



**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 mm<sup>2</sup>)
- 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



**Installation**

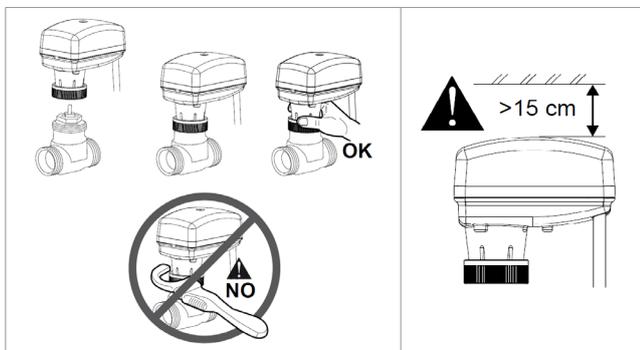
The K281X012 actuator can be fitted on R298 or R298N series mixing valves with bonnet (on valves with M28x1,5 mm ring nut, the M28 threaded ring nut must be replaced with the M30x1,5 mm ring nut).

**Replacing the threaded ring nut**

	<p>1. Remove pressure from the system.</p>
	<p>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.</p> <p><b>Attention!</b> Danger to persons. The removal of the ring nut could trigger leakage from the bonnet in case of residual pressure in the system.</p>
	<p>3. Fit the K281X012 actuator, screwing on the M30x1,5 mm ring nut.</p>

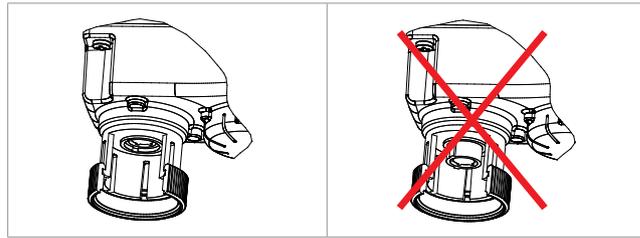
**Installation phases**

- 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.

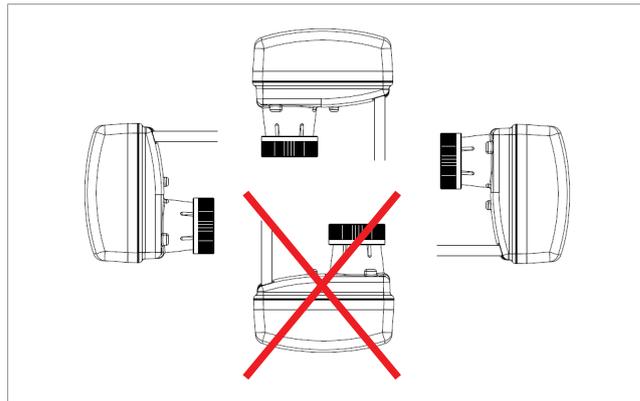


**Warning.**  
Never use the actuator as an assembly lever.

**Actuator stem positions**



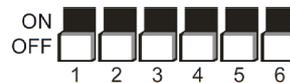
**Installation positions permitted**



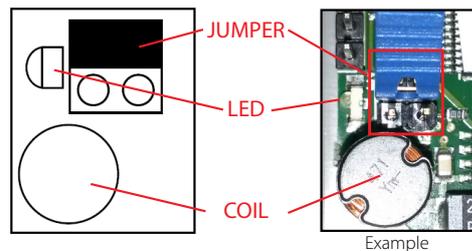
**Use of the motor in combination with control units KPM30 or KPM31**

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](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