

# User Manual

## Explosion-safe occupancy sensor Type series AR-024



II 3 G Ex ec mc IIC T6 Gc  
II 3 D Ex mc tc IIIC T80°C Dc





## 1. Safety Instructions

The AR-024 occupancy sensor is an explosion-safe product suitable for use in hazardous areas with explosion hazard from flammable gases, vapors, mist and dust, classified as Zone 2 or Zone 22.

This manual must be read and understood for safe use of the occupancy sensor. All warnings and instructions must be followed.

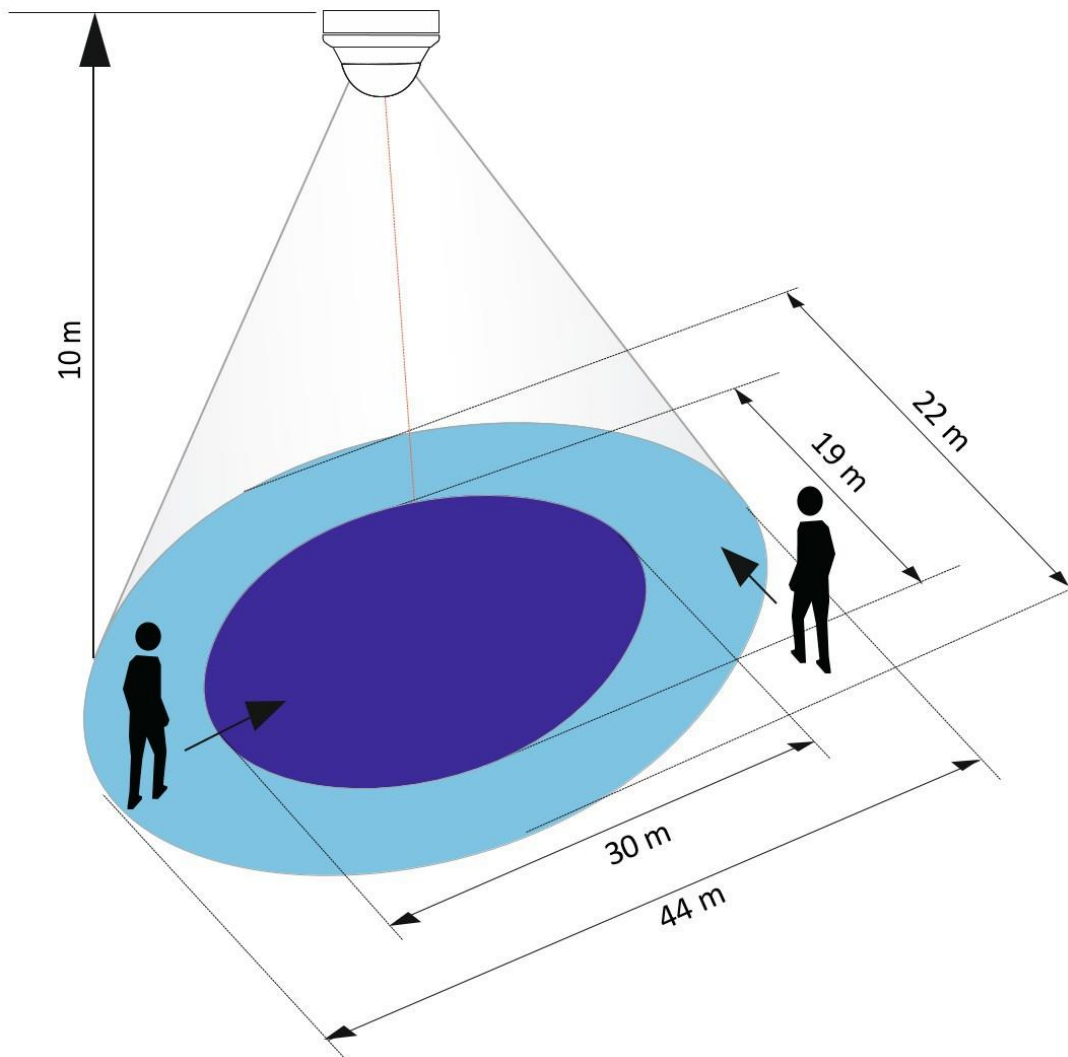
- Installation must be carried out by personnel trained and qualified in explosion safety taking the instructions mentioned on the equipment and in this manual into consideration. Local regulations that apply to the installation must be followed.
- Connect this equipment to the supply voltage for which it is designed.
- Isolate electrical power to the occupancy sensor before electrical installation.
- The protection degree against ignition “Encapsulation”, “Increased safety” and “Protection by enclosure” have been applied to the apparatus. The enclosure may not be opened if the occupancy sensor is energized.
- Installation of cables may not invalidate the “Protection by enclosure”, therefore only IP65 cable glands with the a clamping size meeting the cable diameter should be used.
- All unused openings should be plugged off in a properly closed and tight way.
- Either decommission the occupancy sensor or do not use it when it is damaged.
- During installation of the occupancy sensor national safety regulations must be observed.
- Only use the occupancy sensor under the environmental conditions for which it is specified. Deviating environmental conditions can contribute to damage to the equipment and may lead to possible danger to the life of the user.
- Do not use the occupancy sensor at temperatures deviating from the specified ambient temperature range.
- Follow all instructions written on the equipment and as mentioned in this manual.
- Repairs may only be carried out by the manufacturer or by a person appointed by the manufacturer.
- Modifications to the equipment or changes to the design are not permitted.
- The product may only be used for the function for which it is designed and shall be maintained in a good and clean condition.

If these instructions are not followed, the explosion safety of the equipment cannot be guaranteed. The equipment could then endanger the life of the user and could cause the ignition of an explosive atmosphere. Consequently, Artidor as the manufacturer will waive any responsibility.

## 2. Description

The explosion-safe occupancy sensor AR-024 is based on passive infrared technology and capable of detecting movements of heat sources. Thanks to the wide opening angle and its 10 m range, this sensor is suitable for

monitoring large areas. The occupancy sensor is designed for use inside large buildings for example warehouses and combines energy saving and the protection of the environment in addition to convenient lighting.



Motion sensors switch the light depending on movements and the ambient light. Lighting will be switched off. The sensor itself does not emit any radiation and is therefore called “passive”. Unlike motion sensors, occupancy sensors can also switch off lighting if there is sufficient daylight, because of their advanced mixed light measurement (the principle on which occupancy sensors are based). Do not install sensors near heat sources like air-conditioning units, lights or radiators. The sensor electronics offers an potential free contact for switching up to 1,150 VA load.

The occupancy sensor is mounted on top of a coated aluminum housing. The explosion safety to gas and dust is arranged by the appliance of protection degrees against ignition “encapsulation”, “molding” and “protected by enclosure”.

The Artidor AR-024 occupancy sensor is certified in accordance with European Directive 2014/34/EU (ATEX 114) for use in gas or dust hazardous areas and is CE marked.

### 3. Characteristics

The characteristics of the occupancy sensor can be summarized as follows;

- Extended range of detection.
- Coated aluminum housing and adjustable stainless steel mounting bracket.
- Provided with two Ex e cable glands.
- Manufactured on the basis of the European Directive 2014/34/EU (ATEX 114).
- Suitable for use in gas and dust hazardous areas classified as zone 2 and 22.
- Explosion safety category and protection degree against ignition applied:  
II 3 G Ex ec mc IIC T6 Gc  
II 3 D Ex mc tc IIIC T80°C Dc.
- Protection degree against the ingress of water and dust IP 65.
- Suitable for indoor use.

### 4. CE - Marking

The occupancy sensor complies to the European Directives for EMC and ATEX and implicit to the Low Voltage Directive. With regard to explosion safety the occupancy sensor has been designed and manufactured on the basis of the essential health and safety requirements of European Directive 2014/34/EU (ATEX 114) relating to Group II Category 3GD. Harmonized European construction standards have been applied fulfilling the essential requirements of the directives.

### 5. Application

The explosion-safe AR-024 occupancy sensor has been designed for and is suitable for use in hazardous classified areas due to flammable gases, vapors, mist, fibers and dust. Because it is explosion-safe and certified on the basis of Group II Category 3GD of the ATEX Directive it is suitable for use in the following types of zones in explosion hazardous areas:

- for combustible gases, vapors and mist: zone 2
- for combustible fibers and dust: zone 22.

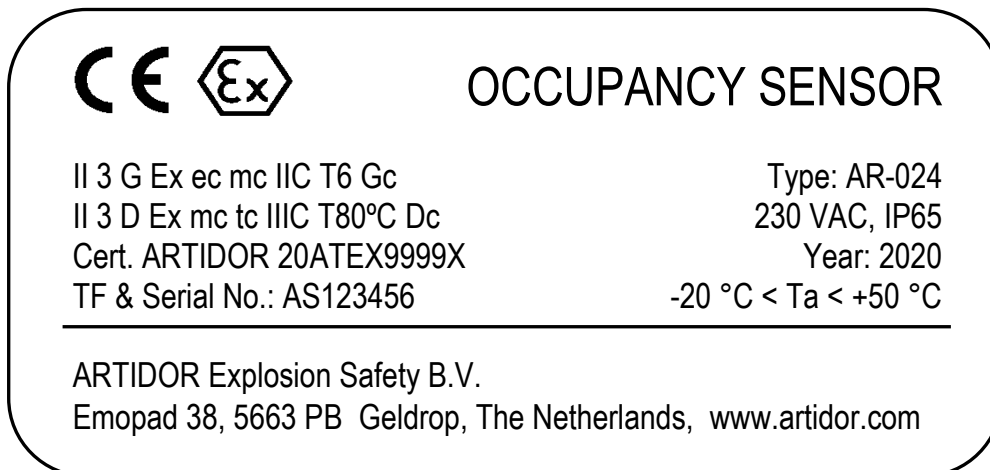
### 6. Technical data

|                              |   |
|------------------------------|---|
| Explosion safety category:   | ATEX II 3GD   |
| Protection against ignition: | Ex ec mc IIC T6 Gc, Ex mc tc IIIC T80°C Dc  |
| Conformity:                  | European Directive 2014/34/EU (ATEX 114) and 2014/30/EU (EMC)                               |
| Standards applied:           | EN 60079-0:2018, EN 60079-7:2015 / A1:2018, EN 60079-18:2015 / A1:2017 and EN 60079-31:2014 |
| Sensor:                      | Passive infrared; 0,8 W power consumption   |
| Mounting height:             | 2 – 10 m  |
| Range of coverage:           | An oval area of 24 x 44 m   |
| Registration angle:          | Circular 360°   |
| Dimmer setting:              | 10 – 2,000 Lux  |
| Preset time:                 | 15 seconds – 30 minutes   |
| Supply voltage:              | 230 VAC ± 10%   |

|                                   |  |
|-----------------------------------|--|
| Switch power AC1:                 | 1,150 VA (resistive and light inductive loads)                                     |
| Output:                           | Potential free contact   |
| Electrical connections:           | Terminals 8 x 2,5 mm <sup>2</sup>  |
| Material:                         | Die cast aluminum housing (RAL 7015, slate grey), cable glands nickel plated brass |
| Entries:                          | M16 or M20 cable glands (2x)   |
| Sealed against moisture and dust: | IP 65 according to EN 60529  |
| Mounting bracket:                 | Stainless steel mounting bracket, mounting holes Ø 6,5 (4x), distance 60 x 60 mm   |
| Ambient temperature:              | -20 °C to +50 °C   |
| Housing dimensions (L x W x H):   | 120 x 120 x 195 mm (including mounting bracket, excluding cable glands)            |
| Sensor dimensions                 | 65 x Ø98 mm  |
| Weight:                           | 1,860 g (incl. mounting bracket)   |

## 7. Marking and warning on the equipment

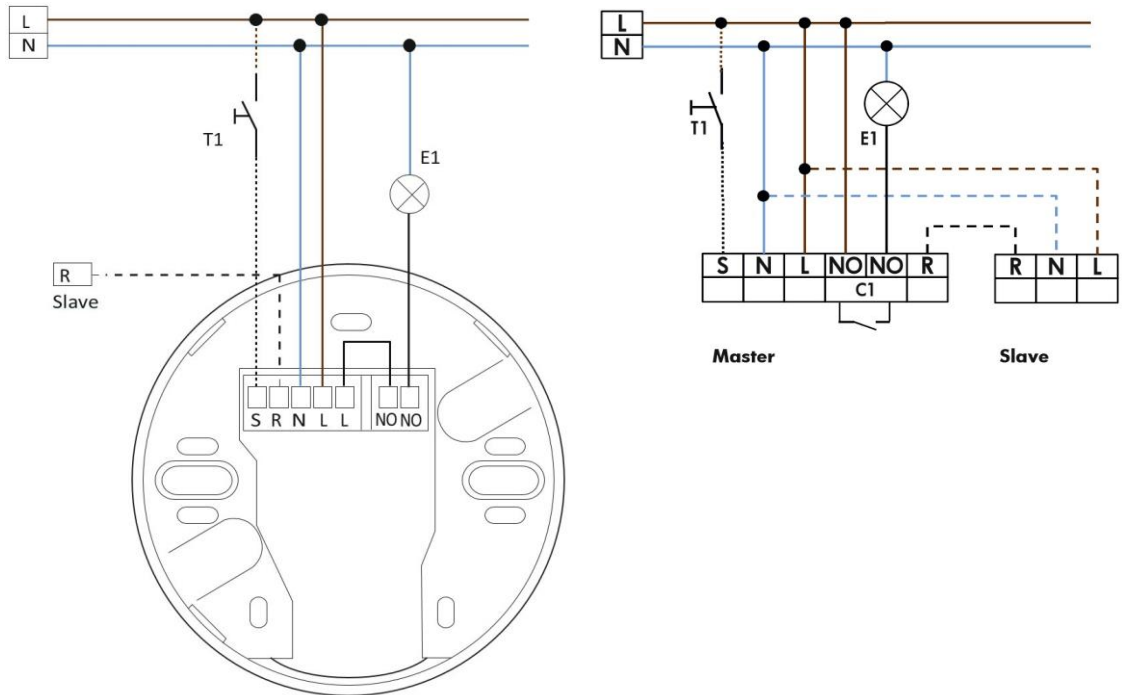
The marking label as shown below will be attached to the occupancy sensor:



## 8. Installation instructions

- Installation of explosion-safe equipment such as this product must be carried out by personnel specially trained and qualified to do this, following the relevant requirements of the installation standard EN 60079-14.
- For the installation and use of this product the relevant safety regulations and also the generally recognized latest state of the technology apply.
- During assembly, care must be taken that the framework, screws and surface are strong enough to take the weight of the occupancy sensor.
- Isolate power from the electrical supply cable prior to installation.
- Install the connection cable and make sure that it is protected from mechanical and chemical influences.

The occupancy sensor offers 8 connection terminals:



Power supply:

L 230 VAC

N Neutral

PE Protective earth

R Connection for slave

S Switch for semi-automatic mode

Potential free contact:

NO connection 1

NO connection 2

## 9. Operating instructions

All setting can be done by use of the infrared remote control. The settings are explained in the OEM manual that is supplied with the product.

**Mechanical alignment:** The detection area is oval shaped. Install the unit in such a manner that the markings on the housing are positioned in the longitudinal direction of the area to be monitored. Do not install sensors near heat sources like air-conditioning units, lights or radiators.

## 10. Troubleshooting

The functional indicators in the case of the ARTIDOR AR-024 (red and green LED's) have several functions.

Red and green LED indicating self-checking mode (over a period of 60 seconds following mains' supply lock-on)

- Flashing at intervals of 1 second  
EEPROM / memory empty
- Flashing rapidly  
EEPROM / memory contains information

Red LED as an indicator of status

- Flashing irregularly  
Movements are detected within the area of coverage
- Flashing regularly  
Sensor identifies bright, light off (dependent upon operating mode)
- Not illuminated  
Sensor identifies dark, light on (dependent upon operating mode)
- Flashing extremely rapidly  
Too bright / Too dark / Undefined

Red LED as an acknowledgement of receipt for commands from the remote control

- Illuminated for 1 seconds  
Signal validly received
- Illuminated for 0.25 seconds  
Not-accepted command, sensor blocked
- Flashing extremely rapidly  
Not-accepted command, occurs, for example, when an attempt is made to set a twilight-value that is too high or too low

Red LED as an acknowledgement of receipt for commands from the remote control

- Red and green LEDs flash 3x briefly every 5 seconds  
Indicates semi-automatic mode
- Red and green LEDs light up alternately  
Determining the light value for automatic shutdown with sufficient daylight. (This is only indicated with a set lag time of 30 minutes.)

## 11. Maintenance

For the maintenance of the AR-024 occupancy sensor the requirements as stated in EN 60079-17 apply. If the occupancy sensor or the connection cable is no longer in good condition, very dirty or damaged, it must be repaired or cleaned immediately. The power supply to the occupancy sensor must be switched off and may only be restored after the maintenance has been carried out and approved.

The advised maintenance cycle for this occupancy sensor depends on its specific use and must therefore be agreed upon with the user for the expected use.

## 12. Repair

If repairs are carried out in an incompetent manner, the explosion-safety of the occupancy sensor can no longer be guaranteed. Therefore it is preferred that the occupancy sensor is returned to the manufacturer for repair.

## 13. Removal / re-use

The equipment can be completely processed as electronic waste. For processing regarding disposal or reuse of the product and its packaging, national disposal and environmental laws and legislation must be taken into consideration.

## EU Declaration of Conformity

We

ARTIDOR Explosion Safety B.V.  
Emopad 38, 5663 PB Geldrop, The Netherlands

herewith declare that the  
Explosion-safe occupancy sensor type series

**AR-024/...**

labelled with the distinctive community mark including the code of the  
protection degree against ignition and temperature class:

**CE** **Ex** II 3 G Ex ec mc IIC T6 Gc, II 3 D Ex mc tc IIIC T80°C Dc

produced under the ARTIDOR Quality Assurance system in accordance with  
ISO 9001:2015 and annex VIII of Directive 2014/34/EU

is in conformity with the relevant Union harmonization legislation:

2014/30/EU

Concerning electromagnetic compatibility

2014/34/EU

Concerning equipment and protective systems intended  
for use in potentially explosive atmospheres,

and that the following standards regarding explosion safety have been applied:

EN 60079-0:2018  
EN 60079-7:2015 / A1:2018  
EN 60079-18:2015 / A1:2017  
EN 60079-31:2014

This declaration of conformity is issued under the sole responsibility of the manufacturer

Geldrop, 1 April 2020

Signed



M. Moolenaar  
Managing Director and EX Authorized Person

This document is subject to change without notice.