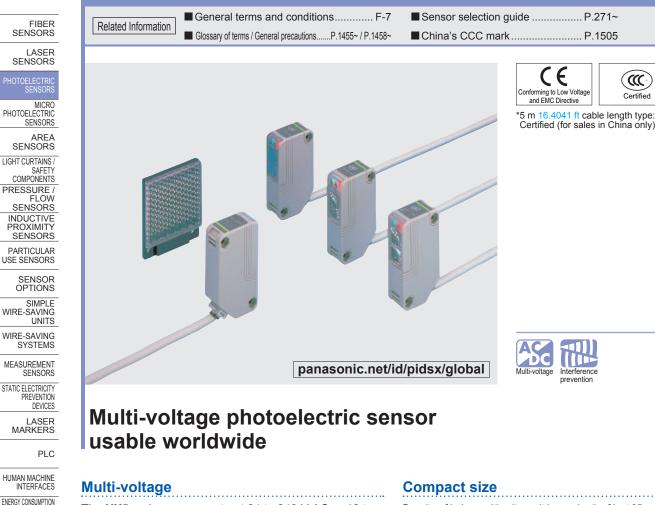
Compact Multi-voltage Photoelectric Sensor Power Supply Built-in SERIES



The NX5 series can operate at 24 to 240 V AC or 12 to 240 V DC, which is suitable for supply voltages around the world.



Direct hook-up to an AC power supply

No need to arrange a DC power supply.

Selection Guide Amplifier Built-in Amplifier-separated

VISUALIZATION COMPONENTS

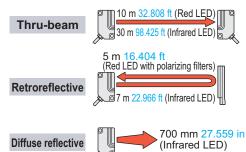
FA COMPONENTS

UV CURING SYSTEMS

Long sensing range

BASIC PERFORMANCE

It is most suitable for conveyor lines and parking lot applications.



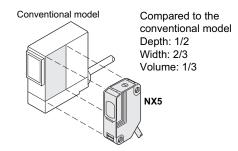
FUNCTIONS / MOUNTING

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 checking the emitted beam visually.

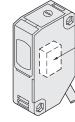
.....

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



High reliability

It has an IP66 protection. Moderate dust or water splashes will not affect the sensor. The hermetically sealed output relay significantly increases its reliability.



Hermetically sealed relay eliminates worries about bad contact

Interference prevention

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

Downloaded from Arrow.com.

402

FIBER SENSORS

LASER SENSORS

PHOTO-ELECTRIC SENSORS AREA SENSORS

LIGHT CURTAINS / SAFETY COMPONENTS

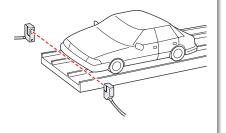
PRESSURE / FLOW SENSORS

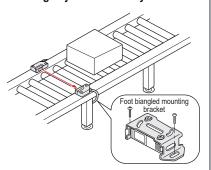
INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS

APPLICATIONS

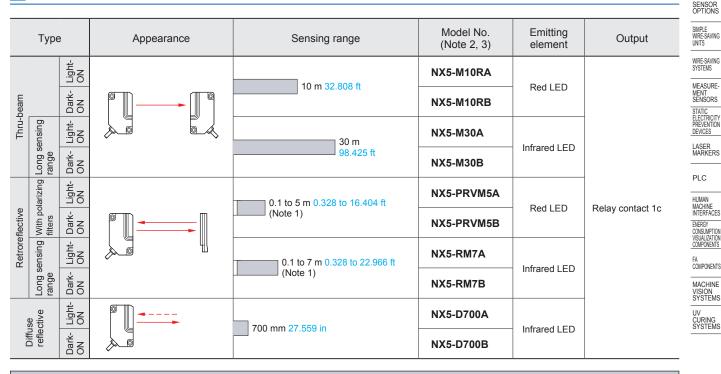
Detecting car position at parking garage

Detecting objects on conveyor line



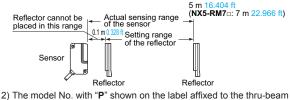


ORDER GUIDE



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.



type sensor is the emitter, "D" shown on the label is the receiver.

 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.

is the same as when an object is detected.)

(p.405)" for the output operation of each model.

NX5-RM7A

(Light-ON)

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

Refer to "I/O CIRCUIT DIAGRAM AND OUTPUT OPERATION

NX5-PRVM5A and

Retroreflective type Diffuse reflective type

NX5-D700B

(Dark-ON)

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".

X5

Selection Guide

Amplifier Built-in

Amplifierseparate

Accessory

• RF-230 (Reflector)



Thru-beam type

NX5-M10RA and

NX5-M30A

(Light-ON)

FIBER SENSORS

LASER SENSORS

OPTIONS

Designation	Model No.	Descript	• MS-N	
	MS-NX5-1	Foot angled mounting bracket (The thru-beam type sensor needs		
Sensor mounting bracket	MS-NX5-2	Foot biangled mounting bracket (s (The thru-beam type sensor needs		
	MS-NX5-3	Back angled mounting bracket (The thru-beam type sensor needs	Two M4 (len	
Slit mask		Sensing range: Slit on one side Min. sensing object	0.984 in) scr washers and nuts are atta	
For thru-beam	OS-NX5-3×6		Slit m	
type sensor only	$\left(\begin{array}{c} \text{Slit size 3 \times 6 mm} \\ 0.118 \times 0.236 \text{ in} \end{array}\right)$	Slit on both sides Min. sensing objective	OS-N Fitted or front fac sensor v	
Interference prevention filter (For NX5-M10RA or NX5-M10RB only)	PF-NX5-V (Vertical,Silver)	Same type of filters on both sides • Sensing range: 5 m 16.404 ft	one toud	
	PF-NX5-H (Horizontal, Light brown)	• Min. sensing object: ø20 mm ø0 (One set consists of 2 pcs. of inter	G 2	
Reflector For retrore- flective type sensor only	RF-210	 Sensing range: 0.1 to 1.5 m 0.32 0.1 to 2.5 m 0.32 Min. sensing object: ø30 mm ø1 	Reflec	
	RF-220	 Sensing range: 0.1 to 3.5 m 0.32 0.1 to 5 m 0.328 Min. sensing object: ø35 mm ø1. 	• RF-2	
Reflector	MS-RF21-1	Protective mounting bracket for RI It protects the reflector from damage	33. 1.3 12.8 mm 0.504 in	
nounting vracket	MS-RF22	For RF-220		
	MS-RF23	For RF-230		
Reflective tape /For retrore- flective type \sensor only	RF-11	 Ambient temperature: -25 to +50 °C -13 to +122 °F Ambient humidity: 35 to 85 % RH Notes	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_]	Reflect • MS-R
	RF-12	 Keep the tape free from stress. 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 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 the optimum receiver position is g well as an audio signal.	Two M4 (10 mm 0. screws wi	

Note: Refer to p.980 for details of the sensor checker CHX-SC2.

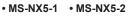
Selection Guide

Amplifier Built-in

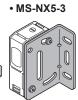
ver Supply Built-in

Amplifier-separated

Sensor mounting bracket







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



Interference prevention filter

• OS-NX5-3×6 Fitted on the front face of the sensor with

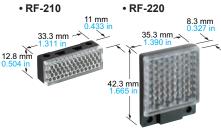
(For NX5-M10R only) • PF-NX5-V(Vertical, Silver color) • PF-NX5-H(Horizontal, Light brown) Two sets of thru-beam type sensors (Red LED type) can be mounted close together.



0.984 in) screws with washers and two M4

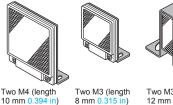
nuts are attached.

Reflector



Reflector mounting bracket

• MS-RF21-1 • MS-RF23 • MS-RF22



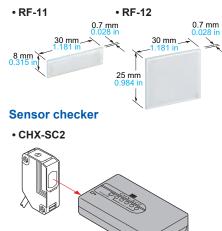
screws with washers are

attached.

Two M4 (length 10 mm 0.394 in 4 in) screws with washers are attached.

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

Reflective tape





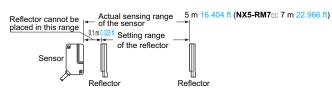
SPECIFICATIONS

\swarrow			Thru-beam				Retroreflective						
Тур					Long sensing range					Long sensing range		eflective	
Item	n Mo	del No.	NX5-M10RA	NX5-M10RB		NX5-M30B	NX5-PRVM5A		NX5-RM7A	NX5-RM7B	NX5-D700A	NX5-D700B	
Sen	sing range		10 m 32	2.808 ft	30 m 98	3.425 ft	0.1 to 5 m 0.328 to		0.1 to 7 m 0.328 to	22.966 ft (Note 2)	700 mm 27.5	59 in (Note 3)	
Sen	sing object		ø20 mm ø0.7 opaque objec		ø20 mm ø0.787 in or m (Completely beam inter		ø50 mm ø1.969 in o translucent or specu		ø50 mm ø1.969 i or translucent obj	n or more opaque ect (Note 2, 5)			
Hyst	teresis				1	. <u> </u>			1		15 % or less of opera	tion distance (Note 3)	
Repeatability (perpendicular to sensing axis) 0.1 mm 0.004 in or less 0.2 mm 0.008 in or less 0.3 mm 0.0						0.3 mm 0.0	12 in or less						
Sup	ply voltage		24 to 240 V AC ⁺¹⁰ ₋₁₅ % or				or 12 to 240 V	DC ⁺¹⁰ ₋₁₅ %	Ripple P-P 1	0 % or less	_		
Power consumption			Emitter: 1 VA or less Emitter: 1.5 VA or less Receiver: 2 VA or less 2 VA or less										
			R	elay contact									
Output			 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 swi	tching operati	ons (switchir	ng frequency	3,600 operat		ur)	
Output operation			Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	
Res	ponse time			Dun-On		Durk-ON		or less		Duin-Oil			
	ration indicator					Red I Fl			ut is ON)	·			
· ·	bility indicator		Red LED (lights up when the output is ON) Green LED (lights up under stable light received condition or stable dark condition)										
			Red LED										
Power indicator					(lights up when the power is ON)								
Sensitivity adjuster Continuously variable			ariable adjuster			Continuously v	ariable adjuster		·	Continuously v	ariable adjuster		
Automatic interference prevention function			Use optional interference Incorporated (Two units of sensors can be mounted close together.)										
	Pollution degree		3 (Industrial environment)										
	Protection		IP66 (IEC)										
ince	Ambient temperat	ture	-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 humidity		35 to 85 % RH, Storage: 35 to 85 % RH										
Environmental resistance	Ambient illuminan	ice			Ir	ncandescent	light: 3,500 ł	x at the light-	-receiving fac	e			
men	EMC		EN 61000-6-2, EN 61000-6-4										
viron	Voltage withstand	lability	1,500 V AC	for one min.	between pow	ver supply ar	nd output tern	ninals, 1,000	V AC for one	min. betwee	en relay conta	ct terminals	
Εu	Insulation resistar	nce	20 MΩ, or more, with 500 V DC megger between power supply and output terminals, and between relay contact terminals										
	Vibration resistant	се		10 to 55	5 Hz frequenc	y, 1.5 mm <mark>0</mark> .	059 in amplit	ude in X, Y a	nd Z directior	ns for two ho	urs each		
	Shock resistance		500 m/s ² (50 G approx.) in X, Y and Z directions for three times each										
Emit	tting element		Red LED (r	modulated)	Infrared LED	(modulated)	Red LED (modulated)		Infrared LEI	D (modulated)		
	Peak emission way	velength	660 nm 0.026 mil 880 nm 0.035 mil			660 nm 0.026 mil 880 nm 0.035 mil							
Mate	erial		Enclosure:	Enclosure: Polycarbonate, Lens: Polycarbonate, Cover: Polycarbonate, Front cover (retroreflective type sensor only): Acrylic									
Cab	le		0.3 mm ² 5-core (thru-beam type emitter: 2-core) cabtyre cable, 2 m 6.562 ft long										
Cab	le 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						receiver).				
Net	weight		Emitter: 100 Receiver: 14		Emitter: 125 g approx. Receiver: 140 g approx.								
Acce	essories		Adjusting scre	ewdriver: 1 pc.			RF-230 (Refle		RF-230 (Ret	lector): 1 pc.	Adjusting scre	ewdriver: 1 pc.	
	43.340												

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.

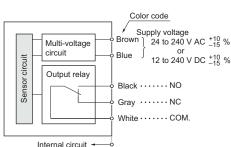
5) Make sure to confirm detection with an actual sensor before use.

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

FIBER SENSORS

FIBER I/O CIRCUIT DIAGRAM AND OUTPUT OPERATION

LASER I/O circuit diagram



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

Output operation

: Object detected state.

Canaina mada		Thru-beam & Retroreflective type				Diffuse reflective type				
50	ensing mode	Light-ON (A) type		Dark-ON (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	
	Beam-interrupted	Open	Close	Close	Open	Open	Close	Close	Open	

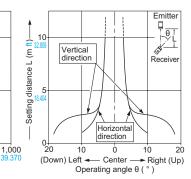
SENSING CHARACTERISTICS (TYPICAL)

NX5-M10RA NX5-M10RB

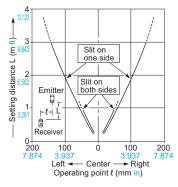
ENERGY CONSUMPTION VISUALIZATION COMPONENTS Parallel deviation FA COMPONENTS MACHINE VISION SYSTEMS 10 Setting distance L (m ft)-UV CURING SYSTEMS Emitte 5 + 1+ 4 Receive 0∔ 1,000 500 Ó 500 Selection Guide Left ◄ Center Right Operational point ℓ (mm in) Amplifier Built-in

NX5-M30A NX5-M30B

Angular deviation



Parallel deviation with slit masks (3 × 6 mm 0.118 × 0.236 in)



Thru-beam type

Thru-beam type

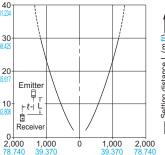
Parallel deviation

Left -

ower Supply Built-in

Amplifierseparated

Setting distance L (m ft).

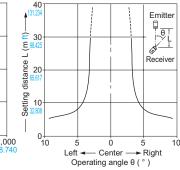


- Center

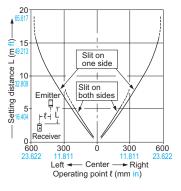
Operational point (mm in)

Right

Angular deviation

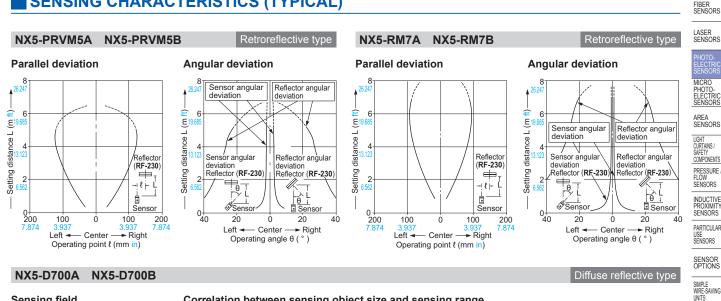


Parallel deviation with slit masks (3 × 6 mm 0.118 × 0.236 in)



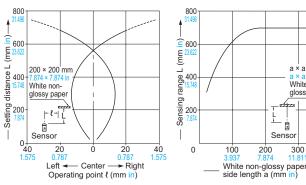


SENSING CHARACTERISTICS (TYPICAL)



Sensing field

(mm in)



Correlation between sensing object size and sensing range

400

a × a mm

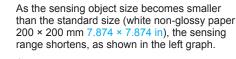
White non-

glossy pape

ł ĥ

Senso

300



For plotting the left graph, the sensitivity has been set such that a 200 \times 200 mm 7.874 \times 7.874 in white non-glossy paper is just detectable at a distance of 700 mm 27.559 in.

Refer to p.1458~ for general precautions.

MACHINE VISION SYSTEMS UV CURING SYSTEMS

WIRE-SAVING SYSTEMS

MEASURE-

MENT SENSORS

STATIC ELECTRICITY PREVENTION

LASER MARKERS

DEVICES

PLC

HUMAN

ENERGY

MACHINE INTERFACES

CONSUMPTIO VISUALIZATIO COMPONENTS

FA COMPONENTS

Selection Guide Amplifier Built-in

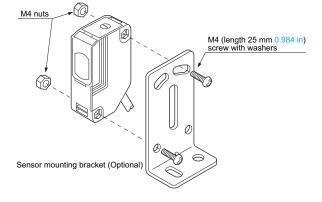
NX5

PRECAUTIONS FOR PROPER USE

- 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.

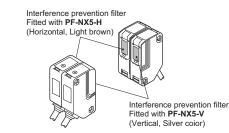


Others

- 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_D)

- · Use the interference prevention filters (optional) when two units of thru-beam type sensors are mounted close together. However, take note that the sensing range will become short.
- There are 2 types of interference prevention filters. Install PF-NX5-H (Horizontal, Light brown) for 1 set, and install PF-NX5-V (Vertical, Silver color) for the other set.



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

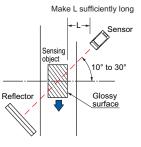
Downloaded from Arrow.com.

FIBER SENSORS LASER SENSORS MICRO PHOTO-ELECTRIC SENSORS AREA SENSORS LIGHT CURTAINS / SAFETY COMPONENTS PRESSURE / SENSORS INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSOR OPTIONS SIMPLE WIRE-SAVING UNITS WIRE-SAVING SYSTEMS MEASURE-MENT SENSORS STATIC ELECTRICITY PREVENTION DEVICES LASER MARKERS PLC HUMAN MACHINE ENERGY CONSUMPTION VISUALIZATION COMPONENTS FA COMPONENTS MACHINE VISION SYSTEMS ΠV CURING

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.
- Install at an angle of 10 to 30 degrees to the sensing object.



* NX5-PRVM5□ does not need the above adjustment.

Refer to p.1458~ for general precautions.

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

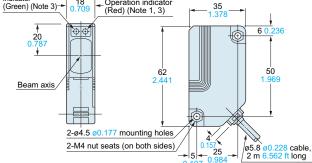
Steps

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

The CAD data in the dimensions can be downloaded from our website.

DIMENSIONS (Unit: mm in)

NX5-M10RA NX5-M10RB NX5-M30A NX5-M30B Sensor Sensitivity adjuster (Note 2, 3) Stability indicator (Green) (Note 3) + 0.709 - Operation indicator (Red) (Note 1, 3)

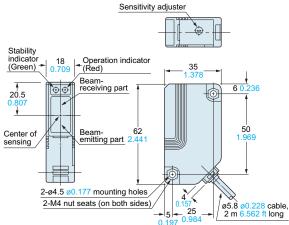


Notes: 1) It is the power indicator (red) on the emitter of NX5-M30.. 2) Not incorporated on NX5-M30.. 3) Not incorporated on the emitter.

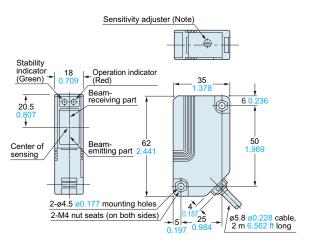
Selection Guide Amplifier Built-in Power Supply Built-in Amplifierseparated

NX5-D700A NX5-D700B





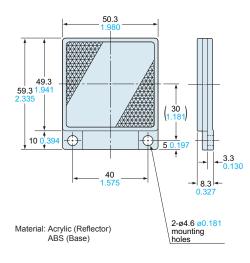
NX5-PRVM5A NX5-PRVM5B NX5-RM7A NX5-RM7B Sensor



Note: Not incorporated on NX5-RM7 ...

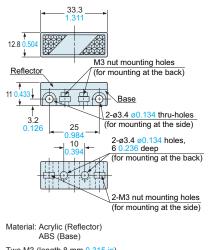
DIMENSIONS (Unit: mm in)



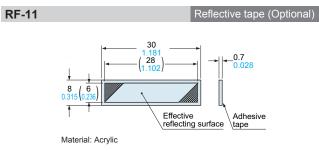


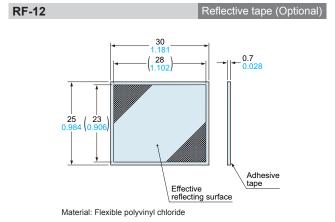
RF-210



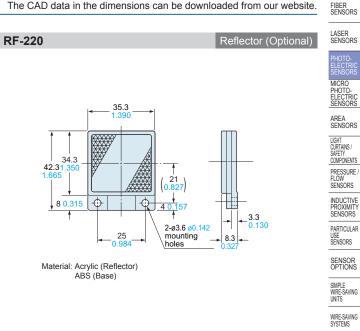


Two M3 (length 8 mm 0.315 in) screws with washers and two nuts are attached.





The CAD data in the dimensions can be downloaded from our website.



ENERGY CONSUMPTION VISUALIZATION COMPONENTS FA COMPONENTS MACHINE VISION SYSTEMS UV CURING SYSTEMS

> Selection Guide Amplifier Built-in

wer Sup ilt-in

Amplifier-separated

NX5

MEASURE-MENT SENSORS STATIC ELECTRICITY PREVENTION

DEVICES

PLC

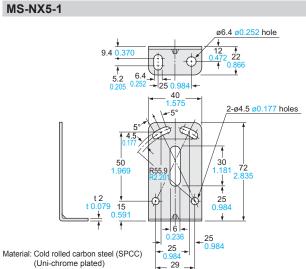
LASER MARKERS

HUMAN MACHINE INTERFACES

DIMENSIONS (Unit: mm in)

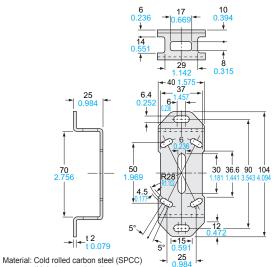
FIBER SENSORS LASER SENSORS





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

MS-NX5-2

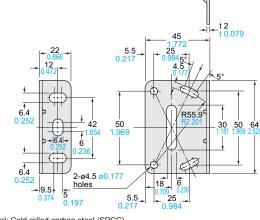


(Uni-chrome plated)

MS-NX5-3

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





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

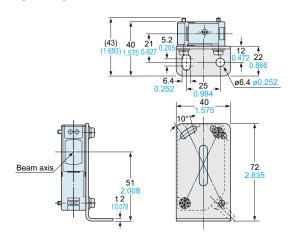
Two M4 (length 25 mm $0.984\ \text{in})$ screws with washers and two M4 nuts are attached.

The CAD data in the dimensions can be downloaded from our website.

Sensor mounting bracket (Optional)

Assembly dimensions

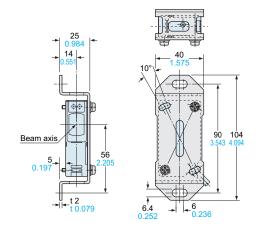
Mounting drawing with the receiver of NX5-M10R



Sensor mounting bracket (Optional)

Assembly dimensions

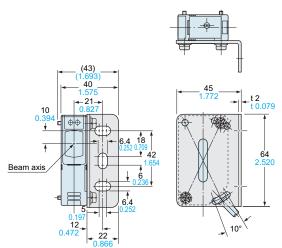
Mounting drawing with the receiver of NX5-M10R



Sensor mounting bracket (Optional)

Assembly dimensions

Mounting drawing with the receiver of NX5-M10R



DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from our website.

