



II 3GD



ARTIDOR

AR-023

Installation manual explosion-safe timer relay

Manuel d'installation relais temporisé antidéflagrant

Installationsanleitung explosionsichere Zeitrelais

Installatiehandleiding explosie veilig tijdreleis



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Installation manual AR-023 timer relay

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Artidor

Innovation meets craftsmanship

Explosion: it's a word that none of our customers like to hear. Yet we talk about it enthusiastically every day, again and again. Especially the prevention of explosion. At Artidor, we believe that everyone deserves a working environment without a risk of explosion. We do all we can to make that possible and accessible for every company. Our aim? A safer world for all our customers, with zero occupational accidents due to explosions.

Leading since 1986

Artidor Explosion Safety B.V. is built on knowledge, innovation and craftsmanship. We have been the leading specialist in the development of explosion-safe products since 1986. Based in the Netherlands, we serve a global market with our own customized solutions and private label products for large brand names. We play a leading role in the standards commission of the Netherlands Electrical Committee (NEC). Naturally, our quality management system is fully ISO-certified.

Flexibility and quality

Artidor offers full-service innovation. Because we have research, development and testing under one management, we are always able to switch gears quickly. We enjoy a challenge, and we keep going until we find the best solution — however long it takes. In our workshop, we use sound craftsmanship to translate new designs into products that surpass expectations. As far as we are concerned, the desired specifications are the starting point, not a final destination.

Real added value

People entrust their lives to our products, and that sets an incredibly high bar for us. We want to give people the good feeling that they can always do their work safely. We are convinced that working safely leads to more job satisfaction and higher productivity. That's how we contribute — literally — to the success of our customers. Wherever they are in the world.

Welcome to Artidor.

1. General

Artidors explosion proof timer relay AR-023 is a time-controlled relay that can be used to switch on a device, for instance a light or a pump, with the push of a button. After the set time, it is switched off again. Next to this program, there are six more programs available for time-controlled management of your equipment.

The time relay has a solid IP66 aluminum casing. The start button circuit is intrinsically safe. The button can be replaced by an external switch according to your needs. In that case, the maximum cable length is 100 meters.

Gas explosion safety is ensured by using the following methods of protection against ignition "increased safety", "intrinsic safety" and "molding". Dust explosion safety is ensured by the method of protection against ignition "protection by enclosure".

The Artidor timer relay is explosion safe and certified according to European directive 2014/34/EU (ATEX 114) and is CE marked.

2. 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.

3. Characteristics

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

- Robust design
- Aluminum 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 ic mc IIC T6 Gc
II 3 D Ex tc IIIC T80°C Dc
- The electronics are molded and therefore insensitive to moisture
- Protection degree against the ingress of water and dust IP66
- 7 different programs
- Timer can be set from 1 second to 160 minutes
- Switched normally open and normally closed output, max. 16 Ampere
- Provided with two Ex e cable glands and Ex e connection terminals

4. 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

5. Technical Data

European directives:	2014/34/EU (ATEX 114) and 2014/30/EU (EMC)
Protection against ignition:	II 3 G Ex ec ic 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 60079-11:2012, EN 60079-18:2015 / A1:2017 and EN 60079-31:2014
Switching programs:	7 (delay on, delay off, cyclic, pulse delayed, pulse, watchdog, on delay 2)
Timer value:	Adjustable from 1 second to 160 minutes
Start signal:	Built-in push button or external switch
Power supply:	115 / 230 V AC, 50 / 60 Hz or 12 - 24 VDC
Power consumption:	Max. 36,6 mA at 24 VDC
Connections:	Connection terminals 9 x 2.5 mm ²
Material housing:	Aluminum
Dimensions:	160 x 160 x 100 mm
Mounting:	Ø4.5 mm mounting holes (4x), mutual distance 140 x 110 mm
Ingress protection level:	IP66 according to EN 60529
Ambient temperature:	-20 °C to +60 °C
Weight:	1.740 grams

6. Marking

The timer relay complies to the European Directives for EMC and ATEX and thus implicitly with 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 5 Technical data and to the Declaration of Conformity as shown on the last page of this manual.



Multifunction timer relay

II 3 G Ex ec ic mc IIC T6 Gc

Type: AR-023/002

II 3 D Ex tc IIIC T80°C Dc

115 / 230 V AC, 50 / 60 Hz

Cert. ARTIDOR 25ATEX9999

IP66

Year: 2025

TF & Serial No.: AS250101

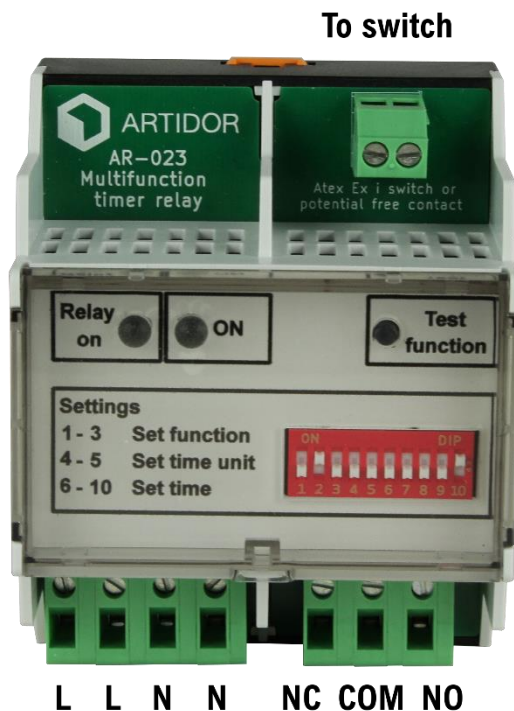
-20 °C < Ta < +60 °C

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Example of an AR-023 timer relay label

7. 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 prior to installation.
- Install the connection cable and make sure that it is protected from mechanical and chemical influences.



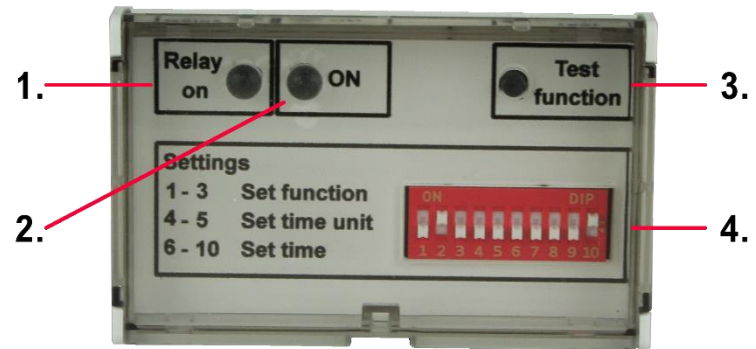
Explanation of the electrical connections:

Connection	Explanation
L	Live. Connect the live of the AC grid to this terminal. The two L terminals are bridged internally. If desired, one L terminal can be used to power the time relay COM terminal to switch the equipment in a time-controlled way.
N	Neutral. Connect the neutral line of the AC grid to this terminal. The two N terminals are bridged internally. If desired, one neutral terminal can be used as part of the power circuit of the device.
To switch	Intrinsically safe input circuit for the start button of the timer.
Switched output	The switched output consists of a potential free relay. It can be powered by your own power supply or it can be used with the spare Live and Neutral connections. COM → NO is the normally open contact of the relay. It switches depending on the selected program. COM → NC is the normally closed contact of the relay. It switches opposite to COM → NO.

Please note: The previous explanation concerns the time relay with 115 - 230 VAC connection. For the 12 - 24 VDC version, the positive power supply (+) must be connected to the L connector and the negative power supply (-) to the N connector.

8. Settings

The control panel contains 2 LED status lights, a test button and 10 DIP switches to make the settings. It looks like this:



Number	Function
1	Orange LED, will light up when the relay coil is active
2	Green LED, will light up when the system has power
3	Test button, pushing this button performs the start input instead of the externally wired start button.
4	Dip switches, used for selection of the program, time unit and time value.

The settings of the device can be changed by setting of the dip switches. The dip switch is on or 1 in the upper position and it is off or 0 in the lower position. The result is a binary code.

Dip switch	Function
1 - 3	Program selector
4 - 5	Time unit selector
6 - 10	Time selector

The dip switch settings for the program, time unit and time selector are explained in the sections below.

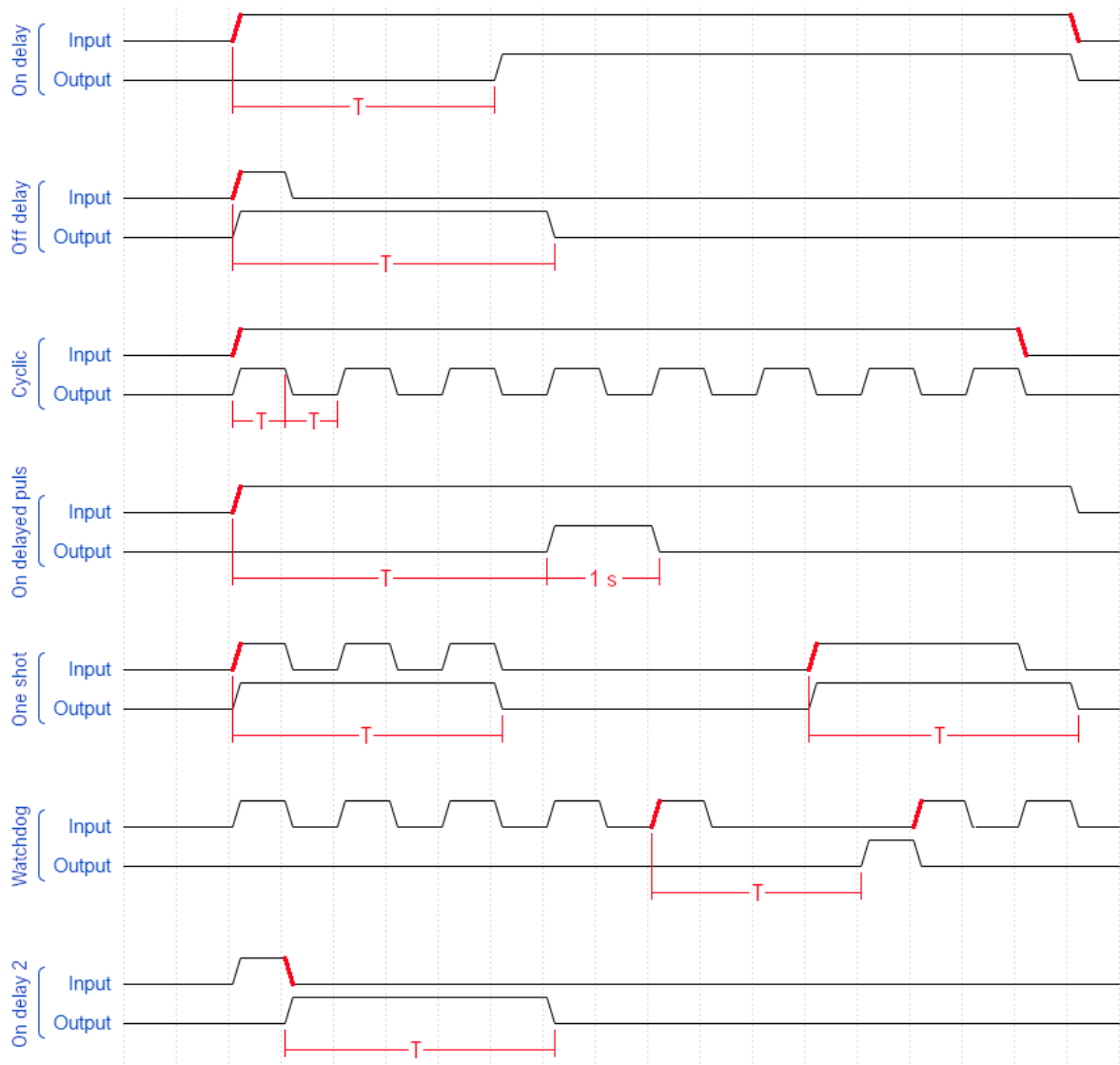
Program selector

The program selector dip switches **1 - 3** select the program on the device. The programs are listed and explained below.

Dip switch 1 - 3	Program	Explanation
000	On delay	After pressing the start button the timer is started. After the user defined time the relay is switched on for as long as the input remains high. When the input is low the relay is also switched off.
001	Off delay	After pressing start the timer is started. The output is high during the user defined time. After that the relay is switched off.
010	Cyclic	As long as the input is high, the relay is continuously switched between the on and off state during the user defined time.

Dip switch 1 - 3	Program	Explanation
011	On delayed pulse	When the input is switched high the output relay will switch for a fixed period of 1 second after the used defined time is finished. Even when the input remains high the relay is switched off.
100	One shot	After at least one single input the relays is switched for the user defined time. The one shot timer can be used to ignore input signals for example to prevent a button from bouncing. New inputs during the user defined time will be ignored. Only after the relay switches off it is ready to process a new input signal.
101	Watchdog	This function can be used to watch if an input pulse train keeps coming in. If the pulse train is lost for a user defined time, the output relay is switched on indicating the pulse train has stopped. On re-receiving the pulse train the output relay is switched off.
110	On delay 2	This function is the same as on delay but it will trigger on the falling edge instead of the rising edge.
111	Reserved	Reserved for customer specific program (on demand).

The following diagram gives a graphical representation of the programs:



Time unit selector

The time unit selector dip switches 4 - 5 select the time unit of the device.

Dip switch 4 - 5	Time unit setting	Maximum time
00	1 second	32 seconds
01	10 seconds	320 seconds
10	1 minute	32 minutes
11	5 minutes	160 minutes

Time selector

The time selector dip switches **6 - 10** are used to select the time value. The unit of time is seconds. This value is the binary number + 1. The actual time set is calculated by multiplying the time unit setting and the time setting.

Dip switch 6 - 10	Time setting
00000	1 second
00001	2 seconds
00010	3 seconds
00011	4 seconds
11111	32 seconds

9. Maintenance

For the maintenance of the AR-023 timer relay the requirements as stated in EN 60079-17 apply. If the timer relay is no longer in good condition, very dirty or damaged, it must be repaired or cleaned immediately. The power supply to the timer relay must be switched off and may only be restored after the maintenance has been carried out and approved.

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

10. Repair

Repairs to the AR-023 timer relay may only be executed by applying original parts. If non-original parts are used or repairs are carried out in an incompetent manner, the explosion-safety of the timer relay can no longer be guaranteed. Therefore it is preferred that the timer relay will be returned to the manufacturer or its representative for repair.

If the housing is opened care must be taken of the following:

- The housing must not be opened unless power is switched off prior to repair.
- The housing must not be opened unless the area has been known to be non-hazardous.
- If opened, the AR-023 timer relay shall be dismantled in a logical sequence.

11. Removal / re-use

For processing regarding disposal or reuse of the product and its packaging, national disposal and environmental laws and legislation must be taken into consideration.

Alterations can be made to this user manual without notice.