

MP140

On/Off Thermoelectric Actuator (two position)

MP140 is a thermoelectric actuator designed to provide two position on/off control together with short stroke pressure independent control valves. The MP140 thermoelectric actuators are silent in operation and ideal for operating in noise sensitive applicators like hotel guest rooms or quiet offices. The MP140 provides an automatic flow limiting and balancing function. Two platform designs provide either a normally open or normally closed function.

Due to the stroke, there is a limitation in the max Flow when fitted to the longer stroke and higher flow **SpaceLogic** PIBCV valves.

Specifications

Stem force	140 N
Max stroke	4 mm
Coupling ring	M30 x 1.5
Power cable	2 m twin core (0.35 mm ²)
Suitable for valves	VP223R (DN15...32) VP228E (DN10...20) VP229E (DN15...20) NO: Max Q = 65% VP229E (DN25...32) NO: Max Q = 50%
Nominal Power Supply	
MZ140-24T	21.8...26.8 Vac 50/60 Hz
MZ140-230T	110...250 Vac 50/60 Hz
Starting current	
24V models	0.17 A
230V models	0.25 A
Working current	
24V models	75 mA
230V models	8 mA
Power consumption	
24V models	2 W
230V models	2 W
Environmental	
Ambient working temperature	+2...+50°C
Storage temperature	-45...+60°C
Humidity	max. 95% Non condensing
Material	Fire-resistant case: Class V0
Protection class	IP 44 / IP 41
Standards	
CE marked to the following directives	EMC 2014/30/EU to EN 61326-1:2013 LVD 2014/35/EU to EN 61010-1:2010 standard for 230V products



Normally open



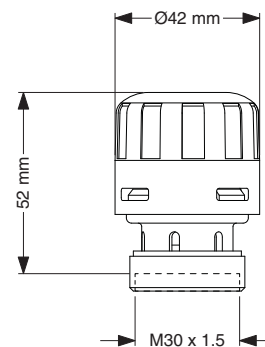
Normally closed

Ordering Table

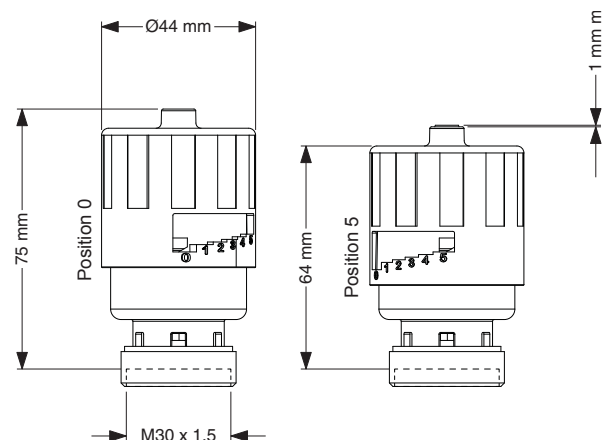
Part number	Function	Voltage
MP140NC-24T	Normally closed	24 Vac 50/60 Hz
MP140NO-24T	Normally open	24 Vac 50/60 Hz
MP140NC-230T	Normally closed	110 - 230 Vac 50/60 Hz
MP140NO-230T	Normally open	110 - 230 Vac 50/60 Hz

Dimensions

Normally open



Normally closed



Operation

The actuator operation is carried out by a built-in wax thermostatic element.

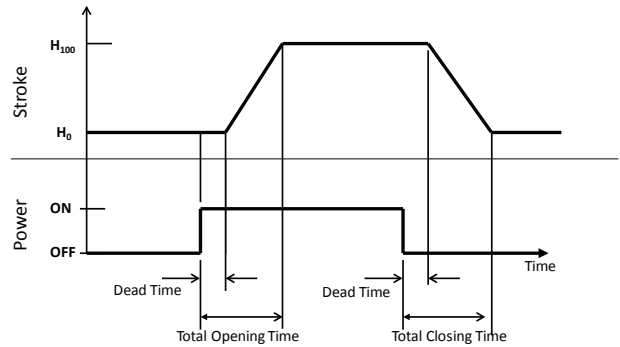
The normally closed or normally open valve function with the MP140 thermal actuators is defined by the actuator spindle position upon rest without power applied.

For a Normally Closed function, the actuator spindle is extended upon removing power, an extended actuator spindle closes the valve. As the stem in the VP223R valve is extended by an internal spring, there is some resistance to mount the actuator, this is normal.

For the normally Open function, the spindle is retracted when power is removed

When power is applied to the actuator, after a small dead band time, the actuator stem starts to move changing the valves open or closed state the valve.

Open/Closing Times



Actuator timing details (approx.)					
Actuator	Supply volt-age	Valve opening		Valve closing (after 5' power on)	
		Dead time	Total time	Dead time	Total time
MP140NC/NO-24T	24	2 min 30 sec	5 min 50 sec	2 min 20 sec	6 min 30 sec
	230	1 min 20 sec	3 min 50 sec	2 min 20 sec	6 min 30 sec
MP140NC/NO-230T	110	1 min 40 sec	6 min 20 sec	1 min 20 sec	5 min 30 sec

Mounting And Checking The Flow Setting

Prior to the actuator being mounted onto the valve, good practice should be followed regarding the valve installation.

Before the MP140 is mounted onto the pressure independent control valve, it is advisable, if not already done so, to adjust to the maximum flow required.

- If the flow has already been set, a valve tag may have been completed and attached to the valve.
- If the flow has been set using the hand flow setting knob, the top section of the valve tag should be completed, if the flow setting tab also has the bottom section completed, presume a balancing engineer has finely set the flow on the valve already. In this instance the actuator should be mounted and commissioned as necessary.
- If the flow through the valve is known, the flow can be set using the hand flow setting knob. For the VP223R, the valve data sheet should be consulted for the setting position needed. Once done, the upper valve tag should be completed and the actuator mounted and commissioned as necessary.
- If the flow is not known and it is necessary to fit the actuator for commissioning purposes, then the actuator may be fitted but the valve tag should not be filled in but left for the balancing engineer at a later stage.

The actuator can be mounted in any position but it is advisable to orientate the installation so that condensation or any potential water leaks can not enter the housing.

A ring nut M30 x1.5 allows for easy hand coupling to the valve, tools are not necessary and must not be used.

The Normally closed actuator is adjustable and must be positioned in one of 5 set positions so that the button on the actuator will protrude slightly from the case (0.5 to 1mm).

When fitted to the VP223R valves this is normally position no.5.

For fluid temperatures above 80°C it is recommended to install the actuator horizontally rather than vertically above the media pipe work. Note, for the NO version the protection degree granted is IP44 for a vertical mounting and IP42 for a horizontal mounting.

Good practice it to install the valve in the return loop from the heat exchanger to reduce excessive pipe fluid temperatures.

Installation

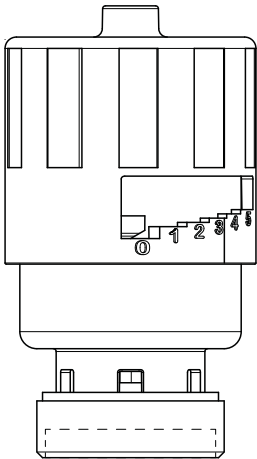
Normally open



Normally closed



Normally Closed Position Setting

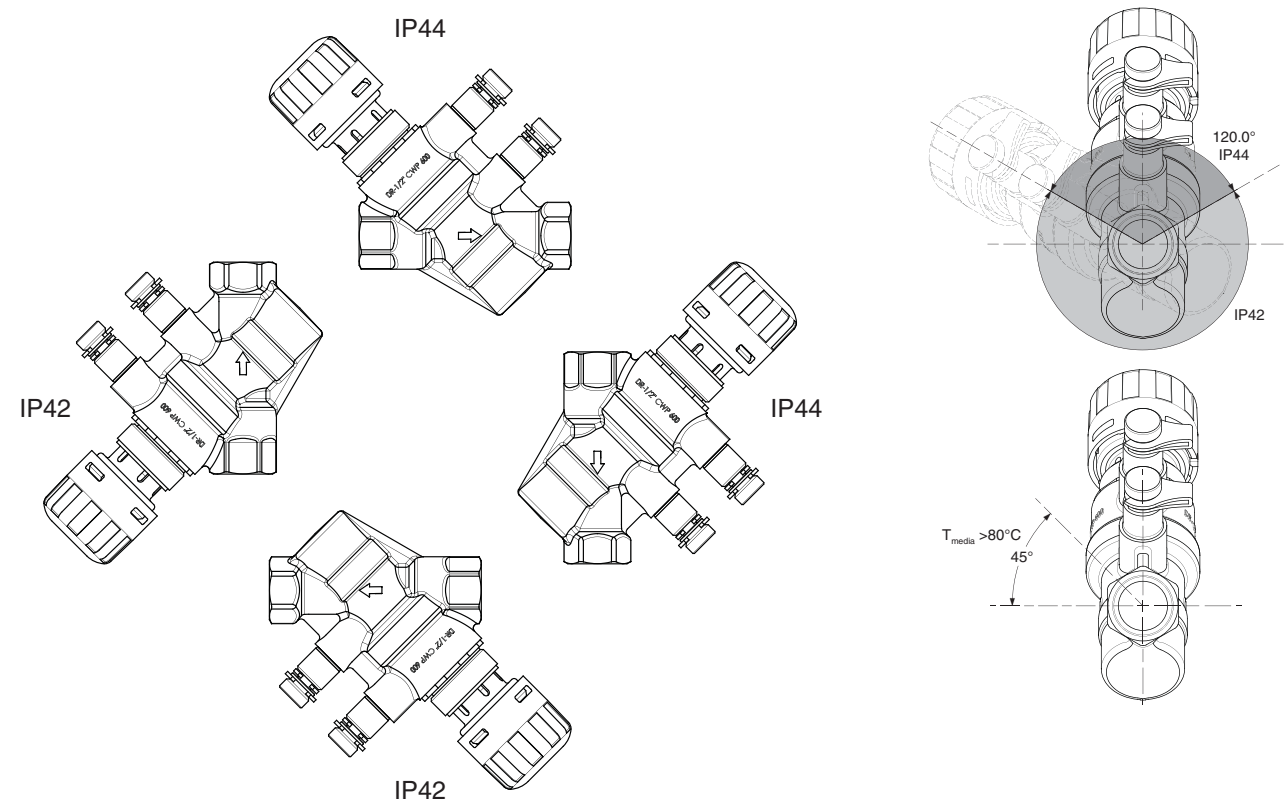


Installation - Normally Closed, MP140 NC

IP44 in any orientation

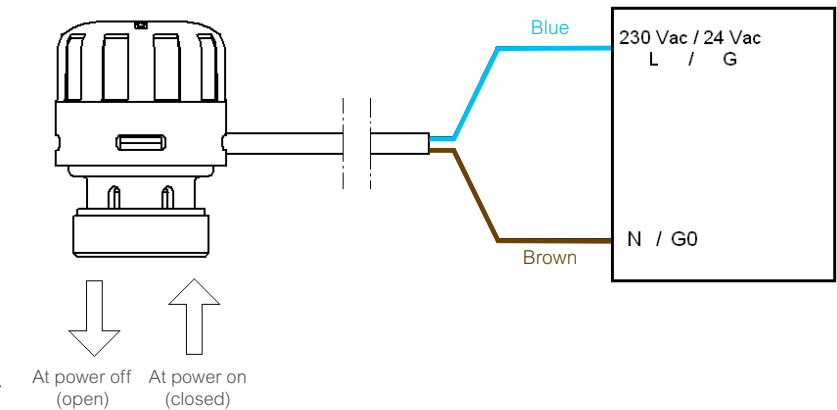


Installation - Normally Open, MP140 NO

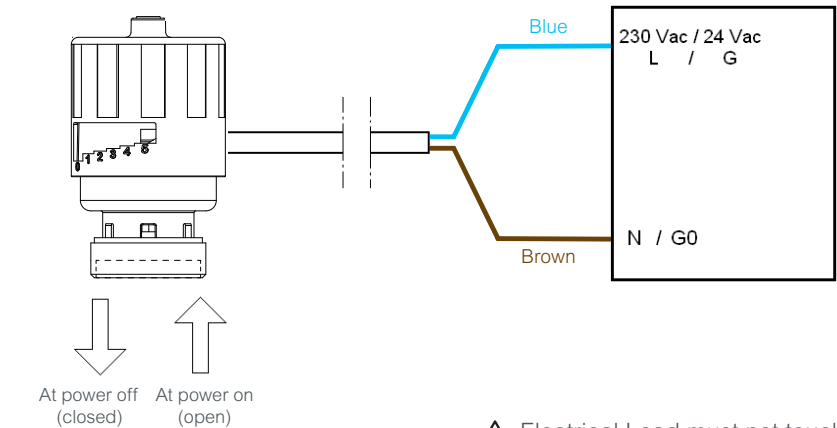


Electrical Connections

Normally open



Normally closed



⚠ Electrical Lead must not touch pipe work or other hot surface