

Autonics

Door side sensor

ADS-SE1/2

INSTRUCTION MANUAL

Thank you for choosing our Autonics product.

Please read the following safety considerations before use.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.

※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠Warning Failure to follow these instructions may result in serious injury or death.

⚠Caution Failure to follow these instructions may result in personal injury or product damage.

⚠ Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)

Failure to follow this instruction may result in fire, personal injury, or economic loss.

2. **Use this product as secondary safety aid for door sensor.**

Failure to follow this instruction may result in personal injury or economic loss.

3. **Since the purpose of this product is secondary safety aid, please use it with another door sensor.**

①Although install this product near the sensing area, object in the nearest area from the door can not be detected.

It is hard to detect kids or elders consecutively, they can be caught by the auto door.

②Keep opened as much as setting time.

Since door closes after the setting time, people can be caught by the auto door.

4. **Do not connect, repair, or inspect the unit while connected to a power source.**

Failure to follow this instruction may result in fire.

5. **Check 'Connections' before wiring.**

Failure to follow this instruction may result in fire.

6. **Do not disassemble or modify the unit.**

Failure to follow this instruction may result in fire.

⚠ Caution

1. **Use the unit within the rated specifications.**

Failure to follow this instruction may result in fire or product damage.

2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**

Failure to follow this instruction may result in fire.

3. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**

Failure to follow this instruction may result in fire or explosion.

4. **Do not use a load over the range of rated relay specification.**

Failure to follow this instruction may result in insulation failure, contact melt, contact failure, relay broken, or fire.

■ Unit Descriptions

○ Controller (ADS-SEC1/2)

1. OUT1 indicator (red)
2. OUT2 indicator (green)
3. Sensitivity setting key (TEACH)
4. Wiring connection button
5. Mounting hole
6. Power and output connection terminal (1 to 5)
7. Emitter/Receiver sensor connector terminals
-ADS-SEC1: 6 to 9
-ADS-SEC2: 6 to 13

○ Sensor (ADS-SHP)

※To mount a sensor with a nut and a head holder, use the bracket for one push method.

※To mount a sensor without a nut and a head holder, use the bracket for screw method.

※ADS-SE2 is available to 2 sets of sensors at the same time. Additional 1 set of sensors is sold separately.

■ Installation

○ Controller

1. Follow as below when adjusting wiring length.

①Cut off the wiring length as much as user needs.

②Connect the wire to the terminal after taking off the wire covering.

It is easy to connect if soldering the end of the wires.

• Be sure of connecting wires in power off.

• Follow the figure when cutting off the wires of sensor head.

If the wire covering is taken off too much it may cause damage to this product as the end of both wires is shorted.

2. Match wires in the number of terminals and connect them.

• Do not connect extended wire to the wire of sensor.

It may cause malfunction by noise.

• Do not connect two wires or more to a terminal.

<1-channel>

<2-channel>

•Connection for sensor/power/output wirings

• Press wiring connection buttons and do wiring properly.

• It does not operate normally if the wiring is connected conversely.

• Make sure that connect the power wire to the power terminal (4, 5).

Otherwise, it may cause damage to this product.

• Allowable diameter of power and output wires

-Single and stranded wire: 0.2 to 1.5 mm²

⚠ Caution for installing controller

• Fix a controller with 2 fixing bolts.

Process the fixing holes of a controller by M4.

Refer to '■ Dimension' for the position of holes.

• Do not tighten bolts to fix a controller. The fixing holes of controller may be broken.

※The above specifications are subject to change and some models may be discontinued without notice.

※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

■ Specifications

Model	ADS-SE1(1-channel)	ADS-SE2(2-channel)
Sensor wire length	5m	
Sensing type	Through-beam type	
Sensing target	Opaque materials of min. Ø15mm	
Sensing distance	0 to 10m	
Power supply	12-24VAC~±10% 50/60Hz, 12-24VDC=±10% (ripple P-P: max. 10%)	
Power consumption/Current	AC: max. 2VA / DC: max. 50mA	
Control output	•Contact capacity: 50VDC= 0.3A (resistive load) •Contact type: 1c •Relay life cycle: mechanical- min. 5,000,000 operations electrical- min. 100,000 operations	
Response time	Approx. 50ms (from interrupted light)	
Output holding time	Approx. 500ms (from received light)	
Available sensor sets	1-channel	2-channel
Indicator	OUT1 indicator: red, OUT2 indicator: green	
Light source	Infrared LED (850nm modulated)	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Shock	500 m/s ² (approx. 50G) in each X, Y, Z direction for 3 times	
Environment	Ambient illumination: Sunlight: max. 100,000lx (receiver illumination) Ambient temperature: -20 to 55°C, storage: -25 to 60°C Ambient humidity: 35 to 85%RH, storage: 35 to 85%RH	
Protection	IP30 (IEC standard)	
Material	Case: ABS, lens: PMMA	
Sensor cable	Ø2.4mm, 1-wire, length: 5m (AWG26, core diameter: 0.16mm, number of cores: 7, insulator out diameter: Ø1.32mm)	
Accessory	Sensor 1set (ADS-SHP), controller fixing bolt (M4×20): 2	
Approval	CE	
Weight ^{※1}	Approx. 450g (approx. 300g)	

※1: This weight is with packaging and the weight in parenthesis is only unit weight.

※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

■ Dimensions

○ Controller (ADS-SEC1/2)

(unit: mm)

○ Sensor (ADS-SHP)

<One push method>

<Screw method>

※ Controller (ADS-SEC1/2), Sensor (ADS-SHP:5m) are sold separately.

○ Bracket (sold separately)

•One push method (ADS-SB12)

•Screw method (ADS-SB10)

M4 flat head cap screw

○ Sensor

1. Make holes on the side of auto door as followings.

1) When not using the bracket

①One push method

• Mounting hole for sensor head: Ø12.2^{±0.1}mm • Panel thickness for sensor head: 1.5^{±0.5}mm

②Screw method

• Mounting hole for sensor head: M10×0.75mm • Panel thickness for sensor head: 1.5^{±0.5}mm

2) When using the bracket

①One push method

• Through hole for sensor head: Ø13 to 14mm • Fixing screw hole for bracket: M4 Tap or Ø3.5mm

②Screw method

• Through hole for sensor head: Ø13 to 14mm • Fixing screw hole for bracket: M4 Tap or Ø3.5mm

※Check the mounting holes for the head of emitter and receiver are in parallel for the optical axes.

※Grind around the mounting holes drilled smoothly.

It may hurt by sharp parts and cause malfunction by the inclined sensor head.

2. Mount sensor heads to the mounting holes.

1) When not using the bracket

①One push method

• Put the sensor head into the mounting hole as the figure.

※Check the nuts are fixed on the sensor body tightly.

※Install the sensor with no gap between the nut and the side of the door(or panel)

②Screw method

• Put the sensor head to the mounting hole.

※Install the sensor with no gap between the panel and the sensor.

2) When using the bracket

①One push method

• Put the sensor head to the bracket.

• Fix the bracket to the desired place by screws.

※Check the nut is fixed to the sensor body tightly.

※Install the sensor with no gap between the nut and the side of the door (or bracket).

②Screw method

• Remove the nut and head holder from the sensor head.

• Install the sensor head to the bracket.

• Fix the bracket on the side post of the door by screws.

※It may cause malfunction because sensitivity setting is not available as the optical axes are not matched if sensor body is inclined.

※Check the damage such as scratches or pollutant on the lens of the sensor head.

It may cause malfunction in the condition of interrupted light or lack of sensitivity by dust.

⚠ Caution for sensor installation

1. The rated sensing distance is 10m(A).

Install the sensors within the rated sensing distance.

2. Install the sensor with more than 50cm (B) gap from the bottom and ceiling.

It may cause malfunction by reflected beams from the surface of the bottom and ceiling.

3. Do not put obstacles between Emitter and Receiver, or it may cause malfunction.

4. When using door sensors closely over two units, it may result in malfunction due to mutual interference.

Do not exchange the position of the head of emitter and receiver.

Keep the distance between the heads more than 50cm.

5. This product is for indoor.

Avoid the place where exposed in direct sunlight or it is in over rated intensity of illumination.

■ Sensitivity Setting

○ Sensitivity setting

Sensitivity setting is required when a user installs this unit at first or there is malfunction due to lack of sensitivity.

Depending on the sensing distance, the controller automatically sets the optimum sensitivity for the best operation.

○ Order of Sensitivity setting

※When pressing the sensitivity setting key below 1 sec., the sensitivity setting is canceled and it operates as the latest setting. If sensitivity is not enough or the setting is not correct, this unit may have malfunction.

○ Check the followings when sensitivity setting is failed.

① Check there are obstacles between Emitter/Receiver heads.

② Check there is dirt on the head lens of Emitter/Receiver.

③ Check the wires are disconnected or connected properly as the label(connection diagram).

④ Check the heads of Emitter/Receiver are inclined.

⑤ Check the above items and resolve the problems and set the sensitivity again.

■ Indicators

☼: light ON, ⬤: flash, ●: light OFF

Sensor	Indicator	Status		
	OUT1 (red)	OUT2 (green)		
		After setting sensitivity	In operation	
1CH (ADS-SE1/2)	☼	●	Sensitivity setting success	Received light
	⬤	⬤	Sensitivity setting failure	Emitter disconnection or sensor cable extension
	⬤	●	—	Lack of sensitivity
	●	●	—	Interrupted light
2CH (ADS-SE2)	☼	☼	1, 2 CH sensitivity setting success	1, 2-channel received light
	☼	⬤	1CH sensitivity setting success, 2CH sensitivity setting failure	2-channel lack of sensitivity
	☼	●	—	1-channel received light, 2-channel interrupted light
	⬤	☼	1CH sensitivity setting failure, 2CH sensitivity setting success	1-channel lack of sensitivity
	●	☼	—	1-channel interrupted light, 2-channel received light
	⬤	⬤	1, 2CH sensitivity setting failure	1, 2-channel lack of sensitivity or emitter disconnection
	●	●	—	1, 2-channel interrupted light

※For ADS-SE2, OUT1 indicator(red) is for Receiver status set sensitivity by Emitter of 1-channel and OUT2 indicator(green) is for Receiver status set sensitivity by Emitter of 2-channel.

※If lack of sensitivity occurs by not-matched optical axes or pollution on the lens of emitter/receiver during self diagnostic function, for ADS-SE1, the OUT1 indicator (red) turns ON. For ADS-SE2, the OUT indicator of the channel lack of received light turns ON.

■ Operation Check

☼: light ON, ●: light OFF

Operation	Power OFF			
Status	-Normal operation -No human or any materials between sensors	-Human or materials are passing between sensors (interrupted light)	-After human or materials are passed	
Indicator (OUT1 red/OUT2 green)	●	☼	●	☼
Relay output	N.O. OPEN N.C. CLOSE	OPEN CLOSE	CLOSE OPEN	OPEN CLOSE

■ Troubleshooting

Malfunction	Cause	Malfunction
It does not work.	Power voltage	Check the power cable and adjust power voltage.
	Cable cut, disconnection	Please check wiring and terminals.
	Rated sensing distance	Use it in rated sensing distance.
Sometimes it does not work.	Pollution by pollutant on the lens of Emitter/Receiver.	Remove the pollutant.
It operates even if there is no access in sensing area.	Rated sensing distance	Use it in rated sensing distance.
	There are obstacles between Emitter and Receiver.	Remove obstacles.
	There are equipments generating strong noise or ratio wave(motor, generator, high-tension wire).	Keep away from the equipment generating strong noise or ratio wave.

■ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.

2. 12-24VDC, 12-24VAC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.

3. Use the product, 1 sec after supplying power.

When using separate power supply for the sensor and load, supply power to sensor first.

4. When using switching mode power supply to supply the power, ground F.G. terminal and connect a condenser between 0V and F.G. terminal to remove noise.

5. When connecting a DC relay or other inductive load, remove surge by using diodes or varistors.

6. Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise.

7. This unit may be used in the following environments.

①Indoors (in the environment condition rated in 'Specifications')

②Altitude max. 2,000m

③Pollution degree 3

④Installation category II

■ Major Products

■ Photoelectric Sensors

■ Temperature Controllers

■ Fiber Optic Sensors

■ Temperature/Humidity Transducers

■ Door Sensors

■ SSRs/Power Controllers

■ Door Side Sensors

■ Counters

■ Area Sensors

■ Timers

■ Proximity Sensors

■ Panel Meters

■ Pressure Sensors

■ Tachometer/Pulse (Rate) Meters

■ Rotary Encoders

■ Display Units

■ Connector/Socket

■ Sensor Controllers

■ Switching Mode Power Supplies

■ Control Switches/Lamps/Buzzers

■ I/O Terminal Blocks & Cables

■ Stepper Motors/Drivers/Motion Controllers

■ Graphic/Logic Panels

■ Field Network Devices

■ Laser Marking System (Fiber, Co₂, Nd: YAG)

■ Laser Welding/Cutting System

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