



K281X012

Description

The K281X012 actuator serves to control the R298 and R298N mixing valves in heating and cooling systems.

The actuator can be controlled from the KLIMAbus KPM20 or KPM31 control unit.

Versions and product codes

| Product code | Power supply | Type | Valve connection |
|--------------|--------------|---------------------|------------------|
| K281X012 | 24 Vac | 0-10 V proportional | M30 x 1,5 mm |

Accessories

P19Y001: ring nut M30x1,5 mm for adapting R298 or R298N valves with M28x1,5 mm threading. Complete with plastic cap for protection and manual regulation/interception (as an alternative to the actuator).

Technical data

- Type of actuator: 0-10 V proportional
- Type of regulation to be used with actuator: KLIMAbus (KPM30/KPM31)
- Power supply: 24 V 50/60 Hz
- Type of command: automatic
- Propulsion force: 120 N +30 % -20 %
- Maximum stroke: 6,3 mm
- Opening time at maximum speed: 50 sec
- Electricity absorption: 2,5 VA
- Protection class: IP43
- Storage temperature range: -20÷65 °C with R.H non-condensing
- Operating ambient temperature range: 0÷50 °C with R.H non-condensing
- Electric cable length: 1,5 m (3 x 0,25 mm²)
- Noise level when operating: < 30 dB(A)
- Ring nut for fixing to valve body: M30x1,5 mm, in brass
- dual color LED (green/red), function status indicator
- Color: White

Materials

- Cover: ABS + PC
- Stem: PA66 - GF30
- Threaded nut: brass UNI EN 1264 - CW614N

Operation

Pressure cycle

When the current is applied, the actuator auto-calibrates in order to carry out a complete cycle. The actuator moves the stem downwards for a complete stroke. Once ZERO position has been reached, the actuator moves the stem according to the input signal. When the input signal increases (for example from 0 V to 10 V), the actuator stem extends when the actuator is configured as Direct Action (DA), or withdraws if the actuator is configured as Reverse Action (RA). When the input signal decreases (from 0 V to 10 V), the actuator stem retracts when the actuator is configured as Direct Action (DA), or extends if the actuator is configured as Reverse Action (RA).

Confirmation of end of stroke

When the input signal is at 100%, every 2 hours the actuator restores the current and the guides the direction of the signal for about 60 seconds to end of the stroke position.

| Action | Input | Direction | |
|----------------|-------------|-----------|-----------------------------|
| Direct action | 0...10 V DC | ↓ | Extension of actuator stem |
| | 10...0 V DC | ↑ | Retraction of actuator stem |
| Inverse action | 0...10 V DC | ↑ | Retraction of actuator stem |
| | 10...0 V DC | ↓ | Extension of actuator stem |

Function status indicators

The K281X012 actuator is equipped with a dual color LED (green-red) which supplies information regarding the operational and diagnostic status, as follows:

| LED | | Meaning |
|--------------------|---|----------------------------------|
| OFF | ○ | No power |
| Intermittent green | ⦿ | Moving into position |
| Intermittent green | ⦿ | Confirmation of end of stroke |
| Fixed green | ⦿ | Position reached |
| Intermittent red | ⦿ | Cycle |
| Fixed red | ⦿ | 4/20 mA or 2/10 Vdc: signal lost |



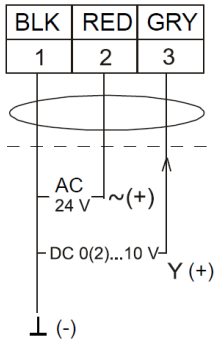
Electrical connections



Warning.
Make sure the power supply voltage is disconnected while the connections are being carried out.



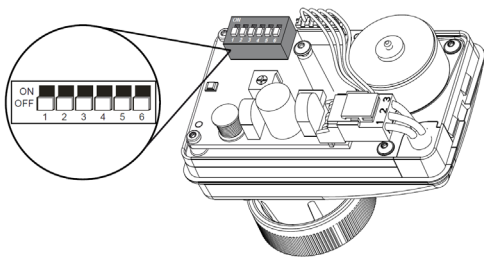
Warning.
Make and check the electrical connections before powering the system. Short circuits or incorrectly connected cables could cause permanent damage to the electrical components of the actuator.



| Conductor color | Function |
|-----------------|--------------------------|
| Black | Supply voltage 24 V AC; |
| Red | |
| Grey | Up/down contact 0-10 Vdc |

DIP SWITCH settings

All proportional models have 6 DIP SWITCHES which allow the user to configure the actuator. The actuator is supplied by the factory with all DIP SWITCHES in the OFF position.



| | | | | | | |
|----------------------------------|-----------|-----------|-------------------|----|-----|-----|
| ON | 1 | 2 | 3 | 4 | 5 | 6 |
| OFF | 1 | 2 | 3 | 4 | 5 | 6 |
| | 0...10VDC | 0...20mA | 0...5VDC | DA | LIN | VDC |
| | 2...10VDC | 5...10VDC | 2...10VDC | RA | Eq% | mA |
| | 4...20mA | | | | | |
| 1, 2, 3: CONTROL SIGNAL INTERVAL | | | 4: Action | | | |
| | | | 5: CURVE | | | |
| | | | 6: TYPE OF SIGNAL | | | |

Dip Switch 1 – 2 – 3 – 6

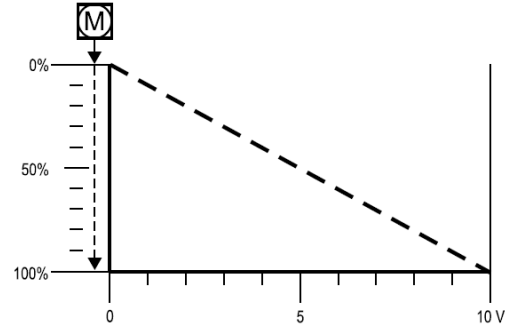
DIP SWITCH 1-2-3 allow the user to change the intervals of the analog input. To move from analog input voltage to an AC current, the DIP SWITCH must be adjusted accordingly.

Dip Switch 4

DIP SWITCH 4 allows the user to change the action of the actuator in relation to the analog input.

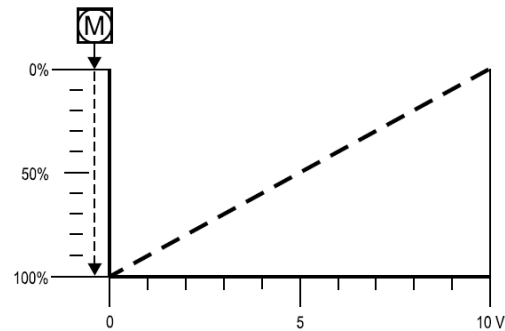
- DIP SWITCH 4 OFF (Direct Action – DA)

When the signal increases, the actuator stem extends.



- DIP SWITCH 4 ON (Reverse Action – RA)

When the signal increases, the actuator stem retracts.



Dip Switch 5

DIP SWITCH 5 allows the user to vary the actuator control features in order to obtain an linear actuator-valve combination or a more or less equal percentage.

- DIP SWITCH 5 OFF (Linear)

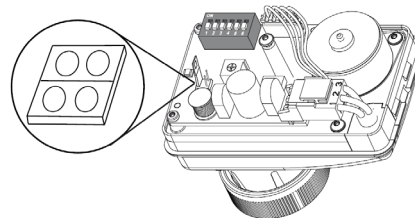
Users are advised to use with a linear valve or with an equal percentage control feature.

- DIP SWITCH 5 ON (Percentage more or less equal)

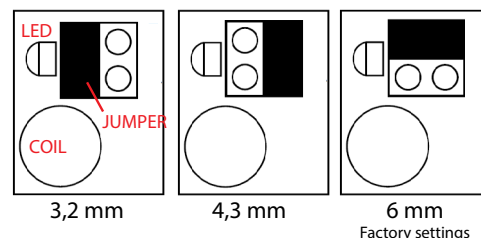
Users are advised to use with a quick opening valve or on/off control feature.

JUMPER regulation

All proportional models have a JUMPER which allows the user to change the following parameters:



the actuator is set at 6 mm in the factory, but the stroke can be changed to 3.2 mm or 4.3 mm for convenience.



Installation

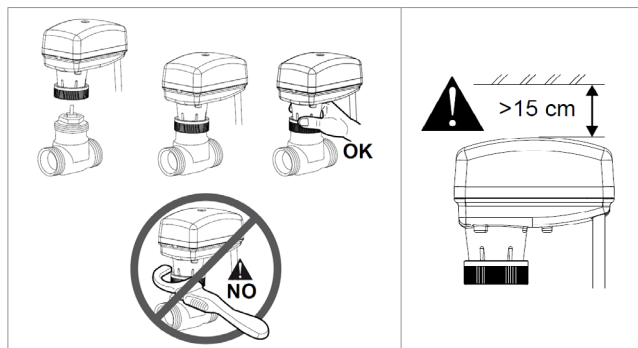
The K281X012 actuator can be fitted on R298 or R298N series mixing valves with bonnet (on valves with M28x1,5 mm ring nut, the M28 threaded ring nut must be replaced with the M30x1,5 mm ring nut).

Replacing the threaded ring nut

| | |
|--|---|
| | 1. Remove pressure from the system. |
| | 2. Unscrew the M28x1,5 mm ring nut which is pre-mounted on the valve and replace it with the new M30x1,5 mm (P19Y001) ring nut, suitable for installation with actuator K281X012. Attention! Danger to persons. The removal of the ring nut could trigger leakage from the bonnet in case of residual pressure in the system. |
| | 3. Fit the K281X012 actuator, screwing on the M30x1,5 mm ring nut. |

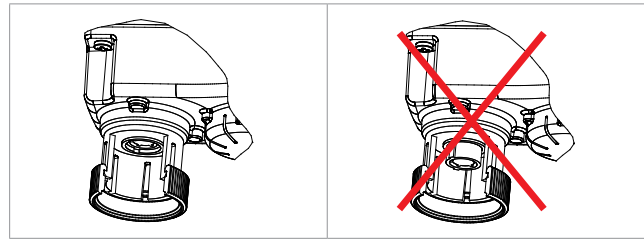
Installation phases

- Remember to fit the valve vertically or with an angle of not more than 90°, in an easily-accessible position.
- Do not fit the actuator upside-down, to avoid drips of water, which could enter the casing and damage the mechanism or motor.
- Do not cover with insulating material.

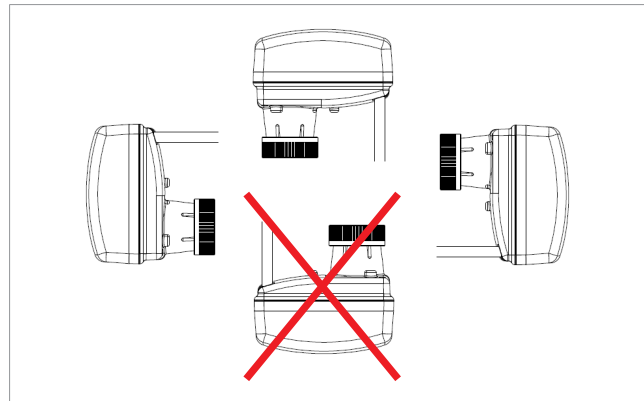


Warning.
Never use the actuator as an assembly lever.

Actuator stem positions



Installation positions permitted



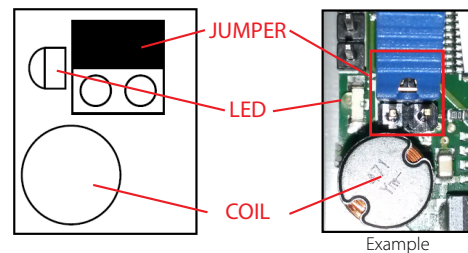
Use of the motor in combination with control units KPM30 or KPM31

When using the motor with control units KPM30 or KPM31 (or with control signal 0-10 V), DIP SWITCHES and JUMPERS must be set according to the following figures.

Dip Switches:



Jumpers:



Dimensions

| | | | |
|---------------------|---------------|---------------|---------------|
| | | | |
| Product code | A [mm] | B [mm] | C [mm] |
| K281X012 | 80 | 80 | 49 |

ACTUATOR FOR MIXING VALVES

0577EN May 2015

**0-10 V PROPORTIONAL ACTUATOR (CONNECTIONS M30x1,5 mm),
FOR R298 AND R298N MIXING VALVES
K281 SERIES**



GIACOMINI
WATER E-MOTION



Reference Standards

- EC mark
- EMC 2004/108/CE
- Low Voltage Directive 2006/95/EC

Product specifications

K281X012

Proportional actuator, 0-10 V, per controlling R298 or R298N mixing valves. Ring nut for fixing to valve body, M30x1,5 mm type, in brass. 24V power supply 50/60 Hz. Propulsion force 120 N +30 -20 %. Absorption 2,5 VA. Maximum stroke 6,3 mm. Opening time at maximum stroke: 50 sec. Protection class IP43. Environmental operating conditions 0÷50 °C with R.H non-condensing. Storage conditions -20÷65 °C with R.H non-condensing. Dimensions: 80x80x49 mm (LxHxW). EC mark. Complies with the Directive EMC 2004/108/EC and Low Voltage Directive 2006/95/EC. Can be combined with KPM30/KPM31 electronic control unit and KLIMAbus thermoregulation products.

Additional information

For additional information please check the website: www.giacomini.com or contact the technical service: ☎ +39 0322 923372 📠 +39 0322 923255 ✉ consulenza.prodotti@giacomini.com
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Giacomini S.p.A. Via per Alzo, 39 - 28017 San Maurizio d'Opaglio (NO) Italy



K281X002

Description

The K281X002 is a 3-point floating actuator and serves to control the R298 and R298N mixing valves in heating and cooling systems.

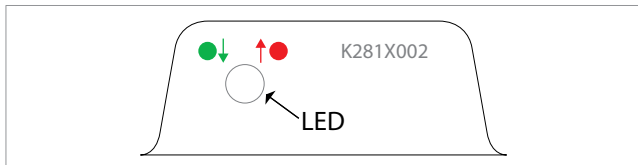
Versions and product codes

| Product code | Power supply | Type | Valve connection |
|--------------|--------------|------------------|------------------|
| K281X002 | 24 Vac | 3-point floating | M28 x 1,5 mm |

Technical data

- Type of actuator: 3-point floating
- Power supply: 24 V 50/60 Hz
- Type of command: automatic
- Propulsion force: 120 N ±20 %
- Maximum stroke: 6,5 mm
- Opening time at maximum speed: 85 sec
- Electricity absorption: 5 VA
- Protection class: IP40
- Storage temperature range: -34÷55 °C with R.H non-condensing
- Operating ambient temperature range: 0÷55 °C with R.H non-condensing
- Electric cable length: 1,5 m (3 x 0,25 mm²)
- Ring nut for fixing to valve body: M28x1,5 mm, in brass
- dual color LED (green/red), function status indicator
- Color: white/grey

Function status indicators



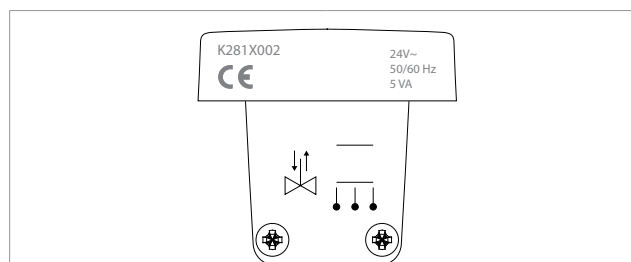
The dual-color LED on the front of the actuator indicates whether the mixing valve is in the process of being open or closed.

LED off: no power to the actuator

Red LED the actuator is connected to the power, the stem is being retracted towards the body of the actuator and the mixing valve is being moved into by-pass position.

Green LED the actuator is connected to the power, the stem is being moved into the extended position away from the body of the actuator and the mixing valve is being moved into the open position, with direct delivery from the boiler.

Electrical connections



| Conductor color | Function |
|-----------------|---|
| BROWN | Stem contact "UP". (CLOSURE of direct delivery underway, with mixing valve) |
| WHITE | COMMON contact |
| GREEN | Stem contact "DOWN" (OPENING of direct delivery with mixing valve) |

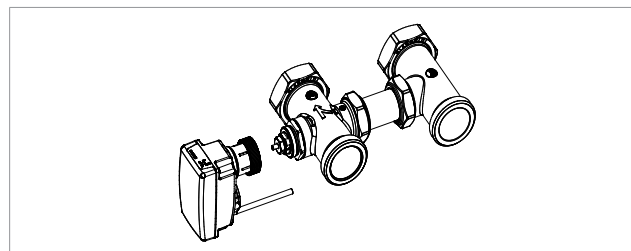


Warning.

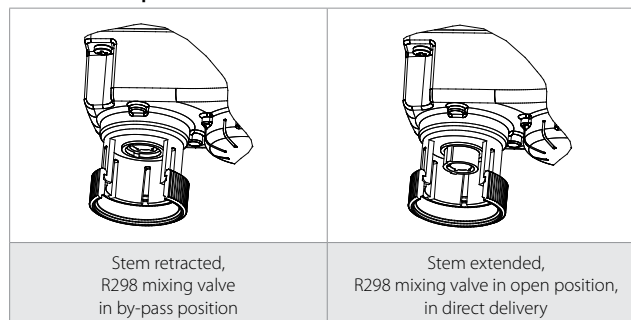
Before connecting the actuator, make sure that the power supply to the command device IS NOT CONNECTED and that it corresponds to that shown on the back of the unit (24 V ~). The installation of the device must only be carried out by qualified personnel.

Installation

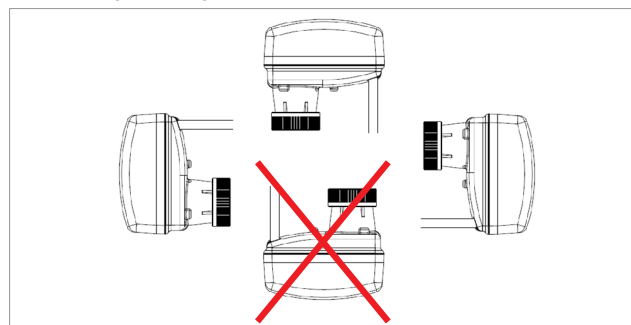
- Unscrew the protective/manual regulation handwheel on the R298 or R298N valve shutter.
- Fix the K281X002 actuator in place using the brass ring nut provided for this purpose: the ring nut must be fully screwed onto the valve body to ensure maximum shutter stroke.



Actuator stem positions

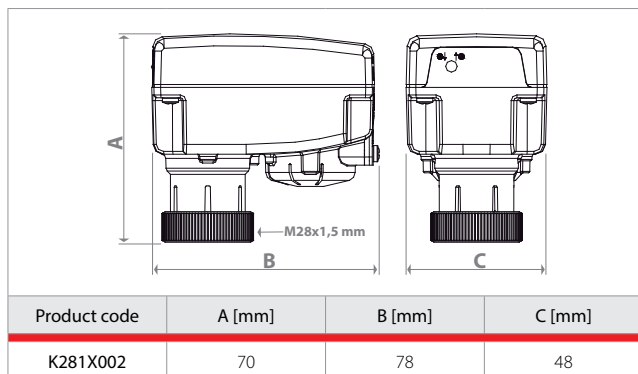


Installation positions permitted





Dimensions



Reference Standards

- EC mark
- EMC 2004/108/CE
- Low Voltage Directive 2006/95/EC

Product specifications

K281X002

3-point floating actuator, for controlling mixing valves R298 or R298N. Ring nut for fixing to valve body, M28x1,5 mm type, in brass. 24V power supply 50/60 Hz. Propulsion force 120 N ±20 %. Absorption 5 VA. Maximum stroke 6,5 mm. Opening time at maximum stroke: 85 sec. Protection class IP40. Environmental operating conditions 0÷55 °C with R.H non-condensing. Storage conditions -34÷55 °C with R.H non-condensing. Dimensions: 78x70x48 mm (LxHxW) EC mark. Complies with the Directive EMC 2004/108/EC and Low Voltage Directive 2006/95/EC.

Additional information

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K281X022

Description

The K281X022 is a 3-point floating actuator and serves to control the R298 and R298N mixing valves in heating and cooling systems.

Versions and product codes

| Product code | Power supply | Type | Valve connection |
|--------------|--------------|------------------|------------------|
| K281X022 | 24 Vac | 3-point floating | M30 x 1,5 mm |

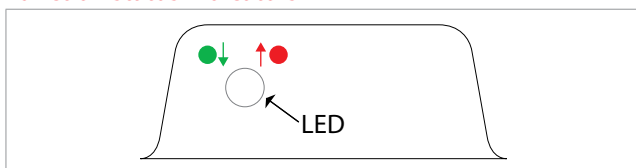
Accessories

P19Y001: ring nut M30x1,5 mm for adapting R298 or R298N valves with M28x1,5 mm threading. Complete with plastic cap for protection and manual regulation/interruption (as an alternative to the actuator).

Technical data

- Type of actuator: 3-point floating
- Power supply: 24 V 50/60 Hz
- Type of command: automatic
- Propulsion force: 120 N ±20 %
- Maximum stroke: 6,5 mm
- Opening time at maximum speed: 85 sec
- Electricity absorption: 5 VA
- Protection class: IP40
- Storage temperature range: -34÷55 °C with R.H non-condensing
- Operating ambient temperature range: 0÷55 °C with R.H non-condensing
- Electric cable length: 1,5 m (3 x 0,25 mm²)
- Ring nut for fixing to valve body: M30x1,5 mm, in brass
- dual color LED (green/red), function status indicator
- Color: white/grey

Function status indicators



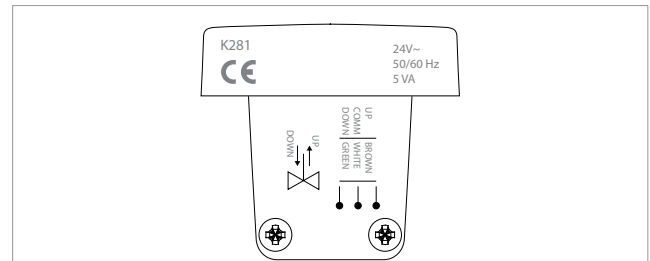
The dual-color LED on the front of the actuator indicates whether the mixing valve is in the process of being open or closed.

LED off: no power to the actuator

Red LED the actuator is connected to the power, the stem is being retracted towards the body of the actuator and the mixing valve is being moved into by-pass position.

Green LED the actuator is connected to the power, the stem is being moved into the extended position away from the body of the actuator and the mixing valve is being moved into the open position, with direct delivery from the boiler.

Electrical connections

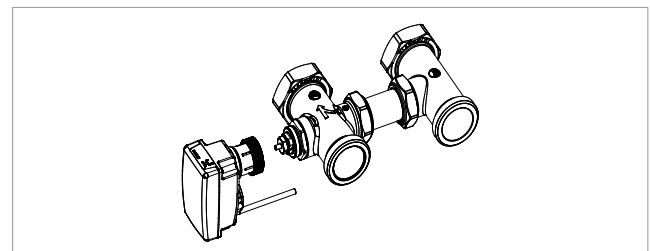


| Conductor color | Function |
|-----------------|---|
| BROWN | Stem contact "UP". (CLOSURE of direct delivery underway, with mixing valve) |
| WHITE | COMMON contact |
| GREEN | Stem contact "DOWN" (OPENING of direct delivery with mixing valve) |

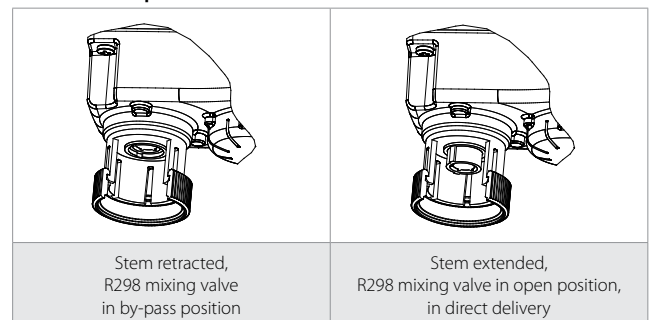
Warning.
Before connecting the actuator, make sure that the power supply to the command device IS NOT CONNECTED and that it corresponds to that shown on the back of the unit (24 V ~).
The installation of the device must only be carried out by qualified personnel.

Installation

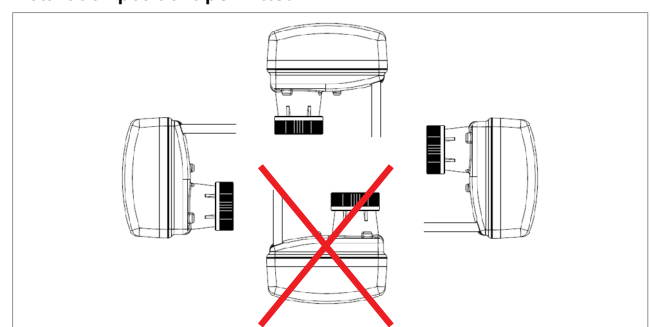
- Unscrew the protective/manual regulation handwheel on the R298 or R298N valve shutter.
- Fix the K281X022 actuator in place using the brass ring nut provided for this purpose: the ring nut must be fully screwed onto the valve body to ensure maximum shutter stroke.



Actuator stem positions

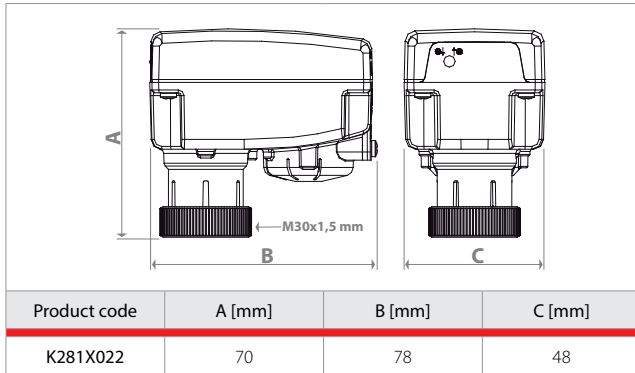


Installation positions permitted





Dimensions



Reference Standards

- EC mark
- EMC 2004/108/CE
- Low Voltage Directive 2006/95/EC

Product specifications

K281X022

3-point floating actuator, for controlling mixing valves R298 or R298N. Ring nut for fixing to valve body, M30x1,5 mm type, in brass. 24V power supply 50/60 Hz. Propulsion force 120 N \pm 20 %. Absorption 5 VA. Maximum stroke 6,5 mm. Opening time at maximum stroke: 85 sec. Protection class IP40. Environmental operating conditions 0÷55 °C with R.H non-condensing. Storage conditions -34÷55 °C with R.H non-condensing. Dimensions: 78x70x48 mm (LxHxW) EC mark. Complies with the Directive EMC 2004/108/EC and Low Voltage Directive 2006/95/EC.

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