

BY Series

INSTRUCTION MANUAL

Autonics

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- Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
- When connecting an inductive load such as DC relay or solenoid valve to the output, remove surge by using diodes or varistors.
- Use the product after 0.5 sec of the power input.
When using a separate power supply for the sensor and load, supply power to the sensor first.
- 12-24 VDC= power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Wire as short as possible and keep it away from high voltage lines or power lines to prevent surge and inductive noise.
- When using switching mode power supply (SMPS), ground F.G. terminal and connect a condenser between 0V and F.G. terminal to remove noise.
- When using a sensor with a noise-generating equipment (e.g., switching regulator, inverter, and servo motor), ground F.G. terminal of the equipment.
- This unit may be used in the following environments.
 - Indoors (in the environment condition rated in "Specifications")
 - Altitude max. 2,000 m
 - Pollution degree 3
 - Installation category II

- Emitter × 1, Receiver × 1
- Bracket × 2
- Instruction manual
- M3 bolt × 4, M3 nut × 4

Emitter - Receiver:
Install to face each other

	Dark ON
Received light	Received Interrupted
Operation indicator (red)	ON OFF
Transistor output	ON OFF

Side detection type

Power supply	12-24 VDC $\equiv$ $\pm$ 10% (ripple P-P: $\leq$ 10%)
Current consumption	Emitter: $\leq$ 30 mA, receiver: $\leq$ 30 mA
Control output	NPN open collector output
Load voltage	$\leq$ 30 VDC $\equiv$
Load current	$\leq$ 100 mA
Residual voltage	$\leq$ 1 VDC $\equiv$
Protection circuit	Reverse power protection circuit, output short overcurrent protection circuit
Insulation resistance	$\geq$ 20 M Ω (500 VDC $\equiv$ megger)
Noise immunity	$\pm$ 240 VDC $\equiv$ the square wave noise (pulse width: 1 μ s) by the noise simulator
Dielectric strength	1,000 VAC $\sim$ 50/60 Hz for 1 min
Vibration	1.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s ² ($\approx$ 50 G) in each X, Y, Z direction for 3 times
Ambient illuminance (receiver)	Sunlight: $\leq$ 11,000 lx, incandescent lamp: $\leq$ 3,000 lx
Ambient temperature	-10 to 60 °C, storage: -25 to 70 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Protection rating	IP50 (IEC standard)
Connection	Cable type
Cable spec.	$\varnothing$ 4 mm, 4-wire (Emitter: 3-wire), 2 m
Wire spec.	AWG22 (0.08 mm, 60-core), insulation outer diameter: $\varnothing$ 1.25 mm
Material	Case: ABS, sensing part: Acrylic, bracket: SPCC, bolt: SCM, nut: SCM