

User Manual

Explosion-safe Timer relay Type AR-023



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



STANDARDS COMMITTEE MEMBER





1. Safety Instructions

The AR-023 timer relay is an explosion-safe product suitable for use in hazardous areas with an explosion hazard due to the presence of flammable gases, vapors, mist, fibers and dust, classified as Zone 2 or Zone 22.

This manual must be read and understood for safe use of the timer relay. 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 timer relay before electrical installation.
- Either decommission the timer relay or do not use it when it is damaged.
- During installation of the timer relay national safety regulations must be observed.
- Only use the timer relay 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 timer relay 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 AR-023 timer relay is delayed shutoff relay with which two devices, for example lighting, is switched on after a press of the button and switched off again automatically after the set time. The timer relay has a fiberglass-reinforced plastic housing with a surface resistivity of $< 10^9$ Ohms and therefore will not become electrostatically charged. The circuit to the start button is intrinsically safe by design.

Gas explosion safety is ensured using the protection methods against ignition “increased safety” and “molding”. Dust explosion safety is ensured by the protection method against ignition “protection by enclosure”.

3. Characteristics

The characteristics of the timer relay can be summarized as follows:

- Robust design
- Fiberglass-reinforced polyester housing
- Manufactured on the basis of 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
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- The electronics board is molded
- Protection degree against the ingress of water and dust IP65
- Interconnection option to second device
- Timer value maximum 10, 20 or 30 minutes (depending on model)
- Two switched outputs to max. 4 Amps
- Provided with two Ex e cable glands and Ex e connection terminals

4. CE - Marking

The timer relay complies to the European Directives for EMC and ATEX and implicit to the Low Voltage Directive.

With regard to explosion safety the timer relay 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.

For more details refer to section 6 Technical data and to the Declaration of Conformity as shown on the last page of this manual.

5. Application

The explosion-safe timer relay AR-023 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

All parts used are made of corrosion resistant material, suitable for use with most occurring chemicals.

6. Technical data

Conformity:	European Directive 2014/34/EU (ATEX 114) and 2014/30/EU (EMC)
Explosion safety category:	II 3GD
Protection against ignition:	II 3 G Ex ec mc IIC T6 Gc II 3 D Ex tc IIIC T80°C Dc
Standards applied:	EN 60079-0:2018, EN 60079-7:2015 / A1:2018, EN 60079-18:2015 / A1:2017 and EN 60079-31:2014
Ambient temperature:	-20 °C tot +60 °C

Material:	Fiberglass-reinforced polyester
Dimensions:	152 x 102 x 81 mm
Ingress protection level:	IP65 according to EN 60529
Power supply:	230 VAC / 50 Hz
Power consumption:	9 mA AC
Preset time:	10 seconds to 10, 20 or 30 minutes (25 rotations of the adjustment screw, time depending on model)
Connections:	Power supply in: terminals 3 x 2.5 mm ² Power supply out: 3 x 2.5 mm ² (interconnection contact) Switched outputs: 4 x 2.5 mm ² (2x)
Mounting:	Ø4.5 mm mounting holes (4x), mutual distance 137 x 87 mm
Weight:	885 grams

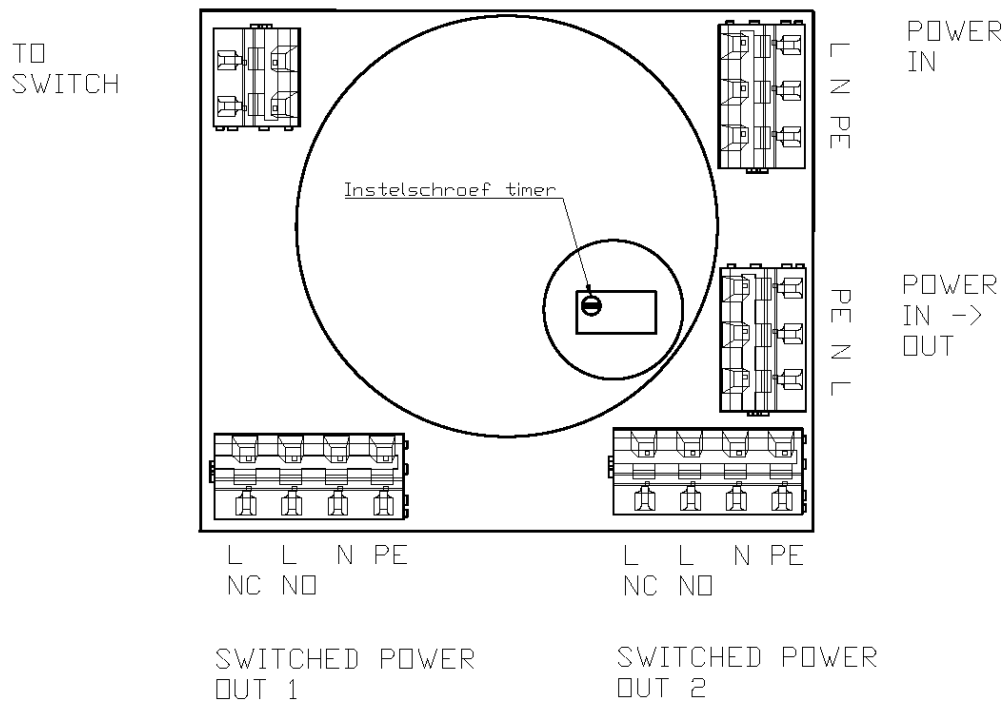
7. Marking and warning on the equipment

To the AR-023 timer relay the marking label as shown below will be attached.



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.
- 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 connection cable has three cores for the following connections:



- Explanation of the connections:
 - Power in: 230VAC 50Hz supply, L is phase, N is neutral and PE is earth
 - Power In -> Out: Interconnection option; the power supply of 'Power in' is available as output for this connection
 - To switch: Intrinsically safe input circuit for the start button of the timer
 - Switched Power out 1: Voltage output for connecting device 1
L (NO) switches on after pushing start for as long as the timer runs.
L (NC) switches opposite to L (NO).
N is neutral and PE is earth connection
 - Switched Power out 2: Voltage output for connecting device 2
- Timer setting: Turn the timer adjustment screw left until it clicks. Then turn right until required setting is reached. Refer to table below for indications of timer settings as percentage of the maximum time rate values at 5, 10 or 15 rotations.

Number of rotations	Timer rate value
5	~10 % x Tmax
10	~25 % x Tmax
15	~75% x Tmax

9. Maintenance

None of the parts of the AR-023 timer relay need maintenance. If the housing is very dirty it must be cleaned.

10. Repair

Because of the molded electronics none of the parts of the AR-023 timer relay can be repaired. If repairs are carried out in an incompetent manner, the explosion-safety of the timer relay can no longer be guaranteed.

11. 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 Timer relay box type series

AR-023/*

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

CE  II 3 G Ex ec mc IIC T6 Gc, II 3 D Ex 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