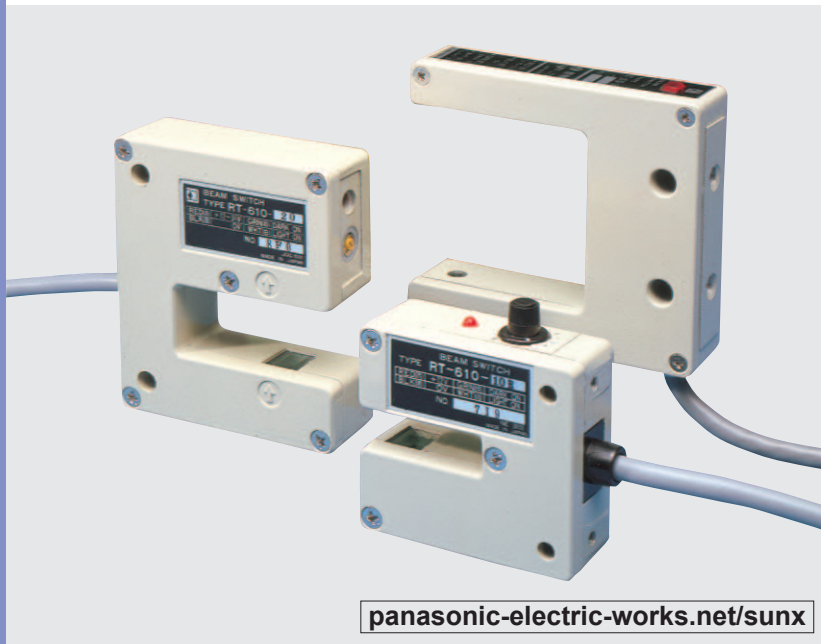


# RT-610 SERIES

Related Information

- General terms and conditions..... F-17
- Sensor selection guide..... P.283~
- Glossary of terms..... P.1359~
- General precautions ..... P.1405

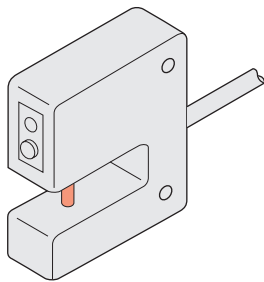


[panasonic-electric-works.net/sunx](http://panasonic-electric-works.net/sunx)

## Suitable for address reading and sensing cut-off marks

### Beam axis alignment not required

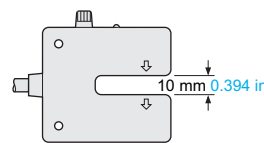
Beam axis alignment is not required as the emitter and the receiver are integrated in a single body.



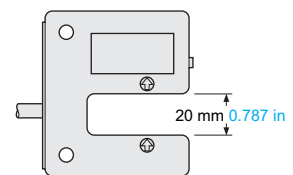
### Wide product range

There are three models having a sensing range of 10 mm **0.394 in**, 20 mm **0.787 in**, and 50 mm **1.969 in**. The models with sensing ranges of 10 mm **0.394 in** and 20 mm **0.787 in** are also available in red LED type and green LED type for mark sensing.

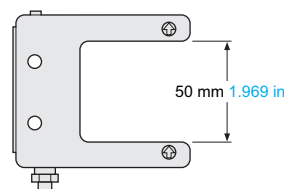
RT-610-10□



RT-610-20□



RT-610-50



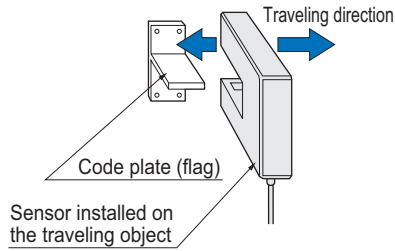
### Robust die-cast enclosure

The robust die-cast enclosure maintains high reliability.

FIBER SENSORS
LASER SENSORS
PHOTOELECTRIC SENSORS
MICRO PHOTOELECTRIC SENSORS
AREA SENSORS
LIGHT CURTAINS
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PARTICULAR USE SENSORS
SENSOR OPTIONS
SIMPLE WIRE-SAVING UNITS
WIRE-SAVING SYSTEMS
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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
CX-400
EX-10
EX-20
EX-30
EX-40
CX-440
EQ-30
EQ-500
MQ-W
RX-LS200
RX
RT-610

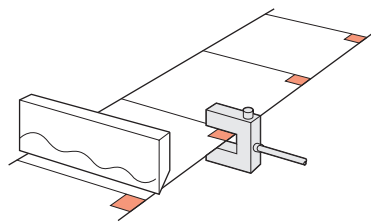
**APPLICATIONS**

**Address reading**



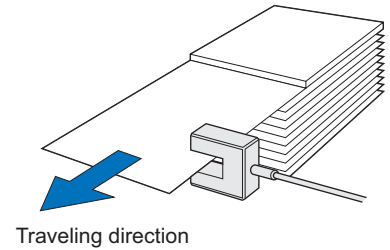
It can also be used to confirm the position of transportation equipment such as crane, etc.

**Sensing cut-off marks**



It can sense cut-off marks on a transparent film.

**Sensing overlapping paper**



Checking paper feed on various printing machines.

**ORDER GUIDE**

Type	Appearance	Sensing range	Model No.	Output	Emitting element
10 mm 0.394 in sensing range For mark sensing		10 mm 0.349 in (fixed)	<b>RT-610-10</b>	NPN transistor universal	Infrared LED
			<b>RT-610-10R</b>		Red LED
			<b>RT-610-10G</b>		Green LED
20 mm 0.787 in sensing range For mark sensing		20 mm 0.787 in (fixed)	<b>RT-610-20</b>		Infrared LED
			<b>RT-610-20R</b>		Red LED
			<b>RT-610-20G</b>		Green LED
50 mm 1.969 in sensing range		50 mm 1.969 in (fixed)	<b>RT-610-50</b>	Infrared LED	

**5 m 16.404 ft cable length type**

5 m 16.404 ft cable length type (standard: 1 m 3.281 ft, **RT-610-20**, **RT-610-20R** and **RT-610-20G**: 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 **RT-610-10** is “**RT-610-10-C5**”.

- FIBER SENSORS
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- EX-20**
- EX-30**
- EX-40**
- CX-440**
- EQ-30**
- EQ-500**
- MQ-W**
- RX-LS200**
- RX**
- RT-610**

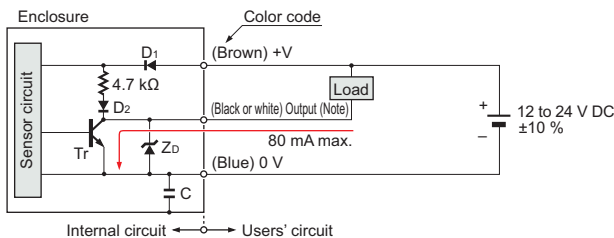
**SPECIFICATIONS**

Item	Model No.	U-shaped thru-beam						
		RT-610-10	RT-610-20	RT-610-50	RT-610-10R	RT-610-20R	RT-610-10G	RT-610-20G
Sensing range (fixed)		10 mm <b>0.394 in</b>	20 mm <b>0.787 in</b>	50 mm <b>1.969 in</b>	10 mm <b>0.394 in</b>	20 mm <b>0.787 in</b>	10 mm <b>0.394 in</b>	20 mm <b>0.787 in</b>
Sensing object		ø4 mm <b>ø0.157 in</b> or more opaque object			ø4 mm <b>ø0.157 in</b> or more opaque or translucent object (Note 2)			
Supply voltage		12 to 24 V DC ±10 % Ripple P-P 10 % or less						
Current consumption		40 mA or less						
Output		NPN transistor universal • Maximum sink current: 80 mA • Residual voltage: 1 V or less (at 80 mA sink current)						
Utilization category		DC-12 or DC-13	————	DC-12 or DC-13	DC-12 or DC-13	————	————	————
Output operation		Incorporated with two outputs, Light-ON / Dark-ON						
Response time		0.1 ms or less	1 ms or less	0.1 ms or less	0.1 ms or less	1 ms or less	0.1 ms or less	1 ms or less
Operation indicator		Red LED (lights up under light received condition)						
Sensitivity adjuster		Continuously variable adjuster		————	Continuously variable adjuster			————
Environmental resistance	Pollution degree	3 (Industrial environment)	————	3 (Industrial environment)	3 (Industrial environment)	————	————	————
	Protection	IP62 (IEC)	IP66 (IEC)		IP62 (IEC)	IP66 (IEC)	IP62 (IEC)	IP66 (IEC)
	Ambient temperature	-10 to +60 °C <b>+14 to +140 °F</b> (No dew condensation or icing allowed), Storage: -10 to +60 °C <b>+14 to +140 °F</b>						
	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH						
	Ambient illuminance	Incandescent light: 3,500 lx ( <b>RT-610-20R/20G</b> : 1,000 lx) at the light-receiving face						
	EMC	EN 60947-5-2	————	EN 60947-5-2	EN 60947-5-2	————	————	————
	Vibration resistance	10 to 55 Hz frequency, 1.5 mm <b>0.059 in</b> amplitude in X, Y and Z directions for two hours each						
	Shock resistance	500 m/s <sup>2</sup> acceleration (50 G approx.) in X, Y and Z directions for three times each						
Emitting element		Infrared LED (modulated)			Red LED (modulated)		Green LED (modulated)	
	Peak emission wavelength	950 nm <b>0.037 mil</b>	940 nm <b>0.037 mil</b>	950 nm <b>0.037 mil</b>	680 nm <b>0.027 mil</b>		570 nm <b>0.022 mil</b>	
Enclosure earthing		Floating	Capacitor earth	Floating	Floating	Capacitor earth	Floating	Capacitor earth
Material		Enclosure: Die-cast aluminum						
Cable		0.3 mm <sup>2</sup> 4-core cabtyre cable, 1 m <b>3.281 ft</b> long ( <b>RT-610-20</b> , <b>RT-610-20R</b> and <b>RT-610-20G</b> : 2 m <b>6.562 ft</b> long)						
Cable extension		Extension up to total 100 m <b>328.084 ft</b> is possible with 0.3 mm <sup>2</sup> , or more, cable.						
Net weight		150 g approx.	240 g approx.	180 g approx.	150 g approx.	240 g approx.	150 g approx.	240 g approx.
Accessories		Adjusting screwdriver: 1 pc. (Accessory for <b>RT-610-20□</b> ), Insulation fitting: 1 set (Accessory for <b>RT-610-20□</b> )						

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C **+73.4 °F**.  
2) Make sure to confirm detection with an actual sensor before use.

**I/O CIRCUIT AND WIRING DIAGRAMS**

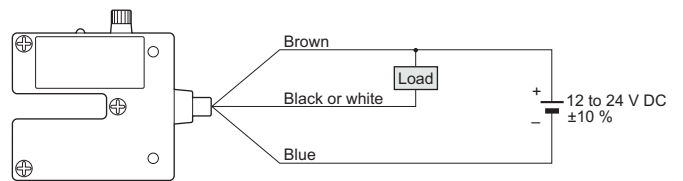
**I/O circuit diagram**



Note: The output does not incorporate a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.

Symbols ...	D1 : Reverse supply polarity protection diode D2 : Reverse current prevention diode ZD : Surge absorption zener diode Tr : NPN output transistor C : Capacitor (Incorporated in <b>RT-610-20□</b> )
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**Wiring diagram**



**Output operation**

Color code	Output operation
Black	Light-ON
White	Dark-ON

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