

## NOTES

### ■ Use environment

- 1) Avoid use in the steamy or dusty environment, the corrosive gas, an environment where organic solvent can be adhered.
- 2) When using in a high-noise environment, perform countermeasures such as installing capacitor (of 33  $\mu$ F or over) on the power input terminal of the sensor. Before use, check the performance under actual use conditions.

### ■ Wire connection

- 1) Before the power is supplied, recheck wiring as misconnection may damage the internal circuit. (ensure to avoid reverse connection)
- 2) Use wires shorter than 3 m 9.842 ft to protect the internal circuit. Before use, check under actual use conditions if there is no influence by surrounding environments.
- 3) Do not repeatedly attach/detach the connector.

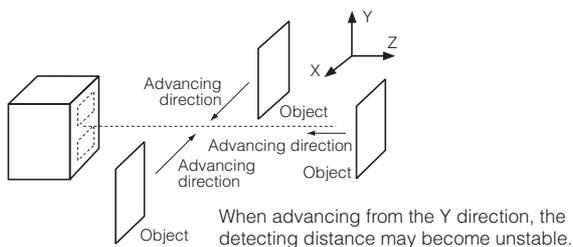
### ■ Detecting part

- 1) Keep the detecting surface clean. The detecting surface is resistant to trash/ dust, however, if an excessive amount of trash/dust adhere to the surface, it may reduce the margin of detecting distance.
- 2) Dew condensation on the detecting surface may cause malfunction.
- 3) The sensor aims to detect human bodies. If the targeted object has extremely low reflectivity (e.g., objects frosted by black rubbers) or extremely high reflectivity (e.g., objects which regularly reflect: mirrors, glasses or glossy papers), the sensor may not be able to detect or the detecting distance may become unstable.
- 4) The front face of the lense and the case are polycarbonate-based. Generally they are stable against water, alcohol, oil, salt and weak acids. However, avoid alkalis, aromatic hydrocarbons and halogenated hydrocarbons as those substances may expand or melt the lense and the case.
- 5) If placing filters (covers) in front of the sensor and perform detection through the filters, following may occur: detection of the filters (covers), changes of the detecting distance or unstable operations.
- 6) If sensors are in facing positions, light from the opposing sensor may cause mutual interferences and malfunction. Before use, check the installation conditions.
- 7) When arranging multiple sensors in parallel, keep the interval of neighboring sensors as below or over. Before use, ensure that there is no mutual interference.

Part No.	Sensor interval
AMBA1 series	5 cm 1.969 inch
AMA1 series	8 cm 3.150 inch
AMBA2 series	10 cm 3.937 inch
AMBA3 series	20 cm 7.874 inch

### ■ Recommended mounting direction

As below, install the sensor for the X and Z advancing directions of the targeted object.

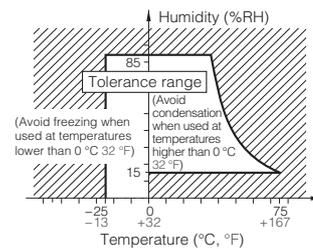


For general precautions, see "General precautions for motion sensors" in the next page.

### ■ Ambient operating conditions

- 1) Temperature: Refer to the absolute maximum ratings for the temperature of each individual sensor.
- 2) Humidity : 15 % to 85 % RH (No freezing nor condensation at low temperature)
- 3) Atmospheric pressure: 86 to 106 kPa
- 4) Because the humidity range differs depending on the ambient temperature, the humidity range indicated below should be used. Continuous operation of the switch is possible within this range, but continuous use near the limit of the range should be avoided. This humidity range does not guarantee permanent performance.

<MA Motion Sensor>



In general, degradation of electronic devices accelerates when they are operated under conditions of high temperature or high humidity. Before use, confirm the reliability of the sensors under the expected operating conditions.

- 5) The sensors do not have a water-proof or dust-proof construction. Depending on the ambient operating conditions, some means of providing protection from water and dust and preventing the formation of ice and condensation must be provided prior to using the sensors. If a sensor is used with a cover installed, the initial detection performance specifications may not be able to be met. Confirm the operation under the actual operating conditions.
- 6) Take care to avoid exposing the sensors to heat, vibration or impact since malfunctioning may result.

### ■ Concerning external surge voltages

Since the internal circuitry may be destroyed if an external surge voltages is supplied, provide an element which will absorb the surges.

### ■ Concerning power supplysuperimposed noise

- 1) Use a regulated power supply as the power supply. Otherwise, power supplysuperimposed noise may cause the sensors to malfunction.
- 2) To maintain the power supply noise performance, be certain to connect a capacitor (33  $\mu$ F or more) to the sensor power supply input terminal in order to stabilize the power supply voltage.

### ■ Drop damage

If the sensor is dropped, damage can occur resulting in incorrect operation. If dropped, be sure to do a visual check of the exterior for noticeable damage and check the operation characteristics for faulty operation.

### ■ Concerning the circuit sides

Since the circuit sides given in this catalog are not protected in terms of circuit design, check out the performance and reliability of the circuits prior to using the sensors.

### Safety Precautions

Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstances in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- Before connecting a connector, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., and make sure that the connector is connected properly. Take note that mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- Do not use any motion sensor which has been disassembled or remodeled.
- Protection circuit recommended The possible failure mode is either open or short of the output transistor. An excess heat is the cause for short mode failure. For any important and serious application in terms of safety, add protection circuit or any other protection method.