

RT-610 SERIES

Amplifier Built-in Robust U-shaped Photoelectric Sensor



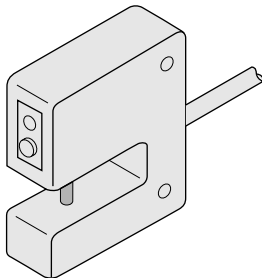
Suitable for Address Reading and Sensing Cut-off Marks

CE Marked

Conforming to EMC Directive (RT-610-50 only)

Beam Axis Alignment not Required

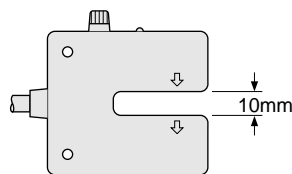
Beam axis alignment is not required as the emitter and the receiver are integrated in a single body.



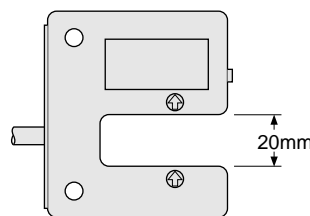
Wide Product Range

There are three models having a sensing range of 10mm, 20mm and 50mm. The models with a sensing range of 10mm and 20mm are also available as red LED type and green LED type for mark sensing.

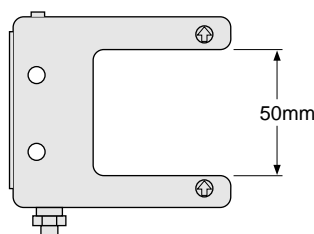
RT-610-10



RT-610-20



RT-610-50

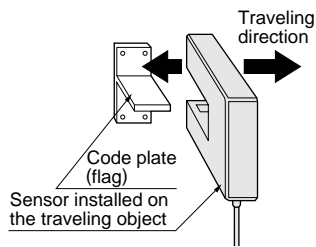


Robust Die-cast Housing

The robust die-cast housing maintains high reliability.

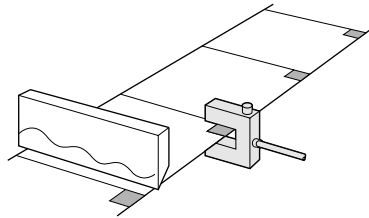
APPLICATIONS

Address reading



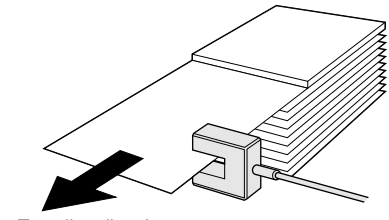
It can also be used to confirm the position of transportation equipment, such as, crane, etc.

Sensing cut-off marks



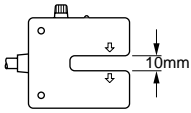

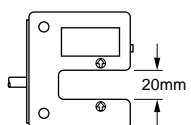

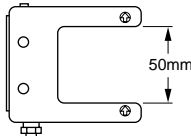

It can sense cut-off marks on a transparent film.

Sensing overlapping paper



Checking paper feed on various printing machines

ORDER GUIDE

| Type | Appearance | Sensing range | Model No. | Emitting element |
|--|---|---|------------|------------------|
| 10mm sensing range For mark sensing |  |  | RT-610-10 | Infrared LED |
| | | | RT-610-10R | Red LED |
| | | | RT-610-10G | Green LED |
| 20mm sensing range For mark sensing |  |  | RT-610-20 | Infrared LED |
| | | | RT-610-20R | Red LED |
| | | | RT-610-20G | Green LED |
| 50mm sensing range |  |  | RT-610-50 | Infrared LED |

EQ-20

EQ-30

EX-40

RX

Amplifier Built-in Type

CY

EX

PX-2

RT-610

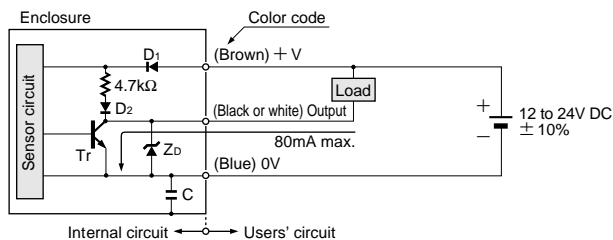
RT-610

SPECIFICATIONS

| Item | Model No. | U-shaped thru-beam | | | | | | |
|-----------------------|-----------|---|-----------------|--|--|---|--|-----------------|
| | | RT-610-10 | RT-610-20 | RT-610-50 | For mark sensing | | | |
| Sensing range (fixed) | | 10mm | 20mm | 50mm | 10mm | 20mm | 10mm | 20mm |
| Sensing object | | φ4mm or more opaque object | | | φ4mm or more opaque or translucent object | | | |
| Supply voltage | | 12 to 24V DC ± 10% Ripple P-P 10% or less | | | | | | |
| Current consumption | | 40mA or less | | | | | | |
| Output | | NPN transistor universal • Maximum sink current: 80mA • Residual voltage: 1V or less (at 80mA sink current) | | | | | | |
| Utilization category | | | | DC-12 or DC-13 | | | | |
| Output operation | | Incorporated with two outputs, Light-ON/Dark-ON | | | | | | |
| Response time | | 0.1ms or less | 1ms or less | 0.1ms or less | 0.1ms or less | 1ms or less | 0.1ms or less | 1ms or less |
| Operation indicator | | Red LED (lights up under light received condition) | | | | | | |
| Sensitivity adjuster | | Continuously variable adjuster | | | Continuously variable adjuster | | | |
| Pollution degree | | | | 3 (Industrial environment) | | | | |
| Protection | | IP62 (IEC) | IP66 (IEC) | | IP62 (IEC) | IP66 (IEC) | IP62 (IEC) | IP66 (IEC) |
| Ambient temperature | | - 10 to + 60°C (No dew condensation or icing allowed), Storage: - 10 to + 60°C | | | | | | |
| Ambient humidity | | 35 to 85% RH, Storage: 35 to 85% RH | | | | | | |
| Ambient illuminance | | Sunlight: 11,000 lx at the light-receiving face Incandescent light: 3,500 lx at the light-receiving face | | | Sunlight: 3,000 lx at the light-receiving face Incandescent light: 1,000 lx at the light-receiving face | Sunlight: 11,000 lx at the light-receiving face Incandescent light: 3,500 lx at the light-receiving face | Sunlight: 3,000 lx at the light-receiving face Incandescent light: 1,000 lx at the light-receiving face | |
| EMC | | | | Emission: EN50081-2 Immunity: EN50082-2 | | | | |
| Vibration resistance | | 10 to 55Hz frequency, 1.5mm amplitude in X, Y and Z directions for two hours each | | | | | | |
| Shock resistance | | 500m/s ² acceleration (50G approx.) in X, Y and Z directions for three times each | | | | | | |
| Emitting element | | Infrared LED (modulated) | | | Red LED (modulated) | | Green LED (modulated) | |
| Enclosure earthing | | Floating | Capacitor earth | Floating | Floating | Capacitor earth | Floating | Capacitor earth |
| Material | | Enclosure: Die-cast aluminum | | | | | | |
| Cable | | 0.3mm ² 4-core cabtyre cable, 1m long (RT-610-20, RT-610-20R and RT-610-20G: 2m long) | | | | | | |
| Cable extension | | Extension up to total 100m is possible with 0.3mm ² , or more, cable. | | | | | | |
| Weight | | 150g approx. | 240g approx. | 180g approx. | 150g approx. | 240g approx. | 150g approx. | 240g approx. |
| Accessories | | Adjusting screwdriver: 1 No. (Accessory for RT-610-20□), Insulation fitting: 1 set (Accessory for RT-610-20□) | | | | | | |

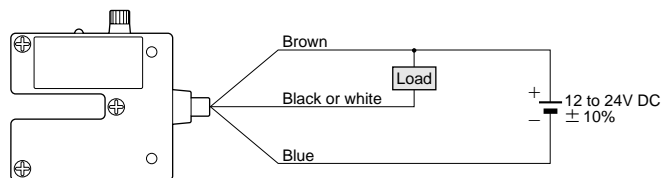
I/O CIRCUIT AND WIRING DIAGRAMS

I/O circuit diagram



Symbols ... D1: Reverse supply polarity protection diode
D2: Reverse current prevention diode
Zb: Surge absorption zener diode
Tr: NPN output transistor
C: Capacitor (Not incorporated in RT-610-10□ and RT-610-50)

Wiring diagram



Output operation

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

PRECAUTIONS FOR PROPER USE

Refer to P.820~for general precautions.



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.

Enclosure earthing

• RT-610-20□ is capacitor earthed to increase noise immunity. Use the attached insulation fitting in case of the following.
(RT-610-10□ and RT-610-50 do not require the insulation fitting because of floating earth.)

★ If there is equipment, such as an ultrasonic welder, spot welder, etc., generating high frequency noise near the sensor and the sensor is mounted on an electric conductor such as metal.

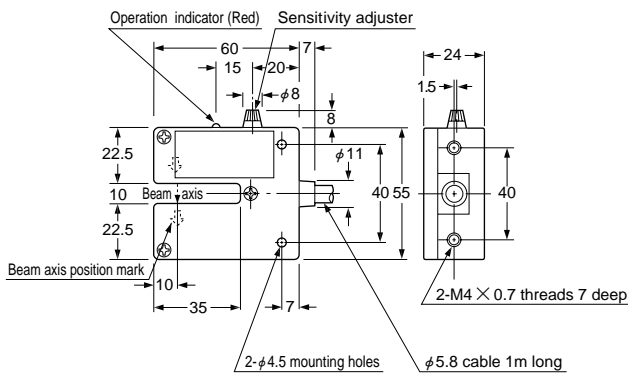
Further, do not supply power from a power supply incorporating an auto-transformer (single winding transformer), since this is dangerous.

Others

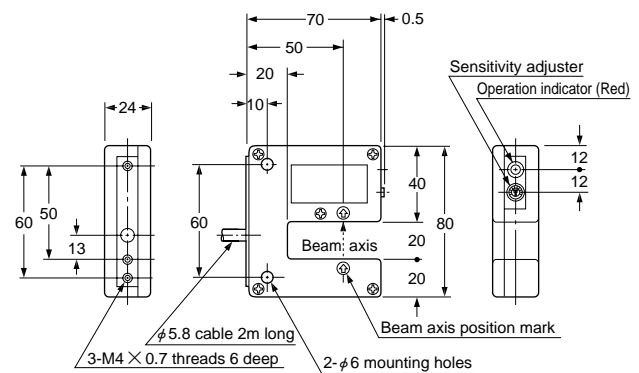
- The output is not incorporated with a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.
- Do not use during the initial transient time (50ms) after the power supply is switched on.

DIMENSIONS (Unit: mm)

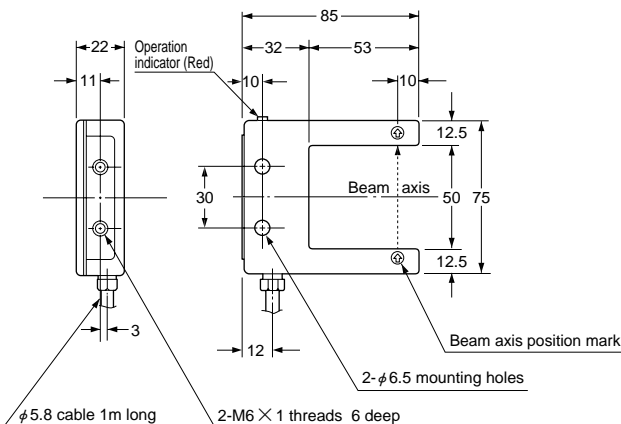
RT-610-10□ 10mm sensing range type



RT-610-20□ 20mm sensing range type



RT-610-50 50mm sensing range type



EQ-20

EQ-30

EX-40

RX

Amplifier Built-in Type

RX-LS200

CY

EX

PX-2

RT-610