

## Model J3C DPS Modulating System

### Convert a J3C on-off electric actuator to modulating (or proportional control)

Uniquely, the J3C electric actuator can change its operating function by the simple addition of a plug and play function conversion kit. By installing the DPS from electric actuator manufacturer J+J, the factory supplied on-off function changes to modulating.

Modulating functionality means that the movement of the actuator is controlled by an input signal, either 4-20mA or 0-10V. Any change of the input signal results in a corresponding and proportional change in the position of the actuator. A replacement cover is included in the plug and play DPS kit that has an extra DIN plug fitted to accept the control signal.

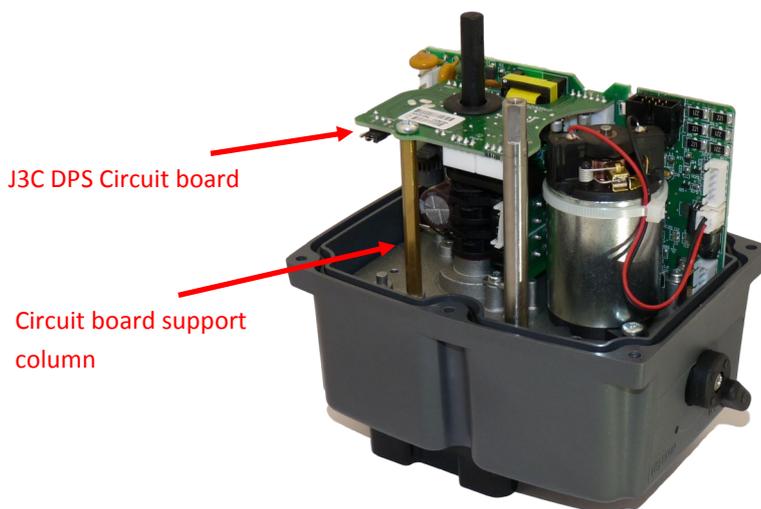
### Advantages of J+J's DPS (Digital Positioning System)

The main advantages of the DPS are that the system can be retro-fitted into a standard on-off J3C electric actuator, it is plug and play with auto-calibration for zero and span settings, an output signal is provided as standard and hunting is virtually eliminated - it moves to the demanded position and stops. Digital control ensures high sensitivity and repeatability, providing characteristics that show hysteresis, linearity and precision at less than 1%. The DPS can be configured standard acting whereby a low signal closes the J3 actuator, high signal opens it, or reverse acting where a low signal opens the J3 modulating actuator and a high signal closes it.

### Function on loss of external power or control signal

On loss of external power	Stays put (can fail to safe position with the BSR kit installed)
On loss of control signal	Standard acting - fails to closed position
	Reverse acting - fails to open position
	Fail freeze - stays put

### Model J3C-20 with DPS modulating system installed



DPS Plug & Play Kit



### Overview of the DPS principle of operation

Modulating control functionality in the J3C electric actuator is achieved by an internal micro-processor on the DPS circuit board, which forms a part of the plug and play kit, continuously monitors digitally the analogue input and output signals and compares them with the physical output shaft position and if there is a discrepancy, moves the valve actuator to balance the signals.

### Retro-fit

The DPS plug & play function conversion kit can quickly and easily be retro-fitted to a standard on-off J3C electric actuator, so if the requirement changes after supply, the valve actuator's function can be changed on site.

### Detail of the DPS's functionality

The DPS is self-calibrating and on initial power up, or restoration following a power cut, will perform a short automatic self-calibration sequence. In situations where the J3C actuator is used in manual mode (eg: during commissioning when there is no power available) and subsequently returned into automatic mode, if the modulating J3C actuator has been left out of its normal operating quadrant, the DPS will auto-adjust itself back to the correct quadrant, re-set itself and be ready for use.

### External reset

Should the J3C DPS require a 'soft reset', this is quickly and easily done using the male connections on control signal DIN plug. See instructions for details.

## J3C Series Smart Electric Actuator

### Function options:

#### J3C ON-OFF ELECTRIC ACTUATOR

Standard function

Power open, power close. Stays put on loss of external power. Power remains on at all times.

#### J3C FAILSAFE ELECTRIC ACTUATOR

Fails to pre-set position on loss of external power

Power open, power close, fails to pre-set 'safe' position on loss of external power using internal industrial trickle charged rechargeable NiCad battery. Can be set to fail close (NC or normally closed) or fail open (NO or normally open) on loss of external power. The failsafe electric actuator moves to the position command applied at the time external power is restored.

#### J3C MODULATING ELECTRIC ACTUATOR

Movement proportional to input signal

Power is applied continuously. Movement of valve actuator is then controlled by an internally fitted digital positioner and is proportional to changes supplied in an input control signal. This input signal is typically 0-10VDC, or 4-20mA. An output signal is supplied as standard providing closed loop control. Fails closed on loss of control signal (or see configuration options below), stays put on loss of external power.

Configuration options:

- 1) Closes on loss of control signal
- 2) Opens on loss of control signal
- 3) Stays put on loss of control signal

#### J3C FAILSAFE MODULATING ELECTRIC ACTUATOR

Combination of failsafe & modulating above:

Uses battery failsafe system and digital positioner to provide fail to safe position function on loss of external power in a modulating application.

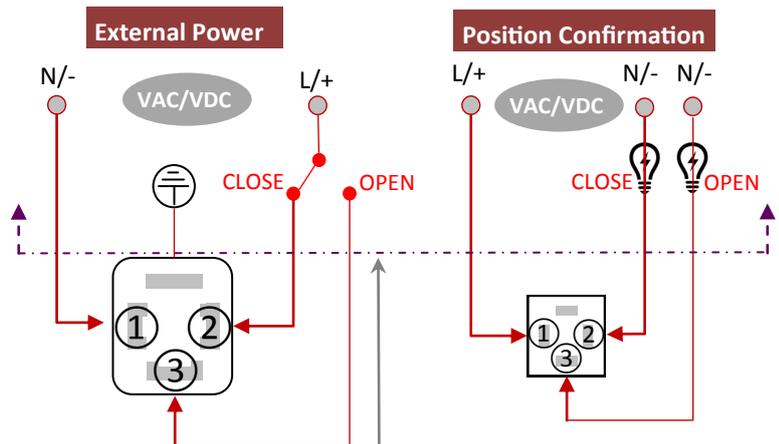
### J3C Plug & Play function conversion kits.

Failsafe and/or modulating function is quick and easy to achieve in the J3C smart electric actuator by the fitting of the user friendly failsafe and/or modulating plug & play function conversion kits to the standard on-off J3C smart valve actuator. When actuated valves are ordered with failsafe, modulating or failsafe modulating function, J+J install and test the plug and play function conversion kits. They can however easily be retro-fitted to J3C smart electric actuators should the on-off function requirement, supplied as standard, change.

## J3C Electrical Connection - wiring

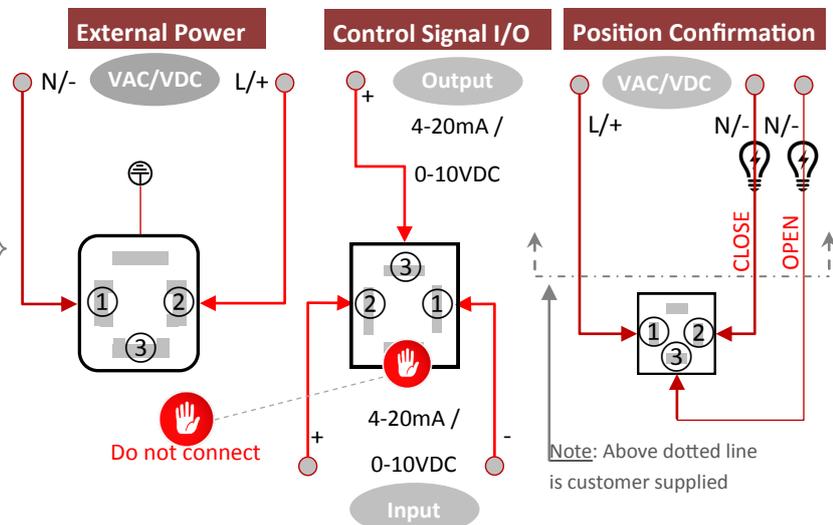
In J+J electric actuators all electrical connections are made externally using the external DIN plugs supplied with the actuator. There is no need to remove the valve actuator's cover to connect electrically. There are no terminals internally to connect to.

### J3C ON-OFF & FAILSAFE WIRING (Same connection for either)



Note: Above dotted line is customer supplied

### J3C MODULATING WIRING



Note: Above dotted line is customer supplied

### DPS Modulating plug & play kit for J3C



**BSR Failsafe plug & play kit for J3C**