

## DESCRIPTION

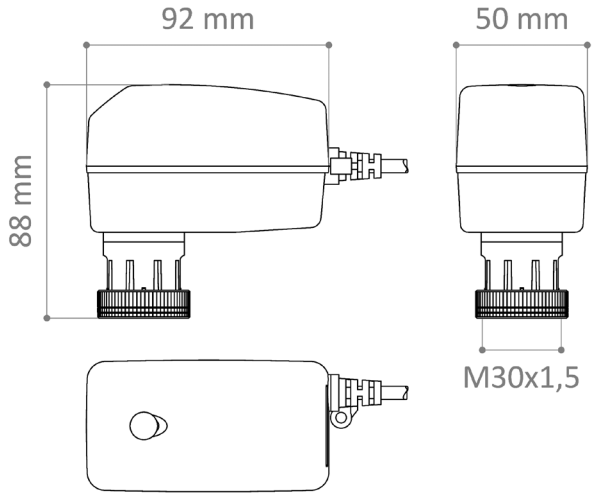
# *RVAZ2C*

24 V electromotive proportional actuator (input signal 0(2)-10 V DC / 0(4)-20 mA) to drive Pettinaroli's **PICV 92 series**.

Equipped with valve stroke detection system, feedback signal (0-10 V DC) to verify the position of the actuator at every moment and 4 mm Allen key for manual operation.

Connection M30x1,5 ring nut and adaptable to Pettinaroli's standards through specific adapter.

## DIMENSIONS




## TECHNICAL FEATURES

| | | | |
|---|---|---|---|
| *Type* | Proportional | *Configuration of the actuator* | By DIP switches |
| *Supply voltage* | 24 V AC/DC ± 15% | *Temperature ambient range* | 0 °C / 50 °C (non condensing) |
| *Inrush current* | 1,8 A | *Unidity ambient range* | 0% / 95% UR (non condensing) |
| *Power consumption* | 2 W / 6 VA | *IP class* | IP54 |
| *Control signal* | 0(2)-10 V DC / 0(4)-20 mA | *Weight* | 250 g (with key) |
| *Feedback signal* | 0-10 V DC | *Manual override* | By 4 mm Allen key |
| *Maximum stroke* | 8,5 mm | *Connection cable* | 4 x 0,25 $mm^2$ (halogen free) |
| *Running time* | 5,5 s/mm | *Cable lenght* | 1,5 m |
| *Actuating force* | 200 N | *Adapter* | 0A748X (not included) |
| *Visual position indicator* | LED | | |

The RVAZ2 electromechanical actuator is used to control the Pettinaroli **PICV 92 series** valves installed in heating/cooling systems managed by means of BMS (Building Management System) or room thermostats capable of managing a 0-10 V DC signal. The control is proportional and can by done via voltage or via current.

For more information about the wiring see the "ELECTRICAL CONNECTIONS" chapter.

The actuator incorporates an M30x1,5 connection nut. In order to install it on the valves of the **92** range it is necessary to use a suitable adapter **0A748X** which must be ordered separately.

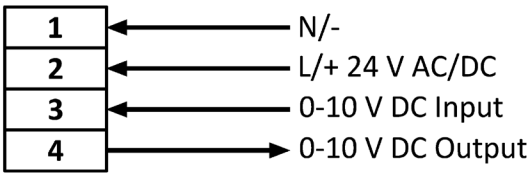


Adapter **0A748X**

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## ELECTRICAL CONNECTIONS

The electrical connections are shown below:




| 1 | 2 | 3 | 4 |
|---|---|---|---|
| White | Black | Red<br>(input control signal) | Green<br>(output feedback signal) |

## OPERATING STATUS INDICATOR

The RVAZ2C electromotive actuator is equipped with a two color LED (red/green) which allows to evaluate the operating status of the actuator in accordance with the table below:



| | |
|---|---|
| LED off | No power supply |
| Green LED fixed light | Actuator moving, under operation |
| Green LED quick flash | Stroke adaption |
| Green LED slow flash<br>(Flash twice + Off 2 sec.) | Bottom end of stroke reached (0% of the stroke) |
| Green LEd slow flash<br>(Flash twice + On 1 sec. + Off 1 sec) | Top end of stroke reached (100% of the stroke) |
| Red LED fixed light | Error on the internal limit switches / More than 2 errors |
| Red LED quick flash | Error on one of the internal limit switches |
| Red LED slow flash<br>(Flash once + Off 2 sec.) | Settings changed during operation |
| Red LED slow flash<br>(Flash twice + Off 2 sec.) | Auto stroke adapt fault |

## INSTALLATION

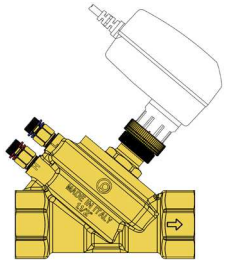


*Fig. 1*

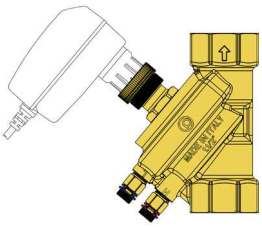


*Fig. 2*

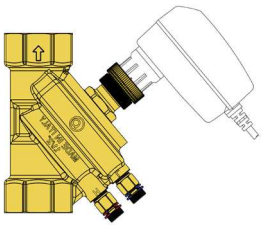


*Fig.3*

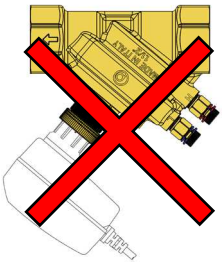


*Fig. 4*

- For electrical safety reasons the RVAZ2 electromotive actuator has to be installed as shown by pictures 1, 2 or 3. The upside down installation shown in picture 3 must be avoided. Always make sure that the pin is in fully retracted position before installing the actuator on the valve;
- Do not power the actuator if not installed on the valve;
- Tighten the connecting ring by hand only. Do not use any tools;
- Keep a clear space of 15 cm over the actuator to access it, if required.

## APPROVALS

CE

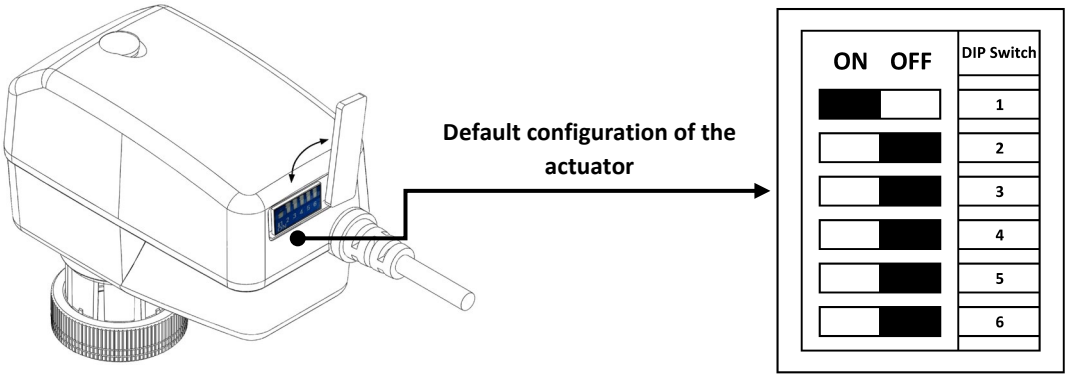


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FRATELLI PETTINAROLI S.p.A. CLIMATE SYSTEMS TECHNOLOGY

## SETTING

The RVAZ2C electromotive actuator is equipped with 6 DIP switches that allow to configure the product according to the operating needs. They are placed on the back of the actuator and can be accessed by moving the rubber cap placed as protection (it is not necessary to remove it from the body). To operate on the switches a screwdriver is recommended.




Each DIP switch allows you to set a given "parameter" of the actuator. By selecting the position between ON and OFF, it is possible to configure the actuator with the following settings:

| DIP Switch | Configuration | POS. | SETTING |
|---|---|---|---|
| **1** | Operational direction of the valve | ON | When the stem of the actuator extends, the valve closes |
| | | OFF | When the stem of the actuator retracts, the valve closes |
| **2** | Desired effective characteristic | ON | Desired control characteristic LINEAR |
| | | OFF | Desired control characteristic EQUAL PERCENTAGE |
| **3** | Working direction in function of the control signal | ON | Reverse action: the actuator closes the valve on increasing control signal* |
| | | OFF | Direct action: the actuator opens the valve on increasing control signal** |
| **4** | Control signal range | ON | 2-10 V DC (if switch 6 OFF) – 4-20 mA (if switch 6 ON) |
| | | OFF | 0-10 V DC (if switch 6 OFF) – 0-20 mA (if switch 6 ON) |
| **5** | Valve flow characteristic | ON | Valve control characteristic equal percentage |
| | | OFF | Valve control characteristic linear |
| **6** | Control signal type: voltage or current | ON | Input signal in current: 0(4)-20 mA |
| | | OFF | Input signal in voltage: 0(2)-10 V DC |

*(0V → valve open; 10V → valve closed) **(0V → valve closed; 10V → valve open)

⚠ When the manual rubber override seal is open, IP54 rating no longer applies.

## CHARACTERISTIC CURVE

The desired effective characteristic curve is given by a combination of the actuator curve and the curve of the control valve.

**DIP switch 2** is used to set the desired characteristic curve DIP switch while **DIP switch 5** is used to select the valve's own characteristic curve. By setting these two parameter the actuator will adjust it's regulating curve in order to guarantee the desired characteristic curve.

The table alongside summarizes the four possible combinations:

- Linear control valve & Desired characteristic curve linear
- Linear control valve & Desired characteristic curve equal percentage
- Equal percentage control valve & Desired characteristic curve equal percentage
- Equal percentage control valve & Desired characteristic curve linear

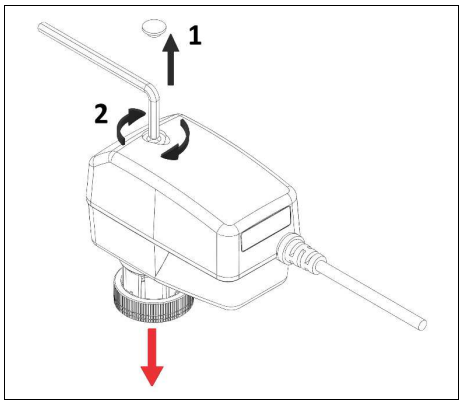
| Control valve characteristic | Desired characteristic curve: LINEAR | Desired characteristic curve: EQM. |
|---|---|---|
| LINEAR | Switch **2** → **ON**<br>Switch **5** → **OFF** | Switch **2** → **OFF**<br>Switch **5** → **OFF** |
| EQM. | Switch **2** → **ON**<br>Switch **5** → **ON** | Switch **2** → **OFF**<br>Switch **5** → **ON** |

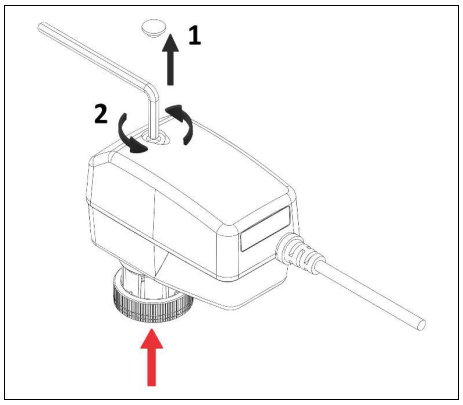
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## MANUAL OVERRIDE

If necessary it is possible to manually operate the actuator by using a 4 mm Allen key supplied with the actuator itself. To do this you need to follow the following steps:

1. Remove the manual override rubber seal placed on the top of the actuator;
2. Insert the Allen key to turn the existing lead screw. In particular, turn it CLOCKWISE to extend the stem (closing of the valve) while turn it COUNTERCLOCKWISE to retract the stem (opening of the valve).




⚠ When the manual rubber override seal is open, IP54 rating no longer applies.

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