



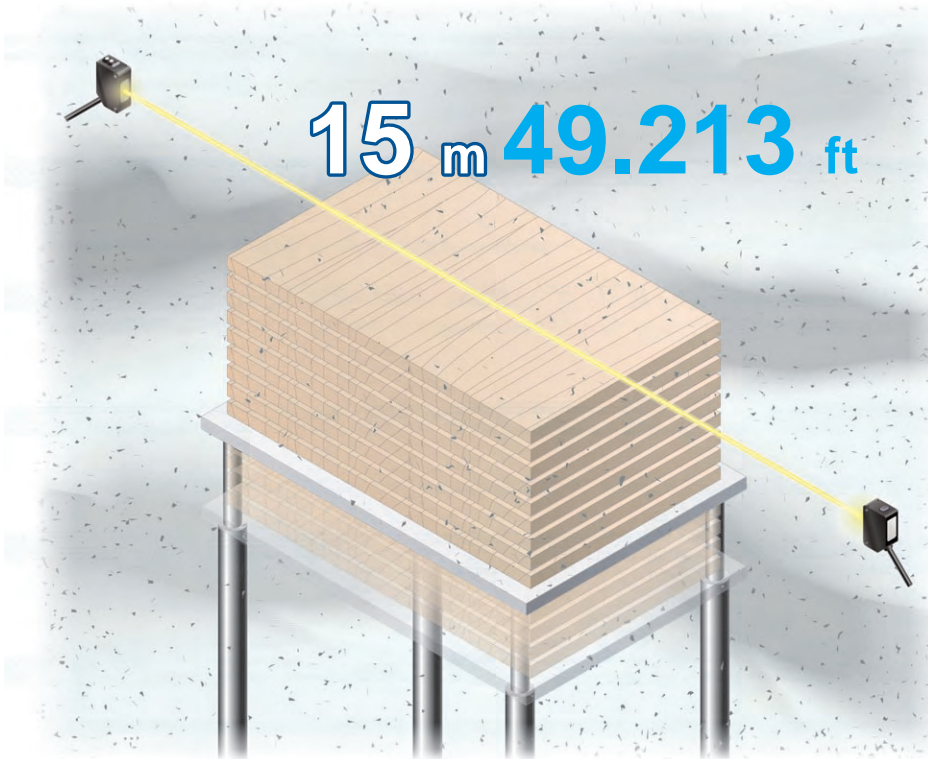
LONG SENSING RANGE • THRU-BEAM TYPE COMPACT PHOTOELECTRIC SENSOR **Amplifier Built-in**

New

CX-412

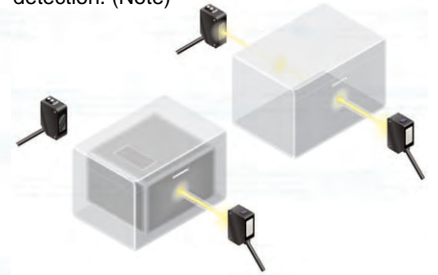


Long sensing range 15 m **49.213 ft**



Strong infrared beam

The longest in its class, it realizes a 15 m 49.213 ft long-distance sensing range. Remarkable penetrating power enables applications such as package content detection. (Note)



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

Strong on dust and dirt

Because the emitter uses an infrared beam, it is stronger on dust and dirt than the red-beam type.

Strong against noise

The sensors are fully protected against electrical noise and extraneous light such as high frequency fluorescent light.

Less processing

M8 plug-in connector type and M12 pigtailed type are available. This contributes to less time spent in setting up and maintenance.

Less energy used • Less resources used

These sensors consume only 60 % of the power of previous models. 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. Reduces waste and contributes to environmental conservation.

Less space

A compact size (W11.2×H31×D20 mm W0.441×H1.220×D0.787 in)

ORDER GUIDE

Type	Model No.	Standard (Cable length: 2 m 6.562 ft)	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)
Long sensing range Thru-beam	NPN output	CX-412	CX-412-C05	CX-412-C5	CX-412-Z	CX-412-J
	PNP output	CX-412-P	CX-412-P-C05	CX-412-P-C5	CX-412-P-Z	CX-412-P-J

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 M8 plug-in connector type

Straight type **CN-24A-C2** (2 m 6.562 ft)
CN-24A-C5 (5 m 16.404 ft)
 Elbow type **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)
CN-22-C5 (5 m 16.404 ft)
 4-core **CN-24-C2** (2 m 6.562 ft)
CN-24-C5 (5 m 16.404 ft)

OPTIONS

Designation	Model No.	Slit size	Sensing range		Min. sensing object	
			Slit on one side	Slit on both sides	Slit on one side	Slit on both sides
Round slit mask	OS-CX-05	φ0.5 mm φ0.020 in	600 mm 23.622 in	30 mm 1.181 in	φ12 mm φ0.472 in	φ0.5 mm φ0.020 in
	OS-CX-1	φ1 mm φ0.039 in	1.35 m 4.429 ft	150 mm 5.906 in	φ12 mm φ0.472 in	φ1.5 mm φ0.059 in
	OS-CX-2	φ2 mm φ0.079 in	3 m 9.843 ft	600 mm 23.622 in	φ12 mm φ0.472 in	φ3.0 mm φ0.118 in
Rectangular slit mask	OS-CX-05×6	0.5×6 mm 0.020×0.236 in	3 m 9.843 ft	600 mm 23.622 in	φ12 mm φ0.472 in	0.5×6 mm 0.020×0.236 in
	OS-CX-1×6	1×6 mm 0.039×0.236 in	4.5 m 14.764 ft	1.5 m 4.921 ft	φ12 mm φ0.472 in	1×6 mm 0.039×0.236 in
	OS-CX-2×6	2×6 mm 0.079×0.236 in	7.5 m 24.606 ft	3 m 9.843 ft	φ12 mm φ0.472 in	2×6 mm 0.079×0.236 in

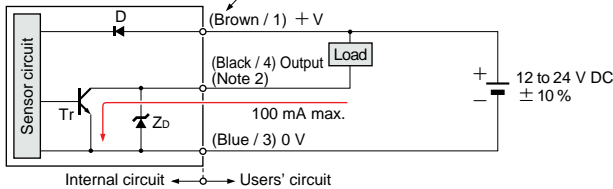
SPECIFICATIONS

Type	NPN output	PNP output
Item	Model No.	Model No.
Sensing range	15 m	49.213 ft
Sensing object	φ 12 mm φ 0.472 in or more opaque object	
Repeatability	0.5 mm 0.020 in or less (Perpendicular to sensing axis)	
Supply voltage	12 to 24 V DC ± 10 % Ripple P-P 10 % or less	
Current consumption	Emitter: 25 mA or less, Receiver: 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	
Stability indicator	Green LED (lights up under stable light received condition or stable dark condition), incorporated on the receiver	
Power indicator	Green LED (lights up when the power is ON), incorporated on the emitter	
Sensitivity adjuster	Continuously variable adjuster	
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	
Emitting element	Infrared LED (Peak emission wavelength: 870 nm 0.034 mil, modulated)	
Material	Enclosure: PBT (polybutylene terephthalate), Lens: acrylic, Indicator cover: acrylic	
Cable	0.2 mm ² 3-core (Emitter: 2-core) cable, 2 m 6.562 ft long	
Weight	Emitter: 45 g approx., Receiver: 50 g approx.	

I/O CIRCUIT AND WIRING DIAGRAMS

NPN output type

I/O circuit diagram

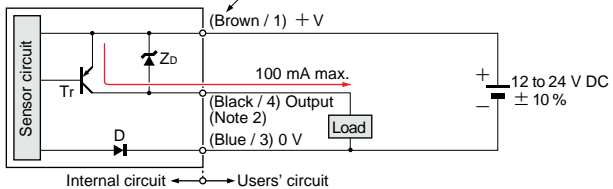


Notes: 1) Refer to the 'CX-400 series catalog' for connector pin position of the M8 plug-in connector and M12 pigtailed types.
2) The emitter does not incorporate the output.

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

PNP output type

I/O circuit diagram

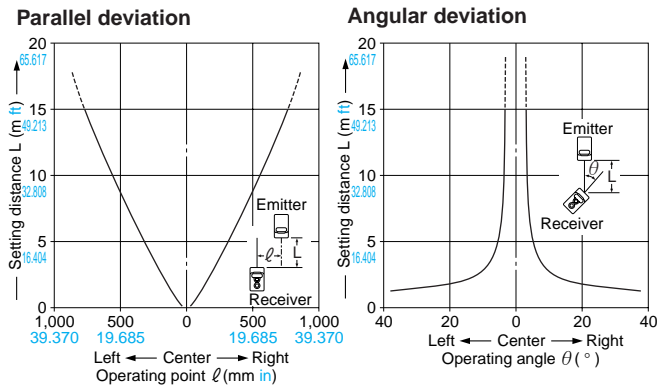


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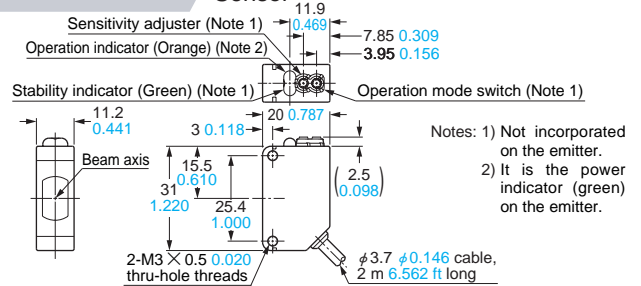
All information is subject to change without prior notice.

SENSING CHARACTERISTICS (TYPICAL)



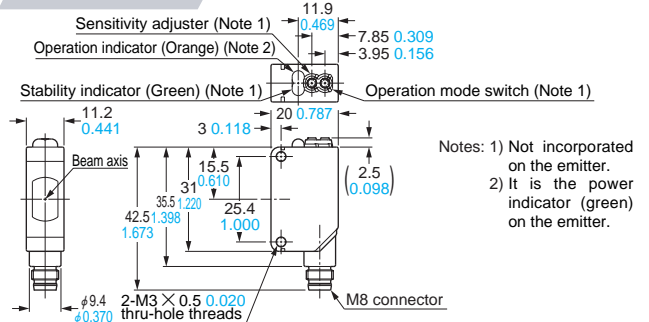
DIMENSIONS (Unit: mm in)

CX-412 Sensor



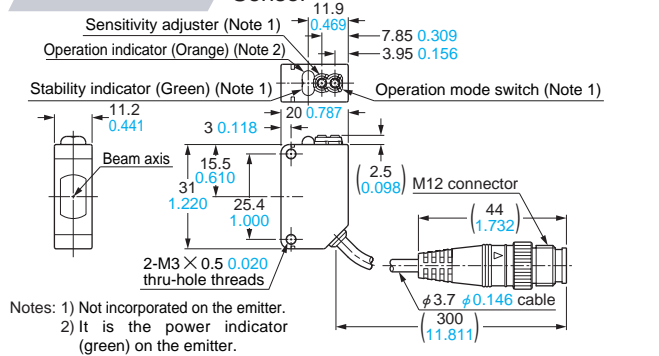
Notes: 1) Not incorporated on the emitter.
2) It is the power indicator (green) on the emitter.

CX-412-Z Sensor



Notes: 1) Not incorporated on the emitter.
2) It is the power indicator (green) on the emitter.

CX-412-J Sensor



Notes: 1) Not incorporated on the emitter.
2) It is the power indicator (green) on the emitter.

