

Feature rich multi-voltage smart electric actuator with LED status light and function conversion kits.



### Overview

The J3C-L300-BSR-DPS is a smart failsafe modulating electric actuator, designed and manufactured by J+J in the EU, is of industrial quality, fully weatherproof and carries the European CE marking.

With simple external electrical connections to supplied DIN plugs which eliminate the need to remove the actuator's cover to connect, and with multiple ISO5211 valve mounting options, the J3C-L300-BSR-DPS is very user friendly to install.

A highly visible multi-color LED gives users continuous actuator feedback status advising the actuators operational status, a top rated feature by users. In-built protective features include a thermostatic space heater and an electronic over-torque limiter.

The failsafe modulating version has an internal digital positioner pre-installed and calibrated, and with a permanent power supply, movement is controlled proportionally to the input control signal. A control feedback signal is provided as standard. Also pre-installed is the BSR battery back-up failsafe system, which uses energy stored in internal batteries to send the actuator to a pre-set fail safe position should external power be lost.

### J3C-L300 Electric Actuator Specifications

Voltage range - automatic sensing	24V AC (1ph) or DC
Digital Positioning System pre-installed	4-20mA or 0-10V I/O
Failsafe system pre-installed	Fail closed/ fail open
Operating time (0-90° no load)	58 seconds
Maximum break torque	3904lb.ins (350Nm)
Maximum operating torque (run/ reseal)	2655lb.ins (300Nm)
Duty rating	75%
IP Rating (IEC 60529)	IP67
Working angle Standard (on request)	90° (180° or 270° options)
Mounting ISO:5211 x DIN 3337	F07 & F10 x 22 star (std)
Motor switches	2 x SPDT micro switches
End of travel confirmation (volt free)	2 x SPDT micro switches
Heater	3.5W
Ambient temperature range	-4 to +158°F (-20° to +70°C)
Electrical connecting plugs	EN175301-803
Weight	11.5lbs (5.2kg)

### J3C-L300 Consumption

24V AC	At maximum torque	1.8A (for power supply sizing x 2.5)
24V DC	At maximum torque	2.3A (for power supply sizing x 2.5)

### J3C Main features

IP67 Weatherproof, UV protected, corrosion resistant plastic housing.

LED light gives user continuous visual actuator status feedback - if the LED is flashing, there's a problem!

Many protective features as standard - such as over-torque and anti-condensation.

Multi-voltage capable, automatically sensed

Very user friendly and easy to install - all the electrical connections are external.

Unique plug & play function conversion kits create FAILSAFE & MODULATING function from a standard on-off electric actuator.

Available with actuator function: **POWER OPEN - POWER CLOSE** **FAILSAFE** **MODULATING** **FAILSAFE MODULATING**

## 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

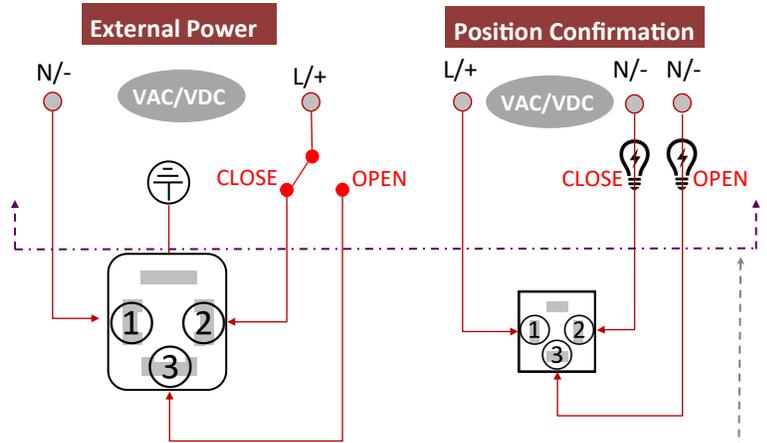
#### J3C FAILSAFE MODULATING ACTUATOR

Combination of failsafe & modulating kits above:

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

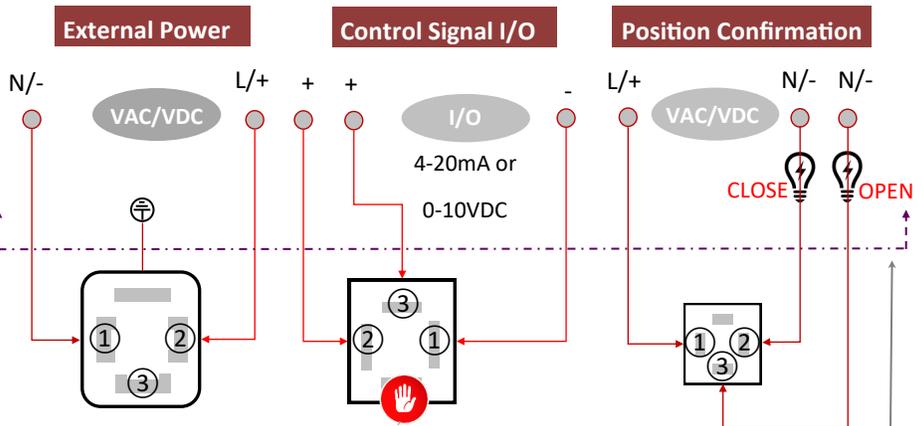
In these electric actuators all electrical connections are made externally using the external DIN plugs supplied with the actuator. There is no need to remove the valve actuator's cover to connect electrically. There are no terminals internally to connect to.

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



Note: Above line above is customer supplied!

#### J3C MODULATING WIRING



Note: Above dotted line is customer supplied

Do not connect

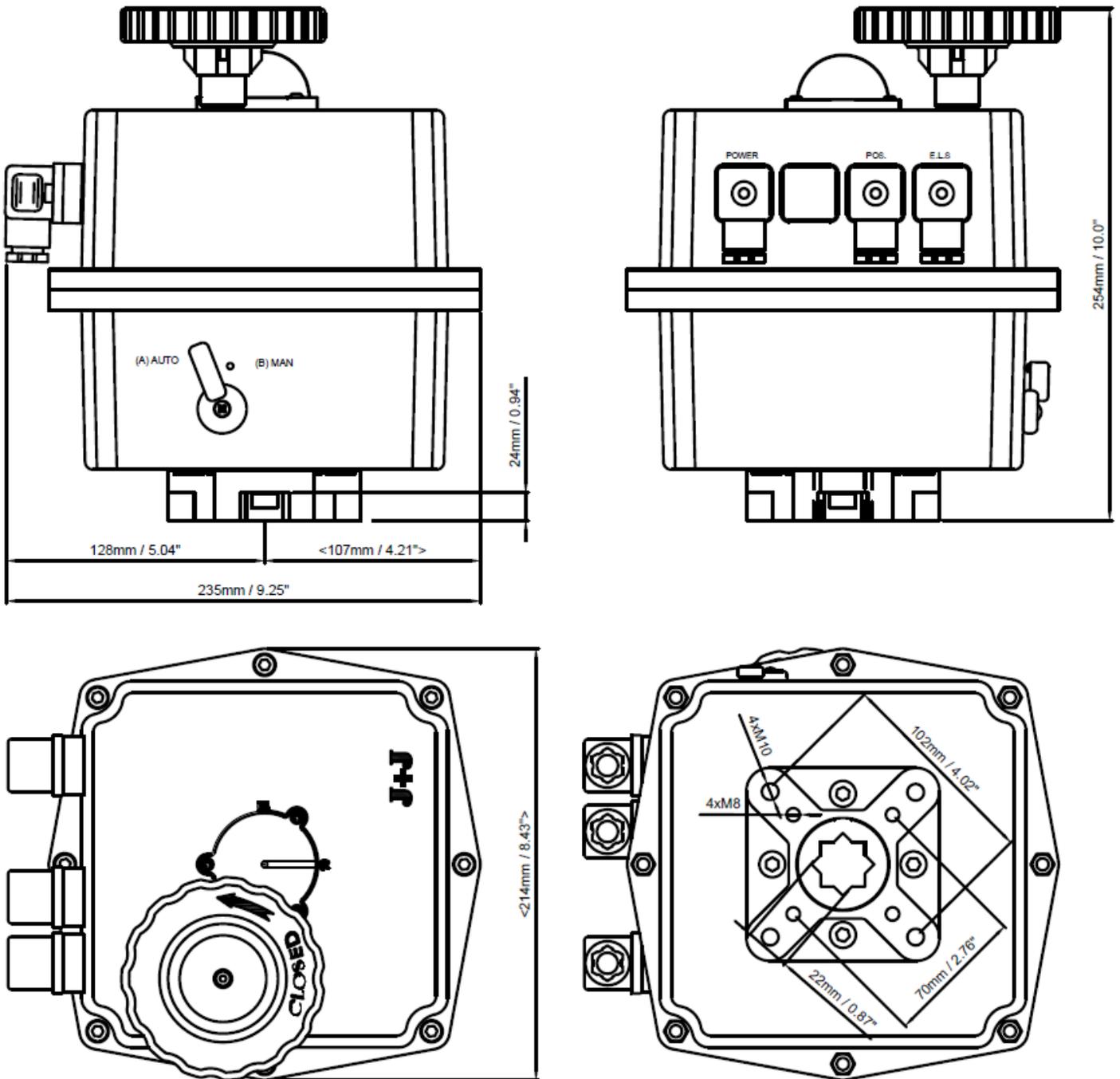


#### NOTE ON POWER SUPPLIES

It is imperative that the power supply has sufficient capacity to drive the J3C electric actuator. Ensure that safety factor of 3 is used to cover inrush on start-up, and for increased draw over time as the brushed DC motor wears.

Available with actuator function: POWER OPEN - POWER CLOSE **FAILSAFE** **MODULATING** **FAILSAFE MODULATING**

**Dimensions**



Available with actuator function: **POWER OPEN - POWER CLOSE** **FAILSAFE** **MODULATING** **FAILSAFE MODULATING**



**J3C MODULATINGACTUATOR WITH DPS PLUG & PLAY KIT PRE-INSTALLED**

**HOW THE DPS MODULATING SYSTEM WORKS**

The rotational movement of the J3C modulating actuator is controlled by the DPS (Digital Positioning System), and creates movement proportional to the input control signal.

The DPS PCB compares the physical position of the J3C actuator’s output shaft, fed back via a potentiometer driven by the output shaft, to the input signal. If a difference exists between input (desired) and output (actual) positions, the DPS considers that an error and instructs the actuator’s motor to turn in the direction and angular travel required to eliminate the difference.

The DPS is programmed to virtually eliminate hunting and once the desired input position is reached, it stops.

Note: It is important that the control signals applied to the J3C modulating electric actuator are ‘clean’ and that a sensible deadband is set to prevent the DPS trying to constantly respond to changes in input signal. If this is likely to be problematic or difficult to control, we recommend installing a 2200µF capacitor across the 4-20mA input control signal terminals to act as a ‘buffer’.

**J3C 300 DPS SPECIFICATIONS**

Model	J3C 140 & 300
Accuracy	3% F.S.
Linearity	2% F.S.
Hysteresis	3% F.S.
Points of resolution/ steps	70 in 90 degrees
4-20mA Impedance	100 Ω
0-10V Impedance	13 KΩ
Weight of installed DPS components	0.2lbs (0.1kg)

Available with actuator function: **POWER OPEN - POWER CLOSE** **FAILSAFE** **MODULATING** **FAILSAFE MODULATING**



**J3C FAILSAFE ACTUATOR WITH BSR PLUG & PLAY KIT PRE-INSTALLED**

**HOW THE BSR FAILSAFE SYSTEM WORKS**

The BSR plug and play FAILSAFE function conversion kit comprises 2 x NiCad industrial rechargeable battery packs, a PCB which in simplistic terms contains a system to trickle charge the batteries, to switch from external to battery power on the loss of external power and to initiate LED flashing sequences, and a jumper to plug into the PCB.

Once installed, the batteries are constantly trickle charged whenever external power is applied, maintaining them at full charge so that power is available to draw at the moment the external power fails. When the external power fails, the BSR PCB switches from external to internal power, and battery power is drawn to send the actuator to the pre-determined failsafe position, if not already in that position at the moment of loss of external power.

On resumption of external power, the J3C failsafe electric actuator will respect the command signal being applied at the moment the external power is restored. This may be different from the position seen at the moment of loss of external power.

**J3C 300 BSR SPECIFICATIONS**

	J3C-H140	J3C-L140	J3C-H300	J3C-L300
Number of operations possible with 100% charge of battery pack	2		1	
Minimum time to replace charge used in one battery movement	30mins		50 min	
Initial time required for 100% charge, before being put into service	27 hours			
Nominal battery capacity	1000mA			
Battery charge	37 mA/hr			
System to select fail closed, or fail open (see separate operating instructions)	Jumper on internal PCB			
Current draw from battery during operation	15.1mA		25.7mA	
Weight of BSR	0.4kg			

