

AR-021 Ex Motion Sensor

The explosion-safe motion sensor offers an electrical output of up to 2,000 VA ohmic or light inductive load and an extra free contact. The motion detector switch switches a potential-free contact if there is anything moving in the detection area.

Function:

The motion detector switch emits HF and receives the echo. Even in case of very small movements changes are detected. Thin, non-conductive walls (glass, plastic, wood) do not intermit detection. For this reason, invisible mounting is possible. (sabotage-proof and vandal-resistant).

Since detection is only triggered by movement, the switch is immune against light sources and thermal radiation as well as against vapor and fog. The responsivity and thus the range is adjustable.

Limit brightness and switch-off delay can be set for contactless switching.



All control elements are only accessible when the housing is open. The open device is not explosion-safe!

A back-up fuse is built-in for the sensor.

Due to the type of protection operation is possible without limitation in zone 2 (gas) and 22 (dust) but not for underground workings (mining).

The rugged housing is made of anodized aluminum, the pane of practically indestructible polycarbonate. Protection type IP 66 permits operation even in very humid areas.

Technical data

Type of protection:	  II 3GD, Ex nR IIC T6 Gc, Ex tc IIIC T80°C Dc
Applicable EU directives:	94/9/EC (ATEX 95), 2006/95/EG (LVD) en 2004/108/EG (EMG)
Angle of coverage:	1 – 8 m, adjustable
Registration angle:	360° with 140° opening angle
Dimmer switch:	2 – 2,000 Lux
Preset time:	10 seconds – 30 minutes
Voltages:	230 V AC 50 Hz (L, N1, PE)
Switch power AC1:	2,000 VA (ohmic and light inductive loads)
Switch power AC15:	400 VA at 230 V AC (electromagnetic load with tenfold engagement power)
Motor load AC3:	0.3 kW at 230 V AC (stopping and starting of squirrel-cage armature motors)
Output:	Switched 230 V AC supply (L', N2) and potential free contact (1, 2)
Electrical connection:	Connection terminals 7 x 2.5 mm ²
Ambient temperature:	-20 °C tot +50 °C

Electrical connection

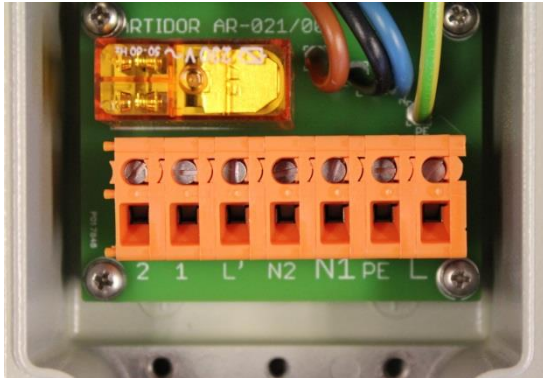


Figure 1. Connection terminals

The motion sensor offers 7 connection terminals.

Voltages:		Output:		Potential free contact:	
L	230 VAC phase	L'	230 VAC phase – switched	1	Connection 1
N1	Neutral	N2	Neutral (connected to N1)	2	Connection 2
PE	Earth				

Operating instructions

Commissioning:

Observe safety instructions. Examine connection once again. All regulators and pushbuttons are only accessible when the housing is open. **The opened device is not explosion-safe!** If an explosion hazard cannot be excluded, undertake adjustments when the device is switched off. Before switching on the device, close housing correctly!

Mechanical alignment:

The detection area is approx. spherical. The range increases with the speed, size and conductivity of the object.

The device should aim at approx. half the height of the object (approx. 1m for adults) in the required triggering distance.



Figure 2. Front side sensor

Initial values for the regulators:

Range (arrow) at left stop = min. responsivity (range approx. 1m).

Switch-off delay (clock) at left stop = shortest time (approx. 10s).

Twilight setting (moon, sun) at right stop = max. brightness (approx. 2000 Lux), the device works despite daylight.

Top middle push button:

The top middle pushbutton (actuate with pin of approx. Ø 2.5 mm) switches the relay independently from the sensor:

1 x short: Relay is energized during 4 hours, the red LED at the bottom on the right shines continuously. When pressing the button shortly again, sensor operation is reactivated.

1 x 3 seconds: The sensor is deactivated, the relay is never energized, the LED flashes. When pressing the button shortly again, sensor operation is reactivated.

The red LED must be off during normal operation!

Troubleshooting:

Switch **doesn't switch on:**

- LED flashes, switch off with push button.
- Set range is too small, turn regulator to the right.
- Twilight setting in on Night Services, turn regulator to the right.
- No power supply: The simplest control with built-in LED and pushbutton is only possible if there is no explosion hazard!

Switch **switches off directly after connecting power supply:**

- This is normal. The motion sensor stabilizes in approx. 45 seconds. During this period of time, the relay will reload and switch off.

Switch **doesn't switch off**, or switches on again unintentionally:

- LED shines, switch off with push button.
- Set switch-off delay is too long, turn regulator to the left. Every movement during the switch-off delay starts the delay time again!
- Movements are detected within the range; adjust switch mechanically, reduce range (turn regulator to the left). The switch detects movements even through isolating walls (glass, plastic, wood) e.g. dripping raindrops on the window!

Ordering information

Please indicate explicitly: "AR-021 Explosion-safe Motion Sensor".

Contact information

Should you have any questions regarding usage or setting of the explosion-safe motion sensor, please contact:

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