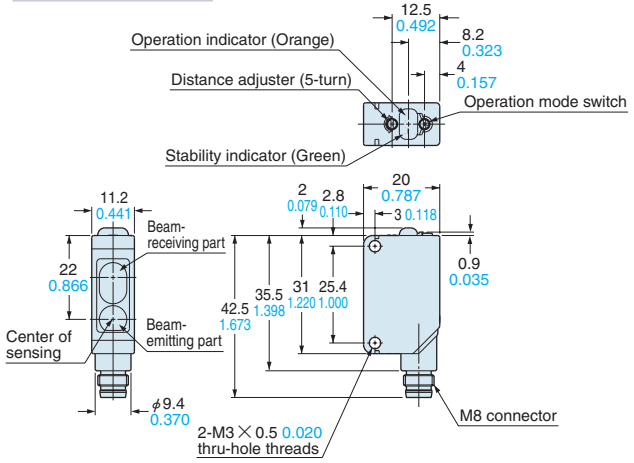


Note: The shapes of sensitivity adjuster, operation / stability indicator, and operation mode switch have been changed starting from the production in October 2007.

CX-44□ Sensor



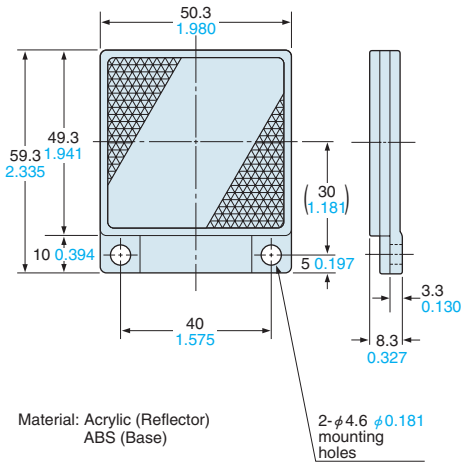
CX-44□-Z Sensor



DIMENSIONS (Unit: mm in)

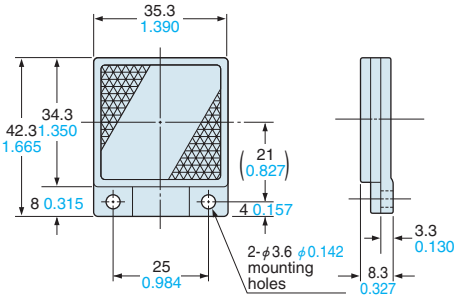
The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

RF-230 Reflector (Accessory for the retroreflective type sensor)



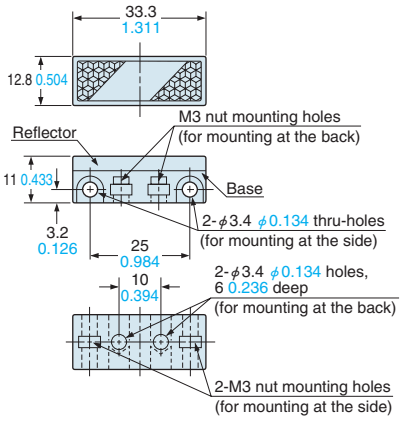
Material: Acrylic (Reflector)
ABS (Base)

RF-220 Reflector (Optional)



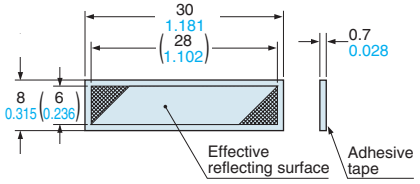
Material: Acrylic (Reflector)
ABS (Base)

RF-210 Reflector (Optional)



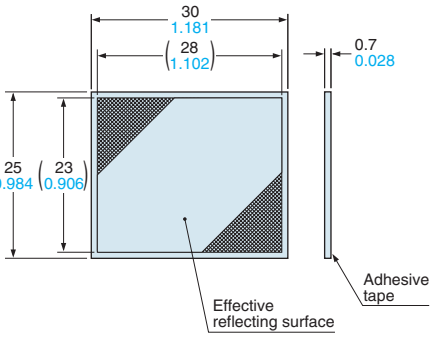
Material: Acrylic (Reflector)
ABS (Base)
Two M3 (length 8 mm 0.315 in) screws with washers and two nuts are attached.

RF-11 Reflective tape (Optional)



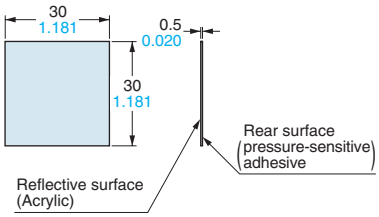
Material: Acrylic

RF-12 Reflective tape (Optional)

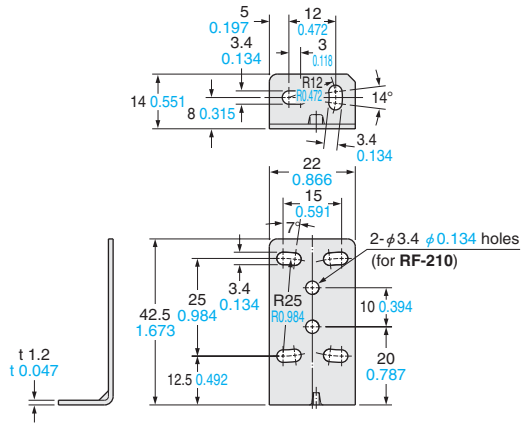


Material: Acrylic

RF-13 Reflective tape (Optional)



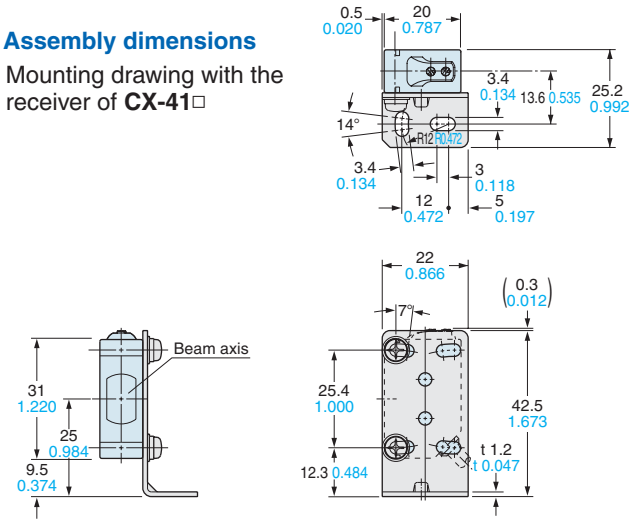
MS-CX2-1 Sensor mounting bracket (Optional)



Material: Stainless steel (SUS304)
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

Assembly dimensions

Mounting drawing with the receiver of **CX-41□**

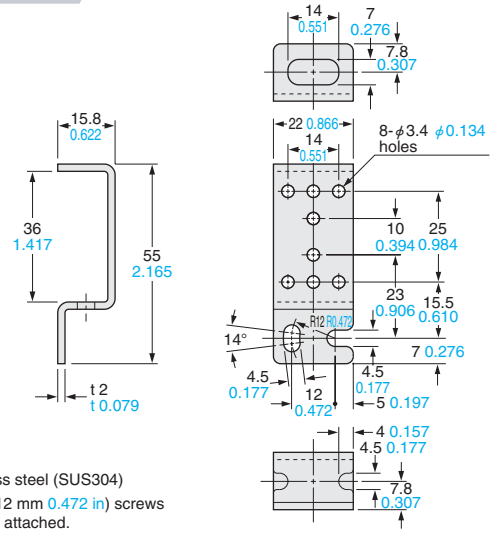


DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

MS-CX2-2

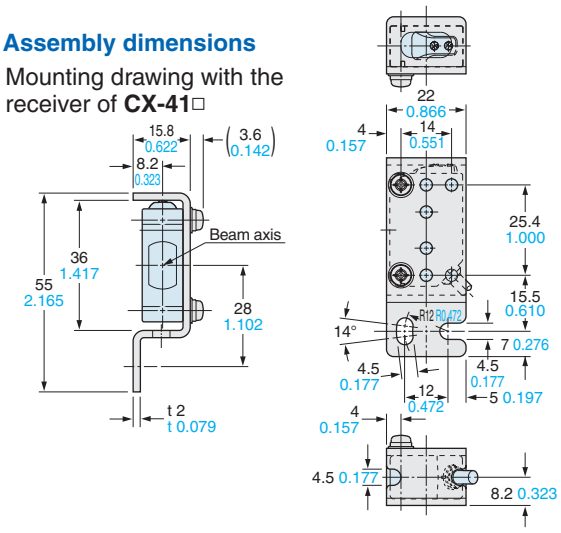
Sensor mounting bracket (Optional)



Material: Stainless steel (SUS304)
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

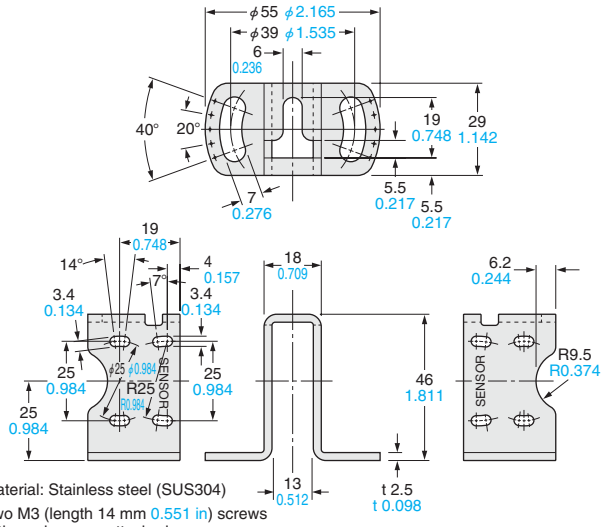
Assembly dimensions

Mounting drawing with the receiver of **CX-41□**



MS-CX2-4

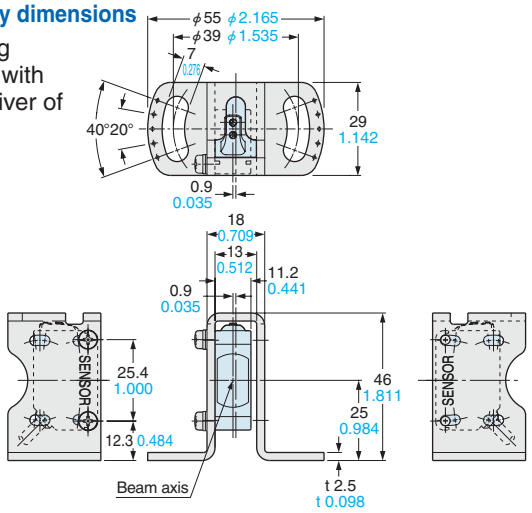
Sensor mounting bracket (Optional)



Material: Stainless steel (SUS304)
Two M3 (length 14 mm 0.551 in) screws with washers are attached.

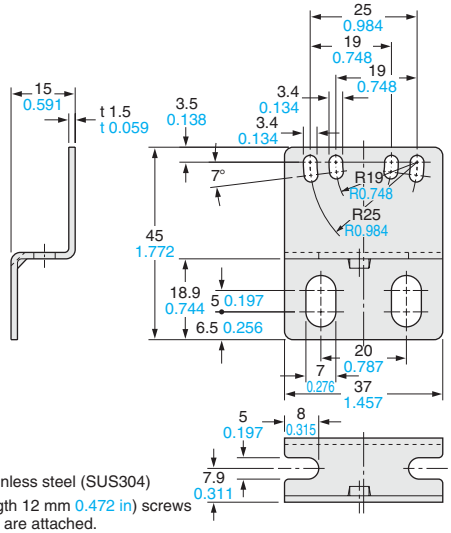
Assembly dimensions

Mounting drawing with the receiver of **CX-41□**



MS-CX2-5

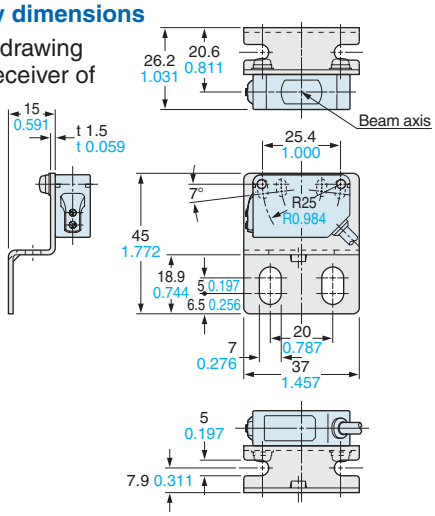
Sensor mounting bracket (Optional)



Material: Stainless steel (SUS304)
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

Assembly dimensions

Mounting drawing with the receiver of **CX-41□**



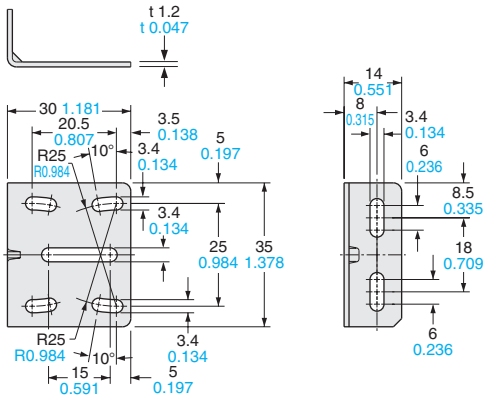
SUNX

DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

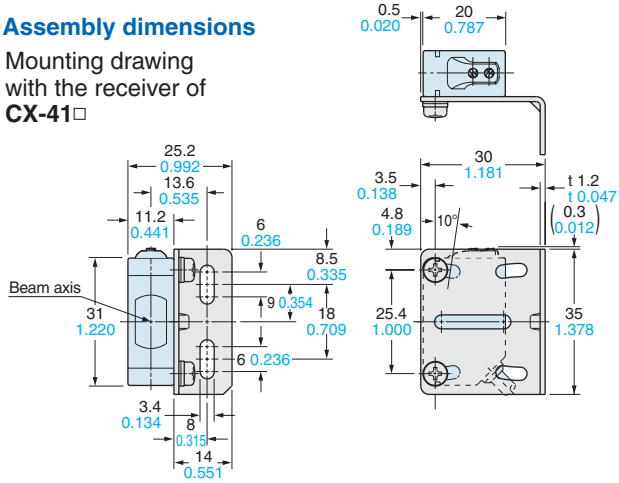
MS-CX-3

Sensor mounting bracket (Optional)



Assembly dimensions

Mounting drawing with the receiver of **CX-41□**

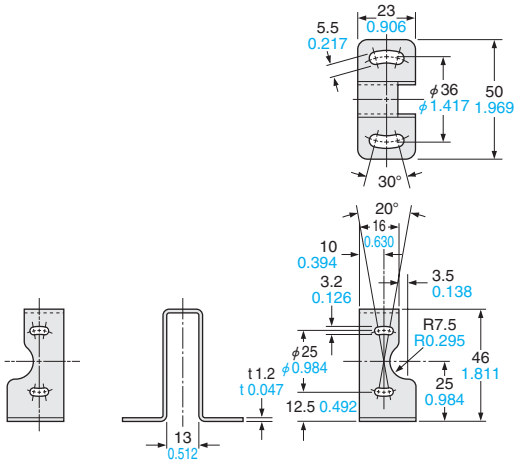


Material: Stainless steel (SUS304)

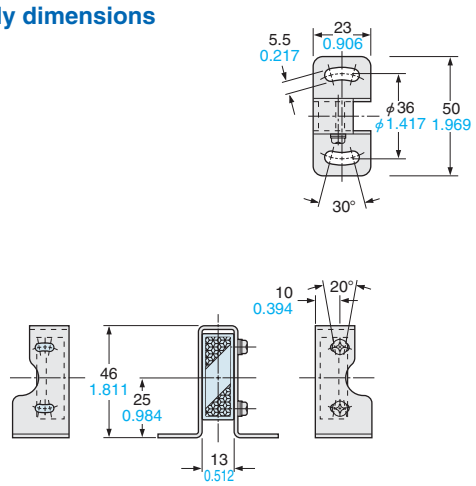
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

MS-RF21-1

Reflector mounting bracket for **RF-210** (Optional)



Assembly dimensions

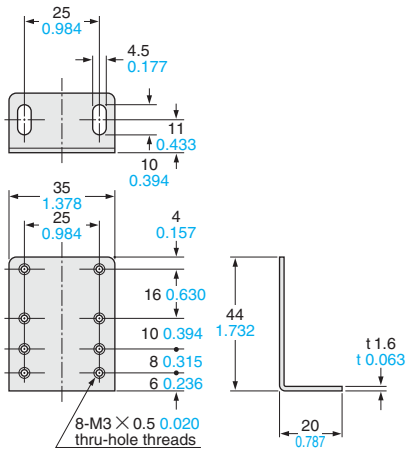


Material: Stainless steel (SUS304)

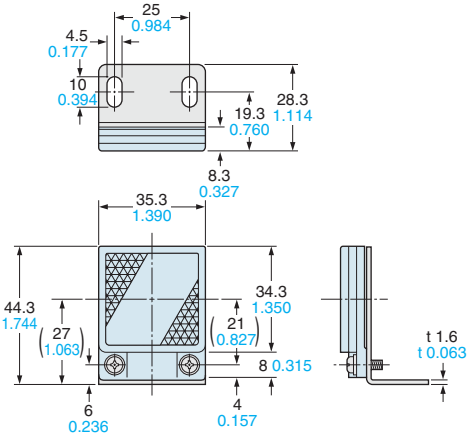
Two M3 (length 12 mm 0.472 in) screws with washers are attached.

MS-RF22

Reflector mounting bracket for **RF-220** (Optional)



Assembly dimensions



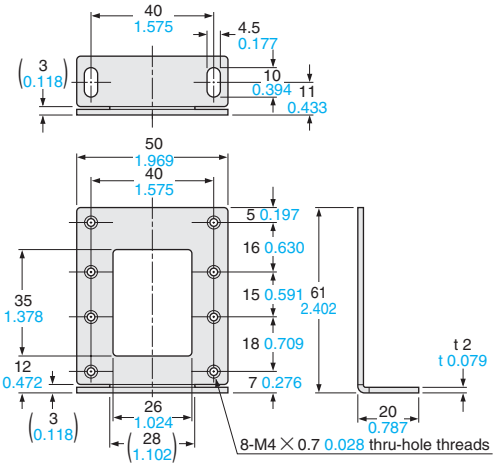
Material: Cold rolled carbon steel (SPCC) (Uni-chrome plated)

Two M3 (length 8 mm 0.315 in) screws with washers are attached.

DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

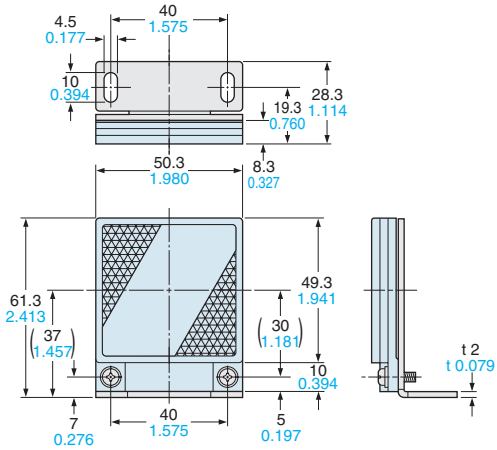
MS-RF23 Reflector mounting bracket for **RF-230** (Optional)



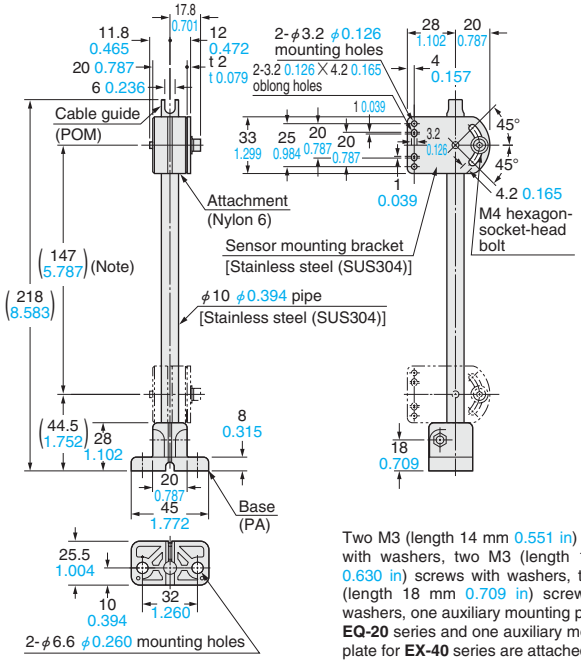
Material: Cold rolled carbon steel (SPCC)
(Uni-chrome plated)

Two M4 (length 10 mm 0.394 in) screws with washers are attached.

Assembly dimensions



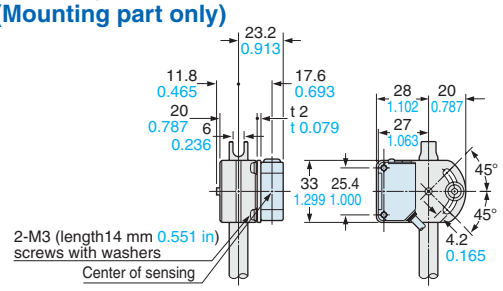
MS-AJ1 Universal sensor mounting stand (Optional)



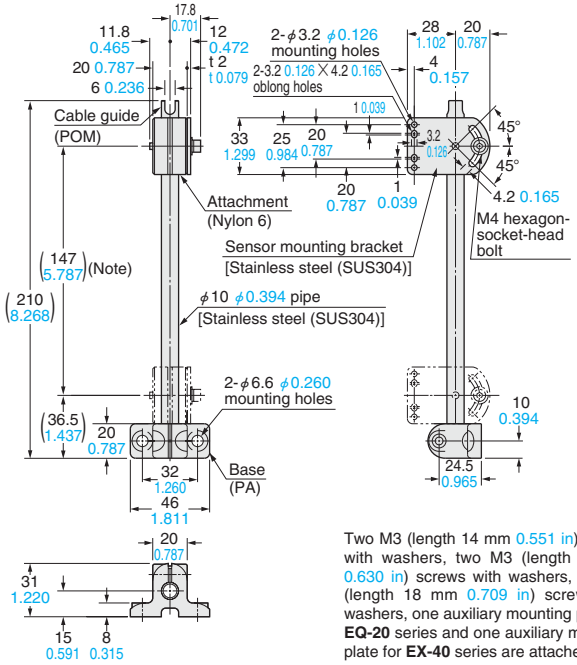
Two M3 (length 14 mm 0.551 in) screws with washers, two M3 (length 16 mm 0.630 in) screws with washers, two M3 (length 18 mm 0.709 in) screws with washers, one auxiliary mounting plate for **EQ-20** series and one auxiliary mounting plate for **EX-40** series are attached.

Note: The dimensions in the brackets indicate the adjustable range of the movable part.

Assembly dimensions with CX-400 series (Mounting part only)



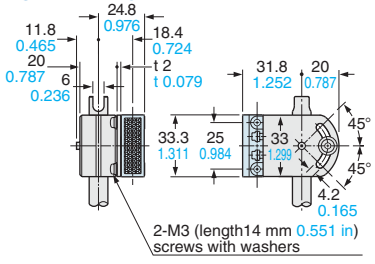
MS-AJ2 Universal sensor mounting stand (Optional)



Two M3 (length 14 mm 0.551 in) screws with washers, two M3 (length 16 mm 0.630 in) screws with washers, two M3 (length 18 mm 0.709 in) screws with washers, one auxiliary mounting plate for **EQ-20** series and one auxiliary mounting plate for **EX-40** series are attached.

Note: The dimensions in the brackets indicate the adjustable range of the movable part.

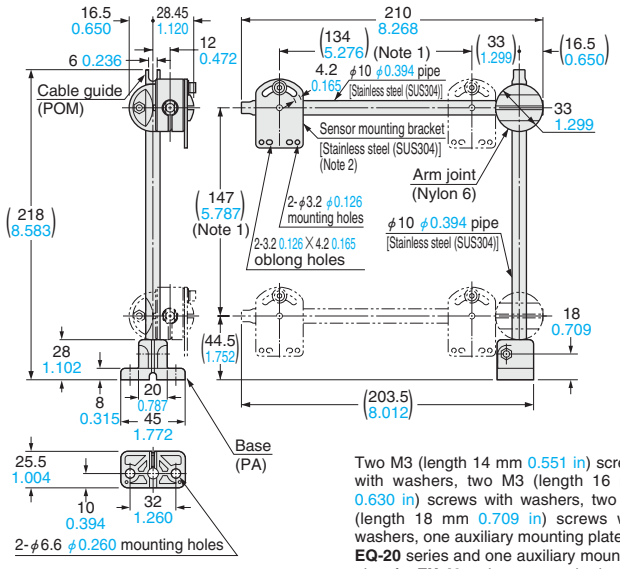
Assembly dimensions with RF-210 (Reflector) (Mounting part only)



DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

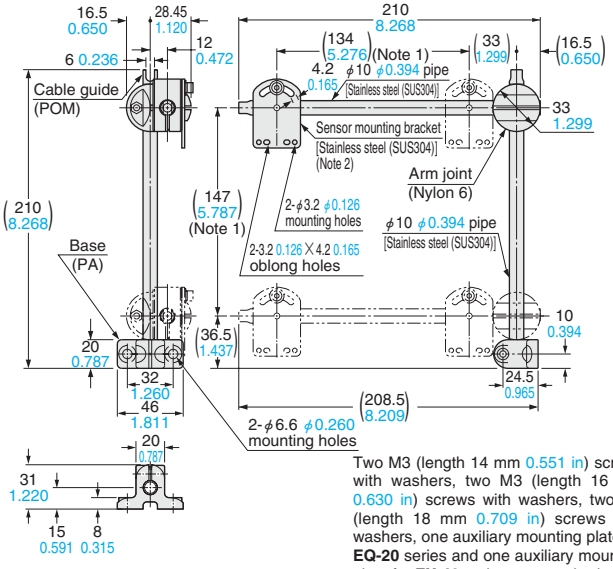
MS-AJ1-A Universal sensor mounting stand (Optional)



Two M3 (length 14 mm 0.551 in) screws with washers, two M3 (length 16 mm 0.630 in) screws with washers, two M3 (length 18 mm 0.709 in) screws with washers, one auxiliary mounting plate for **EQ-20** series and one auxiliary mounting plate for **EX-40** series are attached.

Notes: 1) The dimensions in the brackets indicate the adjustable range of the movable part.
2) Refer to **MS-AJ1** / **MS-AJ2** for the assembly dimensions with the sensor mounting bracket, sensor or reflector.

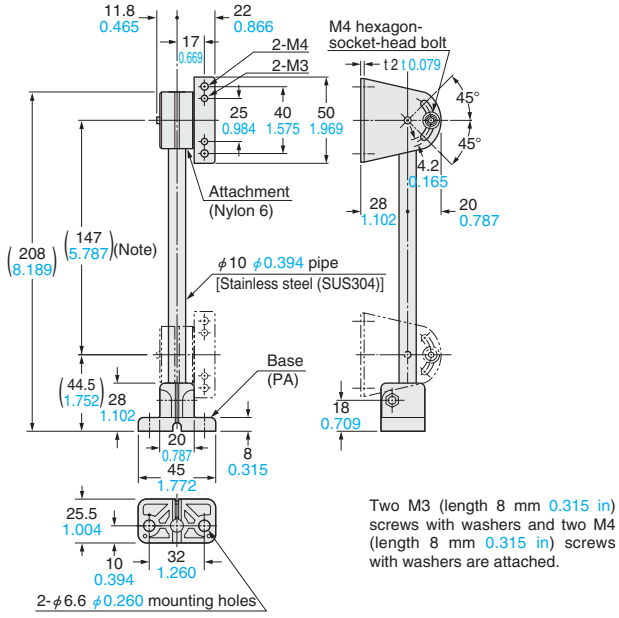
MS-AJ2-A Universal sensor mounting stand (Optional)



Two M3 (length 14 mm 0.551 in) screws with washers, two M3 (length 16 mm 0.630 in) screws with washers, two M3 (length 18 mm 0.709 in) screws with washers, one auxiliary mounting plate for **EQ-20** series and one auxiliary mounting plate for **EX-40** series are attached.

Notes: 1) The dimensions in the brackets indicate the adjustable range of the movable part.
2) Refer to **MS-AJ1** / **MS-AJ2** for the assembly dimensions with the sensor mounting bracket, sensor or reflector.

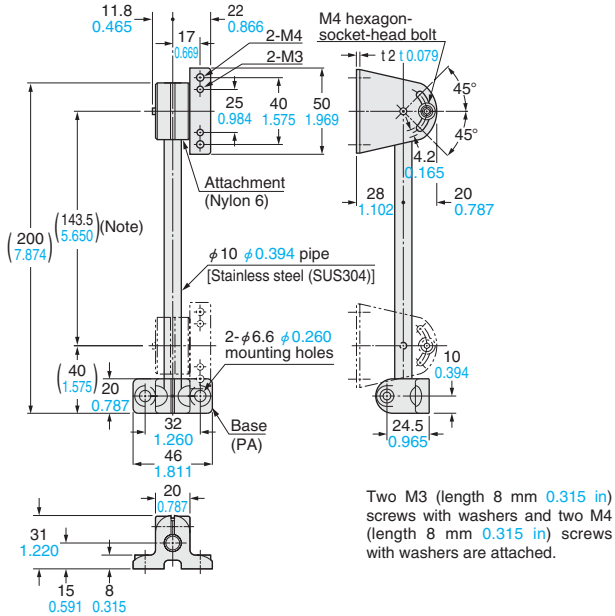
MS-AJ1-M Universal sensor mounting stand (Optional)



Two M3 (length 8 mm 0.315 in) screws with washers and two M4 (length 8 mm 0.315 in) screws with washers are attached.

Note: The dimensions in the brackets indicate the adjustable range of the movable part.

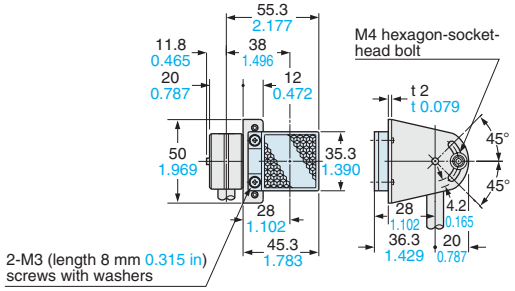
MS-AJ2-M Universal sensor mounting stand (Optional)



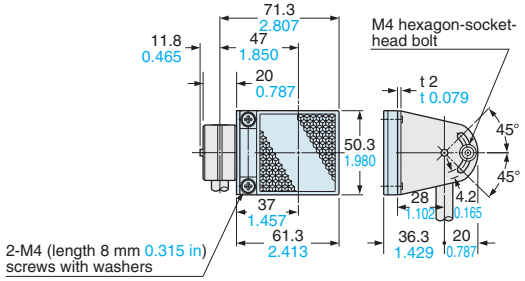
Two M3 (length 8 mm 0.315 in) screws with washers and two M4 (length 8 mm 0.315 in) screws with washers are attached.

Note: The dimensions in the brackets indicate the adjustable range of the movable part.

Assembly dimensions with RF-220 (Reflector) (Mounting part only)



Assembly dimensions with RF-230 (Reflector) (Mounting part only)



Protecting the environment is one of SUNX's guiding business principles

Promoting a totally lead-free working environment

We are now working to eliminate the use of lead in all our in-house manufacturing processes such as in reflow ovens, hand soldering and parts and substrates procurement.

Using simple packaging

Simple, environmentally friendly packaging material reduces waste.

ISO 14001 environmental management system certification acquired

ISO 14001
JQA-EM0528

Our Nagoya Head Office and Factory acquired ISO 14001 certification in September 1999.
Now and into the future, we will continuously improve environmental management systems based on our Environment Policy, which focuses on the promotion of environmentally friendly business activities and product development.

All information is subject to change without prior notice.

SUNX
Sensing the Future

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