

Thank you very much for purchasing Panasonic products. Read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference.

WARNING

- 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.

1 SPECIFICATIONS

Item	Type	U-shaped thru-beam						
		For mark sensing		For mark sensing				
Model No.		RT-610-10	RT-610-20	RT-610-50	RT-610-10R	RT-610-20R	RT-610-10G	RT-610-20G
Sensing range (fixed)		10mm	20mm	50mm	10mm	20mm	10mm	20mm
Sensing object		φ 4mm or more opaque object			φ 4mm 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)						
Output operation		Incorporated with two outputs, Light-ON / Dark-ON						
Response time		0.1ms or less	1ms or less	0.1ms or less	1ms or less	0.1ms or less	1ms or less	1ms or less
Operation indicator		Red LED (lights up under light received condition)						
Sensitivity adjuster		Continuously variable adjuster	—	Continuously variable adjuster				
Protection		IP62 (IEC)	IP66 (IEC)	IP62 (IEC)	IP66 (IEC)	IP62 (IEC)	IP66 (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						
Emitting element		Infrared LED (modulated)		Red LED (modulated)		Green LED (modulated)		
Enclosure earthing		Floating	Capacitor earth	Floating	Capacitor earth	Floating	Capacitor earth	Floating
Material		Enclosure: Die-cast aluminum						
Cable		0.3mm ² 4-core cable, 1m long (RT-610-20□: 2m long)						
Weight		150g approx.	240g approx.	180g approx.	150g approx.	240g approx.	150g approx.	240g approx.
Accessory		Adjusting screwdriver: 1 pc. (Accessory for RT-610-20□), Insulation fitting: 1 set (Accessory for RT-610-20□)						

2 CAUTIONS

- This product has been developed / produced for industrial use only.
- Make sure that the power supply is OFF while wiring.
- Take care that wrong wiring will damage the sensor.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this product, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Do not run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.
- Do not use during the initial transient time (50ms) after the power supply is switched on.
- The output does not incorporate a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.

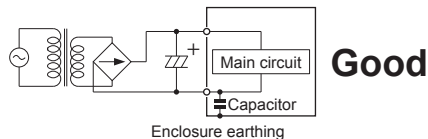
- Take care that the sensor is not directly exposed to fluorescent lamp from a rapid-starter lamp, a high frequency lighting device or sunlight etc., as it may affect the sensing performance.
- Extension up to total 100m or less, is possible with 0.3mm² or more, cable. However, in order to reduce noise, make the wiring as short as possible.
- Make sure that stress by forcible bend or pulling is not applied directly to the sensor cable joint.
- This sensor is suitable for indoor use only.
- Do not use this sensor in places having excessive vapor, dust, etc., or where it may come in contact with water, or corrosive gas.
- Take care that the sensor does not come in contact with water, oil, grease, organic solvents, such as, thinner etc., strong acid or alkaline.

3 ENCLOSURE EARTHING

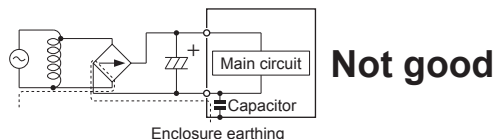
- RT-610-20□ is capacitor earthed to increase noise immunity. In case there is a high frequency noise generating equipment, such as an ultrasonic welding machine, etc., near the sensor and if the mounting base is electrically conducting (metallic, etc.), then insulate the sensor from the mounting base.

Do not use a power supply incorporating a single-winding transformer (auto-transformer) as this can be dangerous. Be sure to use the power supply equipment using the insulated transformer.

<Insulated transformer>

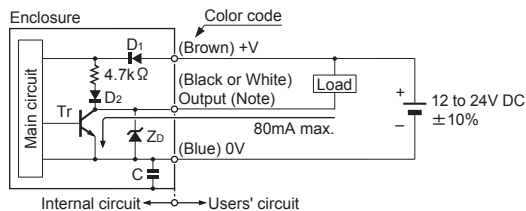


<Auto-transformer>



- RT-610-10□ and RT-610-50 do not require the insulation fitting because of floating.

4 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
 - Z_D: Surge absorption zener diode
 - Tr: NPN output transistor
 - C: Capacitor (Incorporated in RT-610-20□)

● Output operation

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

5 ADJUSTMENT

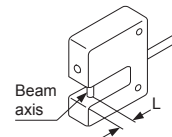
- Sensitivity adjustment (RT-610-10□, RT-610-20□ only)

Step	Sensitivity adjuster	Description
①		Turn the sensitivity adjuster fully counterclockwise to the minimum sensitivity position.
②		In the light received condition, turn the sensitivity adjuster slowly clockwise and confirm the point ② where the sensor enters the "Light" state operation.
③		In the dark condition, turn the sensitivity adjuster further clockwise until the sensor enters the "Light" state operation and then bring it back to confirm point ③ where the sensor just returns to the "Dark" state operation. (If the sensor does not enter the "Light" state) operation even when the sensitivity adjuster is turned fully clockwise, the position is point ③.
④		The position at the middle of points ② and ③ is the optimum sensing position.

Note: Use the accessory adjusting screwdriver to turn the adjuster slowly. Turning with excessive strength may cause damage to the adjuster.

● Sensing position alignment

- Align the beam axis center with the sensing point.



Model No.	Distance from the front edge to the beam axis center: L (mm)
RT-610-10□	10
RT-610-20□	20
RT-610-50	10

6 INTENDED PRODUCTS FOR CE MARKING

- The models that come with CE Marking are as follows.
 - RT-610-10, RT-610-10R, RT-610-10G
 - RT-610-50
- As for all other models, please contact our office.

● Contact for CE

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