

VF Range - Electric Actuators *Installation Instructions*

- Read these instructions before connecting the actuator.
- Damage caused by noncompliance of these instructions is not covered by our warranty.
- VF Actuators operate with the use of live electricity, because of this it is recommended that qualified electrical engineers should connect or adjust these actuators.

• Voltage:

This series of VF actuators are ready to work from 24-240VDC/VAC.

In case of working only at 12VAC/VDC, the actuator should be opened and the power supply PCB should be replaced by the one in the "12 VAC/VDC Power supply kit" inside the Kit, there is an instruction sheet, to explain how to put the 12VAC/VDC power supply PCB.

In case of changing the actuator voltage configuration, put a mark "X" inside the desired voltage box, on the ID actuator label.

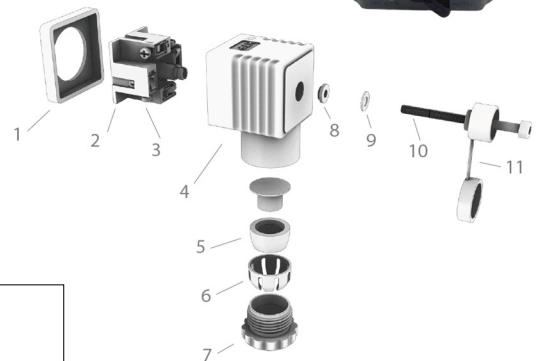
• Electrical connectors:

Warning: Before connecting ensure that the voltage to be applied to the actuator is within the range shown on the identification label. The supplied electrical connectors, used to connect to the actuator are DIN plugs. Ensure the diameter of cable to be used conforms to the maximum and minimum requirements of the DIN plugs to maintain water tightness.



CONNECTOR	SMALL BLACK EN175301-803		BIG GREY EN175301-803		
	MODEL	Min	Max	Min	Max
VF 0 TO 15S		5mm	6mm	8mm	10.5mm

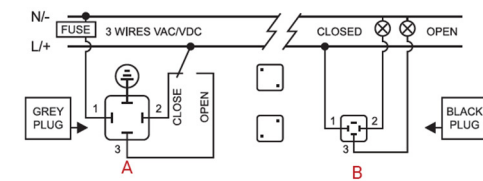
1. Gasket
2. Terminal strip
3. Cable fixing screws
4. Housing
5. Washer
6. Grommet
7. Gland - nut
8. Gasket
9. Washer
10. Fixing screw
11. Cap



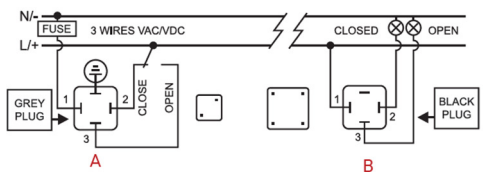
Standard Electrical Connections

On - Off V AC

VF-0S - VF-15S

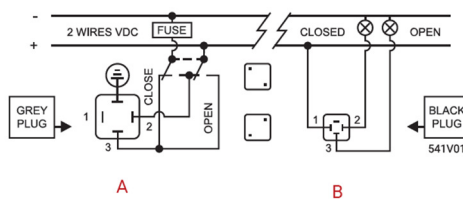


VF-2S - VF-2+S

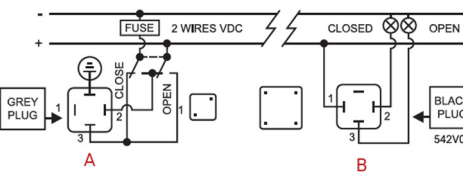


On - Off V DC

VF-0S - VF-15S



VF-2S - VF-2+S



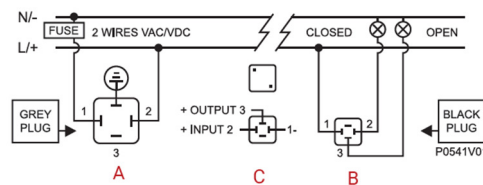
- A** = Power supply plug (Grey plug)
- Neutral PIN 1 + Phase PIN 2 = Close Actuator
- Neutral PIN 1 + Phase PIN 3 = Open Actuator
- Earth/ground connection - Flat PIN
- B** = Volt free contact plug (Black Plug)
- Common PIN 1 + PIN 2 = Close confirmation of position
- Common PIN 1 + PIN 3 = Close confirmation of position

**for other connection options please contact V-Flow Solutions*

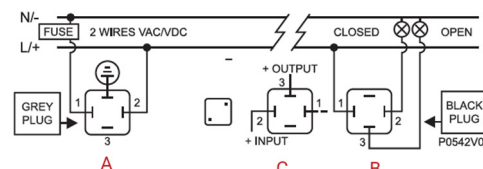
Warning: Ensure that the square rubber seal is in place when fixing each DIN plug to the actuator. Failure to do so could allow water ingress and damage caused by this installation error will invalidate any warranty. The DIN plugs are fixed to their respective bases on the actuator housing with a screw. Do not over tighten the screw when assembling (0.5Nm).

Positioner V AC / DC

VF-0S - VF-15S



VF-2S - VF-2+S



- A** = Power supply plug (Grey plug)
- Neutral/Negative PIN 1 + Phase/positive PIN 2 - Power Supply
- Earth/ground connection - Flat PIN
- B** = Volt free contact plug (Black Plug)
- Common PIN 1 + PIN 2 = Close confirmation of position
- Common PIN 1 + PIN 3 = Close confirmation of position
- C** = Input/output signal (Black plug)
- Negative PIN 1 + positive PIN 2 = Input signal
- Negative PIN 1 + positive PIN 3 = Output signal
- C** = Instrumentation signal **MAX 10V**

Digital Positioner System: Earth should not be connected to avoid self adjustment of the actuator position

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- **Local visual position indicator**

All VF actuators are supplied with a local visual position indicator, comprised of a black base with a yellow insert that shows both the position and direction of rotation. The open and closed positions have the following logos moulded into the top cover OPEN 90 and CLOSE 0.

- **Emergency manual override facility**

The VF actuator has 2 operating modes, automatic and manual, the required mode is selected by using a level on the lower half of the actuator housing. The 2 positions are marked: **'Auto'**: Automatic operation and **'Man'**: Manual operation

Warning: Do not remove the selector level securing cross head screw as this will allow its internal mechanism to become loose and will cause irreparable damage to the actuators gearbox. Removing this screw will invalidate the warranty.

When the "Auto" position is selected: The hand wheel rotates automatically, it is very important not to block it, otherwise the actuator could suffer unreparable damages.

When the "MAN" function is selected:

1. The electronic system cuts the power to the motor after a few seconds
2. The motor to output shaft drive is disconnected
3. The desired position can be achieved by using the manual override lever or hand wheel
4. There are two ways to re-activate the motor after being isolated whilst in "MAN" position

A) With the actuator in "MAN" function, turn the hand wheel to one of the end positions (Opened or closed). If the end position switch is activated the motor stops. Now change the manual override from "MAN" to "AUTO", and the actuator is ready to operate automatically again.

B) Change from "MAN" mode to "AUTO". Deactivate the supply voltage for a few seconds which resets the actuator and it is then changed to operate automatically again.

ATC is in charge of the automatic control of inner temperature it is on while the actuator is connected to the power supply. Therefore, we strongly recommend to maintain the power supply connected to the actuator, otherwise the ATC system would remain disconnected.

- **Mounting to component being actuated**

It is vital that the mounting kit used to connect the electric actuator to the component (eg: valve) is correctly manufactured and assembled. The mounting brackets holes must be drilled to ensure that the centreline of the actuators drive is perfectly in line with the components drive centreline, and that the drive coupling/ adaptor rotates around this centreline. The mounting holes of the actuator conform to ISO 5211, and the female output drive conforms to DIN 3337.

We strongly recommend that valves/components to be actuated that have ISO 5211 compliant top works are used wherever possible as it greatly assists in ensuring the concentricity of mounting the actuator to the valve. The male square end of the drive coupling must not be longer than the maximum depth of the actuator female output drive when the assembly is bolted together.

Failure to comply with these instructions will cause uneven wear and dramatically reduce the working life of the valve and actuator. In case of a power supply failure the actuator would stop in the position it was at this moment, when the power supply is re-established, the actuator would keep on working following the prior direction.

VERY IMPORTANT: Check if any objects are blocking the valve (damper, etc.). Connect the actuator, following the connection diagram of the label of the actuator, we recommend that the actuator has an independent system of fuses, which could protect the actuator against other electrical devices.

External LED light status:

The LED status light provides visual communication between the actuator and the user. The current operational status of the actuator is shown by either solid lit, or different flashing sequences of the LED light.

LED Status Indication	
No power	LED off
Actuator Fully Closed	Red Led Solid
Actuator Fully Open	Green Led Solid
Moving Closed > Open	Red and Orange Flash
Moving Open > Closed	Green and Orange Flash
Torque lim. Engaged Open > Closed	Red Blinking
Torque lim. Engaged Closed > Open	Green Blinking
Manual Mode Engaged	Orange Blinking
Battery Failsafe Activated Normally Open	Red Intermittent
Battery Failsafe Activated Normally Closed	Green Intermittent
Battery Failsafe Needs Charging	Orange Intermittent
Digital Positioning System Stationary	Blue Solid
Digital Positioning System Opening	Blue and Green Flash
Digital Positioning System Closing	Blue and Red Flash
Digital Positioning System Self Adjusting	Red, Blue and Green
DPS Instrum. Signal Overpass. Blocked. Needs resetting	Blue, Light Blue Fade
DPS No Instrum. Signal Pick-up. 4-20mA and 1-10V only	Blue Blinking

• **BSR Failsafe system – NC/NO Set-up:**

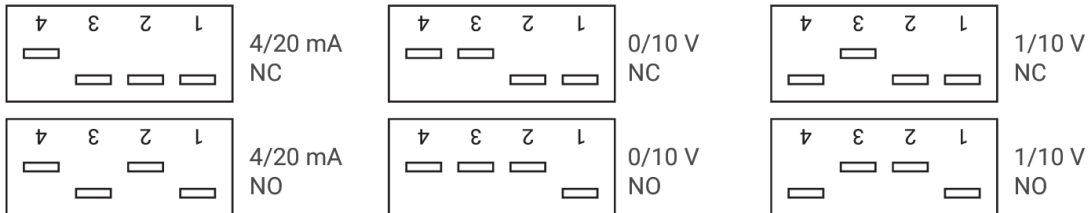
In case of an electrical failure, the actuator which is fitted with the BSR 20/85 plug-in failsafe system, will go to the predetermined position: NO (Normally open) or NC (Normally closed).

According to the BSR 20/85 kit configuration, an "X" should be placed in the NO or NC box, on the ID actuator label. Set up by using the SELDIR jumper. NC = Jumper on/ NO = Jumper off.

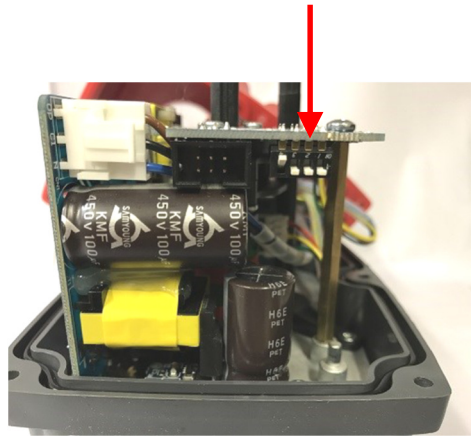
• **Digital Positioner System (DPS) 20/85 (5810 00) - Configuration:**

The signal to the DPS needs to be configured using the DIP switches in the DPS board.

Below: Settings for the DIPs on the DPS board.



DIP Switches



• **Digital Positioner System (DPS) 20/85 (5810 00) – External adjustment:**

The DPS turns the VF range of actuators into a servo controlled valve positioner through digital control using a microprocessor which can be fitted to the actuator.

-B plug – Connect a cable between PIN 1 (on the left side) and PIN earth (on the bottom)

-A plug – Connect voltage to the actuator in the following way: VAC: PIN1 (neutral) and PIN2 (Phase) VDC: PIN1 (negative) and PIN2 (positive).



VERY IMPORTANT: BEFORE CONNECTING "A" PLUG TO THE ACTUATOR, CHECK THAT THE VOLTAGE IS THE SAME AS THE ONE SPECIFIED ON THE ID LABEL

-B plug – Disconnect the cable between PIN 1 (on the left side) and PIN earth (on the bottom).

The actuator will make a complete manoeuvre and stay in the CLOSED position.

The actuator is ready to connect the (4/20mA OR 0/10V) signal to the B plug.