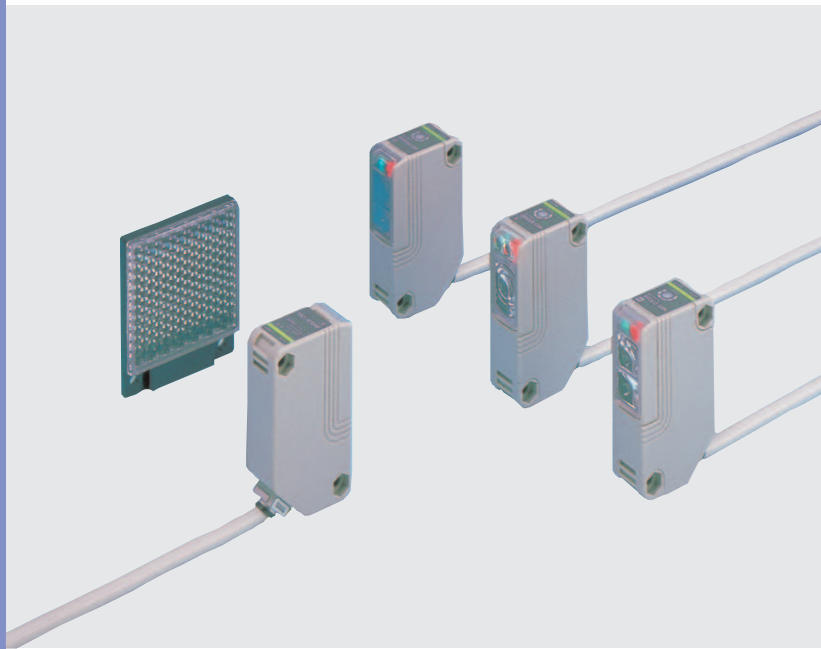


# NX5 SERIES

Related Information

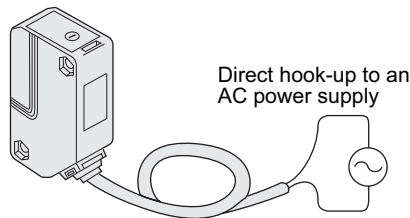
- General terms and conditions..... F.17
- Sensor selection guide ..... P.283~
- Glossary of terms / General precautions.....P.1359~ / P.1405
- China's CCC mark ..... P.1409



## Multi-voltage photoelectric sensor usable worldwide

### Multi-voltage

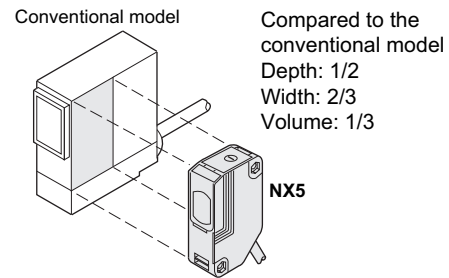
The **NX5** series can operate at 24 to 240 V AC or 12 to 240 V DC, which is suitable for supply voltages around the world.



No need to arrange a DC power supply.

### Compact size

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**)

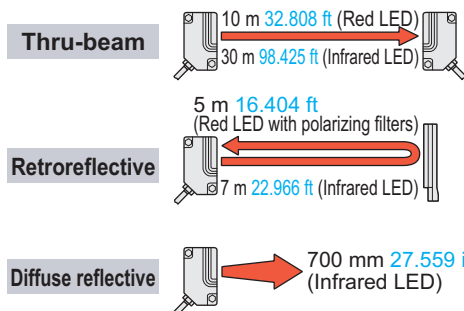


Compared to the conventional model  
 Depth: 1/2  
 Width: 2/3  
 Volume: 1/3

## BASIC PERFORMANCE

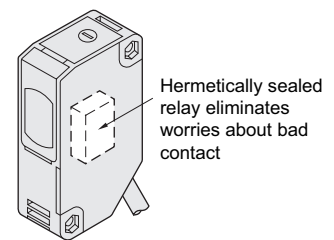
### Long sensing range

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



### 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.



## 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.

### Interference prevention

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

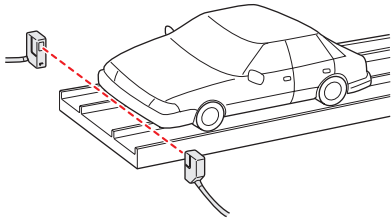
- FIBER SENSORS
- LASER SENSORS
- PHOTOELECTRIC SENSORS
- MICRO PHOTOELECTRIC SENSORS
- AREA SENSORS
- LIGHT CURTAINS
- PRESSURE / FLOW SENSORS
- INDUCTIVE PROXIMITY SENSORS
- PARTICULAR USE SENSORS
- SENSOR OPTIONS
- SIMPLE WIRE-SAVING UNITS
- WIRE-SAVING SYSTEMS
- MEASUREMENT SENSORS
- STATIC CONTROL DEVICES
- ENDOSCOPE
- LASER MARKERS
- PLC / TERMINALS
- HUMAN MACHINE INTERFACES
- ENERGY CONSUMPTION VISUALIZATION COMPONENTS
- FA COMPONENTS
- MACHINE VISION SYSTEMS
- UV CURING SYSTEMS

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

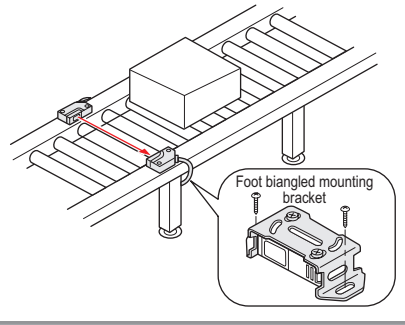
- NX5
- VF

**APPLICATIONS**

**Detecting car position at parking garage**



**Detecting objects on conveyor line**

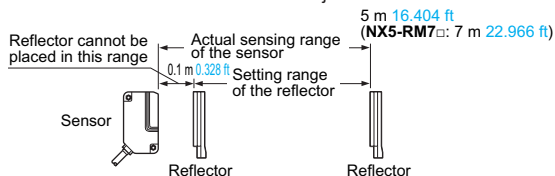


**ORDER GUIDE**

Type	Appearance	Sensing range	Model No. (Note 2, 3)	Emitting element	Output
Thru-beam		10 m 32.808 ft	NX5-M10RA	Red LED	Relay contact 1c
			NX5-M10RB		
		30 m 98.425 ft	NX5-M30A	Infrared LED	
			NX5-M30B		
Retroreflective		0.1 to 5 m 0.328 to 16.404 ft (Note 1)	NX5-PRVM5A	Red LED	
			NX5-PRVM5B		
		0.1 to 7 m 0.328 to 22.966 ft (Note 1)	NX5-RM7A	Infrared LED	
			NX5-RM7B		
Diffuse reflective		700 mm 27.559 in	NX5-D700A	Infrared LED	
			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.



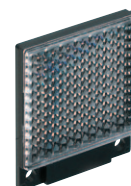
**5 m 16.404 ft cable length type**

5 m 16.404 ft cable length type (standard: 2 m 6.562 ft) is also available. 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"**.

- The model No. with **"P"** shown on the label affixed to the thru-beam type sensor is the emitter. **"D"** shown on the label is the receiver. (e.g.) Emitter of **NX5-M10RA: NX5-M10RP**, Receiver of **NX5-M10RA: NX5-M10RAD**
- 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 **"I/O CIRCUIT DIAGRAM AND OUTPUT OPERATION"** for the output operation of each model.

**Accessory**

- **RF-230** (Reflector)



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

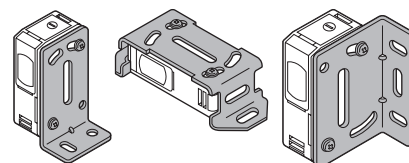
**OPTIONS**

Designation	Model No.	Description
Sensor mounting bracket	<b>MS-NX5-1</b>	Foot angled mounting bracket (The thru-beam type sensor needs two brackets.)
	<b>MS-NX5-2</b>	Foot biangled mounting bracket (sensor protection bracket) (The thru-beam type sensor needs two brackets.)
	<b>MS-NX5-3</b>	Back angled mounting bracket (The thru-beam type sensor needs two brackets.)
Slit mask (For thru-beam type sensor only)	<b>OS-NX5-3×6</b> (Slit size 3 × 6 mm 0.118 × 0.236 in)	Slit on one side <ul style="list-style-type: none"> <li>• Sensing range: 3 m <b>9.843 ft</b> [NX5-M10R□] 16 m <b>52.493 ft</b> [NX5-M30□]</li> <li>• Min. sensing object: ø10 mm <b>ø0.394 in</b> [NX5-M10R□] ø20 mm <b>ø0.787 in</b> [NX5-M30□]</li> </ul>
		Slit on both sides <ul style="list-style-type: none"> <li>• Sensing range: 1 m <b>3.281 ft</b> [NX5-M10R□] 6 m <b>19.685 ft</b> [NX5-M30□]</li> <li>• Min. sensing object: 3 × 6 mm <b>0.118 × 0.236 in</b></li> </ul>
Interference prevention filter (For NX5-M10RA or NX5-M10RB only)	<b>PF-NX5-V</b> (Vertical, Silver)	Same type of filters on both sides <ul style="list-style-type: none"> <li>• Sensing range: 5 m <b>16.404 ft</b></li> <li>• Min. sensing object: ø20 mm <b>ø0.787 in</b></li> </ul> (One set consists of 2 pcs. of interference prevention filters.)
	<b>PF-NX5-H</b> (Horizontal, Light brown)	
Reflector (For retro-reflective type sensor only)	<b>RF-210</b>	<ul style="list-style-type: none"> <li>• Sensing range: 0.1 to 1.5 m <b>0.328 to 4.921 ft</b> [NX5-PRVM5□] 0.1 to 2.5 m <b>0.328 to 8.202 ft</b> [NX5-RM7□]</li> <li>• Min. sensing object: ø30 mm <b>ø1.181 in</b></li> </ul>
	<b>RF-220</b>	<ul style="list-style-type: none"> <li>• Sensing range: 0.1 to 3.5 m <b>0.328 to 11.483 ft</b> [NX5-PRVM5□] 0.1 to 5 m <b>0.328 to 16.404 ft</b> [NX5-RM7□]</li> <li>• Min. sensing object: ø35 mm <b>ø1.378 in</b></li> </ul>
Reflector mounting bracket	<b>MS-RF21-1</b>	Protective mounting bracket for <b>RF-210</b> It protects the reflector from damage and maintains alignment.
	<b>MS-RF22</b>	For <b>RF-220</b>
	<b>MS-RF23</b>	For <b>RF-230</b>
Reflective tape (For retro-reflective type sensor only)	<b>RF-11</b>	<ul style="list-style-type: none"> <li>• Ambient temperature: -25 to +50 °C <b>-13 to +122 °F</b></li> <li>• Ambient humidity: 35 to 85 % RH</li> </ul> Notes <ul style="list-style-type: none"> <li>• Keep the tape free from stress. If it is pressed too much, its capability may deteriorate.</li> <li>• Do not cut the tape. It will deteriorate the sensing performance.</li> </ul>
	<b>RF-12</b>	<ul style="list-style-type: none"> <li>• Sensing range: 0.1 to 1 m <b>0.328 to 3.281 ft</b> [NX5-PRVM5□]</li> <li>• Sensing range: 0.1 to 1.5 m <b>0.328 to 4.921 ft</b> [NX5-RM7□]</li> </ul>
Sensor checker (Note)	<b>CHX-SC2</b>	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.

Note: Refer to the sensor checker **CHX-SC2** pages for details.

**Sensor mounting bracket**

- **MS-NX5-1** • **MS-NX5-2** • **MS-NX5-3**

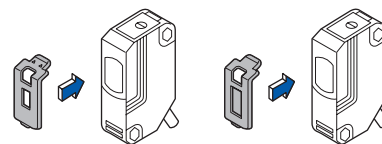


Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached. Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached. Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

**Slit mask**

- **OS-NX5-3×6**

Fitted on the front face of the sensor with one touch.

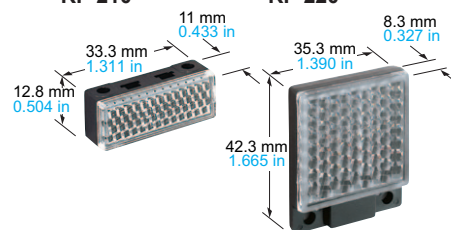


**Interference prevention filter**  
(For NX5-M10R□ only)

- **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.

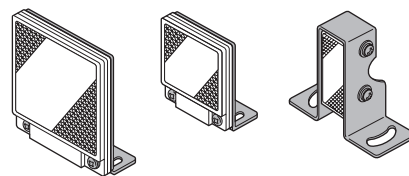
**Reflector**

- **RF-210** • **RF-220**



**Reflector mounting bracket**

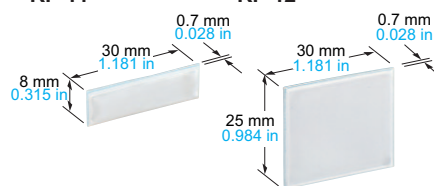
- **MS-RF23** • **MS-RF22** • **MS-RF21-1**



Two M4 (length 10 mm 0.394 in) screws with washers are attached. Two M3 (length 8 mm 0.315 in) screws with washers are attached. Two M3 (length 12 mm 0.472 in) screws with washers are attached.

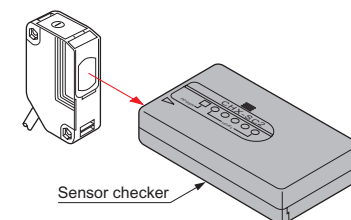
**Reflective tape**

- **RF-11** • **RF-12**



**Sensor checker**

- **CHX-SC2**



FIBER SENSORS  
LASER SENSORS  
PHOTO-ELECTRIC SENSORS  
MICRO PHOTO-ELECTRIC SENSORS  
AREA SENSORS  
LIGHT CURTAINS  
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FA COMPONENTS  
MACHINE VISION SYSTEMS  
UV CURING SYSTEMS  
Selection Guide  
Amplifier Built-in  
Power Supply Built-in  
Amplifier-separated

**NX5**  
**VF**

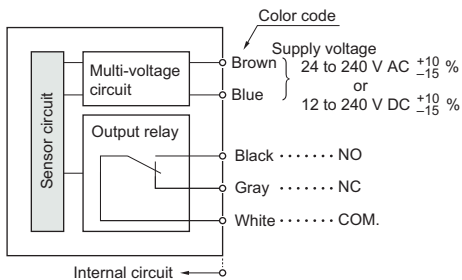
mailbox@sentronic.com  
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 Amplifier Built-in  
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 Amplifier-separated  
**NX5**  
**VF**

## I/O CIRCUIT DIAGRAM AND OUTPUT OPERATION

### 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.

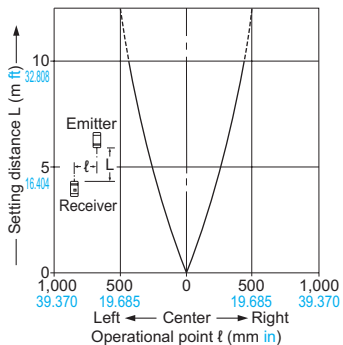
Sensing mode	Thru-beam & Retroreflective type				Diffuse reflective type			
	Light-ON (A) type		Dark-ON (B) type		Light-ON (A) type		Dark-ON (B) type	
Output	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NC (Gray cable)
Power OFF	Open	Close	Open	Close	Open	Close	Open	Close
Beam-received	Close	Open	Open	Close	Close	Open	Open	Close
Beam-interrupted	Open	Close	Close	Open	Open	Close	Close	Open

## SENSING CHARACTERISTICS (TYPICAL)

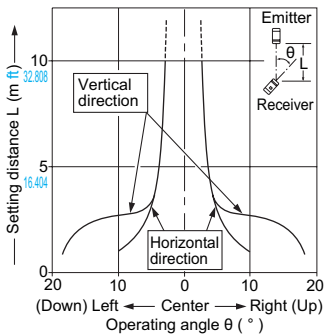
### NX5-M10RA NX5-M10RB

Thru-beam type

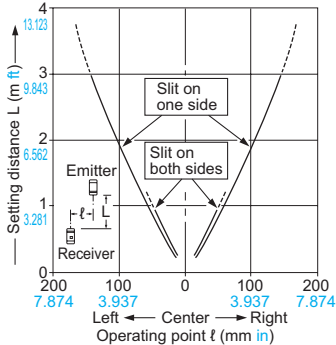
#### Parallel deviation



#### Angular deviation



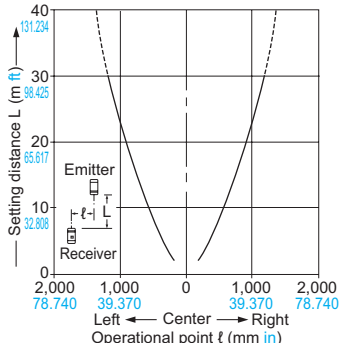
#### Parallel deviation with slit masks (3 x 6 mm 0.118 x 0.236 in)



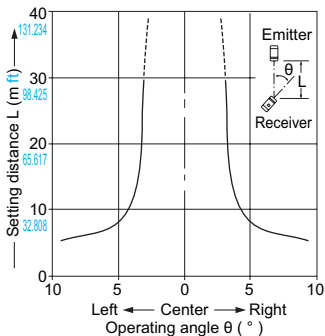
### NX5-M30A NX5-M30B

Thru-beam type

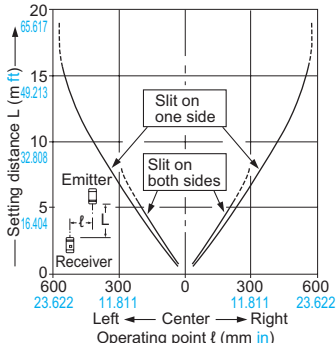
#### Parallel deviation



#### Angular deviation



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



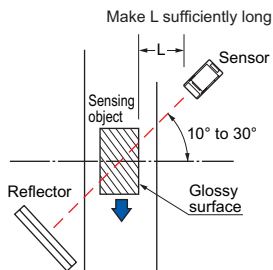
## PRECAUTIONS FOR PROPER USE

Refer to General precautions.

### 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. 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

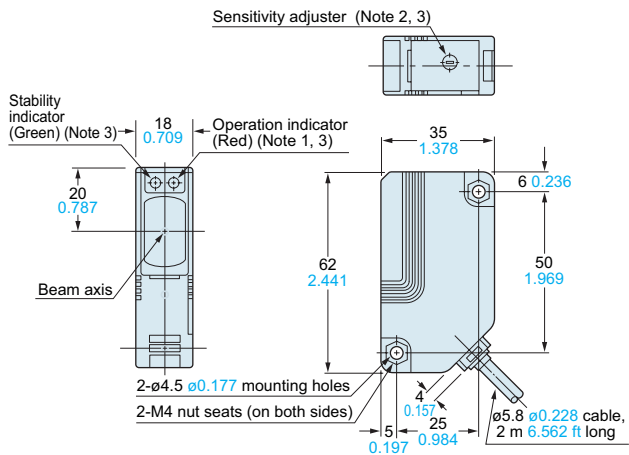
#### Steps

- 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)

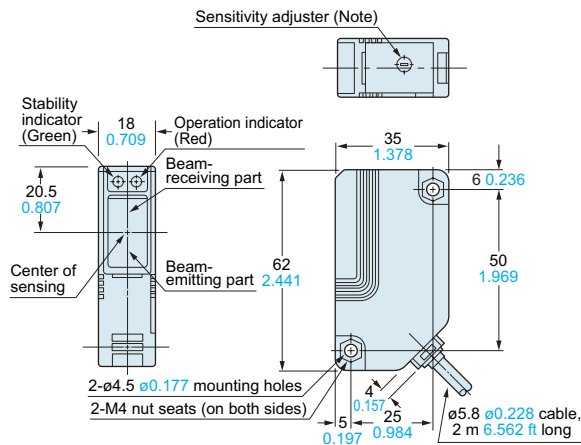
The CAD data in the dimensions can be downloaded from our website.

### NX5-M10RA NX5-M10RB NX5-M30A NX5-M30B Sensor



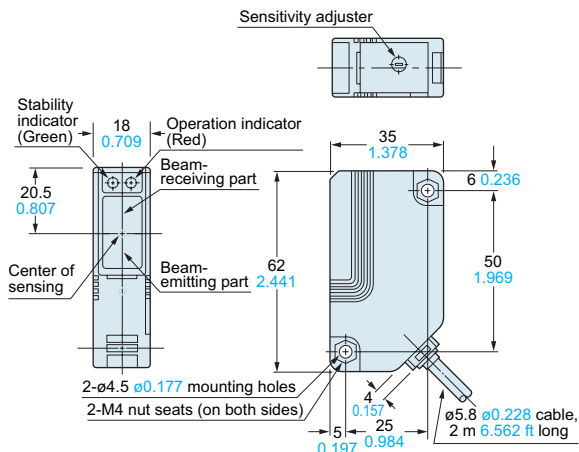
Notes: 1) It is the power indicator (red) on the emitter of NX5-M30□.  
 2) Not incorporated on NX5-M30□.  
 3) Not incorporated on the emitter.

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



Note: Not incorporated on NX5-RM7□.

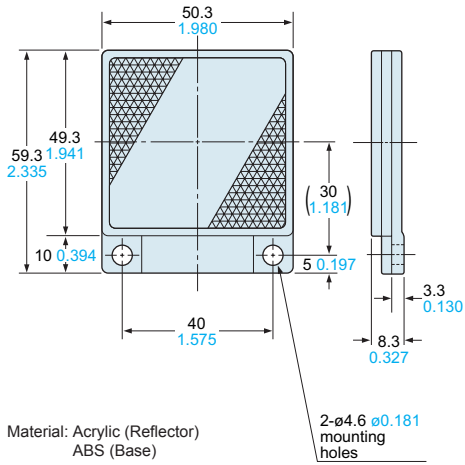
### NX5-D700A NX5-D700B Sensor



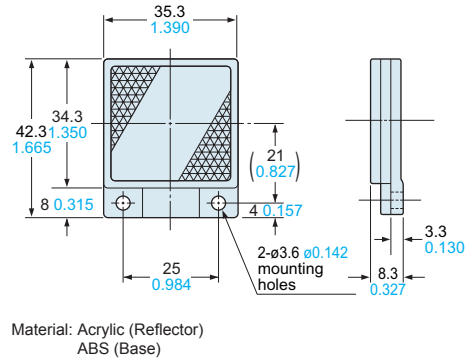
**DIMENSIONS (Unit: mm in)**

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

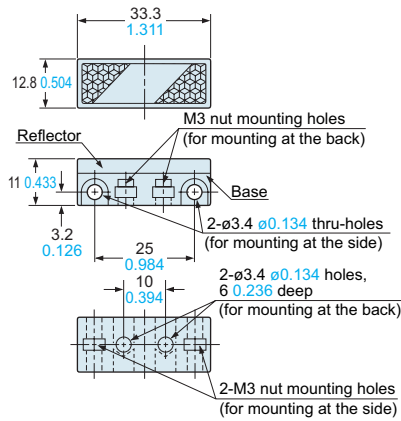
**RF-230** Reflector (Accessory for the retroreflective type sensor)



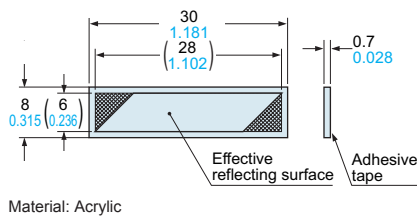
**RF-220** Reflector (Optional)



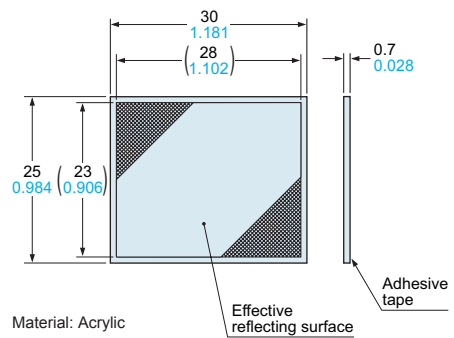
**RF-210** Reflector (Optional)



**RF-11** Reflective tape (Optional)



**RF-12** Reflective tape (Optional)

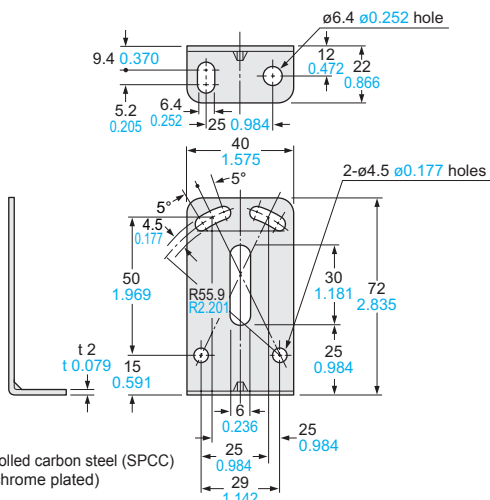


**DIMENSIONS (Unit: mm in)**

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

**MS-NX5-1**

Sensor mounting bracket (Optional)

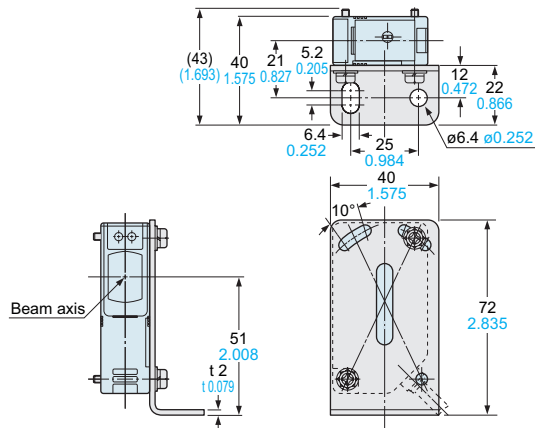


Material: Cold rolled carbon steel (SPCC) (Uni-chrome plated)

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

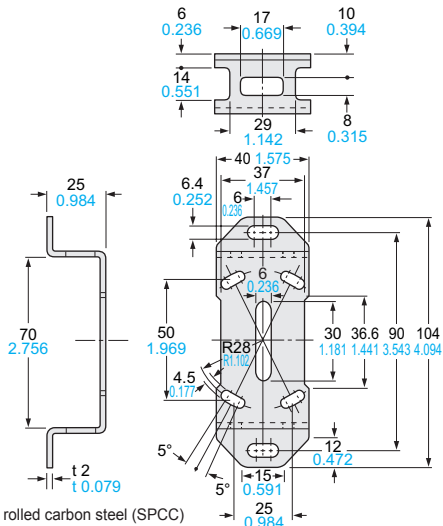
**Assembly dimensions**

Mounting drawing with the receiver of NX5-M10R□



**MS-NX5-2**

Sensor mounting bracket (Optional)

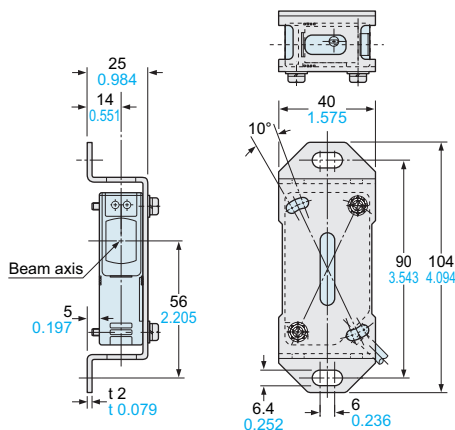


Material: Cold rolled carbon steel (SPCC) (Uni-chrome plated)

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

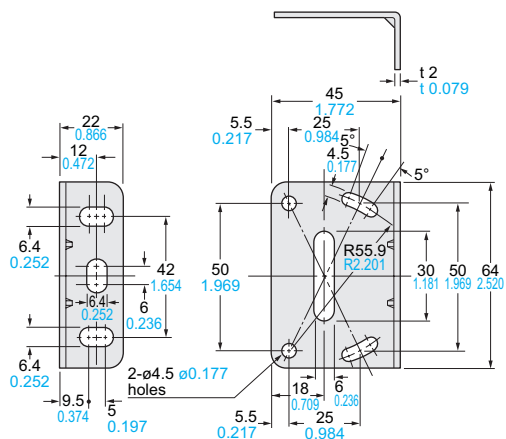
**Assembly dimensions**

Mounting drawing with the receiver of NX5-M10R□



**MS-NX5-3**

Sensor mounting bracket (Optional)

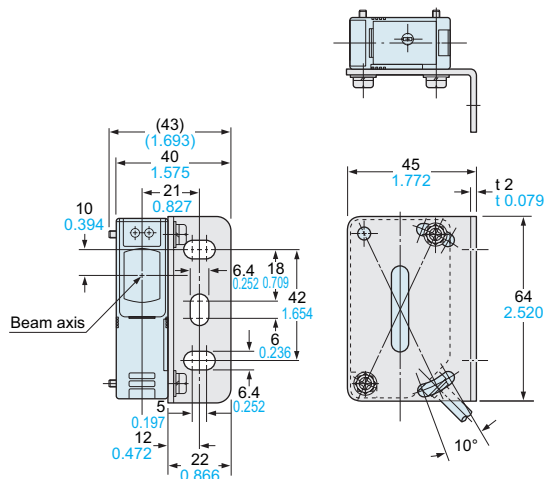


Material: Cold rolled carbon steel (SPCC) (Uni-chrome plated)

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

**Assembly dimensions**

Mounting drawing with the receiver of NX5-M10R□



- FIBER SENSORS
- LASER SENSORS
- PHOTO-ELECTRIC SENSORS
- MICRO PHOTO-ELECTRIC SENSORS
- AREA SENSORS
- LIGHT CURTAINS
- PRESSURE / FLOW SENSORS
- INDUCTIVE PROXIMITY SENSORS
- PARTICULAR USE SENSORS
- SENSOR OPTIONS
- SIMPLE WIRE-SAVING UNITS
- WIRE-SAVING SYSTEMS
- MEASUREMENT SENSORS
- STATIC CONTROL DEVICES
- ENDOSCOPE
- LASER MARKERS
- PLC / TERMINALS
- HUMAN MACHINE INTERFACES
- ENERGY CONSUMPTION VISUALIZATION COMPONENTS
- FA COMPONENTS
- MACHINE VISION SYSTEMS
- UV CURING SYSTEMS
- Selection Guide
- Amplifier Built-in
- Power Supply Built-in
- Amplifier-separated
- NX5**
- VF**



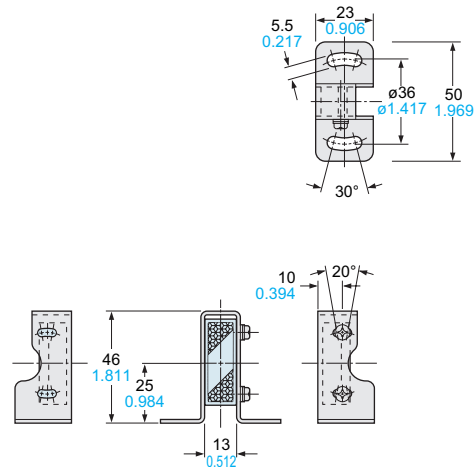
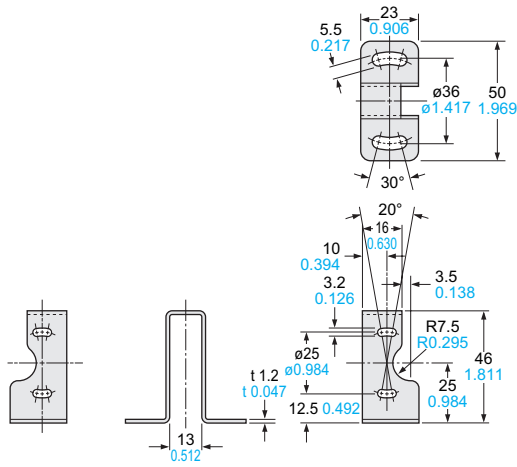
**DIMENSIONS (Unit: mm in)**

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

**MS-RF21-1**

Reflector mounting bracket for RF-210 (Optional)

**Assembly dimensions**



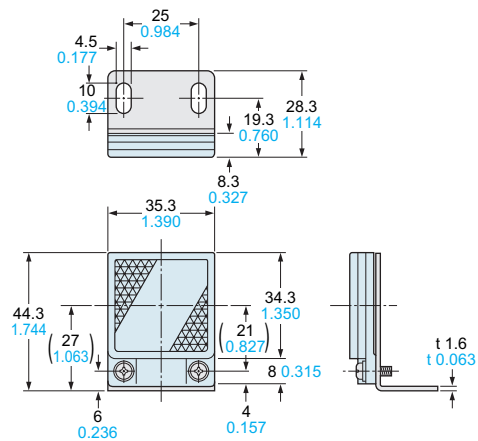
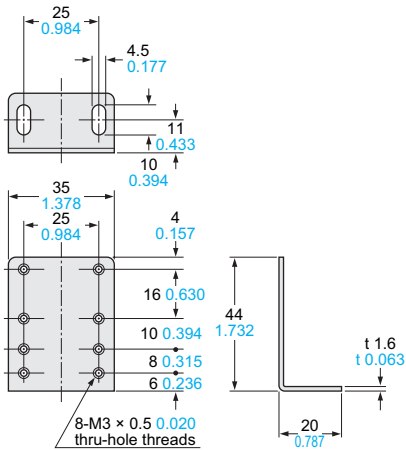
Material: Stainless steel (SUS304)

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

**MS-RF22**

Reflector mounting bracket for RF-220 (Optional)

**Assembly dimensions**



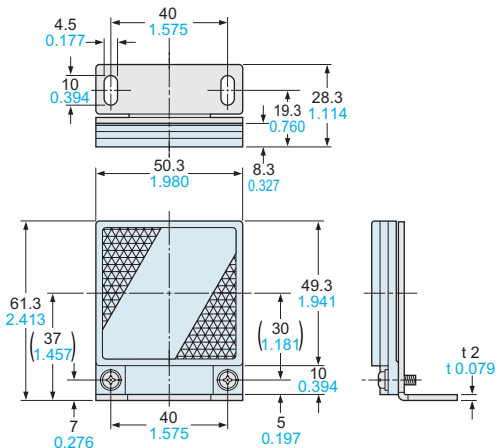
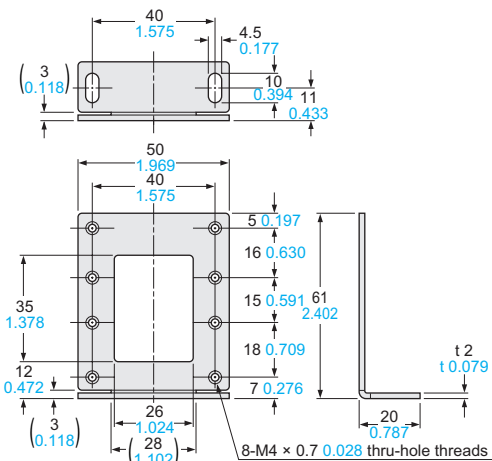
Material: Cold rolled carbon steel (SPCC)  
(Uni-chrome plated)

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

**MS-RF23**

Reflector mounting bracket for RF-230 (Optional)

**Assembly dimensions**



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

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