

Regulus

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VZK R 3xx-230-1P

Installation and Operation Manual
THREE-WAY ZONE BALL VALVE
VZK R 3xx-230-1P

EN

VZK R 3xx-230-1P

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1. Introduction

A 3-way zone valve with electric actuator (230V, 50Hz), permitting manual control. It is usually used in heating and solar thermal systems. The actuator is attached to the valve with four M5 nuts (spanner size 8) and can be removed without the need to remove the valve. The valve does not interrupt the flow of fluid through the common port during switching. The direction of fluid flow is indicated by the actuator control lever. Fluid can flow in either direction through the valve (common port can be used either as inlet or outlet).

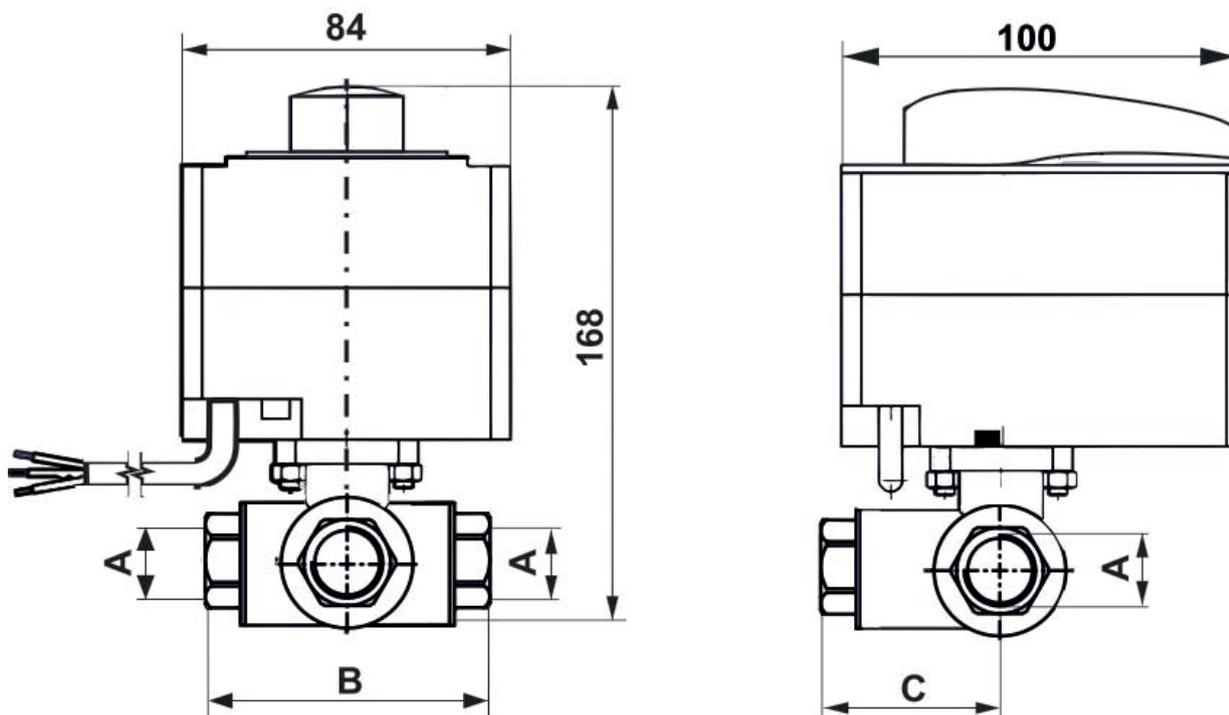
2. Technical Data

L-bore Valves

Marking	Code	Connecting thread A	Dimension B	Dimension C	Dimension D	Open/close time [s]	K_{vs} [m ³ /h]	Weight [kg]
VZK R 320-230-1P-60 L 3/4F	19367	3 x G 3/4" F	96	50	160	60	10,5	1,3
VZK R 320-230-1P-60 L 1F	19366	3 x G 1" F	96	50	160	60	10,6	1,3
VZK R 325-230-1P L 3/4F	13603	3 x G 3/4" F	104	52	168	60	13,1	1,6
VZK R 325-230-1P L 1F	13604	3 x G 1" F	104	52	168	60	14,3	1,7
VZK R 325-230-1P-15 L 1F	19000	3 x G 1" F	104	52	168	15	14,3	1,7
VZK R 325-230-1P L 5/4F	18671	3 x G 5/4" F	104	52	168	60	14,3	1,8
VZK R 325-230-1P-15 L 6/4M	19005	3 x G 6/4 "M	128	64	168	15	14,3	1,8

T-bore Valves

Marking	Code	Connecting thread A	Dimension B	Dimension C	Dimension D	Open/close time [s]	K_{vs} straight [m ³ /h]	K_{vs} angled [m ³ /h]	Weight [kg]
VZK R 320-230-1P-60 T 3/4F	19189	3 x G 3/4" F	96	50	160	60	17,8	10,5	1,3
VZK R 320-230-1P-60 T 1F	19187	3 x G 1" F	96	50	160	60	19,5	10,6	1,3
VZK R 325-230-1P T 3/4F	18673	3 x G 3/4" F	104	52	168	60	20	13,1	1,6
VZK R 325-230-1P T 1F	18550	3 x G 1" F	104	52	168	60	28,3	14,3	1,7
VZK R 325-230-1P-15 T 1F	19001	3 x G 1" F	104	52	168	15	28,3	14,3	1,7
VZK R 325-230-1P T 5/4F	18676	3 x G 5/4" F	104	52	168	60	28,3	14,3	1,8
VZK R 325-230-1P-15 T 6/4M	19006	3 x G 6/4 "M	128	64	168	15	28,3	14,3	1,8



Technical Data

Max. working pressure	10 bar
Max. fluid working temperature	110 °C
Valve open/close time	15 s or 60 s (depending on the actuator)
Angle of rotation	90°
Ambient working temperature	5 °C to 40 °C
Max. relative humidity	80% non condensing
Max. pressure difference	10 bar

Electric Data

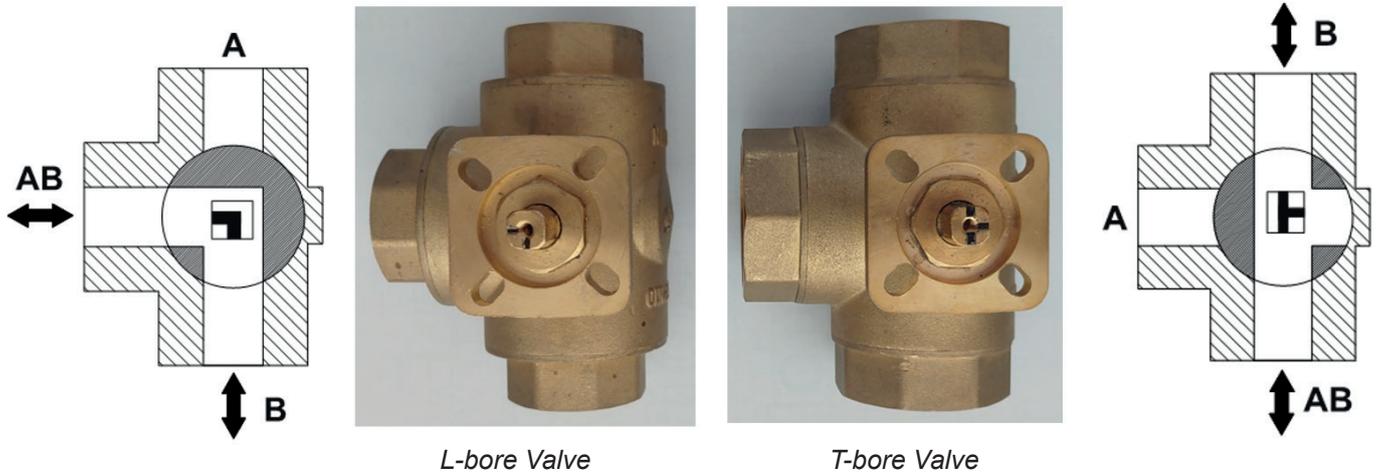
Power supply	230 V 50 Hz
Max. power consumption	4 VA
Max. current	17 mA
Torque	5 Nm
IP rating	IP42
Protection class	II
Power cable cross section	3 x 0.5 mm ²
Power cable length	2 m

Power cable length

Valve housing	brass CW617N
Valve spindle	brass CW617N
Valve ball	chrome-plated brass
O-rings	EPDM, FPM
Seal	PTFE
Power cable	PVC

Direction of flow through the valve

Direction of flow through the valve is indicated by the actuator control lever or by the groove on the valve spindle visible after removing the actuator:



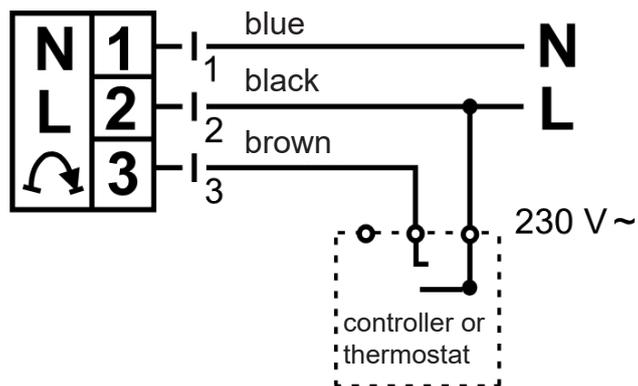
More info can be found in Chapters 4 and 5.

3. Actuator

3.1. Actuator Electrical Wiring

The actuator is controlled by the switching contact of the controller or thermostat 230V, 50Hz. Permanent power supply is applied to terminals 1 and 2. The switched live is connected to terminal 3.

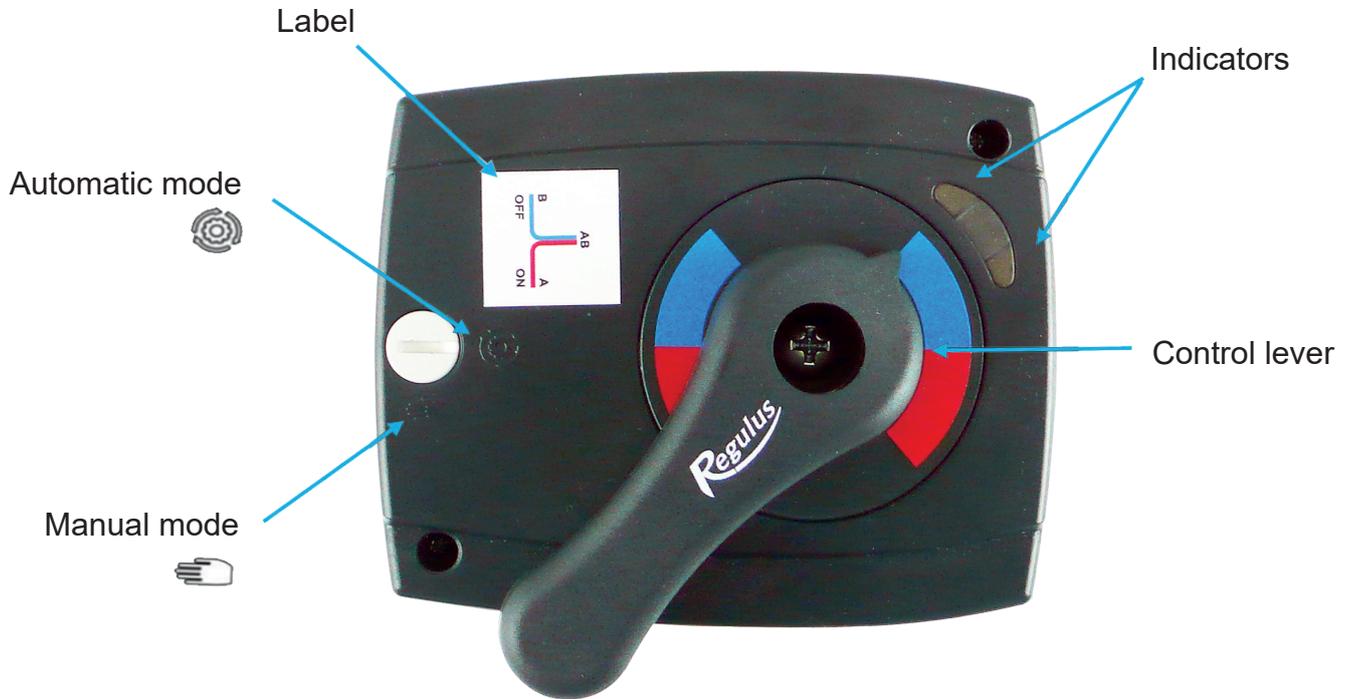
Wiring diagram



3.2. Actuator Control

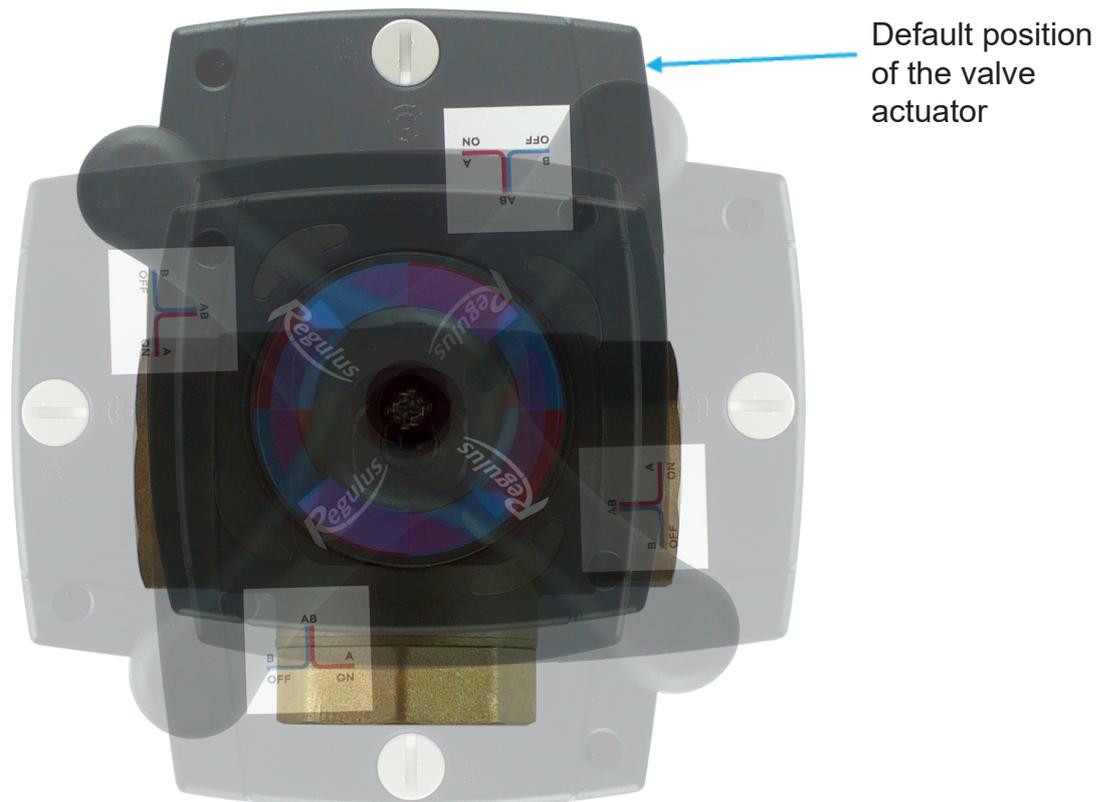
The actuator can be switched between automatic and manual mode. In automatic mode, its direction of rotation is indicated by light indicators. In manual mode, the valve can be turned using the control lever.

The control lever shows the position of the valve using the coloured field. The colour of the fluid flow direction on the label corresponds to the colour indicated by the control lever.



3.3. Actuator Placing

The default position of the actuator is such that the valve can be installed in the piping without removing the actuator. If required, the actuator can be removed and fitted in a different position (in quarter turns) - see the fig. The label shall be then carefully removed and rotated to the correct position according to the ports arrangement.

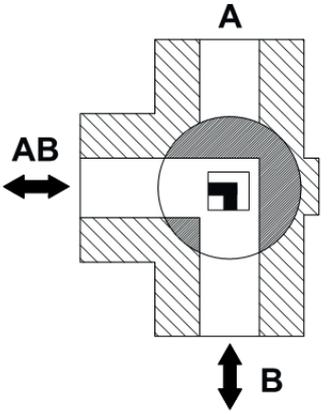
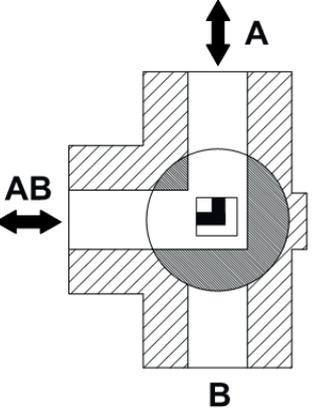
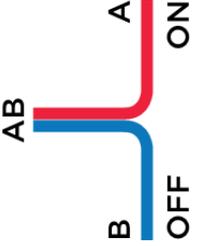


4. L-bore Valves

4.1. Valve Adjustment Options

A) Factory adjustment

The default setting of the actuator is with the lever turned into the blue field (OFF position). After the switched live is connected (ON), the valve turns clockwise and the red field is shown by the lever. After the switched live is disconnected (OFF), the valve returns to its default position. A label showing the fluid flow direction in colour corresponding to the lever position is placed on the actuator.

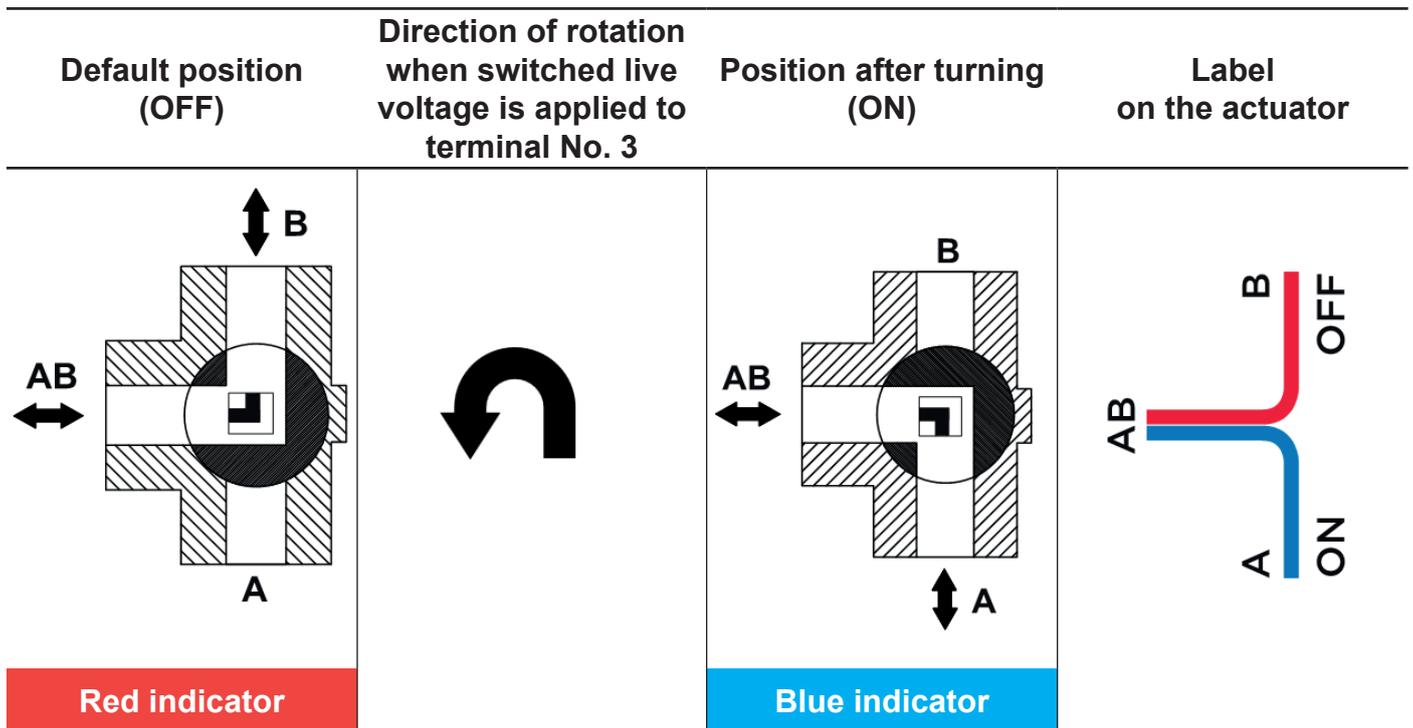
Default position (OFF)	Direction of rotation when switched live voltage is applied to terminal No. 3	Position after turning (ON)	Label on the actuator
 <p data-bbox="164 1182 379 1216">Blue indicator</p>		 <p data-bbox="868 1182 1083 1216">Red indicator</p>	

B) Swapping the ON and OFF positions of the valve

If necessary, the ON and OFF valve positions can be swapped. In the default position (OFF) the lever will be turned to the red field. After the switched live is connected (ON), the valve turns anti-clockwise and the blue field is shown by the lever. After the switched live is disconnected, the valve returns to its default position (OFF).

How to change the default position of the valve

1. Switch the actuator to manual mode and turn the lever by a quarter turn into the red field.
2. Change the direction of rotation of the actuator according to Chapter 6.
3. Switch the actuator to automatic mode.
4. Remove the label from the actuator and replace it with the enclosed label showing the corresponding setting.

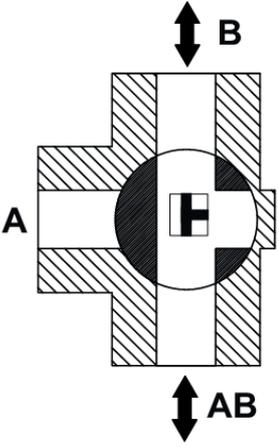
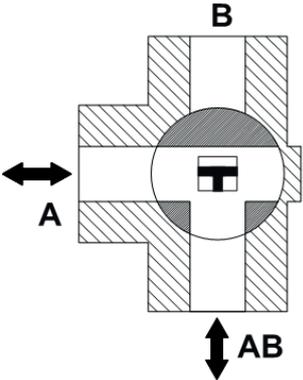
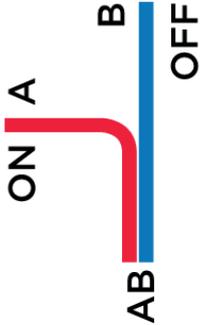


5. T-bore Valves

5.1. Valve Adjustment Options

A) Factory adjustment

The default setting of the actuator is with the lever turned to the blue field (OFF position) and the fluid flows straight through the valve. After the switched live is connected (ON), the valve turns clockwise. The lever is turned to the red field and the fluid is directed through 90 degrees in the valve. After the switched live is disconnected (OFF), the valve returns to its default position. A label showing the fluid flow direction in colour corresponding to the colour corresponding to the lever position is placed on the actuator.

Default position (OFF)	Direction of rotation when switched live voltage is applied to terminal No. 3	Position after turning (ON)	Label on the actuator
 <p data-bbox="164 1283 379 1317">Blue indicator</p>		 <p data-bbox="871 1283 1078 1317">Red indicator</p>	

Other Adjustment Options

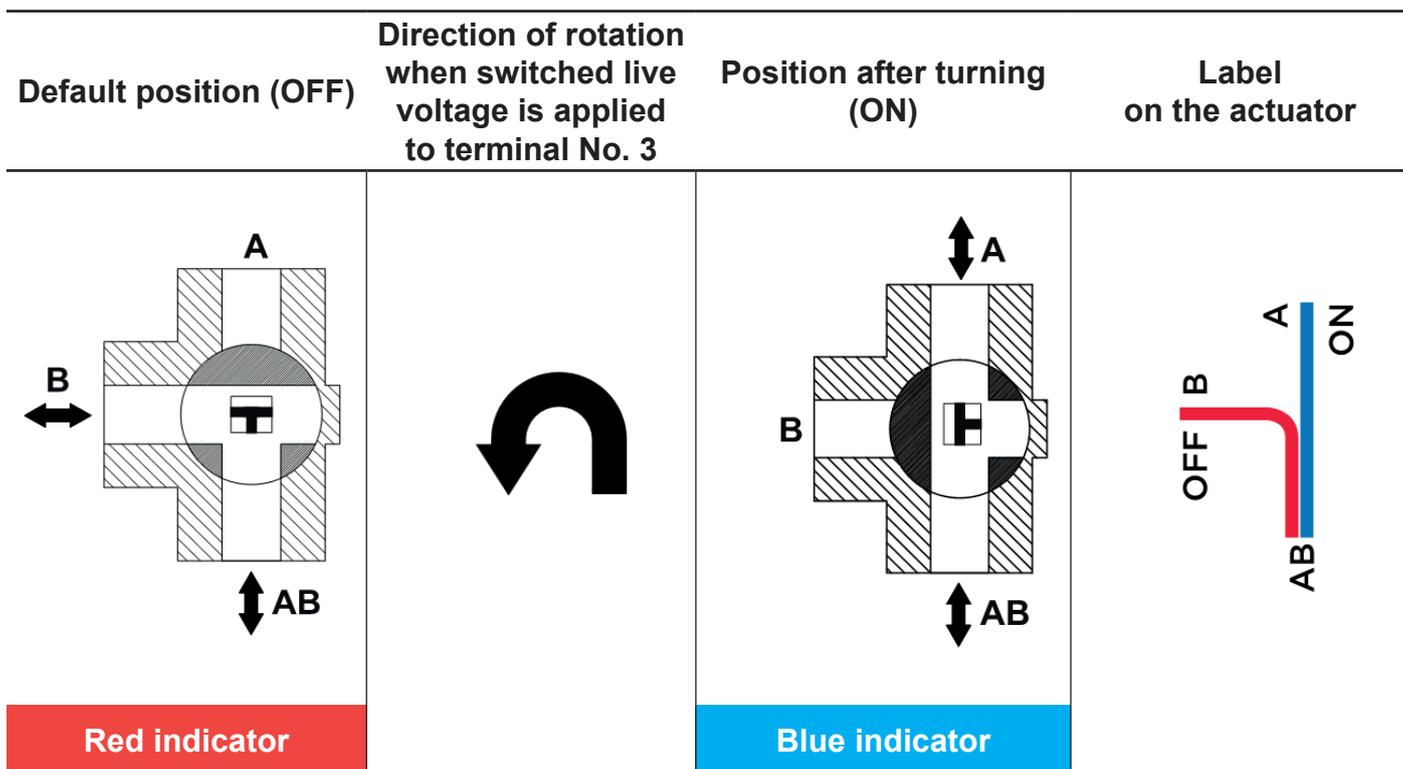
The default valve adjustment can be changed in three different ways.

B) Swapping the ON and OFF positions of the valve

If necessary, the ON and OFF valve positions can be swapped. In the default position (OFF) the lever is turned to the red field and the fluid will be directed through 90 degrees in the valve. After the switched live is connected (ON), the valve turns anti-clockwise, the blue field is shown and the fluid will flow straight through the valve. After the switched live is disconnected, the valve returns to its default position (OFF).

How to change the default position of the valve

1. Switch the actuator to manual mode and turn the lever by a quarter turn to show the red field.
2. Change the direction of rotation of the actuator according to Chapter 6.
3. Switch the actuator to automatic mode.
4. Remove the label from the actuator and replace it with the enclosed label showing the corresponding setting.



C) Changing the common port of the valve

If necessary, the common port of the valve can be changed. In the default position (OFF) the lever is turned to the red field and the fluid will flow straight through the valve. After the switched live is connected (ON), the valve turns anti-clockwise. The blue field will be shown and the fluid will be directed through 90 degrees in the valve. After the switched live is disconnected, the valve returns to its default position (OFF).

How to change the default position of the valve

1. Switch the valve to manual mode and turn the lever to the default factory position (blue field).
2. Unscrew the four M5 nuts (spanner size 8) and remove the actuator from the valve.



3. Turn the lever by a quarter turn to show the red field.
4. Fit the actuator on the valve and tighten it with the four M5 nuts.
5. Change the direction of rotation of the actuator according to Chapter 6.
6. Switch the actuator to automatic mode.
7. Remove the label from the actuator and replace it with the enclosed label showing the corresponding setting.

Default position (OFF)	Direction of rotation when switched live voltage is applied to terminal No. 3	Position after turning (ON)	Label on the actuator
<p style="text-align: center;">Red indicator</p>		<p style="text-align: center;">Blue indicator</p>	

D) Changing the ON and OFF positions and common port of the valve

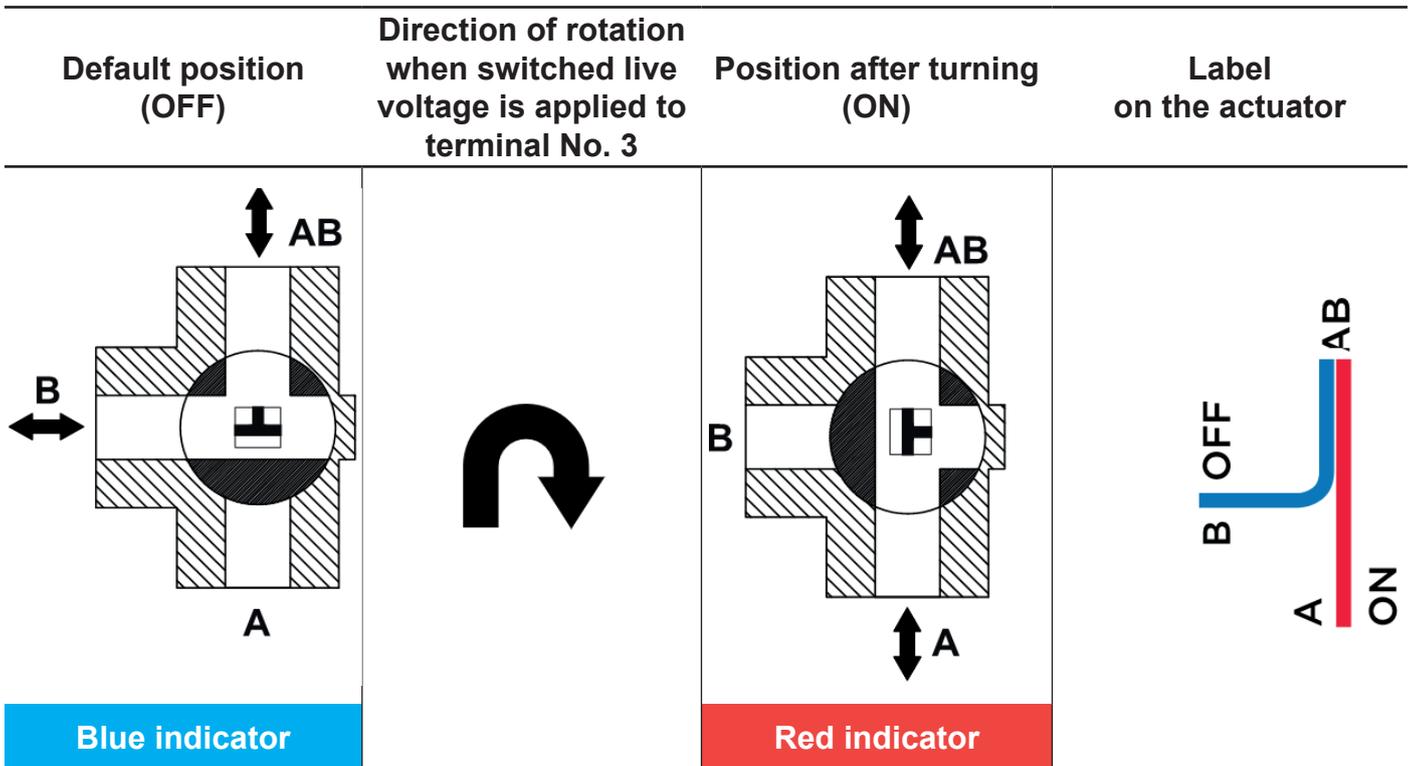
If necessary, the ON and OFF valve positions and the common port of the valve can be changed. In the default position (OFF) the lever is turned to the blue field and the fluid will be directed through 90 degrees in the valve. After the switched live is connected (ON), the valve turns clockwise. The red field will be shown and the fluid will flow straight through the valve. After the switched live is disconnected (OFF), the valve returns to its default position.

How to change the default position of the valve

1. Switch the valve to manual mode and turn the lever to the default factory position (blue field).
2. Unscrew the four M5 nuts (spanner size 8) and remove the actuator from the valve.



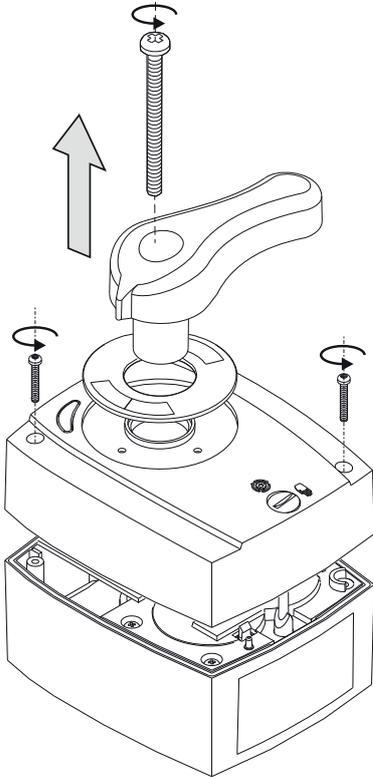
3. Turn the lever by a quarter turn to point to the red field.
4. Fit the actuator on the valve and tighten it with the four M5 nuts.
5. Turn the lever by a quarter turn to point to the blue field.
6. Switch the actuator to automatic mode.
7. Remove the label from the actuator and replace it with the enclosed label showing the corresponding setting.



6. Changing the direction of rotation of the actuator

In the factory setting, the actuator without control voltage shows the blue field. After the control voltage is applied, the actuator starts turning clockwise and the red field is shown. The jumper is placed vertically.

After the jumper is turned to a horizontal position, the actuator without control voltage will show the red field. After the control voltage is applied, the actuator starts turning anti-clockwise and the blue field is shown.

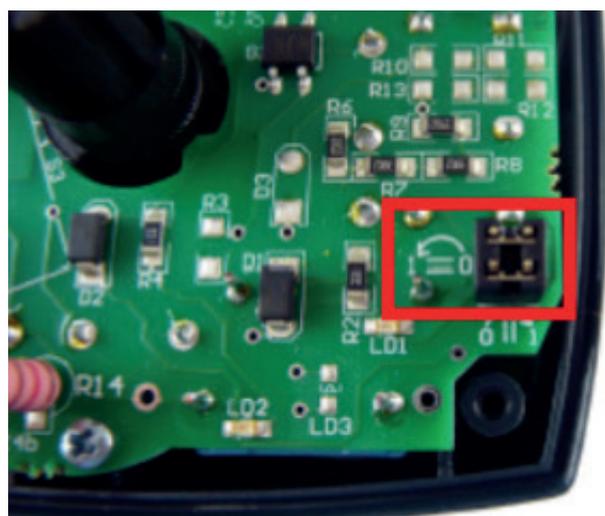


1. Switch off the supply voltage, set the manual control, unscrew and remove the actuator cover.

2. Locate the jumper - see the red marked area in the picture.



3. In the factory setting, the jumper is placed vertically. The actuator turns clockwise.



4. Turning the jumper by 90 deg. to the horizontal position will change the direction of rotation. The actuator now turns anti-clockwise.

Having placed the jumper to the desired position, re-install the actuator cover and switch the actuator to automatic mode.

7. Permissible and prohibited positions

WARNING - Important

Installation of the valve in a position where the actuator is located below the valve is prohibited.

