

Pictures and drawings in this document, including positions of components (e.g. coils, connectors, etc.), are to be considered purely indicative, they are not binding and are included for demonstration purposes only. We reserve the right to any technical and construction changes.

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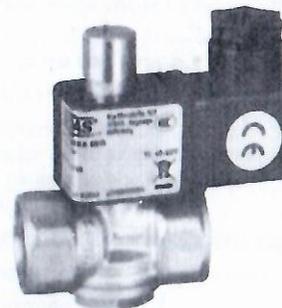
Mod. MADAS IT309-40-00 E

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ÉLECTROVANNE A RÉARMEMENT MANUEL NORMALEMENT OUVERTE POUR GAZ

M16/RAO N.A.
DN 15 - DN 20



MADE IN ITALY

INDEX

	pag.
English	3
Drawings	12
Dimensions (table 1)	13
Spare coils and connectors (table 2)	14
Diagram	15

1.0 - GENERAL INFORMATION

This manual shows you how to safely install, operate and use the device.
The instructions for use **ALWAYS** need to be available in the facility where the device is installed.

ATTENTION: installation/wiring/maintenance need to be carried out by qualified staff (as explained in section 1.3) using appropriate personal protective equipment (PPE).

For any information pertaining to installation/wiring/maintenance or in any case problems that cannot be resolved with the use of the instructions, it is possible to contact the manufacturer from the address and phone numbers provided on the last page.

1.1 - DESCRIPTION

Normally open, manual reset solenoid valves for gas, suitable to shut-off gas and signal danger sent by gas detectors (methane, LPG, carbon monoxide and similar), safety thermostats, etc.
 They can only be reset manually and only when they are not electrically powered.

1.2 - KEY OF SYMBOLS



DANGER: In the event of inobservance, may be caused damages to tangible goods.



DANGER: In the event of inobservance, may be caused damages to tangible goods, to people and/or pets.



ATTENTION: Attention is drawn to the technical details intended for qualified staff.

1.3 - QUALIFIED STAFF

These are people who:

- Are familiar with product installation, assembly, start-up and maintenance;
- Know the regulations in force in the region or country pertaining to installation and safety;
- Are trained in first aid.



1.4 - USING NON-ORIGINAL SPARE PARTS

- To perform maintenance or change parts (ex. coil, connector, etc.) **ONLY** manufacturer-recommended parts can be used. Using different parts not only voids the product warranty, it could compromise correct device operation.
- The manufacturer is not liable for malfunctions caused by unauthorised tampering or use of non-original parts.



1.5 - IMPROPER USE

- The product must only be used for the purpose it was built for.
- It is not allowed to use different fluids than those expressly stated.
- The technical data set forth on the rating plate must not be exceeded whatsoever. The end user or installer is in charge of implementing proper systems to protect the device, which prevent exceeding the maximum pressure indicated on the plate.
- The manufacturer is not responsible for any damage caused by improper use of the device.

4

3.0 - COMMISSIONING THE DEVICE



3.1 - OPERATIONS PRIOR TO INSTALLATION

- It is necessary to close the gas upstream of the valve prior to installation;
- Make sure that the line pressure **DOES NOT EXCEED** the maximum pressure declared on the product label;
- Any protective caps (if any) must be removed prior to installation;
- Valve pipes and insides must be clear of any foreign bodies;
- Make sure that the pipe thread is not too long, to prevent damaging the body of the device when screwing it on;
- The safety regulations on handling loads in force in the country of installation must be complied with. If the device to be installed exceeds the weight allowed, suitable mechanical equipment and adequate slings must be used. Necessary precautions must be taken during the handling phases so as not to damage/ruin the external surface of the device.
- In accordance with EN 161 a suitable filter must be installed upstream of a gas closing safety device;
- With outdoor installation, it is advisable to provide a protective roof to prevent rain from damaging the electrical parts of the device.
- Prior to carrying out any electrical wiring operations, make sure that the main voltage matches the supply voltage indicated on the product label;
 - Cut out power prior to proceeding with wiring;
 - According to the plant geometry, check the risk of explosive mixture arising inside the piping;
 - If the solenoid valve is installed near other devices or as part of an assembly, compatibility between the solenoid valve and this other device must be evaluated beforehand.
 - Avoid installing the solenoid valve near surfaces that could be damaged by the coil temperature;
 - Provide a protection against impacts or accidental contacts if the solenoid valve is accessible to unqualified personnel.



6

2.0 - TECHNICAL DATA

- Use : non-aggressive gases of the three families (dry gases)
- Ambient temperature (TS) : -40 ÷ +60 °C
- Power voltages (see table 2) : 12 Vdc - 24 Vdc - 110 V/50-60 Hz - 230 V/50-60 Hz*
- Power supply tolerance : -15% ... +10%
- Electric wiring : cable gland M20x1.5
- Absorbed power : see table 2
- Maximum operating pressure : 1 bar
- Closing time : < 1 s
- Protection rating : IP65
- Mechanical resistance : Group 2 (according to EN 13611)
- Rp threaded connections : (DN 15 - DN 20) according to EN 10226
- NPT threaded connections : request feasibility
- In compliance with : EMC Directive 2014/30/EU - LVD Directive 2014/35/EU
RoHS II Directive 2011/65/EU

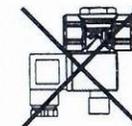
* Only single-phase, the device does not work if powered with three-phase voltage.

5



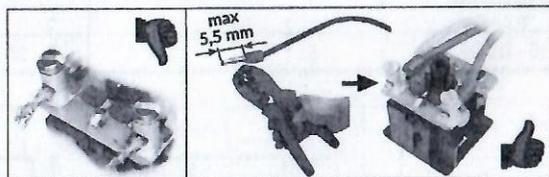
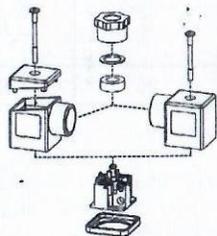
3.2 - INSTALLATION

- Assemble the device by screwing it, with the due seals, onto the plant with pipes and/or fittings with the right threading for the connection being attached.
- Do not use the coil (12) as a lever to help you screw it on, only use the specific tool;
- The arrow, shown on the body (4) of the device, needs to be pointing towards the application;
- The device can also be installed vertically without prejudicing the correct operation. It cannot be put in upside down (with the reset knob (1) pointing downwards);
- During installation, avoid debris or metal residues from getting into the device;
- To guarantee mechanical tension-free assembly, we recommend using compensating joints, which also adjust to the pipe's thermal dilation;
- If the device is to be installed in a ramp, it is the installer's responsibility to provide suitable supports or correctly sized supports, to properly hold and secure the assembly. Never, for any reason whatsoever, leave the weight of the ramp only on the connections (flanged or threaded) of the individual devices;
- In any case, following installation, check the tightness of the plant;
- Wiring cannot have cables connected directly to the coil. **ALWAYS and ONLY** use the connector identified by the manufacturer;
- Before wiring the connector (2), unscrew and remove the central screw (14). Use the proper cable terminals (see figures next page). **NOTE:** Connector (2) wiring must be done ensuring a product rating of IP65;



7

- Wire the connector (2) with 3x0.75mm² cable for external Ø 6.2 to 8.1 mm. The cable to be used must be in double sheath, suitable for outdoor use, with a minimum voltage of 500V and a temperature of at least 60 °C;



- Connect terminals 1 and 2 to the power supply and the earth cable to terminal ±;
- Secure the connector (2) to the coil (12), tightening (recommended tightening torque 0.4 N.m ± 10%) the clamping screw (3);
- The valve needs to be connected to earth either through the pipe or through other means (ex. cable jumpers).

3.3 - INSTALLATION IN PLACES WHERE THERE IS THE RISK OF EXPLOSION (DIRECTIVE 2014/34/EU)

The solenoid valve is not suitable for use in zones where there is the risk of explosion.

6.1 - REPLACING THE CONNECTOR

- Unscrew and remove the central screw (3), then remove the connector (2) from the coil (12);
- When you have taken out the existing internal electrical wiring, wire the new connector and secure it to the coil, as shown in 3.2.

6.2 - REPLACING THE COIL

- Completely unscrew and remove the reset handgrip (1);
- Disconnect the connector (2) from the coil (12);
- Extract the coil (12) and insert the new one;
- Couple the connector to the coil and secure it as indicated in 3.2;
- If it is necessary to set up the wiring, proceed as described in 3.2.

NOTE: No maintenance operations need to be carried out inside the device.

7.0 - TRANSPORT, STORAGE AND DISPOSAL

- During transport the material needs to be handled with care, avoiding any impact or vibrations to the device;
- If the product has any surface treatments (ex. painting, cathaphoresis, etc) it must not be damaged during transport;

- The transport and storage temperatures must observe the values provided on the rating plate;
- If the device is not installed immediately after delivery it must be correctly placed in storage in a dry and clean place;
- In humid facilities, it is necessary to use driers or heating to avoid condensation.
- At the end of its service life, the product is to be disposed of separately from other waste (WEEE directive 2012/19/EU) and in compliance with the legislation in force in the country where this operation is performed.

8.0 - WARRANTY

The warranty conditions agreed with the manufacturer at the time of the supply apply.

For damage caused by:

- Improper use of the device;
 - Failure to observe the requirements described herein;
 - Failure to observe the regulations pertaining to installation;
 - Tampering, modification and use of non-original spare parts;
- are not covered by the rights of the warranty or compensation for damage.

The warranty also excludes maintenance work, other manufacturers's assembling units, making changes to the device and natural wear.

4.0 - MANUAL RESET

To reset the solenoid valve:

- Make sure the valve is **NOT** electrically powered;
- Close the flow downstream of the solenoid valve in order to balance the pressure between upstream and downstream when opening;
- Push the reset handgrip (1) and wait a few seconds for the pressure upstream and downstream of the valve to stabilise;
- After balancing the pressures, pull the reset knob (1) until it connects.

5.0 - FIRST START-UP

- Before start-up make sure that all of the instructions on the rating plate, including the direction of flow, are observed;
 - After having gradually pressurized the system, check the seal and operation of the solenoid valve, electrically powering / disconnecting the connector **ONLY IF** connected to the coil.
- IMPORTANT NOTE:** Do not use the connector as a switch to close the solenoid valve.

- Make sure the solenoid valve is closed by electrically connecting it.

5.1 - RECOMMENDED PERIODIC CHECKS

- Check tightness of the flanged/threaded connections on the system;
 - Check tightness and operation of the solenoid valve;
- It is the responsibility of the final user or installer to define the frequency of these checks based on the severity of the service conditions.

6.0 - MAINTENANCE

On completion of the operations described below, repeat the procedure indicated in paragraph 5.

If the coil and/or connector need to be replaced (see fig. 1):

- Before performing any operation, make sure that the device is not electrically powered;

NOTE: if the coil (12) needs to be changed following an electrical failure, we recommend changing the connector (2) as well. The coil and/or connector replacement operations need to be carried out taking care to ensure the product's IP65 rating.

9.0 - RATING PLATE DATA

The plate data (see examples provided here) includes the following:

- Manufacturer's name/logo and address (possible distributor name/logo)
- Mod.: = name/model of the device followed by the diameter size
- P.max = Maximum pressure at which product operation is guaranteed
- PS = Allowable maximum pressure
- TS = Temperature range within which product operation is guaranteed
- IP... = Protection rating
- 12Vdc.... = Power supply voltage, frequency (if Vac), followed by electrical absorption
- year = Year of manufacture

- Lot = Product serial number (see explanation below)
 - U2030 = Lot issued in year 2020 in the 30th week
 - 14216 = progressive job order number for the indicated year
 - 00001 = progressive number referred to the quantity of the lot
- = Disposal in accordance with WEEE directive 2012/19/EU



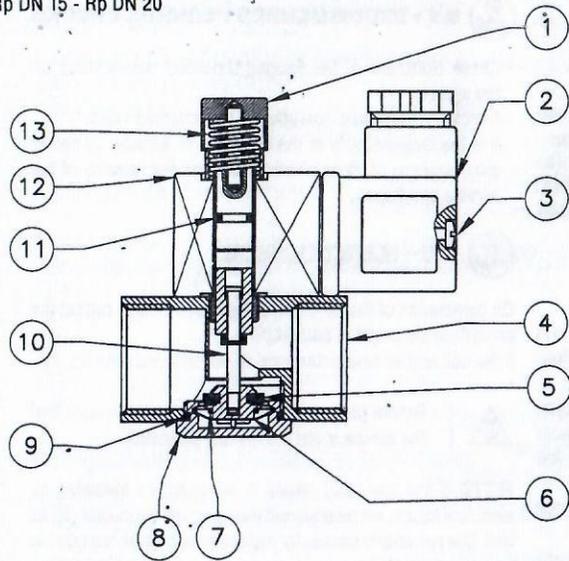


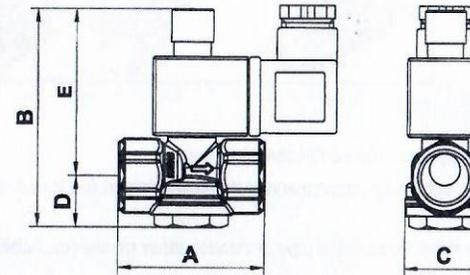
fig. 1

1. Reset handgrip
2. Electrical connector
3. Connector centre screw
4. Body valve
5. Seal washer
6. Obturator
7. Closing spring
8. Bottom
9. Seal O-Ring
10. Central pin
11. Seal O-Ring
12. Electrical coil
13. Spring

Table 1

Dimensions d'encombrement en mm

Threaded connections	A	B=D+E	C	D	E
DN 15 - DN 20	55	83	31	20	63



The dimensions are provided as a guideline, they are not binding

Table 2

Coils and connectors for N16/RAO N.A. solenoid valves

Ø	Voltage	Coil code	Coil stamp	Connector code	Absorbed power
DN 15 - DN 20	12 Vdc	BO-0805	BO-0805 12 V DC	CN-0010	15 VA
	24 Vdc	BO-0610	BO-0610 24 V DC	CN-0010	6 VA
	110 V/50-60 Hz	BO-0820	BO-0820 110 V 50-60 Hz	CN-0010	4 VA
	230 V/50-60 Hz	BO-0830	BO-0830 230 V 50-60 Hz	CN-0010	7 VA

Connector type

CN-0010 = Normal

Diagram calculated with P1 = 50 mbar

- 1) methane
- 3) town gas
- 2) air
- 4) lpg

dv = density relative to the air

