NX5 SERIES

Compact Multi-voltage Photoelectric Sensor Power Supply Built-in

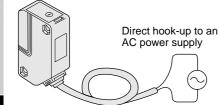


Multi-voltage photoelectric sensor usable worldwide



Multi-voltage

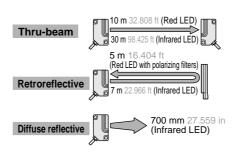
The **NX5** series can operate at 24 to 240 V AC or 12 to 240 V DC, which makes it suitable for supply voltages all over the world.



No need to arrange a DC power supply.

Long sensing range

Most suitable for conveyor lines and parking lot applications.



High reliability

It has IP66 protection. Moderate dust or water splashes do not affect it. The new N₂ hermetically sealed output relay significantly increases its reliability.



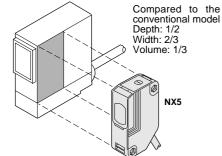
N₂ hermetically sealed relay eliminates worries about bad contact

Compact size

NX5

Despite being multi-voltage, it has a depth of just 35 mm 1.378 in. (W18 \times H62 \times D35 mm W0.709 \times H2.441 \times D1.378 in)

Conventional model



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.

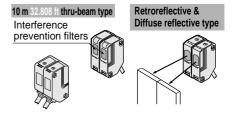
Beam alignment can be attained by visually checking the emitted beam.



visually confirmed by the bright operation indicator.

Interference prevention

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



Interference prevention filters are available. (Optional)

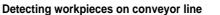
PHOTOELECTRIC SENSORS

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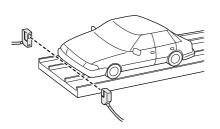
Amplifier Buil

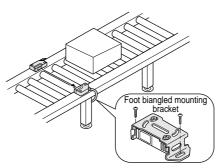
APPLICATIONS

Detecting car position at parking garage



Detecting golf balls





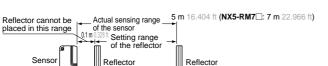


ORDER GUIDE

Туре	Appearance	Sensing range	Model No. (Note 2)	Emitting element	Output
Light- ON		10 m 32.808 ft	NX5-M10RA	Red LED	Relay contact 1c
Thru-beam sing ight- Dark- ON			NX5-M10RB		
Thru- Long sensing range Dark- Light- ON		30 m	NX5-M30A	Infrared LED	
Long s range ON		98.425 ft	NX5-M30B		
flective With polarizing filters Dark- Light- ON		0.1 to 5 m 0.328 to 16.404 ft	NX5-PRVM5A	Red LED	
Retroreflective ensing With po fitters Light- Dark- ON		(Note 1)	NX5-PRVM5B	Reallo	
Retrore sensing		0.1 to 7 m 0.328 to 22.966 ft	NX5-RM7A	- Infrared LED	
Long s range Dark- ON		(Note 1)	NX5-RM7B		
se ctive DN	Ø •••••	700 mm 27.559 in	NX5-D700A	Infrared LED	
Diffuse reflective Dark- Ligh		700 mm 27.555 m	NX5-D700B		

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.



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.

Table of Model Nos.

	Туре	9	Standard	5 m 16.404 ft cable length type		
_		Light-ON	NX5-M10RA	NX5-M10RA-C5		
eam		Dark-ON	NX5-M10RB	NX5-M10RB-C5		
Thru-beam	Long sensing range	Light-ON	NX5-M30A	NX5-M30A-C5		
		Dark-ON	NX5-M30B	NX5-M30B-C5		
/e	With polarizing filters	Light-ON	NX5-PRVM5A	NX5-PRVM5A-C5		
flectiv		Dark-ON	NX5-PRVM5B	NX5-PRVM5B-C5		
Retroreflective	Long	Light-ON	NX5-RM7A	NX5-RM7A-C5		
Re	sensing range	Dark-ON	NX5-RM7B	NX5-RM7B-C5		
D	liffuse	Light-ON	NX5-D700A	NX5-D700A-C5		
re	eflective	Dark-ON	NX5-D700B	NX5-D700B-C5		

2

NX5

2) 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.

(In case of power supply line disconnection, the output operation is the same as when an object is detected.)

Refer to p.362 for the output operation of each model.

Thru-beam type	Retroreflective type	Diffuse reflective type		
NX5-M10RA and NX5-M30A	NX5-PRVM5A and NX5-RM7A	NX5-D700B		
(Light-ON)	(Light-ON)	(Dark-ON)		

Accessory • RF-230 (Reflector)



OPTIONS

NX5

Designation	Model No.	Description				
	MS-NX5-1	Foot angled mounting bracket (The thru-beam type sensor needs two brackets.)				
Sensor mounting bracket	MS-NX5-2	Foot biangled mounting bracket (sensor protection bracket) (The thru-beam type sensor needs two brackets.)				
	MS-NX5-3	Back angled mounting bracket (The thru-beam type sensor needs	two brackets.)			
Slit mask / For thru-beam\	OS-NX5-3 × 6 (Slit size 3 × 6 mm)		9.843 ft [NX5-M10R⊟] 52.493 ft [NX5-M30⊡] ¢10 mm ¢0.394 in			
type sensor only	$(0.118 \times 0.236 \text{ in})$	Slit on both sides 6 m	3.281 ft [NX5-M10R⊟] 19.685 ft [NX5-M30⊟] 3 X 6 mm 0.118 X 0.236 i			
Interference prevention filter / For NX5-M10RA \	PF-NX5-V (Vertical)	Same type of filters on both sides • Sensing range: 5 m 16.404 ft	797 in			
or NX5-M10RB only	PF-NX5-H (Horizontal)	• Min. sensing object: $\phi 20 \text{ mm } \phi 0.787 \text{ in}$ (One set consists of 2 pcs. of interference prevention) filters.				
Reflector / For retrore- \	RF-210	Sensing range: 0.1 to 1.5 m 0.328 to 4.921 ft [NX5-PRVM5_ 0.1 to 2.5 m 0.328 to 8.202 ft [NX5-RM7_] Min. sensing object: ∉30 mm ∉1.181 in				
flective type sensor only	RF-220	Sensing range: 0.1 to 3.5m 0.328 to 11.483 ft [NX5-PRVM5□] 0.1 to 5m 0.328 to 16.404 ft [NX5-RM7□] Min. sensing object:				
Reflector	MS-RF21-1	Protective mounting bracket for RF-210 It protects the reflector from damage and maintains al				
mounting bracket	MS-RF22	For RF-220				
	MS-RF23	For RF-230				
Reflective tape / For retrore- \	RF-11	Ambient temperature: -25 to +50 °C -13 to +122 °F Ambient humidity: 35 to 85 % RH Notes: i) Keep the tape free from stress. If it is pressed too	• Sensing range: 0.1 to 0.8 m 0.328 to 2.625 ft [NX5-PRVM5] 0.1 to 1 m 0.328 to 3.281 ft [NX5-RM7]			
flective type sensor only	RF-12	much, its capability may deteriorate. ii) Do not cut the tape. It will deteriorate the sens- ing performance.	Sensing range: 0.1 to 1 m 0.328 to 3.281 ft [NX5-PRVM5] 0.1 to 1.5 m 0.328 to 4.921 ft [NX5-RM7]			
Sensor checker (Note)	CHX-SC2	It is useful for beam alignment of thru-beam type se The optimum receiver position is given by indicate well as an audio signal.				

Note: Refer to p.414~ for details of the sensor checker CHX-SC2.

Reflector mounting bracket MS-RF23 MS-RF22

Ś Two M4 (length 10 mm 0.394 in)



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

• MS-RF21-1

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

• MS-NX5-1 • MS-NX5-2 Two M4 (length 25 mm Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

Slit mask

Reflector • RF-210

touch.

• OS-NX5-3 \times 6

Fitted on the front face

of the sensor with one-

Sensor mounting bracket





• MS-NX5-3

0.984 in) screws with washers and two M4 nuts are attached.

0.984 in) screws with washers and two M4 nuts are attached.

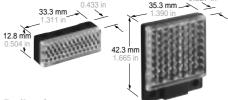
Interference prevention filter • PF-NX5-V • PF-NX5-H (For NX5-M10R only) Two sets of thru-beam type

sensors (Red LED type) can be mounted close together.

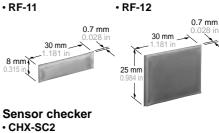


11 mm

• RF-220 8.3 mm



Reflective tape • RF-11



Sensor checker

Multi-voltage

NX5

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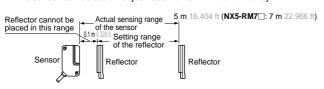
mplifier Built-i

SPECIFICATIONS

ľ		Time		Thru-beam				Retroreflective					
		Туре			Long sensing range		With polari	With polarizing filters		ing range	- Diffuse r	reflective	
Iten	n	Model No.	NX5-M10RA	NX5-M10RB	NX5-M30A	NX5-M30B	NX5-PRVM5A	NX5-PRVM5B	NX5-RM7A	NX5-RM7B	NX5-D700A	NX5-D700B	
Sen	ising range		10 m 32.808 ft 30 m 98.425 ft				0.1 to 5 m 0.328 to	0 16.404 ft (Note 1)	0.1 to 7 m 0.328 to 22.966 ft (Note 1) 700 mm 27.559			59 in (Note 2)	
Sensing object			¢20 mm ∉0.787 in or more opaque object (Note 3)						Opaque, translucent or transparent object				
Hys	teresis											r less of n distance	
	eatability pendicular to	sensing axis)	0.1 mm 0.00	0.1 mm 0.004 in or less			0.2 mm 0.00	08 in or less			0.3 mm 0.0	0.3 mm 0.012 in or less	
Sup	ply voltage				24 to 240 V	$AC \pm 10\% c$	or 12 to 240 V	′ DC ± 10 %	Ripple P-P 1	0 % or less	SS		
Pow	ver consumpt	tion	Emitter: 1 \ Receiver: 2	VA or less 2 VA or less	Emitter: 1.5 Receiver: 2				2 VA o	r less			
Output			R	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) • Mechanical life: 100 million or more switching operations (switching frequency 36,000 operations/hour)						ur)			
	Output opera	ation	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	
Res	ponse time		10 ms or less										
Ope	eration indicat	tor	Red LED (lights up when the output is ON)										
Stat	bility indicator	r	Green LED (lights up under stable light received condition or stable dark condition)										
Power indicator				Red LED (lights up when the power is ON)									
Sen	sitivity adjust	ter	Continuously v	ariable adjuster			Continuously variable adjuster			Continuously v	variable adjuster		
	omatic interfe vention function		(Use optional interference) Incorporated (Two units of sensors can be mounted close together					ogether.)					
	Pollution deg	gree					3 (Industrial e	environment)	1				
	Protection		IP66 (IEC)										
ance	Ambient tem	nperature	-20 to + 5	55 °C − 4 to	+ 131 °F (Nc	dew conder	sation or icin	g allowed)(N	ote 4), Storag	e: - 30 to -	+70 °C −22	to + 158 °F	
siste	Ambient hun	midity		35 to 85 % RH, Storage: 35 to 85 % RH									
al re	Ambient illur	minance	Sunlight: 11,000 ℓ x at the light-receiving face, Incandescent light: 3,500 ℓ x at the light-receiving face										
tent	EMC		EN 50081-2, EN 50082-2, EN 61000-6-2										
Environmental resistance	Voltage with	standability	1,500 V AC for one min. between power supply and output terminals, 1,000 V AC for one min. between relay contact terminals										
Envir	Insulation re	esistance	20 MΩ, o	or more, with !	500 V DC me	egger betwee	n power supp	oly and outpu	ut terminals, ar	nd between	relay contact	terminals	
	Vibration res	sistance		10 to 55	5 Hz frequenc	cy, 1.5 mm 0	.059 in amplit	ude in X, Y a	nd Z direction	s for two ho	urs each		
	Shock resist	tance			500 m/s ²	2 (50 G appro	ox.) in X, Y an	d Z direction	is for three tim	les each			
Emi	tting element	t	Red LED (Red LED (modulated) Infrared LED (modulated) Red LED (modulated) Infrared LED (modulated)									
Mat	Material		Enclosure	Enclosure: Polycarbonate, Lens: Polycarbonate, Cover: Polycarbonate, Front cover (retroreflective type sensor only): Acrylic									
Cab	le			0	.3 mm ² 5-cor	e (thru-beam	type emitter:	2-core) cabt	tyre cable, 2 m	n 6.562 ft lo r	ng		
Cab	Cable 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 receiv						receiver).				
Wei	Weight		Emitter: 100 Receiver: 14	0 g approx. 40 g approx.	approx. Emitter: 125 g approx. 140 g approx			prox.					
Acc	Accessories		Adjusting scre	ewdriver: 1 pc.				RF-230 (Reflector): 1 pc. Adjusting screwdriver: 1 pc. RF-230 (Reflector): 1 pc.		Adjusting scre	ewdriver: 1 pc.		

Notes: 1) 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.

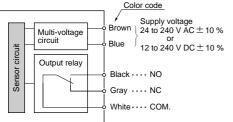


2) The sensing range of the diffuse reflective type sensor is specified for white non-glossy paper ($200 \times 200 \text{ mm } 7.874 \times 7.874 \text{ in}$) as the object. 3) If slit masks (optional) are fitted, an object as small as $3 \times 6 \text{ mm } 0.118 \times 0.236$ in can be detected. 4) In case the sensor is to be used at an ambient temperature of -15 °C + 5 °F, or less, please contact our office.

I/O CIRCUIT DIAGRAM

I/O circuit diagram

NX5



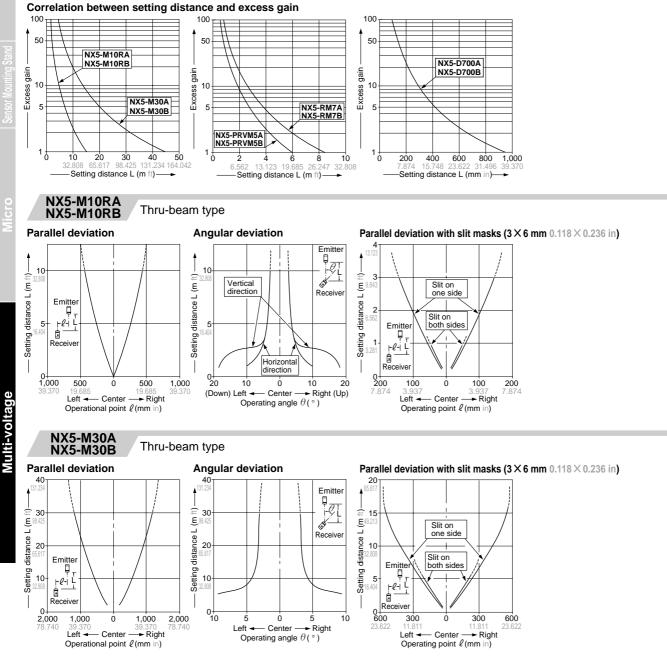
Out	put opera	ation			: Object detected state.				
Como		Thru-b	eam & Re	troreflectiv	e type	Diffuse reflective type			
Sensing mode		Light-ON (A) type		Dark-ON (B) type		Light-ON (A) type		Dark-ON (B) type	
Output		NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)
	Power OFF	Open	Close	Open	Close	Open	Close	Open	Close
Output condition	Beam-received	Close	Open	Open	Close	Close	Open	Open	Close
	Beam-interrupted	Open	Close	Close	Open	Open	Close	Close	Open

Internal circuit -

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

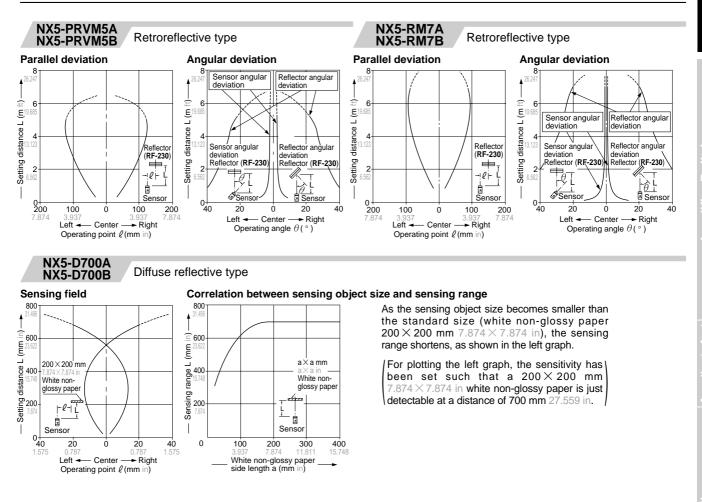
SENSING CHARACTERISTICS (TYPICAL)

All models



362 SUNX

SENSING CHARACTERISTICS (TYPICAL)

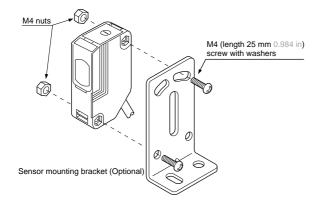


PRECAUTIONS FOR PROPER USE

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 0.8 N·m or less.



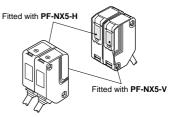
Others

• Do not use during the initial transient time (50 ms) after the power supply is switched on.

Refer to p.1135~ for general precautions.

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.



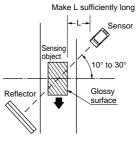
• There are two types of interference prevention filters. The two sets of thru-beam type sensors should be fitted with different types of interference prevention filters.

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



Retroreflective type sensor (NX5-RM7)

- Please take care of the following points when detecting materials having a gloss.
- Make L, shown in the diagram, sufficiently long.
- 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_)

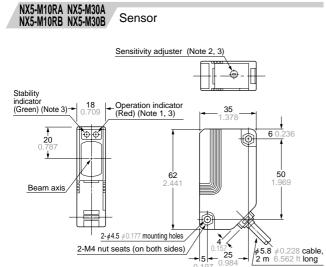
 If a shiny object is covered or wrapped with a transparent film, such as those described below, the retroreflective type sensor with polarizing filters may not be able to detect it.

In that case, follow the steps given below.

Example of sensing objects

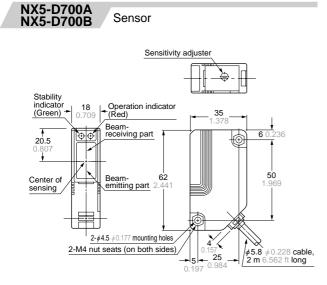
- Can wrapped by clear film
- Aluminum sheet covered by plastic film
- · Gold or silver color (specular) label or wrapping paper
- Steps
 - Tilt the sensor with respect to the sensing object while fitting.
 - Reduce the sensitivity.
 - Increase the distance between the sensor and the sensing object.

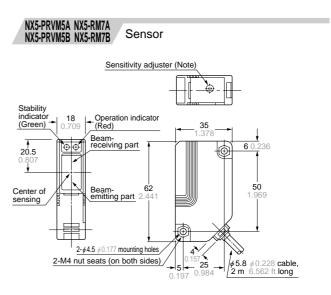
DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.co.jp/



Notes: 1) It is the power indicator (red) on the emitter of NX5-M30□. 2) Not incorporated on NX5-M30□.

3) Not incorporated on the emitter.





Note: Not incorporated on NX5-RM7

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PHOTOELECTRIC SENSORS

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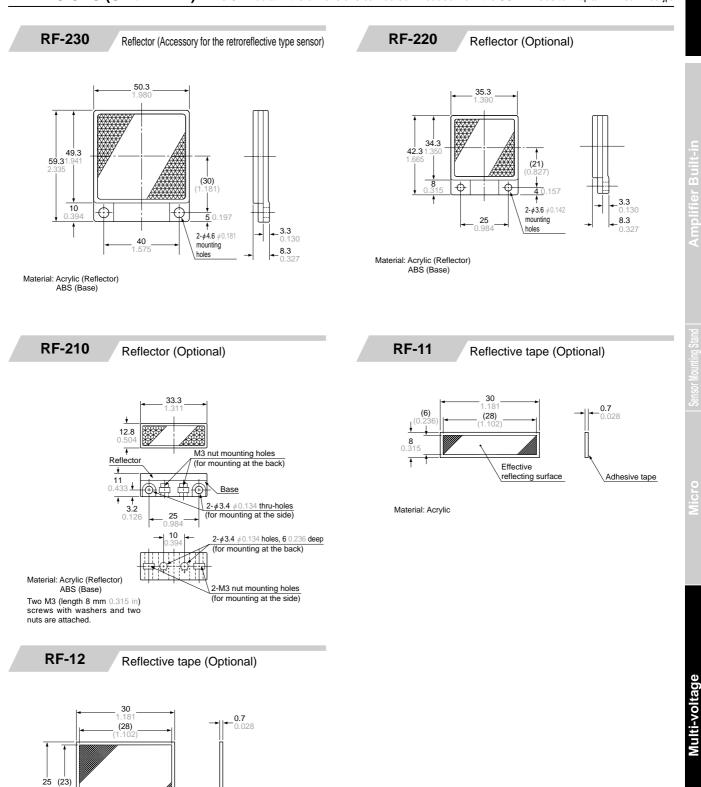
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PM2

NX5

EQ-500



DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.co.jp/

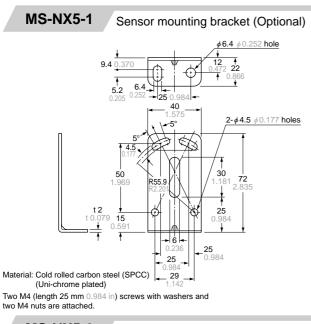
Material: Acrylic

Effective

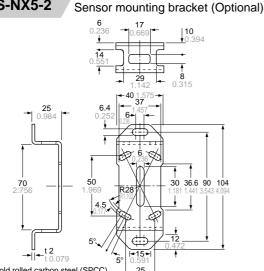
reflecting surface

Adhesive tape

DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.co.jp/



MS-NX5-2



Material: Cold rolled carbon steel (SPCC) 25 (Uni-chrome plated) Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached

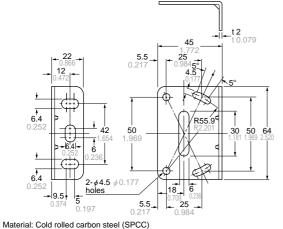
MS-NX5-3

NX5

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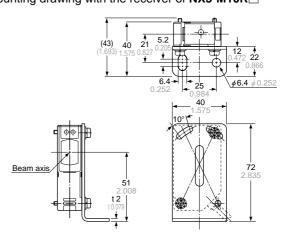
Sensor mounting bracket (Optional)



(Uni-chrome plated)

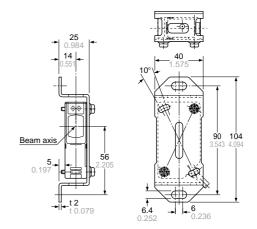
Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

Assembly dimensions Mounting drawing with the receiver of NX5-M10R



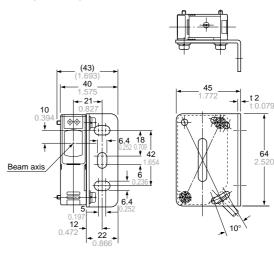
Assembly dimensions

Mounting drawing with the receiver of NX5-M10R



Assembly dimensions

Mounting drawing with the receiver of NX5-M10R



NX5

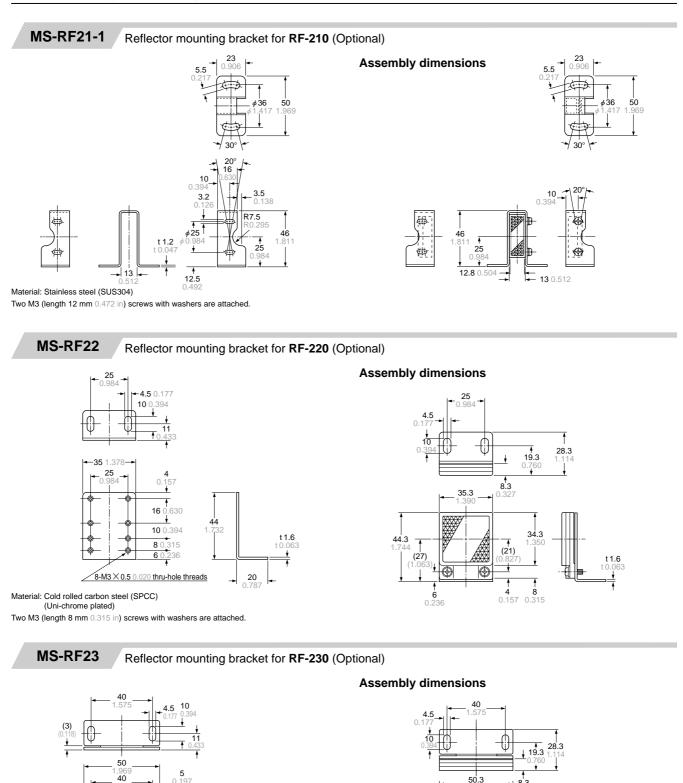
S-AJ

N

PM2

NX5

Multi-voltage



Material: Cold rolled carbon steel (SPCC) (Uni-chrome plated) Two M4 (length 10 mm 0.394 in) screws with washers are attached.

26 1.024

--- (28)(1.102)

35

12

.47

(3) (0.118) 16

18 0.70

8-M4 × 0.7 0.028 thru-hole threads

61

t 2

20

