

RX-LS200

Adjustable Range & Fixed-focus Reflective Photoelectric Sensor **Amplifier Built-in**

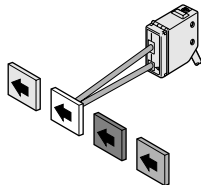


Detection of different color objects at a certain distance



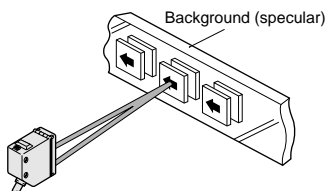
Not affected by color

The color or size of the object does not affect its sensing.



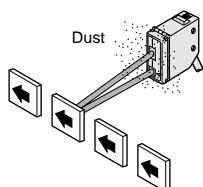
Not affected by background

The sensor does not detect the background beyond the set distance since it is distance settable type.



Insusceptible to dust

The sensing performance is less affected by dust as it does not depend on the incident light intensity.



Waterproof

The sensor can be hosed down because of its IP67 construction. The equipment on which the sensor is mounted can be washed without any problem.

Note: However, take care that if it is exposed to water splashes during operation, it may detect a water drop itself.

Robust

Its robust enclosure is made of die-cast zinc alloy.

High-speed response time: 1 ms

It can be used on a high speed assembly line.

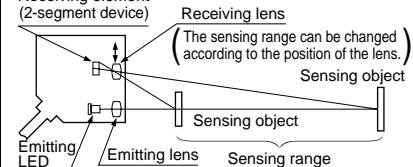
Principle of Optical Sensing

Adjustable Range & Fixed-focus Reflective Type

The sensing range for which the sensor detects an object is determined by the incident beam angle, regardless of the incident light intensity.

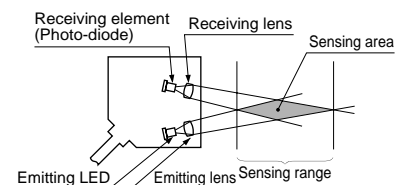
RX-LS200

Receiving element (2-segment device)



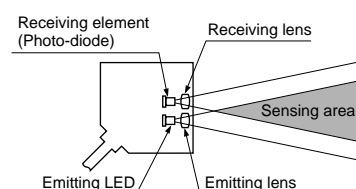
Convergent Reflective Type

The sensor detects an object only in the overlapping area of the emitting and receiving envelopes. The detectability is a little influenced by the reflectivity of the object surface.



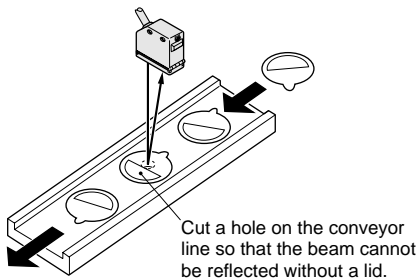
Diffuse Reflective Type

The sensing range changes with the reflectivity and size of the sensing object.

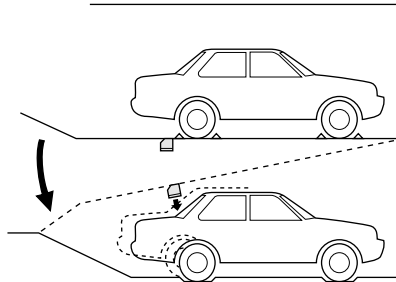


APPLICATIONS

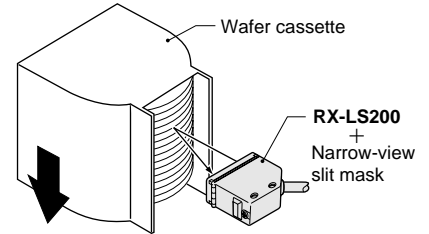
Detecting lids of cups



Safekeeping at parking garage



Wafer counting in cassette

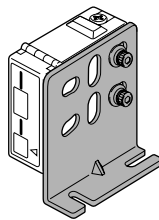


ORDER GUIDE

| Type | Appearance | Sensing range | Model No. | Output |
|---|------------|---------------|--------------------|-------------------------------|
| NPN output 5 m 16.404 ft cable length | | | RX-LS200 | NPN open-collector transistor |
| | | | RX-LS200-C5 | |
| PNP output | | | RX-LS200-P | PNP open-collector transistor |

Accessory

- **MS-RX-1** (Sensor mounting bracket)



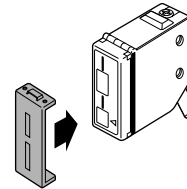
Two M4 (length 16 mm 0.630 in) hexagon-socket-head bolts are attached.

OPTIONS

| Designation | Model No. | Description | |
|-----------------------|------------------|-------------|--|
| Narrow-view slit mask | OS-RXL-1 | Slit size | The sensing view is narrowed laterally so that the effect of the object's surroundings is reduced. |
| | OS-RXL-2 | | |
| | OS-RXL-3 | | |
| Protective tube | PT-RX500 | Length | Cable is protected from external forces. It does not rust as it is made of stainless steel. |
| | PT-RX1000 | | |

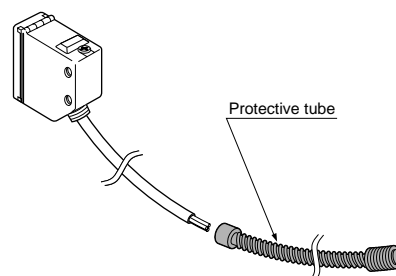
Narrow-view slit mask

- **OS-RXL-□**



Protective tube

- **PT-RX500**
- **PT-RX1000**



RX-LS200

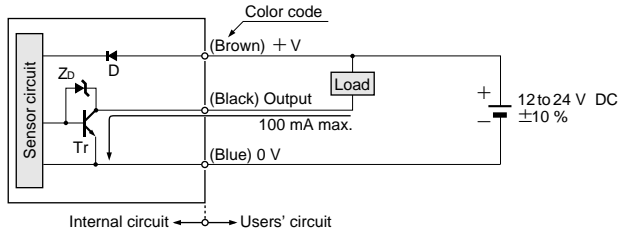
SPECIFICATIONS

| Item | Model No. | Adjustable range & fixed-focus reflective | |
|--------------------------|--|---|---|
| | | NPN output type | PNP output type |
| | | RX-LS200 | RX-LS200-P |
| Sensing range | | 50 to 200 mm 1.969 to 7.874 in with white non-glossy paper (50 × 50 mm 1.969 × 1.969 in) | |
| Hysteresis | | 10 % or less of operation distance | |
| Repeatability | | Along sensing axis: 1 mm 0.039 in or less, Perpendicular to sensing axis: 0.5 mm 0.020 in or less | |
| Supply voltage | | 12 to 24 V DC ± 10 % Ripple P-P 10 % or less | |
| Current consumption | | 40 mA or less | |
| Output | | NPN open-collector transistor • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1.5 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current) | PNP open-collector transistor • Maximum source current: 100 mA • Applied voltage: 30 V DC or less (between output and + V) • Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current) |
| | Utilization category | DC-12 or DC-13 | |
| | Output operation | Switchable either Light-ON or Dark-ON | |
| | Short-circuit protection | Incorporated | |
| Response time | | 1 ms or less | |
| Operation indicator | | Red LED (lights up when the output is ON) | |
| Stability indicator | | Green LED (lights up under stable light received condition or stable dark condition) | |
| Distance adjuster | | 2-turn mechanical adjuster | |
| Environmental resistance | Pollution degree | 3 (Industrial environment) | |
| | Protection | IP67 (IEC) | |
| | Ambient temperature | - 25 to + 60 °C - 13 to + 140 °F (No dew condensation or icing allowed), Storage: - 30 to + 70 °C - 22 to + 158 °F | |
| | 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 | |
| | EMC | EN 50081-2, EN 50082-2, EN 60947-5-2 | |
| | Voltage withstandability | 1,000 V AC for one min. between all supply terminals connected together and enclosure | |
| | Insulation resistance | 20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure | |
| | Vibration resistance | 10 to 500 Hz frequency, 1.5 mm 0.059 in amplitude (10 G max.) in X, Y and Z directions for two hours each | |
| Shock resistance | 500 m/s ² acceleration (approx. 50 G) in X, Y and Z directions for three times each | | |
| Emitting element | | Infrared LED (modulated) | |
| Material | | Enclosure: Die-cast zinc alloy, Indicator cover: Polyethersulphone, Lens: Polycarbonate | |
| Cable | | 0.15 mm ² 3-core oil, heat and cold resistant cabtyre cable, 3 m 9.843 ft long | |
| Cable extension | | Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , or more, cable. | |
| Weight | | 85 g approx. | |
| Accessories | | MS-RX-1 (Sensor mounting bracket): 1 set, Adjusting screwdriver: 1 pc. | |

I/O CIRCUIT AND WIRING DIAGRAMS

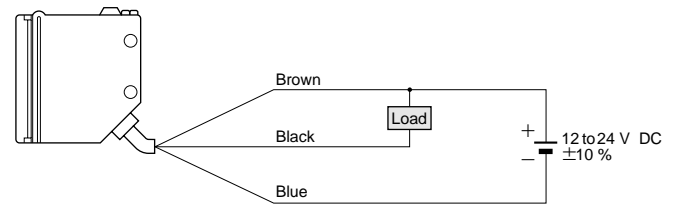
NPN output type

I/O circuit diagram



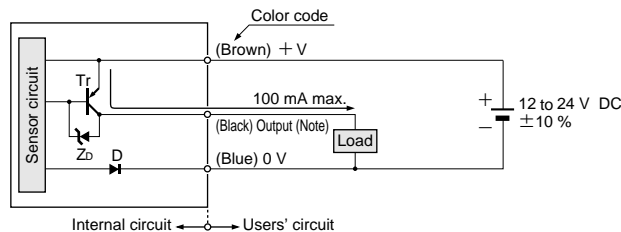
Symbols ... D : Reverse supply polarity protection diode
Zb: Surge absorption zener diode
Tr: NPN output transistor

Wiring diagram



PNP output type

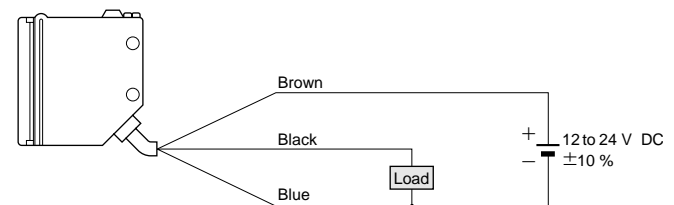
I/O circuit diagrams



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

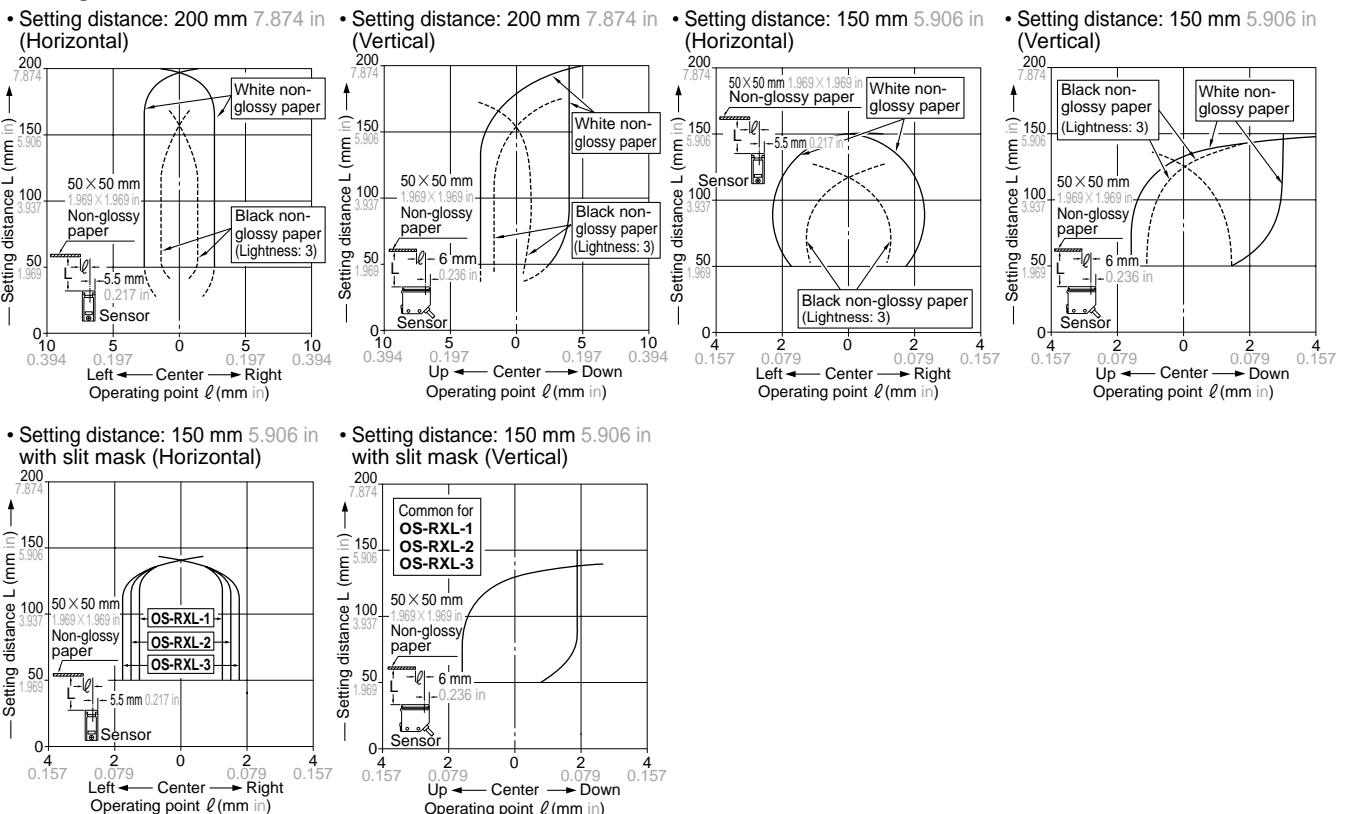
Symbols ... D : Reverse supply polarity protection diode
Zb: Surge absorption zener diode
Tr: PNP output transistor

Wiring diagram



SENSING CHARACTERISTICS (TYPICAL)

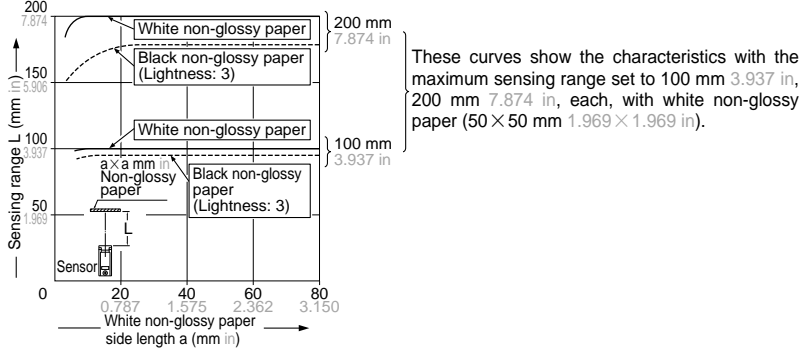
Sensing fields



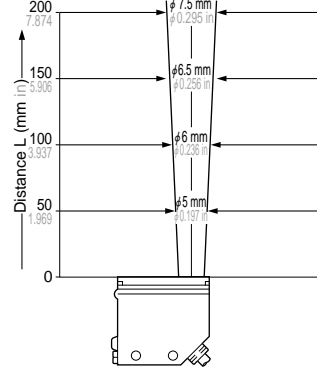
RX-LS200

SENSING CHARACTERISTICS (TYPICAL)

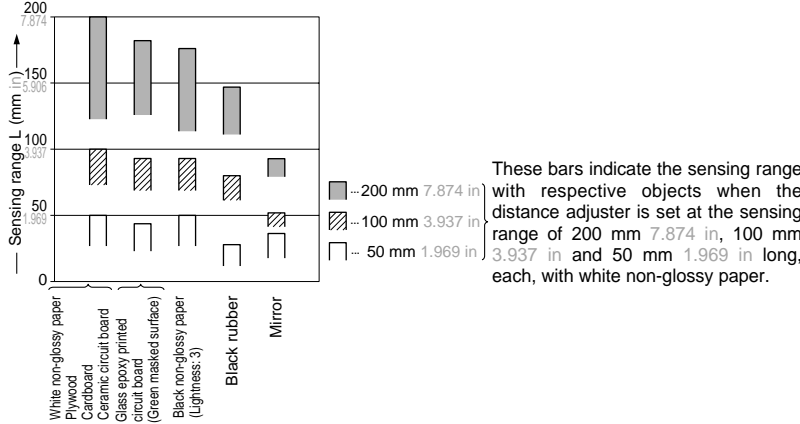
Correlation between sensing object size and sensing range



Emitting beam



Correlation between material (50 × 50 mm 1.969 in × 1.969 in) and sensing range



PRECAUTIONS FOR PROPER USE

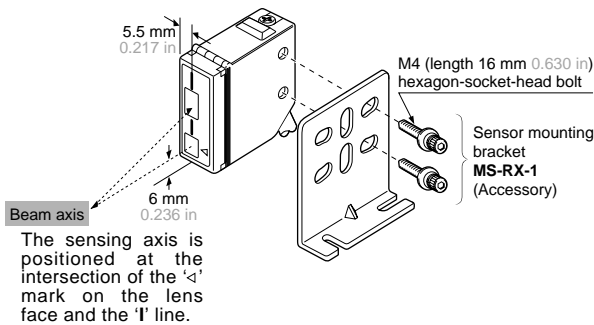
Refer to p.1135~ for general precautions.



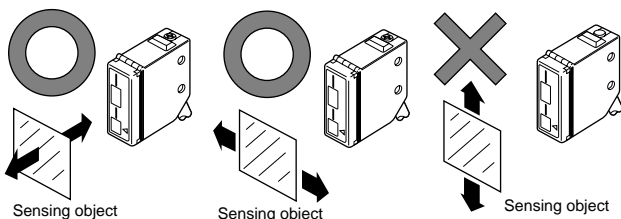
This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

Mounting

- The tightening torque should be 1.17 N·m or less.



- Care must be taken regarding the sensor mounting direction with respect to the object's direction of movement.



- When detecting a specular object (aluminum or copper foil) or an object having a glossy surface or coating, please take care that there are cases when the object may not be detected due to a small change in angle, wrinkles on the object surface, etc.
- When a specular body is present below the sensor, use the sensor by tilting it slightly upwards to avoid wrong operation.
- If a specular body is present in the background, wrong operation may be caused due to a small change in the angle of the background body. In that case, install the sensor at an inclination and confirm the operation with the actual sensing object.
- Do not install the sensor at a distance of less than 50 mm 1.969 in from the object because the sensing is unstable in this range.

Wiring

- The output of **RX-LS200-P** does not incorporate a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.

Others

- Do not use during the initial transient time (50 ms) after the power supply is switched on.

