#### **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.

▲Caution Failure to follow these instructions may result in personal injury or product damage The symbols used on the product and instruction manual represent the following

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

#### **⚠** Warning

1. Fail-safe device must be installed when using the unit with machinery that may 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

OAlthough 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 fall with the control of the unit.

Failure to follow this instruction may result in fire

#### **⚠** Caution

- Use the unit within the rated specifications.
   Failure to follow this instruction may result in fire or product damage.
   Use dry cloth to clean the unit, and do not use water or organic solvent.

Failure to follow this instruction may result in fire.

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.

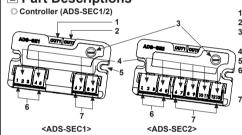
Failure to follow this instruction may result in fire or explosion.

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

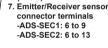
Failure to follow this instruction may result in insulation failure, contact melt, contact failure, report the property of the property

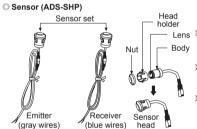
relay broken, or fire.

# Part Descriptions



- 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





\*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

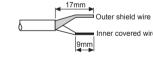
### Installation

## O 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



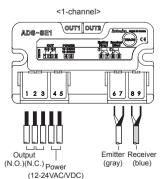
Be sure of connecting wires in power off.
 Follow the figure when cutting off the wires of sensor head.

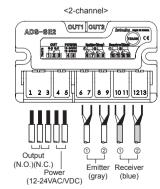
If the wire covering is taken off too much it may cause damage to this product as the end of both wires is shorted.

### 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





### 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 mm<sup>2</sup>

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### • 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.

XThe 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 ADS-SE1(1-channel)

Through-beam type

Opaque materials of Min. Ø15mm

AC: Max. 2VA / DC: Max. 50mA

Approx. 50ms(from interrupted light)

Approx. 500ms(from received light)
1-channel 2-c

Infrared LED(850nm modulated)

Ambient temperature |-20 to 55°C, storage: -25 to 60°C

IP30(IEC standard)

Case: ABS, Lens: PMMA

Approx. 450g(approx. 300g)

\*The temperature or humidity mentioned in Environment indicates a non freezing or condensation

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

OUT1 indicator: red, OUT2 indicator: green

ration

1.5mm amplitude at frequency of 10 to 55Hz(for 1min.) in each of X, Y, Z directions for 2 hours

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500 m/s²(approx. 50G) in each of X, Y, Z directions for 3 times

Ambient illumination

Sunlight: Max. 100,000lx (receiver illumination)

35 to 85%RH, storage: 35 to 85%RH

Contact capacity: 50VDC== 0.3A (resistive load)
 Contact type: 1c

Sensor wire lenat

ensing type

Sensing target Sensing distance

Power supply

Control output

Indicator

Vibration

Shock

Material

Sensor cable

Accessorv

Approval

Light source

Output holding time

vailable sensor sets

后 Ambient humidity

Dimensions

O Sensor(ADS-SHP)

O Bracket (sold separately)

One push method(ADS-SB12)

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①One push method

One push method

①One push method

②Screw method

and the sensor.

①One push method

②Screw method

2) When using the bracket

• Put the sensor head to the bracket · Fix the bracket to the desired place by screws

the side of the door (or bracket).

from the sensor head.

Install the sensor head to the bracket.

· Fix the bracket on the side post of the door

are not matched if sensor body is inclined.

· Remove the nut and head holder

2) When using the bracket

for the optical axes.

1) When not using the bracket

O Controller(ADS-SEC1/2)

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\out1 |out2

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

cap screw

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

— Grind around the mounting holes drilled smoothly

· Put the sensor head into the mounting hole as the figure

2. Mount sensor heads to the mounting holes.

Put the sensor head to the mounting hole.

★Install the sensor with no gap between the panel

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

XInstall the sensor with no gap between the nut and

Mounting hole for sensor head: Ø12.2<sup>±0.1</sup>mm • Panel thickness for sensor head: 1.5<sup>±0.5</sup> mm

Mounting hole for sensor head: M10×0.75mm
 Panel thickness for sensor head: 1.5<sup>±0.5</sup> mm

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

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

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

\*\*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)

ower consumption/

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

Nut

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XIt may cause malfunction because sensitivity setting is not available as the optical axes

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

#### O Sensitivity setting

ADS-SE2(2-channel)

12-24VAC~ ±10% 50/60Hz, 12-24VDC==±10% (ripple P-P: max. 10%)

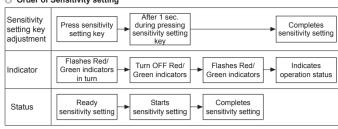
Relay life cycle: Mechanical- Min. Min. 5,000,000 operations
 Electrical-100,000 operations

Ø2.4mm, 1-wire, length: 5m (AWG26, core diameter: 0.16mm, number of cores: 7, insulator out diameter: Ø1.32mm)

Sensor 1set(ADS-SHP), Controller fixing bolt(M4×20) 2EA

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.

#### $\ \bigcirc$ 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
- ① 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

(unit: mm)

part is only for ADS-SEC2

150

M4 flat head

cap screw

M10×0.75

Through hole Bracket for sensor head : Ø13 to 14mm

Screw hole: M4 Tap or Ø3.5m

for sensor head : Ø13 to 14mm

0

Bracket

<Screw method>

11.5 3.5

M10×0.75

Screw method(ADS-SB10)

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☼: light ON, €: flash, ●: light OFF

|                        | Indicator         |   | Status   |  |  |
|------------------------|-------------------|---|--|--|--|
| Sensor                 | OUT1 OUT2 (green) |   | After setting sensitivity  | In operation   |  |
| 1CH<br>(ADS-<br>SE1/2) | ≎                 | • | Sensitivity setting success                                      | Received light   |  |
|                        | 0                 | 0 | Sensitivity setting failure                                      | Emitter disconnection or sensor cable extention          |  |
|                        | •                 | • | _  | Lack of sensitivity                                      |  |
|                        | •                 | • | _  | Interrupted light  |  |
| 2CH<br>(ADS-<br>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,<br>2-channel interrupted light |  |
|                        | •                 | ≎ | 1CH sensitivity setting failure, 2CH sensitivity setting success | 1-channel lack of sensitivity                            |  |
|                        | •                 | ≎ | _  | 1-channel interrupted light,<br>2-channel received light |  |
|                        | •                 | • | 1, 2CH sensitivity setting failure                               | 1, 2-channel lack of sensitivit or emitter disconnection |  |
|                        | •                 | • | _  | 1, 2-channel interrupted light                           |  |

1-channel and OUT2 indicator(green) is for Receiver status set sensitivity by Emitter of

※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

| Operati                                | ion  | Power OFF |   |  |  |
|--|------|-----------|---|--|--|
| Status                                 |      |           | ·Normal operation<br>·No human or any<br>materials between<br>sensors | ·Human or materials<br>are passing between<br>sensors (interrupted<br>light) | ·After human or<br>materials are<br>passed |
| Indicator<br>(OUT1 red/<br>OUT2 green) |      | •         | <b>\$</b>   | •  | Φ  |
| Relay<br>output                        | N.O. | OPEN      | OPEN  | CLOSE  | OPEN                                       |
|  | N.C. | CLOSE     | CLOSE   | OPEN   | CLOSE                                      |

## Troubleshooting

| Malfunction                               | Cause  | Malfunction                                     |  |
|---|--|---|--|
|   | Power voltage  | Check the power cable and adjust power voltage. |  |
| It does not work.                         | 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.                           |  |
|   | Rated sensing distance   | Use it in rated sensing distance.               |  |
| It operates even if<br>there is no access | There are obstacles between Emitter and Receiver.  | Remove obstacles.                               |  |
| in sensing area.                          | There are equipments generating strong noise or ratio wave(motor, generator, high-tension wire). |   |  |

## Cautions during Use

- 1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected
- 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
- 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 (4) Installation category II

### Major Products

- Photoelectric Sensors Temperature Controllers
   Fiber Optic Sensors Temperature/Humidity Transducers
   Door Sensors SSRs/Power Controllers
   Counters

- Door Side Sensors
   Area Sensors
   Proximity Sensors
   Pressure Sensors
   Pressure Sensors
   Panel Meters
   Tachometer/Pulse (Rate) Meters
   Control Switches 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 Markino System (Fiber, Co., Nd; YAG)

- Laser Marking System (Fiber, Co₂, Nd: YAG)
   Laser Welding/Cutting System

# Autonics Corporation

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