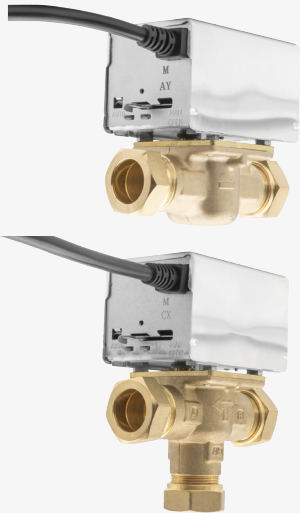# ESP
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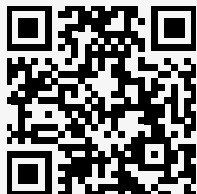

SAN222   SAN223

Sangamo 2 Port 22mm Motorised Zone Valve

Sangamo 3 Port 22mm Mid Position Motorised Zone Valve

Manual

The latest product manuals and software is available online:
https://www.espuk.com/technical_support

www.espuk.com

Introduction

A motorised zone valve is used to regulate, divert and control the flow of water from the boiler, to either the hot water cylinder, the central heating radiators or both.

Zone valves do this by opening, closing or partially obstructing various water flow routes.

A **2 port zone valve** has 2 pipe connections (an inlet & an outlet) that allow or block the flow of water between these 2 ports, depending on where it is actuated or not.
A 2 port zone valve is designed to only control the flow of hot water or the central heating at any one time.
Flow is allowed when the valve has been started (usually when the boiler is on) and blocked when the valve is off.

A **3 port zone valve** has 3 pipe connections (1 inlet & 2 outlets) and can divert the water flow to either one or both of the 2 outlet ports. This allows one valve to control heating and hot water, instead of having 2 seperate (2 port) zone valves. Most 3 port valves have a mid position option, which allows the flow to both circuits at the same time, but some (diverter valves) allows the flow to only one (or the other) at any one time.

Our products are designed to comply with the recommended codes of practice and is to be installed and serviced by competent persons in accordance with the relevant wiring regulations.

Warning: Before any installation or maintenance, ensure that the electrical supply is switched off at the breaker.

1. Installing the Zone Valve

1.1. Remove all packaging from the valve.

1.2. Remove all foreign matter.

1.3. Remove the actuator by setting the control to (the raised) manual override position, then press the detach button the bottom of the actuator.

1.4. Install the valve to the pipework in according with the contained wiring diagrams, and use the minimum amount of joining materials. Do not use the actuator as leverage. The valve must be installed with the arrow in the same direction as water flow, the 3 port should flow from the center port to either port A or Port B.

1.5. Reinstall the actuator to the valve (ensure that the actuator is still in the manual override position), and then line up the 4mm flat spindle on the valve body to the similarly sized slot on the actuator. When they are successfully coupled, the actuator will click into place.

2. Flushing the system

2.1. Ensure that the manual override level is locked into the manual position on the zone valve.

2.2. Now complete a system flush out and drain to remove any foreign material in the water.

2.3. Fill the system back up with water, including corrosion inhibitor if required, and vent.

Note: Class 'A' switch (requiring a minimum seperation of at least 3mm for all poles) must be incorporated in the wiring as a means of disconnecting the mains supply.

The heating system must be appropriately fused with a fuse rating of no higher than 3 Amps.

For use in normal domestic environments

3. Commissioning the 2 way zone valve

3.1. Ensure the manual override lever is in the auto position

3.2. Check the programmer has power

3.3. Check the boiler is switched on, and the Cylinder thermostat is set to maximum.

3.4. The boiler should then fire, the pump should run, and the valve should move to the fully open position.

4. Commissioning the 3 way zone valve

4.1. Ensure that the manual override is in the auto position.

For hot water only (AB > B)

- Switch the central heating OFF at the programmer, or set the room thermostat to the minimum.

- Switch the hot water ON at the programmer and set the cylinder thermostat to the maximum.

- Port B should open on the valve, the boiler should fire and the pump should run. Port B should get hot.

For central heating only (AB > A)

- Switch the hot water OFF at the programmer, or set the cylinder thermostat to the minimum.

- Switch the central heating ON at the programmer and set the room thermostat to the maximum.

- Port A should open on the valve, the boiler should fire and the pump should run. Port A should get hot.

For both hot water & central heating (AB > A & B)

- Switch both the hot water & central heating ON at the programmer.

- Set both the room & cylinder thermostats to maximum.

- The valve should go to the mid-position with both port A & port B open, the boiler should fire, and the pump should run. Both port A & port B should get hot.
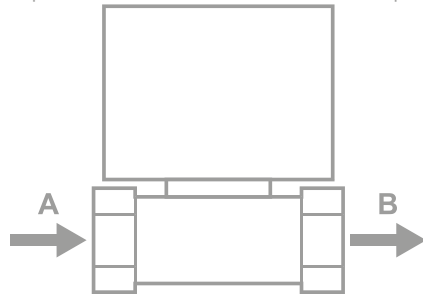
5. 2 Port Wiring Diagram

MOTOR
- BROWN
- BLUE

AUXILIARY SWITCH
- GREY
- ORANGE
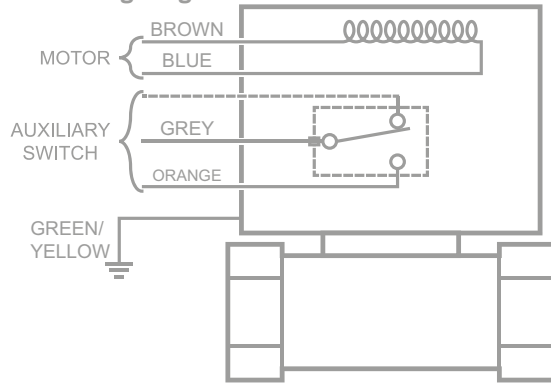
GREEN/YELLOW

2 Port - Wiring connections

5.1. Brown — Switched Live from Thermostat

5.2. Grey — Live

5.3. Blue — Neutral

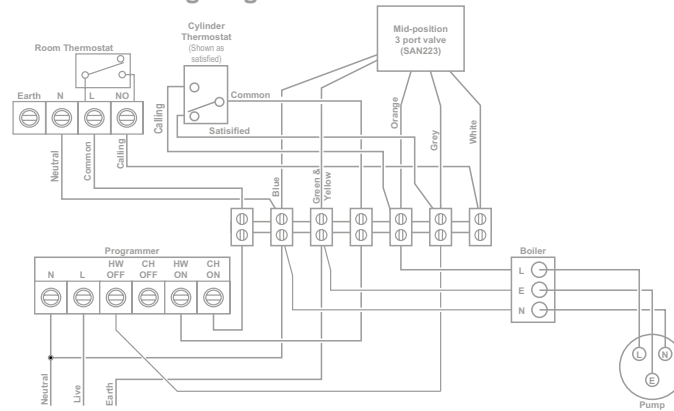5.4. Yellow/Green — Earth

5.5. Orange — Switch to Boiler

Operation

A 2 way motorised valve has Port A normally closed when there isnt power to the valve. When there is an electrical supply applied, the actuator motor pushes back the spring & opens the valve fully. This allows water to flow from Port A to Port B.

This valve will stay open until the electrical supply is severed. When the power is severed, the internal spring will push the valve back into its normally closed position, drive the valve back and close port A.

A — B

6. 3 Port Wiring Diagram

Room Thermostat
Cylinder Thermostat (Shown as satisfied)
Mid-position 3 port valve (SAN223)

Earth | N | L | NO | Common
Calling | Satisfied
Orange | Grey | White

Neutral | Common | Calling
Blue | Green & Yellow

Programmer
N | L | HW OFF | CH OFF | HW ON | CH ON

Boiler
L | E | N

Neutral | Live | Earth

Pump
L | N | E

3 Port - Wiring Connections

6.1. White — Heating On from Room Thermostat

6.2. Grey — Hot Water Off from thermostat or Off from programmer

6.3. Blue — Neutral

6.4. Yellow/Green — Earth

6.5. Orange — Hot Water On from Cylinder Thermostat (boiler and pump live)

Operation

A 'mid-position' 3 way motorised valve has Port A normally closed when there isnt power to the valve. Whilst in this state water can flow from Port AB to only Port B. When there is an electrical supply applied, the actuator motor pushes back the spring & reverses the valves position. This allows water to flow from Port AB to only Port A.

This valve will stay in this position until the electrical supply is severed. When the power is severed, the internal spring will push the valve back into its normally closed position, drive the valve back and close port A.

If Power is energised on both channels, then the valve will move to the 'mid-position' and allow water to flow from port AB to both Ports A & B.

A — B
AB
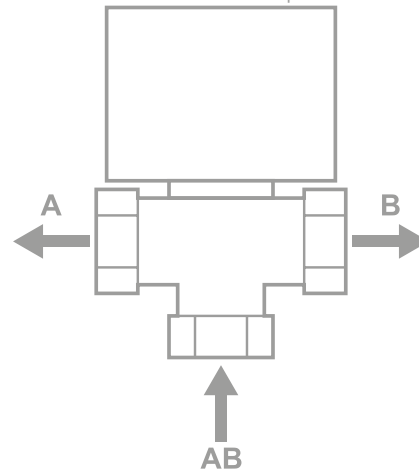
7. Manual Lever Operation

On the actuators body there is a lever, this allows manual operation of the valve; for refilling and draining of the system, or if the actuator fails.

For 2 way valves, the lever allows the valve to be kept open.

For 3 way valves, the lever moves the valve so that both Ports A & B are open.

To manually operate the valve, gently push the lever and latch it to the 'Man' position. The valve will automatically return to 'Auto' when the actuator is energised.

NOTE: Push the manual lever slowly, to prevent any damage to the actuators motor and/or gear system. The valve should be in the manual position when fitted.

Auto

Man

8. Actuator Removal and Refitting

The actuator on the valve can be removed or refitted without having to disturb the valve's installation.

Removal:

8.1. Remove actuator cover

8.2. Lock lever into the Manual ('Man') position

8.3. Loosen the 2 securing screws

8.4. Lift actuator from valve body

Refitting:

8.1. Remove actuator cover

8.2. Lock lever into the Manual ('Man') position

8.3. Turn actuators valve stem so that it aligns with the valves actuator socket

8.4. push the actuator into the socket

8.5. Tighten the 2 securing screws

8.6. release the lever and allow it to go back to the 'Auto' position.

Note: *Do not attempt to dismantle the actuator assembly as it contains not user servicable parts; dismantling and/or tampering with the assembly with invalidate the product warranty.*