

Autonics

**Door Sensor
ADS-A**

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;

Warning Serious injury may result if instructions are not followed.

Caution Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.

Caution: Injury or danger may occur under special conditions.

Warning It may give an electric shock.

1. In case of using this unit with machinery(Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.
It may cause a fire, human injury or damage to property.

2. Do not take off its cover on operating the unit.

Be sure that this unit does not come in direct touch with water. It may cause damage to the equipment or give an electric shock.

3. When using this unit with removing cable outlet, this unit must be installed indoor.

If installed outdoor, it may give an electric shock or damage to the equipment when the water inflows through cable outlet.

4. Do not wash the unit with water.

Be sure that this unit does not come in direct touch with water.
It may cause damage to the equipment or give an electric shock.

5. Do not repair or disassemble the sensor.

It may cause damage to the equipment or give an electric shock.

Caution Be careful of human injury by the door.

1. Do not install this unit at place higher than 2.7m.

It may not detect small children due to lack of sensitivity.

2. Do not install this unit lower than 2.0m.

It may not operate normally.

3. Please install with auxiliary photo sensor as the safety equipment.

Even if the unit is installed at closest side from the door, it is dangerous due to the difficulty of sensing at the closest side from the door. It is not able to detect children or the old and the infirm continuously and they can be jammed in the door.

4. Please install with auxiliary photo sensor as the safety equipment.

This unit holds the door for holding time. When the holding time passed, the door will be closed.
People can be jammed in the door.

Caution People may run against the door.

1. When eliminate the right/left sensing range, be sure to install the unit at place where a person approaches at the front of the door.

If a person approaches at the side direction of the door, the person can run against the door because it is not sensing him within sensing area and the door does not open.

Caution It may cause malfunction.

1. This unit shall not be used outdoors.

It might shorten the life cycle of the product or give an electric shock.
Use this product inside only. Do not use the product outdoors or location subject to temperatures or humidity outside.(Ex: rain, dirty, frost, sunlight, condensation, etc.)

2. When wire this unit with high voltage line, power line in the same conduit, it may cause malfunction or mechanical trouble. Therefore please wire separately or use different conduit.

3. Do not install this unit at place where there are dust or corrosive gas.

4. The wire connection shall be used as short as possible in order to avoid malfunction by surge.

5. When it is stained by dirt at the sensing lens, please clean the lens with dry cloth, but do not use an organic materials such as alkali, acid, chromic acid.

▶ This sensor is non-contact intelligent type to automatically open or close the door.

Do not use this unit at the other applications.

▶ Sensing area

The sensor covers the regular sensing area by infrared beam.

▶ Sensing method for ADS-A

The sensor is sensing reflected amount of infrared beam from surface of sensing area, and it outputs the signal by changed amount of infrared beam when a person(object) enters in sensing area.

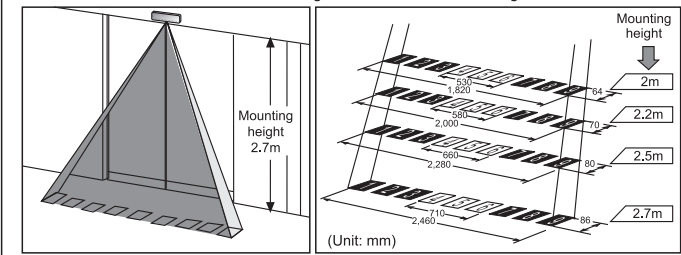
▶ Easy sensing and difficult sensing

There is easy sensing or difficult sensing case because of speed and color of entry a person(object) and amount of infrared beam by material and color or bottom surface.
If it is not changed reflected amount of infrared beam when a person(object) enters in sensing area, the unit can not work even if a person(object) enters in sensing area.

Adjustment(Please turns on the power)

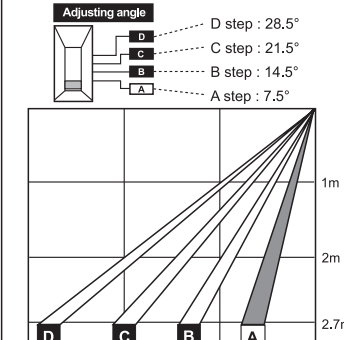
1. Check of the sensing area

This unit has characteristic of the sensing area as below chart and figure.



2. Adjustable sensing area

Sensing area angle(Step) : 7.5° to 28.5°
Adjustable 7° in each step.

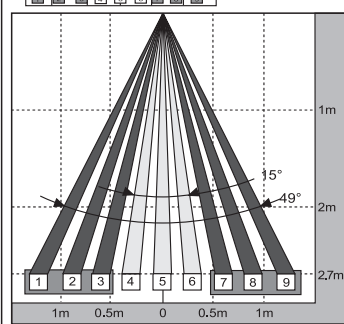
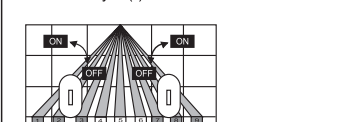


3. Adjustment of Left, Right sensing area width.

• Sensing area width ①②③ can be eliminated by left lever, ⑦⑧⑨ by right lever. But the elimination of sensing area can be normally operated in mounting height.

• Use the unit as removing non-sensing area by the lever adjusting width at narrow sensing area.

※Turn the adjuster till stopping it toward arrow direction by a (-)driver.



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

Ordering information

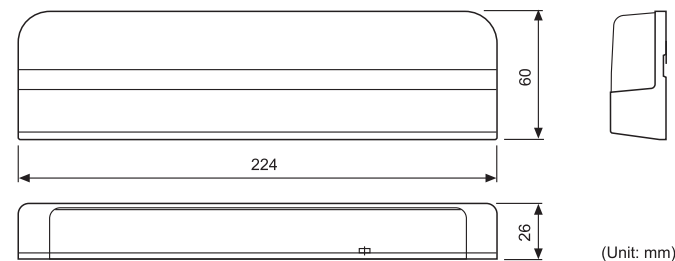
ADS - A	F	24-240VAC/DC
	E	12-24VAC/DC
	Series	
	Door Sensor	

Specifications

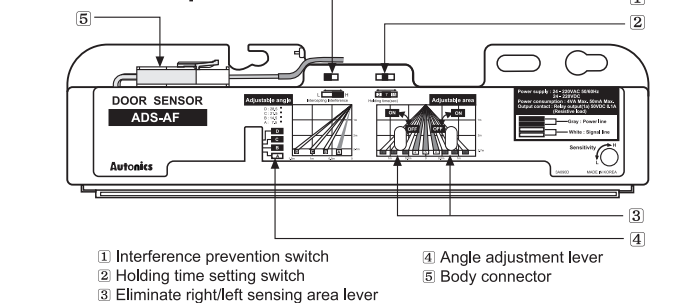
Model	ADS-AF	ADS-AE
Power supply	24V-240VAC ±10% 50/60Hz, 24V-240VDC ±10%(Ripple P-P: Max. 10%)	12V-24VAC ±10% 50/60Hz, 12V-24VDC ±10%(Ripple P-P: Max. 10%)
Power consumption	Max. 4VA(at 240VAC)	Max. 2VA(at 24VAC)
Control output*1	Relay contact capacity: 50VDC 0.1A(Resistive load) Relay contact composition: 1a	
Relay life cycle	Mechanical: Min. 20,000,000 times, Electrical: Min. 50,000 times	
Mounting height	2.0m to 2.7m(Max. sensing distance: 3.0m)	
Sensing area	9 Point(Refer to the below chart)	
Sensing method	Infrared reflection method	
Output holding time	Time delay approx. 0.5sec.	
Holding time of stationary sensing	Selectable 2sec, 7sec, 15sec. by holding time setting switch	
Interference prevention	H, L(Interference prevention switch)	
Adjustable sensing area	Adjust angle A Step: 7.5° C Step: 21.5° B Step: 14.5° D Step: 28.5° (Adjust angle adjustment lever)	
Light source	Infrared chip diode(modulated)	
Indication	Normal: Green LED turns on, Detection: Red LED turns on	
Connection	Connector wire connection	
Insulation resistance	Min. 20MΩ (at 500VDC megger)	
Noise strength	±2,000V the square wave noise(pulse width: 1μs) by the noise simulator	
Dielectric strength	1,000VAC 50/60Hz for 1 minute	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours	
Shock	100m/s² (Approx. 10G) in X, Y, Z directions for 3 times	
Environment	Ambient illumination: Sunlight: Max. 3,000lx, Incandescent lamp: Max. 3,000lx(receiver illumination) Ambient temperature: -20°C to 50°C, Storage: -20 to +70°C Ambient humidity: 35 to 85%RH, Storage: 35 to 85%RH	
Accessories	Cable: 2.5m, Mounting screw: 2EA, Mounting template	
Protection	IP50(IEC standard)	
Material	Case: ABS, Lens: Acryl, Lens cover: Acryl	
Unit weight	Approx. 320g	

※1: Do not use the load which is beyond the rated capacity of contact point of relay.
It may cause bad insulation, contact fusion, bad contact, relay breakdown, and fire etc.
※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

Dimensions

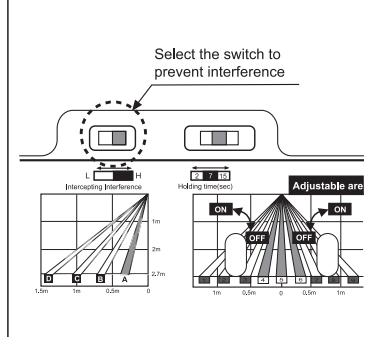


Parts description



4. How to set the switch for interference prevention

• In case of using several door sensors adjacently, please set the interference prevention switches of the sensors differently.

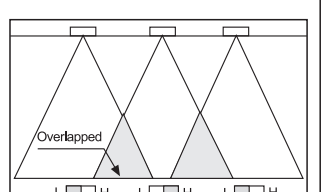


Caution Door can be opening and closing.

• When several door sensors are installed simultaneously without considering any interference prevention, it may cause malfunction by another door sensor even though no moving object exists.

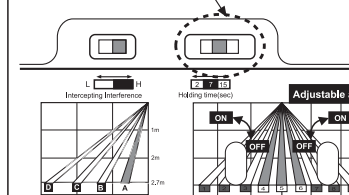
<Interference prevention>

• If sensing area of the door sensors is overlapped, set each switch in difference or install the unit on non-overlapped sensing area.



5. Holding time switch setting

• It can be set holding time by the holding time switch.(Selectable 2, 7, 15sec.)



Caution People can be jammed in the door.

• Be sure to install an auxiliary photo sensor as the safe equipment. ADS-SE is available for door side sensor.
• The door will close after the time set by the holding time switch.

<Holding time>

• When people or objects stay in sensing area after the set 7sec. for holding time it will sensing the stationary people or objects for set time by the holding time switch, and then the sensor's output turns off after set time.

6. Sensitivity setting

• Even though there is a person(object) in the sensing area, if the sensor does not operate, turning the adjuster up to H. The sensitivity will be increased.



• Even though there is not a person(object) in the sensing area, if the sensor operated, turning the adjuster up to L. The sensitivity will be decreased.

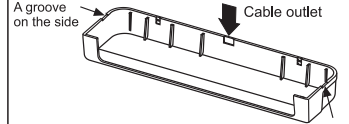


Caution Door can be opening and closing.

• Please check the normal operation by turning the power ON/OFF after finishing the sensitivity setting.
It may not operate normally because the install setting is changed before and after sensitivity setting.

7. Unit cover and stripping

• Mount the cover on the unit, in case of using outlet to wire as form of the exposed cable, take off point.



Warning It may give an electric shock.

• Use this unit with unit cover.
• Be sure that this unit does not come in direct touch with water. It may cause a damage to the equipment or give an electric shock.
• In case of without the cable outlet, the unit must be installed at inner position of door.
• Be sure that cable outlet does not come in direct touch with water. It may cause a damage to the equipment or give an electric shock.

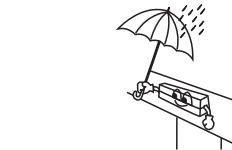
8. Holding time of stationary sensing

• After turning on the power, please stand by for 3 second in the condition without moving object in the sensing area.

• If it is not passed for 3 sec. after turning the power, stationary sensing is impossible.

Installation environment

1. This product is not qualified for waterproof. Please install this without direct contacting to rain or snow etc. It may cause a short circuit or breakdown.



2. Do not install this unit in the place where having reflecting light like sunlight directly reaches. It may does not operate normally.



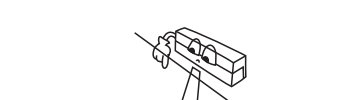
3. Do not install this unit in the place where smoke or vapor occurs. It may not operate normally.



4. If there is a moveable object in the sensing area, it may cause malfunction by sensing the object because of natural phenomenon like wind etc.



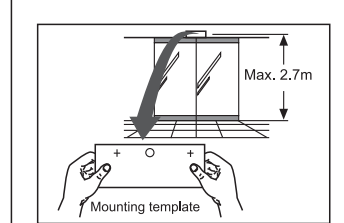
5. The sensing lens must be installed face to the door's threshold. If it faces the wall or roof, it may not operate normally.



Mounting method

Installation order	Caution
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1. Attach mounting template at mounting position(※Mounting height: 2.0m to 2.7m)
• Drill ø3.4mm hole based on mounting template.
• In case of wiring the cable on the wall to hide the cable, drill ø9mm hole.
• Install the unit after removing a mounting template.



Warning It may give an electric shock.

• When using this unit with removing cable outlet, this unit must be installed indoor. (It may give an electric shock or damage to the equipment when the water inflows through cable outlet.)

Caution People can be jammed in the door.

• In case of installing the unit higher than 2.7m height, the unit may not detect small children.
• In case of installing the unit lower than 2.0m height the unit may not work normally.

2. Please fix this unit with screw bolt after removing protection cover off.



Warning Fix the unit

• Do not put excessive tightening torque on screw bolt when mount this unit. It may result in fixing hole damage.

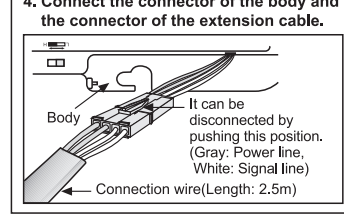
<Protection cover detachment>

• Pulling left thumb toward ①, key lock will be released and pull right thumb toward ②, protection cover and body will be detached.

3. Connect the code part of the extension cable to main control part.

• Please install the connector in order to connect with the body.

4. Connect the connector of the body and the connector of the extension cable.



Warning Connection of the connector

• Plug in the connector of the extension cable and the connector of the unit completely. The unit may not work normally by inferior contact.

9. Check of sensing operation

• Check sensing operation as follow <figure>.

Entry activation	Check sensing operation as follow <figure>.					
	Power on	Out of sensing area	Enter the sensing area	Stationary sensing	Out of sensing area	
Operation LED	Orange	LED ON	LED OFF	LED OFF	LED OFF	LED OFF
	Green	LED OFF	LED ON	LED ON	LED ON	LED ON
	Red	LED OFF	LED OFF	LED ON	LED OFF	LED OFF
Output contact	OFF	OFF	ON	Output on for Holding time	Output off after 0.5sec.	OFF

10. Maintenance

• If the sensing lens is unclean, the unit may cause malfunction.
• In this case, please clean it with dry tissue and natural detergent.
• Do not use an organic materials such as benzene, etc. It may cause malfunction of sensing part.

Warning It may give an electric shock.

• Do not wash the unit with water.
• Do not repair or disassemble the unit.

11. Please see < Caution for safety > again.

Troubleshooting

Malfunction	Cause	Troubleshooting
It is not work.	Power voltage	Check the power cable and adjust power voltage.
	Cable cut, disconnection	Check connector and wiring.
Sometimes it does not work.	The sensing lens are unclean	Clean the lens with dry tissue and natural detergent.
	There are moving objects.	Check the status of installation.
The door is opened even if people do not enter in sensing area.	By occurring sudden change of sensing area.	Check surrounding environment for installation.
	Sensing area is overlapped.	Install the unit to avoid overlap for sensing area. Set the switch intercepting interference.
	There is the equipment such as motor, neon lamp, generator, or high voltage line causing strong electric wave, noise.	Do not install the equipment causing strong electric wave, noise near the sensor.
	A drop of water is placed at the lens.	Remove a drop of water.

Major products

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/Sockets
- 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/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate) meters
- Display units
- Sensor controllers

Autonics Corporation
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EP-KE-08-0230J