LASER SENSORS

MICRO PHOTOELECTRIC SENSORS AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS SENSOR

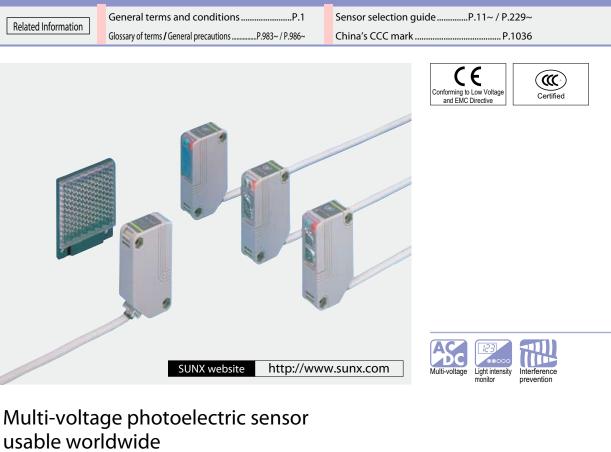
WIRE-SAVING SYSTEMS MEASUREMENT SENSORS

STATIC CONTROL DEVICES

> LASER MARKERS

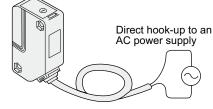
Compact Multi-voltage Photoelectric Sensor SERIES

Power Supply Built-in



Multi-voltage

The NX5 series can operate at 24 to 240 V AC or 12 to 240 V DC, which makes it suitable for supply voltages all over the world.

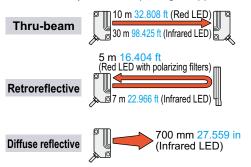


No need to arrange a DC power supply.

BASIC PERFORMANCE

Long sensing range

Most suitable for conveyor lines and parking lot applications.



Compact size

High reliability It has IP66 protection. Moderate dust or water splashes do not affect it.

Despite being multi-voltage, it has a depth of just 35 mm 1.378 in.

Compared to the

Width: 2/3

NX5

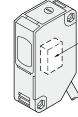
Volume: 1/3

conventional model Depth: 1/2

 $(W18 \times H62 \times D35 \text{ mm } W0.709 \times H2.441 \times D1.378 \text{ in})$

Conventional model

The hermetically sealed output relay significantly increases its reliability.



Hermetically sealed relay eliminates worries about bad contact

.....

FUNCTIONS / MOUNTING

Easy alignment

The 10 m 32.808 ft thru-beam type sensor and the 5 m 16.404 ft retroreflective type sensor incorporate a red LED beam source. Beam alignment can be attained by visually checking the emitted beam.

Interference prevention

Two sensors operate quite normally even if mounted close together. (Excluding the 30 m 98.425 ft thru-beam type sensor)

EX-10 EX-20

EX-30

EX-40 EQ-30

MQ-W

RX

CY

VF

Other

Products

SUNX

Amplifierseparated SU-7 / SH

SS-A5 / SH

PX-2

RT-610



LASER SENSORS

MICRO

AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR

SENSORS SENSOR OPTIONS

WIRE-SAVING SYSTEMS

MEASURE-

MENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

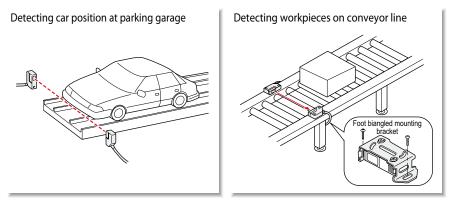
Selection Guide

Amplifier Built-in

CX-400

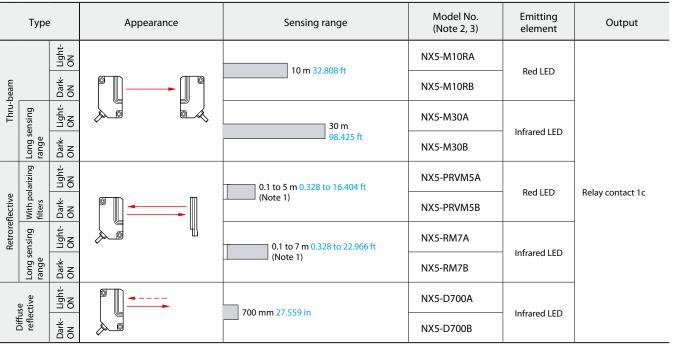
EX-10

APPLICATIONS



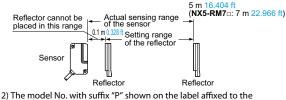
ORDER GUIDE

receiver.



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

Notes: 1) The sensing range of the retroreflective type sensor is specified for the RF-230 reflector. Further, the sensing range is the possible setting range for the reflector. The sensor can detect an object less than 0.1 m 0.328 ft away.



thru-beam type sensor is the emitter, "D" shown on the label is the

(e.g.) Emitter of NX5-M10RA: NX5-M10RP,

is the same as when an object is detected.) Refer to p.369 for the output operation of each model.

Receiver of NX5-M10RA: NX5-M10RAD 3) Light-ON type sensor (model No. with suffix "A") and Dark-ON type sensor (model No. with suffix "B") are available in the NX5 series. For the following models, in case of power off, the output relay condition is the same as when an object is detected.

5 m 16.404 ft cable length type

5 m 16.404 ft cable length type (standard: 2 m 6.562 ft) is also available. When ordering this type, suffix "-C5" to the model No. (e.g.) 5 m 16.404 ft cable length type of NX5-M10RA is "NX5-M10RA-C5".

Accessory

RF-230 (Reflector)



EX-20
EX-30
EX-40
EQ-30
EQ-500
MQ-W
RX-LS200
RX
СҮ
PX-2
RT-610
Multi- voltage
NX5
VF
Amplifier- separated
SU-7 / SH
SS-A5 / SH

Other Products

Thru-beam typeRetroreflective typeDiffuse reflective typeNX5-M10RA and
NX5-M30ANX5-PRVM5A and
NX5-RM7A
(Light-ON)NX5-D700B
(Dark-ON)

(In case of power supply line disconnection, the output operation

LASER SENSORS

It protects the reflector from damage and maintains alignment.

Model No.

OPTIONS

Designation

ELECTRIC SENSORS MICRO PHOTO- ELECTRIC		MS-NX5-1	Foot angled mounting bracket (The thru-beam type sensor needs tw	vo brackets.)				
AREA SENSORS	Sensor mounting bracket	MS-NX5-2	Foot biangled mounting bracket (sensor protection bracket (The thru-beam type sensor needs two brackets.)					
SAFETY COMPONENTS		MS-NX5-3	MS-NX5-3 Back angled mounting bracket (The thru-beam type sensor needs two brackets.)					
PRESSURE SENSORS INDUCTIVE PROXIMITY	Slit mask / For thru-beam \	OS-NX5-3×6	Slit on one side	 Sensing range: 3 m 9.843 ft [NX5-M10R] 16 m 52.493 ft [NX5-M3 Min. sensing object: ø10 mm ø0.394 in [NX5-M10 ø20 mm ø0.787 in [NX5-M10 				
SENSORS PARTICULAR USE SENSORS	(type sensor only)	$\left(\begin{array}{c} \text{Slit size 3 \times 6 mm} \\ 0.118 \times 0.236 \text{ in} \end{array}\right)$	Sensing range: 1 m 3.281 ft [NX5-M10R Slit on both sides 6 m 19.685 ft [NX5-M30 Min. sensing object: 3 × 6 mm 0.118 × 0.23					
SENSOR OPTIONS WIRE-	Interference prevention filter	PF-NX5-V (Vertical)	Same type of filters on both sides	· · · · · · · · · · · · · · · · · · ·				
SAVING SYSTEMS MEASURE- MENT	For NX5-M10RA or NX5-M10RB only	PF-NX5-H (Horizontal)	 Sensing range: 5 m 16.404 ft Min. sensing object: ø20 mm ø0.73 (One set consists of 2 pcs. of interfere 					
SENSORS STATIC CONTROL DEVICES	Reflector / For retrore- flective type	RF-210	 Sensing range: 0.1 to 1.5 m 0.328 to 0.1 to 2.5 m 0.328 Min. sensing object: ø30 mm ø1.18 	to 8.202 ft [NX5-RM7]				
LASER MARKERS	(Note1)	RF-220	 Sensing range: 0.1 to 3.5 m 0.328 to 11.483 ft [NX5-PR 0.1 to 5 m 0.328 to 16.404 ft [NX5-RM Min. sensing object: ø35 mm ø1.378 in 					
	Reflector mounting	MS-RF21-1	Protective mounting bracket for RF-2 It protects the reflector from damage					
	bracket (Note1)	MS-RF22 For RF-220						
		MS-RF23	For RF-230					
Selection Guide Amplifier Built-in CX-400	Reflective tape (For retrore- flective type	RF-11	 Ambient temperature: -25 to +50 °C -13 to +122 °F Ambient humidity: 35 to 85 % RH Notes Keep the tape free from stress. 	Sensing range: 0.1 to 0.8 m 0.328 tr [NX5-P 0.1 to 1 m 0.328 to [NX5				
EX-10 EX-20 EX-30	(Note1)	RF-12	 If it is pressed too much, its capability may deteriorate. Do not cut the tape. It will deteriorate the sensing performance. 	 Sensing range: 0.1 to 1 m 0.328 to [NX5-P 0.1 to 1.5 m 0.328 to [NX5 				
EX-40 EQ-30 EQ-500	Sensor checker (Note2)	CHX-SC2	It is useful for beam alignment of thr The optimum receiver position is give well as an audio signal.					
MQ-W RX-LS200	reflective		for dimensions of reflector, reflector n	nounting bracket and				
RX	, . .							
CY PX-2								
RT-610 Multi-								
voltage NX5								
VF								
Amplifier- separated								

separated SU-7 / SH SS-A5 / SH Other Products

SUNX

Description								
Foot angled mounting bracket (The thru-beam type sensor needs two brackets.)								
Foot biangled mounting bracket (sensor protection bracket) (The thru-beam type sensor needs two brackets.)								
Back angled mo (The thru-beam	unting bracket type sensor needs two brackets.)							
Slit on one side	 Sensing range: 3 m 9.843 ft [NX5-M10R] 16 m 52.493 ft [NX5-M30] Min. sensing object: ø10 mm ø0.394 in [NX5-M10R] ø20 mm ø0.787 in [NX5-M30] 							

Min. sensing object: 3 × 6 mm 0.118 × 0.236 in

0.1 to 0.8 m 0.328 to 2.625 ft

0.1 to 1 m 0.328 to 3.281 ft

0.1 to 1.5 m 0.328 to 4.92

[NX5-PRVM5]

328 to 3.28

[NX5-PRVM5]

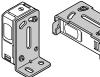
[NX5-RM7]

[NX5-RM7]

6 m 19.685 ft [NX5-M30]

Sensor mounting bracket

• MS-NX5-1 • MS-NX5-2





MS-NX5-3

Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

Two M4 (length 25 mm 0 984 in) screws with washers and two M4 nuts are attached.

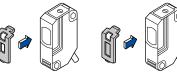
Interference prevention filter

Slit mask OS-NX5-3×6

(For NX5-M10R only)

Fitted on the front face of the sensor with onetouch.

 PF-NX5-V PF-NX5-H Two sets of thru-beam type sensors (Red LED type) can be mounted close together.



Two M4 (length 25 mm

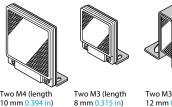
0.984 in) screws with washers and two M4

nuts are attached.



Reflector mounting bracket

• MS-RF23 MS-RF22



screws with

washers are

attached.

10 mm 0.39 in) screws with washers are attached.

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

MS-RF21-1

Reflective tape

• RF-11 • RF-12 0.7 mm 0.7 mm 30 mm _ 30 mm 8 mm 0.315 ir 25 mm ō Sensor checker CHX-SC2

Sensor checker

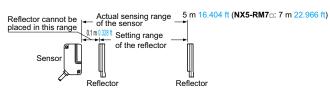
SPECIFICATIONS

\swarrow			Thru-beam				Betroreflective							
Туре						With polar	Retroreflective With polarizing filters Long sensing range				eflective			
ltem		Model No.	NX5-M10RA	NX5-M10RB	NX5-M30A	NX5-M30B	NX5-PRVM5A	NX5-PRVM5B	NX5-RM7A	NX5-RM7B	NX5-D700A	NX5-D700E		
	ing range			2.808 ft		98.425 ft	0.1 to 5 m 0.328 to		-	o 22.966 ft (Note 2)		59 in (Note 3)		
Sensi	ing object		ø20 mm ø0.78 opaque object		ø20 mm ø0.787 in or m (Completely beam inter	ore opaque object rupted object) (Note 4)	ø50 mm ø1.969 in or r translucent or specula		ø50 mm ø1.969 in or translucent obj		Opaque, translucent or transparent object (Note 5)			
Hyste	eresis					· · · · ·	<u> </u>				15 % or less of operation distance (Note 3)			
Repeata	ability (perpendicul	ar to sensing axis)	0.1 mm 0.0	04 in or less			0.2 mm 0.0	08 in or less			0.3 mm 0.0	12 in or less		
Supp	ly voltage				24 to 2	40 V A <u>¢</u> 10 %	or 12 to 240 V	DC +10 / I	Ripple P-P 10 9	% or less				
Powe	er consumptio	'n	Emitter: 1 V Receiver: 2 V		Emitter: 1.5 Receiver: 2				2 VA	or less				
Outp	ut		Relay contact 1 c Switching capacity: 250 V AC 1 A (resistive load) 30 V DC 2 A (resistive load) Electrical life: 500,000 or more switching operations (switching frequency 3,600 operations/hour) 100,000 or more switching operations (switching frequency 3,600 operations/hour) Mechanical life: 100 million or more switching operations (switching frequency 36,000 operations/hour)											
	Output opera	ation	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON		
Respo	onse time						10 ms	or less						
Oper	ation indicato	r				Red LE	D (lights up wl	nen the outpu	ut is ON)					
Stabi	lity indicator				Green LED (lig	ghts up under	stable light re	ceived condit	ion or stable o	lark condition)			
Powe	er indicator					LED the power is ON)								
Sensi	tivity adjuster		Continuously v	variable adjuster			Continuously variable adjuster			Continuously v	ariable adjuste			
Automatic interference prevention function			Use optional interference Incorporated (Two units of sensors can prevention filters					rs can be mou	nted close tog	ether.)				
	Pollution dec	gree	3 (Industrial environment)											
	Protection		IP66 (IEC) (Refer to p.984 for details of standards)											
nce	Ambient tem	perature	-20 to +55 °C - 4 to +131 °F (No dew condensation or icing allowed) (Note 6), Storage: -30 to +70 °C -22 to +158 °F											
sista	Ambient hun	nidity	35 to 85 % RH, Storage: 35 to 85 % RH											
Environmental resistance	Ambient illur	ninance				Incandescen	t light: 3,500 ℓ	x at the light-	receiving face					
nem	EMC						EN 61000-6-2,	EN 61000-6-4	4					
viror	Voltage with	standability	1,500 V	AC for one mi	n. between p	ower supply a	nd output terr	ninals, 1,000	V AC for one n	nin. between r	elay contact to	erminals		
En	Insulation res	sistance	20 MG	Ω, or more, wit	h 500 V DC m	legger betwee	en power supp	ly and output	terminals, an	d between rel	ay contact ter	minals		
	Vibration res	istance		10 to	55 Hz freque	ency, 1.5 mm C	0.059 in amplit	ude in X, Y an	d Z directions	for two hours	each			
	Shock resista	nce	500 m/s ² (50 G approx.) in X, Y and Z directions for three tim					for three time	es each					
Emitt	ing element		Red LED (modulated)		Infrared LED (modulated)		Red LED (modulated)		Infrared LED		(modulated)			
	Peak emissior	n wavelength	660 nm	0.026 mil	880 nm	0.035 mil	660 nm (0.026 mil		880 nm	0.035 mil			
Material Enclosure: Polycar		sure: Polycarb	arbonate, Lens: Polycarbonate, Cover: Polycarbonate, Front cover (retroreflective type sensor only): Acrylic							Acrylic				
Cable	2				0.3 mm ² 5-c	ore (thru-bear	n type emitter	: 2-core) cabt	yre cable, 2 m	6.562 ft long				
Cable	e extension		Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , or more, cable (thru-beam type: both emitter and receiver).						ceiver).					
Net v	veight		Emitter: 100 Receiver: 140		Emitter: 125 Receiver: 14				140 g	approx.				
Acces	ssories		Adjusting scre	ewdriver: 1 pc.			RF-230 (Reflect Adjusting scree		RF-230 (Refle	ector): 1 pc.	Adjusting scr	ewdriver: 1 po		
	1)) ()													

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 is specified for the RF-230 reflector. Further, the sensing range is the possible setting range for the reflector.

The sensor can detect an object less than 0.1 m 0.328 ft away.



3) The sensing range and the 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 as small as 3×6 mm 0.118×0.236 in can be detected.

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

6) In case the sensor is to be used at an ambient temperature of -15 $^{\circ}C$ +5 $^{\circ}F$, or less, please contact our office.



RT-610

VF

Amplifier-

separate

SU-7 / SH

SS-A5 / SH

Other Products

LASER SENSORS

MICRO PHOTO-

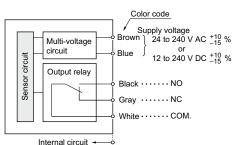
ELECTRIC SENSORS

AREA SENSORS

SAFETY COMPONENTS

I/O CIRCUIT DIAGRAM AND OUTPUT OPERATION

I/O circuit diagram



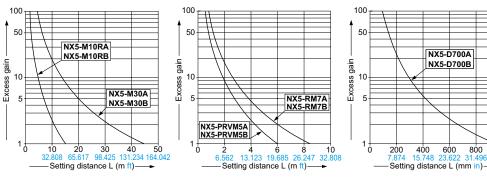
Out	out operation	1		:Obj	ject detec	ted state.				
6.0		Thru-b	eam & Ret	troreflecti	ve type	Diffuse reflective type				
Sensing mode		Light-ON	l (A) type	Dark-ON	l (B) type	Light-ON	l (A) type	Dark-ON (B) type		
Output		NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	
Output condition	Power OFF	Open	Close	Open	Close	Open	Close	Open	Close	
	Beam-received	Close	Open	Open	Close	Close	Open	Open	Close	
Outpi	Beam-interrupted	Open	Close	Close	Open	Open	Close	Close	Open	

Note: The emitter of the thru-beam type sensor has two wires for power (+V and 0 V) only.

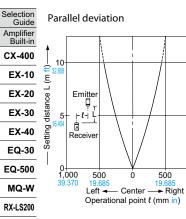
SENSING CHARACTERISTICS (TYPICAL)

All models





NX5-M10RA NX5-M10RB



10 Setting distance L (m ft). Vertical direction

5

0∔ 20

(Down) l .eft <

1.000

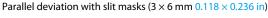
10

Angular deviation

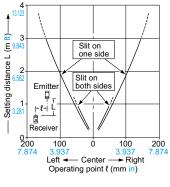
Emitter

20

Right (Up)



1,000

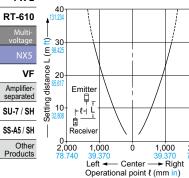


Parallel deviation PX-2

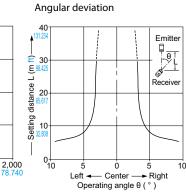
RX

CY

SUNX



NX5-M30A NX5-M30B



Horizonta direction

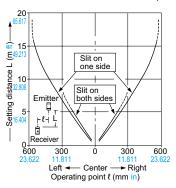
Ò

- Center

Operating angle θ (°)

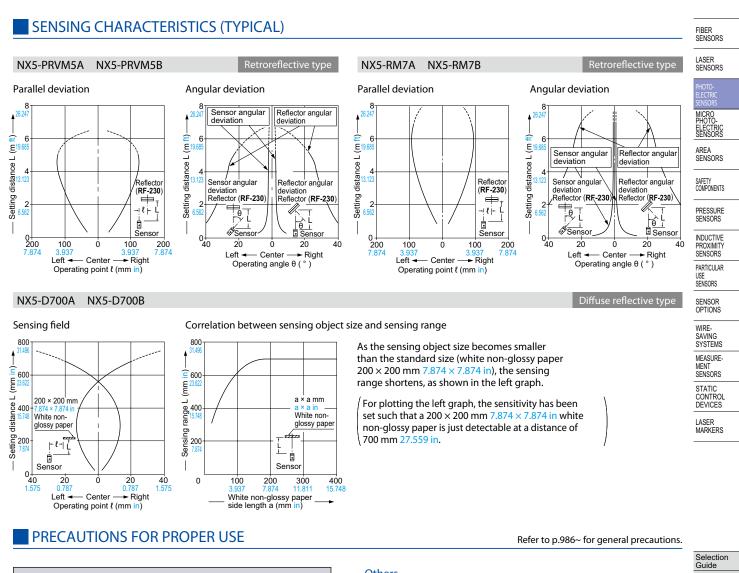
10

Parallel deviation with slit masks $(3 \times 6 \text{ mm } 0.118 \times 0.236 \text{ in})$



PRESSURE SENSORS INDUCTIVE PROXIMITY SENSORS PARTICULAR SENSORS SENSOR OPTIONS WIRE-SAVING SYSTEMS MEASURE-MENT SENSORS STATIC CONTROL DEVICES

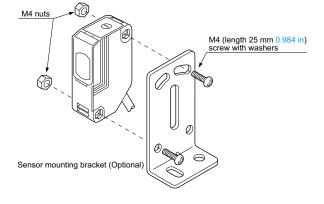
LASER MARKERS



- Never use this product as a sensing device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

Mounting

The tightening torque should be 0.8 N·m or less.

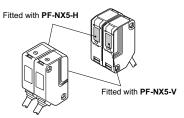


Others

- Do not use during the initial transient time (50 ms) after the power supply is switched on.
- Although the protection degree is specified for the sensor including the cable, the cable end is not waterproof, and is not covered by the protection specified. Hence, make sure that water does not seep in from the cable end.

Interference prevention filter (Exclusively for NX5-M10R)

- Use the interference prevention filters (optional) when two units of thru-beam type sensors are mounted close together.
- There are two types of interference prevention filters. The two sets of thru-beam type sensors should be fitted with different types of interference prevention filters.



Note: The filters cannot be used for NX5-M30A or NX5-M30B.

Amplifier Built-in CX-400 EX-10 EX-20 EX-30 EX-40 EQ-30 EQ-500 MQ-W **RX-LS200** RX CY PX-2 RT-610 VF Amplifierseparate SU-7 / SH SS-A5/SH Other Products SUNX

LASER SENSORS

MICRO

ELECTRIC SENSORS

AREA SENSORS

SAFETY COMPONENTS

PRESSURE

INDUCTIVE PROXIMITY SENSORS

PARTICULAR

SENSORS

SENSOR OPTIONS

WIRE-SAVING

SYSTEMS MEASURE-MENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

Selection Guide

Amplifier Built-in

CX-400

EX-10 EX-20

EX-30

EX-40

EQ-30

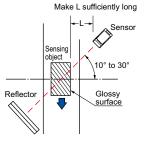
EQ-500 MQ-W

NX5-M10RA

PRECAUTIONS FOR PROPER USE

Retroreflective type sensor (NX5-RM7⊠)

- Please take care of the following points when detecting materials having a gloss.
- ① Make L, shown in the diagram, sufficiently long.
- 2 Install at an angle of 10 to 30 degrees to the sensing object.



* NX5-PRVM5 does not need the above adjustment.

Retroreflective type sensor with polarizing filters (NX5-PRVM5)

 If a shiny object is covered or wrapped with a transparent film, such as those described below, the retroreflective type sensor with polarizing filters may not be able to detect it.

Refer to p.986~ for general precautions.

In that case, follow the steps given below.

Example of sensing objects

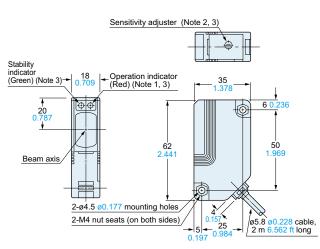
- Can wrapped by clear film
- Aluminum sheet covered by plastic film
- Gold or silver color (specular) label or wrapping paper

Steps

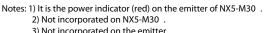
- Tilt the sensor with respect to the sensing object while fitting.
- Reduce the sensitivity.
- Increase the distance between the sensor and the sensing object.

DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com Refer to the CX-400 series (p.251~) for dimensions of reflector, reflector mounting bracket and reflective tape.

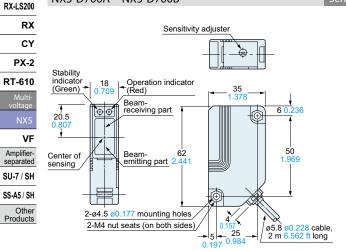


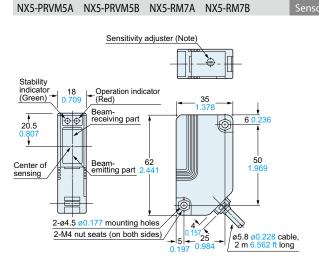
NX5-M10RB NX5-M30A NX5-M30B



3) Not incorporated on the emitter.

NX5-D700A NX5-D700B



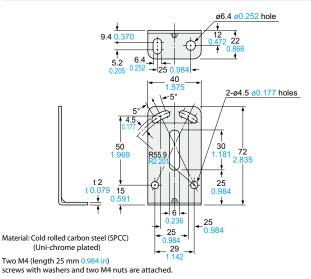


Note: Not incorporated on NX5-RM7 .

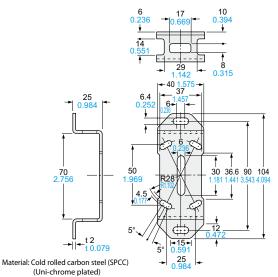
SUNX

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com Refer to the CX-400 series (p.251~) for dimensions of reflector, reflector mounting bracket and reflective tape.

MS-NX5-1

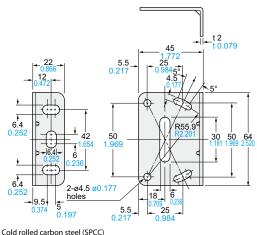


MS-NX5-2



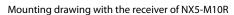
Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

MS-NX5-3

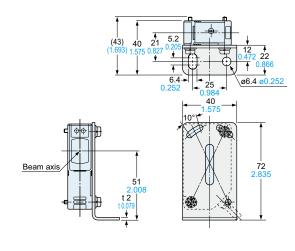


Material: Cold rolled carbon steel (SPCC) (Uni-chrome plated)

Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

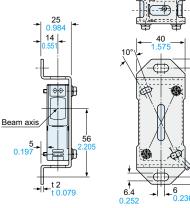


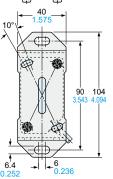
Assembly dimensions



Assembly dimensions

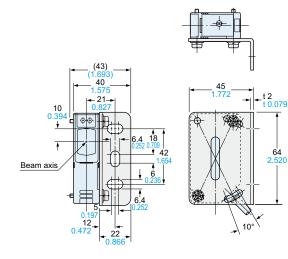
Mounting drawing with the receiver of NX5-M10R





Assembly dimensions

Mounting drawing with the receiver of NX5-M10R





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