



This appliance should not be operated by children younger than 8 years, people with reduced physical, sensory or mental capacities, or inexperienced people who are not familiar with the product, unless they are given close supervision or instructions on how to use it safely and are made aware by a responsible person of the dangers its use might entail.

Children must not play with the appliance. It is the user's responsibility to clean and maintain the appliance. Children should never clean or maintain it unless they are given supervision.

**Description**

Thermo-electric actuators installed on distribution manifolds, radiator thermostatable valves or fan coil units enable to adequately control the ambient temperature by combining energy saving to high levels of comfort. The R478 and R478M thermo-electric actuators feature absolute operational quietness, a long life as they have no mechanical parts subject to wear and tear and a proper slowed-down closing system to prevent water hammer effects. The activation mechanism includes wax bulbs controlled by low-consumption electrical PTCs.

**Main characteristics**

- **R478** thermo-electric actuators are equipped with a 2-conductors wire to connect them to ambient thermostats or control units.
- **R478M** thermo-electric actuators are equipped with a 4-conductors wire for a stroke-end micro switch to control circulators or zone valves (brown: phase - blue: neutral- black and grey: micro switch).
- The R478VX221 and R478VX231 versions include a varistor for installation in areas where the network voltage is subject to sudden changes that may damage the electronic components.

Thermo-electric actuators normally open in heating and cooling radiant panel systems are especially useful as they are not electrically fed for most of the time, thus offering great energy saving levels.

**Versions and product codes**

Series	Product code	Voltage	Characteristics
R478	R478X221	230 V	2-conductors wire
	R478X222	24 V	
	R478VX221	230 V	2-conductors wire with varistor
R478M	R478MX221	230 V	4-conductors wire, with stroke-end micro switch
	R478MX222	24 V	
	R478VX231	230 V	4-conductors wire, with stroke-end micro switch and varistor

**Position mechanic indicator**

R478 and R478M thermo-electric actuators include a position mechanical indicator (A) on the top which enables to visually identify the current position of the actuator and the valve it serves.

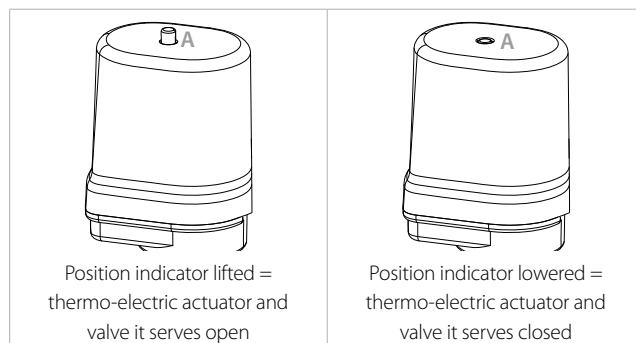
The actuator closes the valve when electrically powered.

The position indicator (A) lowers when the valve is closed.

The position indicator is particularly useful during testing to perform operation verifications without activating the system or disassembling the actuator.

**Technical data**

- Complies with B.T. directive provision
- Status without voltage: normally closed (N.C.)
- Rapid connection for Giacomini standard valves and/or manifolds
- Position mechanic indicator
- Linear movement
- Valve useful lift: 2.4 mm
- Pollution class: II
- Nominal pulse voltage: 4 kV
- Protection class: IP40
- Protection against direct contacts through double insulation (Class II)
- Power wire: H05 VV-F; useful length 1,5 m
- Closing time at room temperature: ~ 6 mins.
- Room temperature of use: -5÷50 °C
- Storage room temperature: -20÷65 °C
- PBT self-extinguishing case material V0-UL94
- Normally closed microswitch with open valve (only for versions with stroke-end micro switch)

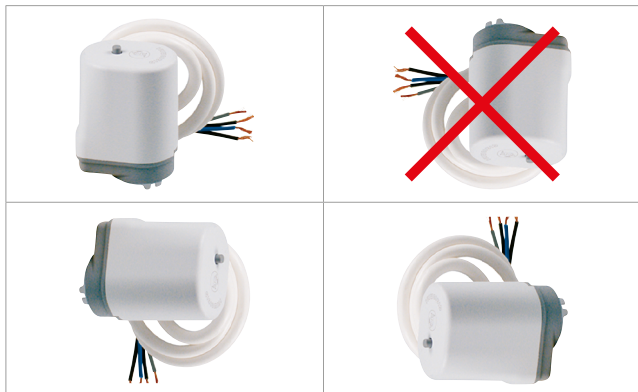




**Installation**

R478 and R478M thermo-electric actuators may be installed on thermostatable valves and/or manifolds with Giacomini standard fittings, using the special toothed ring provided with the actuators.

They can be installed horizontally or vertically, but not upside down with the indicator pointing downwards.



To install the actuators on valves and/or manifolds, follow the steps below:

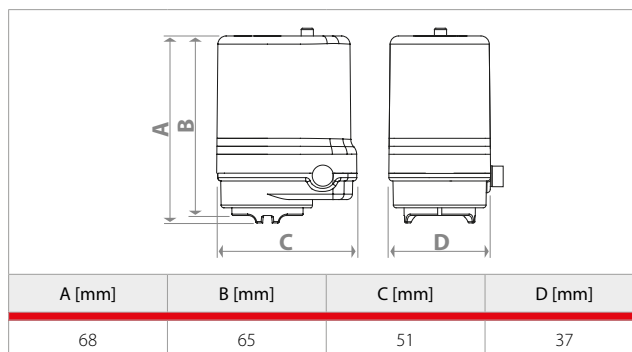
	<p>① Install the toothed ring (C) on the Giacomini standard connection valve and/or manifold pushing down. Connect the thermo-electric actuator to the ring.</p>
	<p>② Turn the thermo-electric actuator by 15° clockwise till you hear a locking click (to remove the actuator, turn by 15° in anticlockwise direction).</p>
	<p>③ Electrically connect the actuator according to the electrical diagrams.</p>



**Warning.**

- The actuator case cannot be disassembled and should never be opened.
- Tampering immediately voids the warranty.
- The power wire is not replaceable; if the cable is damaged, replace the actuator.
- Electrical connections must be carried out by qualified personnel and voltage-free after carefully verifying the voltage which must comply with the one specified.
- Connection of power wires to the fix distribution network must be performed in a safe manner as provided for by the Technical Rules in force in the Country of use.
- Giacomini S.p.A. will not be held responsible for damages suffered by individuals or objects for misuse of the product.

**Dimensions**



**Electrical data**

Product code	Absorbed power	Voltage	Max. peak current (*)	Current absorbed after 12 mins. (*)	Resistance (*)	Power wire section	Microswitch	Varistor
R478X221	3,5 W	230 V 50 Hz	≤ 1,0 A	≤ 0,015 A	1200 Ω +46 % -35 %	2 x 0,75 mm <sup>2</sup>	-	-
R478X222	3 W	24 V 50 Hz	≤ 0,22 A	≤ 0,125 A	147 Ω ± 25 %	2 x 0,75 mm <sup>2</sup>	-	-
R478VX221	3,5 W	230 V 50 Hz	≤ 1,0 A	≤ 0,015 A	1200 Ω +46 % -35 %	2 x 0,75mm <sup>2</sup>	-	S10K250
R478MX221	3,5 W	230 V 50 Hz	≤ 1,0 A	≤ 0,015 A	1200 Ω +46 % -35 %	4 x 0,75 mm <sup>2</sup>	5 A 125 Vac 3 A 250 Vac	-
R478MX222	3 W	24 V 50 Hz	≤ 0,22 A	≤ 0,125 A	147 Ω ± 25 %	4 x 0,75 mm <sup>2</sup>	5 A 125 Vac 3 A 250 Vac	-
R478VX231	3,5 W	230 V 50 Hz	≤ 1,0 A	≤ 0,015 A	1200 Ω +46 % -35 %	4 x 0,75mm <sup>2</sup>	5 A 125 Vac 3 A 250 Vac	S10K250

(\*) Values read at room temperature

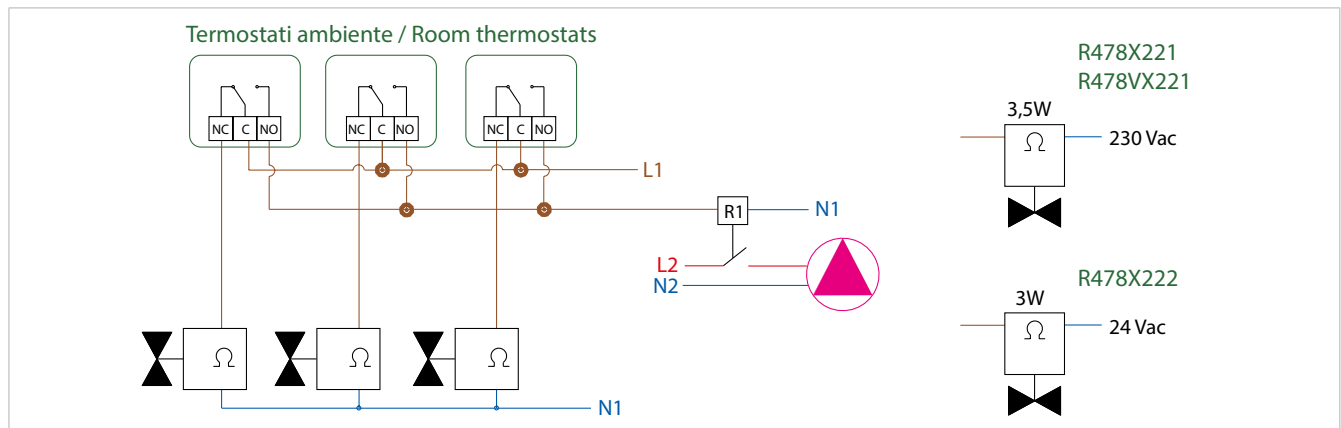
**Electrical connections**



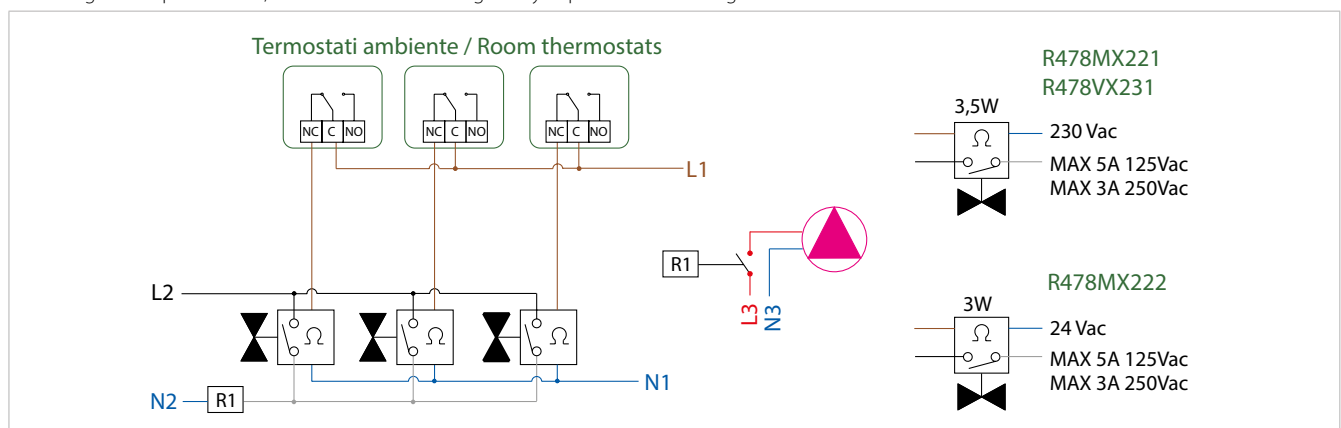
**Avvertenza.**

On the supply circuit, a fuse or a protection device external to the device, has to be installed to intervene in case of fault/short circuit conditions.

**R478** thermo-electric actuators provide for various connection options able to satisfy a wide range of installation needs. The most frequent cases require simple direct connections to ambient thermostats or interposition of relays to control the circulators or zone valves.



**R478M** thermo-electric actuators equipped with a stroke-end microswitch enable to easily activate circulators or zone valves. They are generally connected to ambient thermostats taking into consideration that the R478M is open when there is no voltage (while the microswitch is electrically closed in such status). To control significant power loads, we recommend installing a relay to prevent overloading of the actuator microswitches.



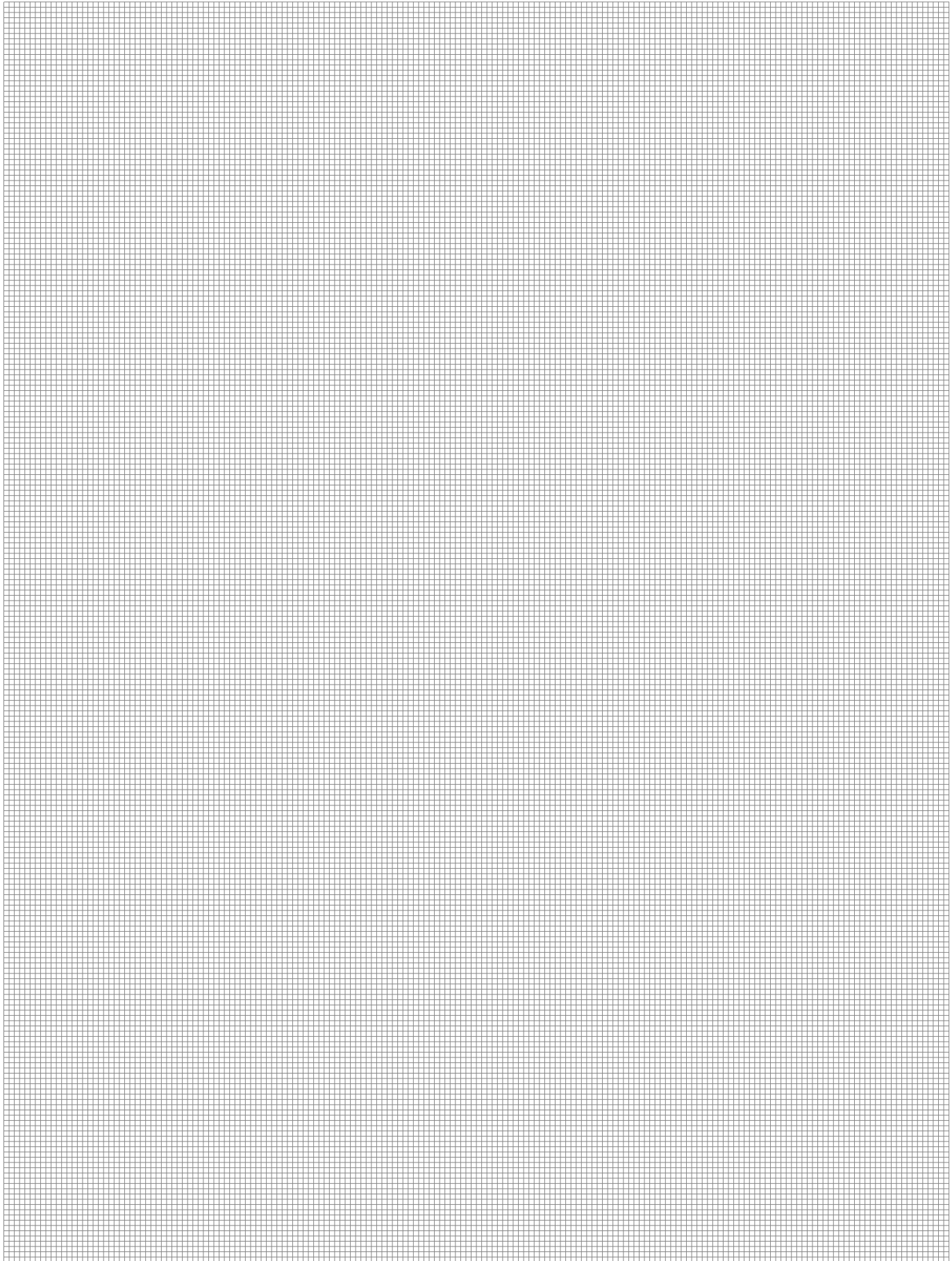
**Product specifications**

**R478**

Thermo-electric actuator normally open for thermostatable valves and manifolds. 2-conductors wire, length 1,5 m. Protection class IP40. Rapid connection. Position mechanic indicator. Room temperature range -5÷50 °C. Available with 230 V, 24 V power. Complies with Directive B.T..

**R478M**

Thermo-electric actuator normally open for thermostatable valves and manifolds. 4-conductors wire with stroke-end microswitch, length 1,5 m. Protection class IP40. Rapid connection. Position mechanic indicator. Room temperature range -5÷50 °C. Available with 230 V, 24 V power with or without varistor. Complies with Directive B.T..



**Additional information**

For additional information please check the website [www.giacomini.com](http://www.giacomini.com) or contact the technical service: ☎ +39 0322 923372 📠 +39 0322 923255 ✉ [consulenza.prodotti@giacomini.com](mailto:consulenza.prodotti@giacomini.com) This pamphlet is merely for information purposes. Giacomini S.p.A. retains the right to make modifications for technical or commercial reasons, without prior notice, to the items described in this pamphlet. The information described in this technical pamphlet does not exempt the user from following carefully the existing regulations and norms on good workmanship. Giacomini S.p.A. Via per Alzo, 39 - 28017 San Maurizio d'Opaglio (NO) Italy