

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

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



**Overview**

The J3C-L140 low voltage electric valve actuator from the electric actuator manufacturer J+J offers an impressive list of standard features that include protection against damage from over-torque or condensation, safety features, the ability to have it's standard on-off function changed with user friendly plug & play conversion kits, and a highly visible LED light to offer users continual actuator operational status feedback.

The J3C Failsafe electric actuator is the same on-off J3C actuator but with a simple to install, user friendly 'BSR' failsafe function conversion kit. The J3C BSR failsafe actuator can be set to fail open or fail closed.

The J3C Modulating electric actuator is the same on-off J3C electric actuator but this time with the quick and easy to install 'DPS' modulating function conversion kit. The J3C DPS modulating actuator can be controlled by either a 4-20mA or 0-10V control signal and provides feedback as standard.

The LED light remains constantly lit if the actuator is able to respond to remote commands - if it can't, it flashes. The sequence of the flashes indicates what the reason may be for it being unable to respond.

**J3C-L140 Electric Actuator Specifications**

Voltage range - automatic sensing	24V AC (1ph) or DC
Digital Positioning System pre-installed	4-20mA or 0-10V I/O
Operating time (0-90° no load)	33 seconds
Maximum break torque	170 Nm (1504 lb.ins)
Maximum operating torque (run/ reseat)	140 Nm (1239 lb.ins)
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	-20° to +70°C (-4 to +158°F)
Electrical connecting plugs	DIN 43650/ ISO4400 & C192
Weight	5.2kg

**J3C-L140 Consumption**

24V AC	At maximum torque	2.29A (for power supply sizing x 2.5)
24V DC	At maximum torque	1.89A (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.

**How this J3C electric 1/4 turn modulating electric valve actuator 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 J3C DPS from J+J is programmed to virtually eliminate hunting and once the desired input position is reached, it stops.



**Main features of the J3C electric actuator**

IP67 Weatherproof, UV protected, corrosion resistant Polyamide housing.

IP67 allows the J3C electric actuator to be submerged, the international standard IEC60529 states: *Test duration is 30 minutes. Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion). The lowest point of enclosures with a height less than 850 mm is located 1000 mm below the surface of the water, the highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water.*  
The J3C is therefore fully weatherproof.

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

The LED light provides a continuous highly visible indication of the J3C electric actuator's operational status. If all is well, the LED is solidly lit. If it is blinking there is a problem and the J3C will not respond to remote commands - the sequence gives an indication of the likely cause. The 2 most common are:

-  = Torque limiter has engaged (valve jammed?)
-  = Actuator is in 'manual' mode

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

Over-torque protection is electronic, the J3C constantly measures the current being drawn and compares it with pre-set parameters, if the current draw exceeds the parameter, the power is cut preventing mechanical damage to the actuator. An internal thermostatic heater, energised from the external power supplied to the power DIN connector, ensures the J3C's internal temperature remains above that at which condensation could form.

Multi-voltage capable, automatically sensed

The J3C-L140 valve actuator automatically senses the external power being applied and can accept any external voltage of 24V AC or DC

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

J3C-L140 mounting options are ISO5211 F07 or F10 with a 22mm female star drive. Electrical connections are made using external DIN plugs supplied with the J3C actuator eliminating the need to remove the actuators cover to connect.

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

Uniquely, the J3C electric actuator can have it's standard on-off functionality changed by the installing of very user friendly plug and play function conversion kits. See the following page for more details

Manufactured in the EU by J+J

The J3C electric valve actuators are designed and manufactured by J+J in Spain. J+J have been designing and manufacturing electric actuators for over 25 years and the J+J valve actuators are sold in more than 30 countries.

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**J3C Series Smart Electric Actuator**

**Electrical Wiring Connections**

**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.

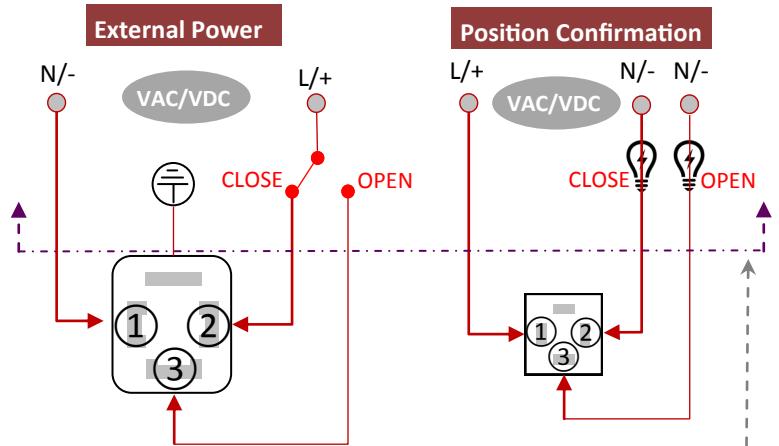
**NOTE ON POWER SUPPLIES**



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.

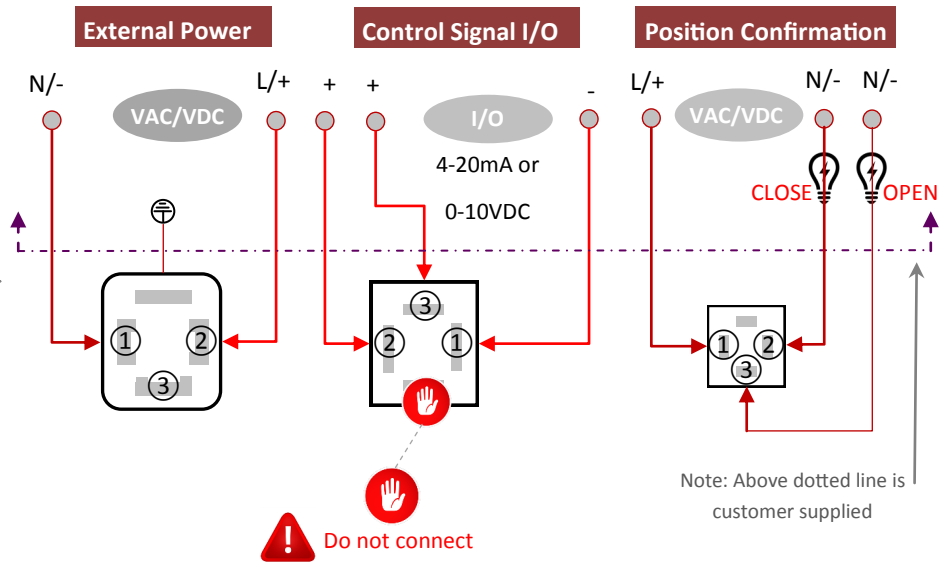
In J+J electric actuators all electrical connections are made externally using the external DIN plugs supplied with the actuator. There is no need to remove the valve actuator's cover to connect electrically. There are no terminals internally to connect to.

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



Note: Above line above is customer supplied

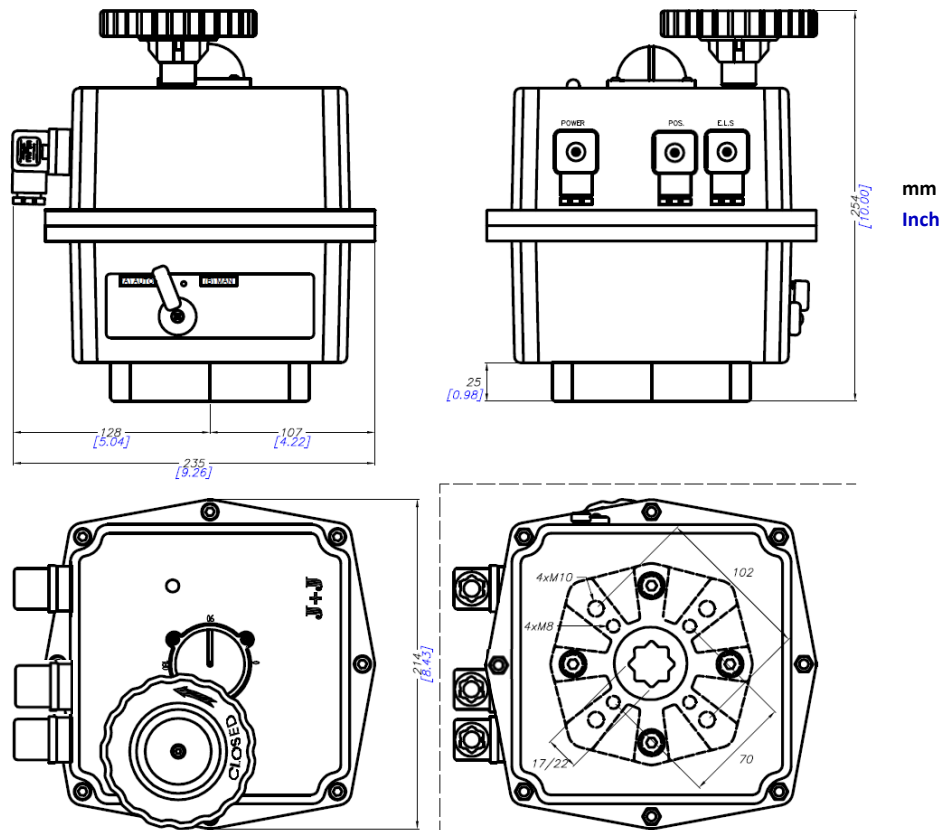
**J3C MODULATING WIRING**



Note: Above dotted line is customer supplied

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**J3C-L140 DPS Dimer**



**J3C Materials of construction:**

Housing	Anti-corrosive Polyamide
Fasteners	Stainless steel
Gears	Polyamide (speed reducing) & steel
Shaft	Stainless steel
Output drive	Zamac
Position indicator	Clear Polyamide

**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.

Fitting both BSR & DPS plug and plug function conversion kits into the J3C creates failsafe modulating electric actuator.



**DPS & BSR** kits combined create a **J3C FAILSAFE MODULATING ELECTRIC ACTUATOR**



**J3C MODULATINGACTUATOR WITH DPS PLUG & PLAY KIT 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 from J+J 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 140/300 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	0.1kg