


User manual

Explosion-safe window air conditioning system
Type series AR-054

 II 3 G Ex ic nAC h IIC T3 Gc





1. Safety Instructions

The window air conditioning series AR-054 is an explosion-safe product suitable for use in hazardous areas with explosion hazard from flammable gases, vapors and mist, classified as Zone 2.

This manual must be read and understood for safe use of the air conditioning split unit. 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.
- Only connect this equipment to the correct voltage and mains frequency for which it is designed. Refer to original equipment manufacturers specification or the specifications as mentioned on the OEM's product label as attached to the unit.
- Isolate electrical power to the air conditioning unit before electrical installation.
- The plastic cover on the indoor side of the unit can be electrostatically charged. Only use a damp cloth to clean the cover. Do not use solvents.
- Either decommission the air conditioning unit or do not use it when it is damaged.
- During installation of the air conditioning unit national safety regulations must be observed.
- Only use the air conditioning unit 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 air conditioning unit at temperatures deviating from the specified ambient temperature range.
- An electrical isolating switch must be installed in the vicinity of the window air conditioning system which is explosion-safe in accordance with the classification of its environment.
- Pre-fuse the electric power supply in accordance with the power consumption of the air conditioning system.
- The air conditioning unit must not be opened in hazardous classified locations unless the environment has been known to be non-hazardous or power is switched off.
- 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.
- An operating manual for the explosion safe AR-054 series air conditioners is provided by the original equipment manufacturer. Functionality is not changed by conversion of the unit to explosion-safe.

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 window air conditioning system consists of a combined outdoor unit and indoor unit with remote control. In function the system refrigerates air. The air conditioning system provides a continuous flow of cold fluid which decreases the temperature of the heat exchanger, which in its turn absorbs the energy of the air, resulting in a room air temperature decrease. The remote control enables the user to operate the indoor unit.

The part of the air conditioning system situated on the outside consists of a sheet steel enclosure and contains a heat exchanger, a hermetically sealed compressor, one pressure regulated valve for controlling the refrigerant and NTC temperature sensors. The sheet steel enclosure is partly part of the protection degree against ignition applied.

The part of the air conditioning system situated on the inside consists of a heat exchanger and NTC temperature sensors all covered by a non-metallic hood. The electronically driven fan provides air flow on both sides of the system.

The infra-red remote control contains electronics (PCB) with a display and membrane pushbuttons all housed in a non-metallic housing containing two (2) 1,5 V DC AAA dry cell batteries.

The ambient temperature allowed for the apparatus is -20 °C to +45 °C.

3. Characteristics

The characteristics can be summarized as follows:

- Equipped with a H07 RN-F 3 x 1,5 mm² connection cable, length 5 meter
- Manufactured on the basis of European Directive 2014/34/EU (ATEX 114);
- Suitable for use in gas hazardous areas classified as zone 2;
- Explosion safety category and protection against ignition applied: II 3 G Ex ic nAC h IIC T3 Gc;
- Protection degree against ingress of water and dust IP54;

4. CE - Marking

The modification of the equipment to explosion-safe does not affect the conformity to the European Directives as declared by the original equipment manufacturer in the original Declaration of Conformity.

With regard to explosion safety the air conditioning unit 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 3 G. Harmonized European construction standards have been applied fulfilling the essential requirements of the directive. Please refer to paragraph 6 "Technical Data" and the Declaration of Conformity in the back of this user manual for the applicable directives.

5. Application

The series AR-054 explosion-safe window air conditioning units have been designed for and are suitable for use in hazardous classified areas due to flammable gases, vapors and mist. Because they are explosion-safe and certified on the basis of Group II Category 3 G of the ATEX directive they are suitable for use in explosion hazardous areas classified as zone 2.

If use in special environmental conditions is required, please contact the manufacturer Artidor Explosion Safety B.V.

6. Technical Data

Explosion safety category:	ATEX II 3 G
European directives:	2014/30/EU (EMC) and 2014/34/EU (ATEX 114)
Protection against ignition:	Ex ic nAC h IIC T3 Gc (A/C unit) Ex ic IIC T6 Gc (remote control)
Standards applied:	EN 60079-0:2012 / A11:2013, EN 60079-11:2012, EN 60079-15:2010, EN 80079-36:2016 and EN 80079-37:2016
Certification document:	Unit assessment certificate
Ambient temperature:	-20 °C to +45 °C
Sealed against moisture and dust:	IP54 according to EN 60529
Material housing inside part:	Sheet steel frame and non-metallic cover
Material housing outside part:	Sheet steel plating
Connection:	H07 RN-F 3 x 1,5 mm ² connection cable, length 5 meter
Earth connection:	External, M6, stainless steel

7. Marking and warning on the equipment

Labels are attached to the air conditioning AR-054 for marking purposes. The specific marking label depends on the applicable model of the air conditioning system and will be created according to the unit assessment certificate. All necessary warnings are marked.



Example of a window air conditioning unit label

8. Installation instructions

General

- 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. Also follow the national regulations and legal requirements relating to electrical connections to the electricity grid.
- Isolate power prior to installation.

All models are fitted with a connection box with cable glands & terminals and 5m cable

- Follow the instructions as stated under the previous heading 'General'.
- Ensure that the cable gland fits the individual cable used with respect to clamping size and type of cable. If not then apply a suitable cable gland and make sure that it is approved for its application.
- Connect an external earth wire to the external earth boss and ensure that this is sufficiently connected to electrical ground.
- The electrical power supply must be connected to the supplied power cable
- For connection the cable use an electrical isolating switch or a junction box which is explosion-safe in accordance with the classification of its environment.

9. Opening of the housing

The unit contains no components that need direct access in normal operation. The following warning is marked: "The air conditioning unit is modified to explosion-safe meeting ATEX requirements II 3 G. No serviceable parts inside. Refer to qualified personnel as substitution of parts may impair the suitability for use in hazardous areas."

The housing may only be opened under non-hazardous safe conditions. To do this follow the instructions as described under the following heading 'Repair'.

10. Maintenance

For the maintenance of the AR-054 air conditioning units the requirements as stated in EN 60079-17 apply.

If the air conditioning unit and the connection cable are no longer in good condition or are very dirty or damaged they must be repaired or cleaned immediately.

The power supply to the air conditioning units must be switched off and may only be restored after the maintenance has been carried out and approved.

For the advised maintenance cycles of the air conditioning unit we refer to the operation manual provided by the original equipment manufacturer.

The batteries of the infra-red remote control may only be replaced by batteries of the same size and type as provided with the original product.

11. Repair

Repairs to the AR-054 air conditioning unit may only be executed by applying original parts that are assessed, converted and marked by Artidor. Repairs may only be carried out by qualified skilled workers who have been trained in accordance with EN 60079-19. Applying of non-assessed, non-converted, non-marked parts may lead to injury to persons and damage to equipment.

If non-original parts are used or repairs are carried out in an incompetent manner, the explosion-safety of the air conditioning unit can no longer be guaranteed. Therefore it is preferred that the air conditioning unit will be returned to the manufacturer or its representative for repair.

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

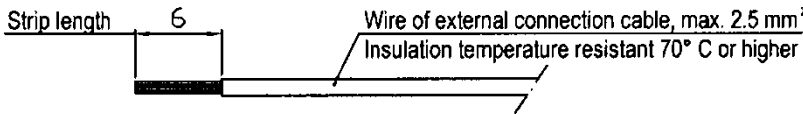
- The housing must not be opened unless power is switched off prior to repair.
- The housing must not be opened unless the area has been known to be non-hazardous.
- If opened, the AR-054 air conditioning unit shall be dismantled in a logical sequence.

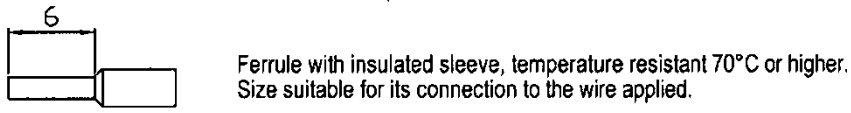
12. Removal / re-use

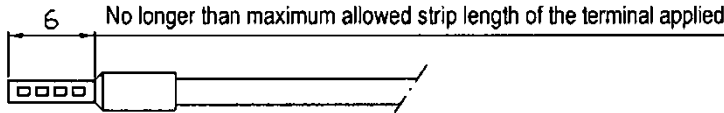
For processing regarding disposal or reuse of the product and its packaging, national disposal and environmental laws and legislation must be taken into consideration.

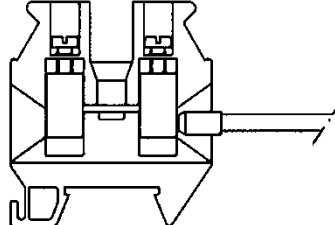
13. Instructions for use of the Ex e connection terminals

- 1) WIRE**

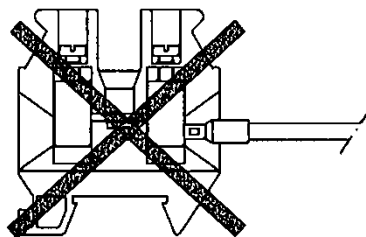

- 2) FERRULE**


- 3) CONNECTION WIRE ASSEMBLY**

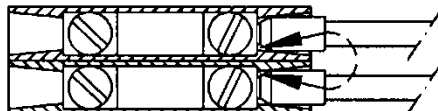

- 4) CONNECTION OF WIRE TO THE Exe-TERMINAL.**



RIGHT
Ferrule pin installed in a proper way, without metal blank surface left, assuring the clearance distance of > 5 mm.



WRONG
Ferrule pin installed in a bad way by the exposed blank metal surface which could invalidate the clearance distance between two terminals.
- 5) CLEARANCE DISTANCE**



Minimal clearance distance between blank metal live parts, > 5 mm.

EU Declaration of Conformity


We

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

herewith declare that the
Explosion-safe window air conditioning type series

AR-054/*

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

CE  II 3 G Ex ic nAC h IIC T3 Gc

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:

2009/125/EC
EcoDesign

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 60079-0:2012 / A11:2013
EN 60079-11:2012
EN 60079-15:2010
EN 80079-36:2016
EN 80079-37:2016

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

Geldrop, 1 December 2017

Signed



M. Moolenaar
Managing Director and EX Authorized Person

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This document can be subject to change without notice.