

# Autonics

## Door Sensor ADS-A



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.

- In case of using this unit with machinery (Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crane/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.
- 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.
- 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.
- 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.
- 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.

- Do not install this unit at place higher than 2.7m. It may not detect small children due to lack of sensitivity.
- Do not install this unit lower than 2.0m. It may not operate normally.
- 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.
- 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.

- 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.

- 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.)
  - 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.
  - Do not install this unit at place where there are dust or corrosive gas.
  - The wire connection shall be used as short as possible in order to avoid malfunction by surge.
  - 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.

Mounting height: 2.0m, 2.2m, 2.5m, 2.7m

(Unit: mm)

#### 2. Adjustable sensing area

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

D step : 28.5°  
C step : 21.5°  
B step : 14.5°  
A step : 7.5°

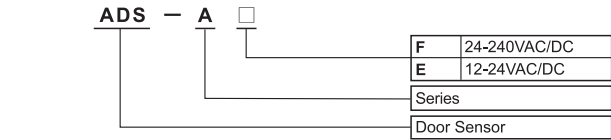
1.5m, 1m, 0.5m, 0

#### 3. Adjustment of Left, Right sensing area width.

- Sensing area width (1)(2)(3) can be eliminated by left lever, (7)(8)(9) 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.

1m, 0.5m, 0, 0.5m, 1m

### Ordering information

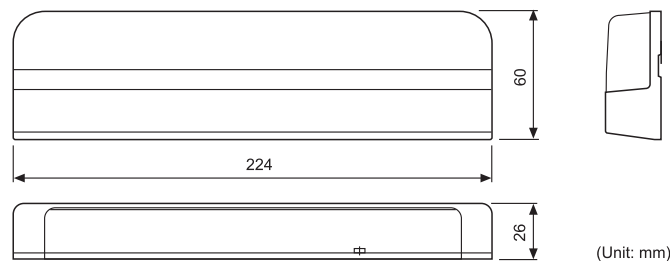


### Specifications

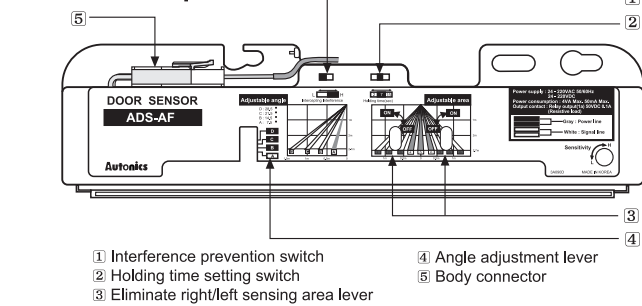
Model	ADS-AF	ADS-AE
Power supply	24V-240VAC ±10% 50/60Hz, 24V-240VDC ±10%(Ripple P-P: Max. 10%)	12V-24VAC ±10% 50/60Hz, 12V-24VDC ±10%(Ripple P-P: Max. 10%)
Power consumption	Max. 4VA(at 240VAC)	Max. 2VA(at 24VAC)
Control output*1	Relay contact capacity: 50VDC 0.1A(Resistive load) Relay contact composition: 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	Eliminate Right/Left sensing area    (1, 2, 3 Area), (7, 8, 9 Area) Eliminate each by each: Adjusting with eliminating right/left sensing area lever	
	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.  
\*2: 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.

Select the switch to prevent interference

**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.)

Select the switch for holding time

**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.

#### 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.

- Wrench and strip the protection cover putting a flathead screwdriver.

**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

- 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.
  - Do not install this unit in the place where having reflecting light like sunlight directly reaches. It may does not operate normally.
  - Do not install this unit in the place where smoke or vapor occurs. It may not operate normally.
  - 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.
  - 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

- 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.
- Please fix this unit with screw bolt after removing protection cover off.
  - 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.
- Connect the code part of the extension cable to main control part.
  - Please install the connector in order to connect with the body.
- Connect the connector of the body and the connector of the extension cable.
  - It can be disconnected by pushing this position. (Gray: Power line, White: Signal line)

**Caution** 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.

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

**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	Power on	Out of sensing area	Enter the sensing area	Stationary sensing	Out of sensing area
LED	Orange LED ON	LED OFF	LED ON	LED ON	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.

### 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	Temperature controllers
Fiber optic sensors	Temperature/Humidity transducers
Door sensors	SSR/Power controllers
Door side sensors	Counters
Area sensors	Timers
Proximity sensors	Panel meters
Pressure sensors	Tachometer/Pulse(Rate) meters
Rotary encoders	Display units
Connector/sockets	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, CO <sub>2</sub> , Nd:YAG)	
Laser welding/soldering system	

**Autonics Corporation**  
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\*The above specifications are subject to change and some models may be discontinued without notice.