



Read these instructions before connecting the actuator. Damage caused by non compliance of these instructions is not covered by our warranty.

**J4C Electric actuators** operate with the use of live electricity. It is recommended that only qualified electrical engineers be allowed to connect or adjust these actuators.

## VOLTAGE

- All our actuators model **S20** to **S300** are ready to work from **24-240 VDC/VAC**.
- All our actuators model **B20** to **B300** are ready to work at **12 VDC/VAC**.

## ELECTRICAL CONNECTORS

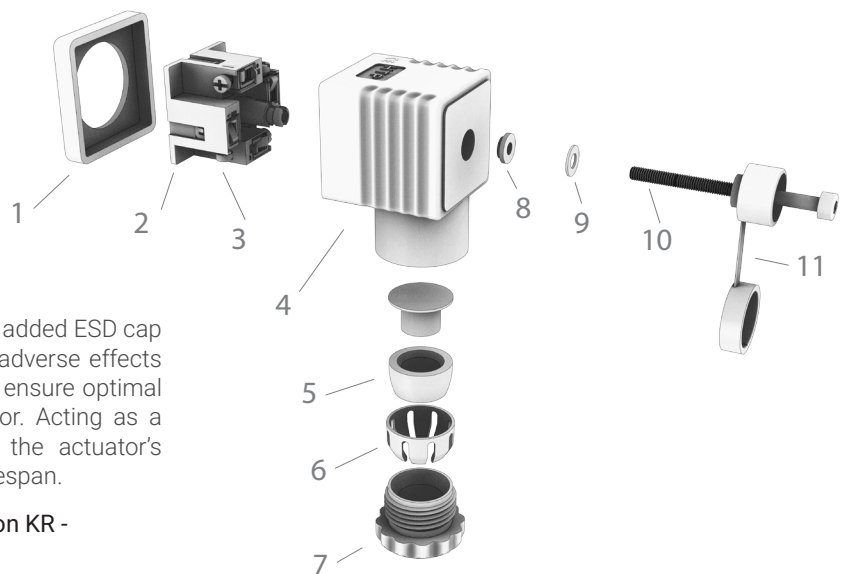
**Warning:** Before connecting ensure that the voltage to be applied to the actuator is within the range shown on the identification label. The supplied electrical connectors, used to connect to the actuator are DIN plugs. Ensure the diameter of cable to be used conforms to the maximum and minimum requirements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

Connector	Small Black		Big Grey or Black	
	EN175301-803 Form CI		EN175301-803 Form A	
Model	min. Ø	max. Ø	min. Ø	max. Ø
J4C 20 to 300	5 mm	6 mm	8 mm	10,5 mm

**Warning:** Ensure that the square rubber seal is in place when fixing each DIN plug to the actuator, also when installing the cable be sure that sealing 5 and 7 are well installed. 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 tight the screw (10) when assembling (Max. 0.5Nm).

1. Gasket
2. Terminal strip
3. Cable fixing screws
4. Housing
5. Washer
6. Grommet

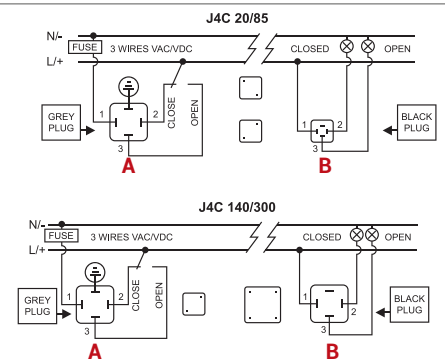
7. Gland - nut
8. Gasket
9. Washer
10. Fixing screw
11. ESD cap



**ELECTROSTATIC DISCHARGE IMMUNITY (ESD):** The added ESD cap (11) serves as component aimed at preventing any adverse effects of electrostatic discharges. Its primary function is to ensure optimal performance and extended durability for the actuator. Acting as a safeguard, this additional component strengthens the actuator's immunity to ESD, significantly enhancing its overall lifespan.

The improvement allowed us to obtain the certification KR - Korean Register.

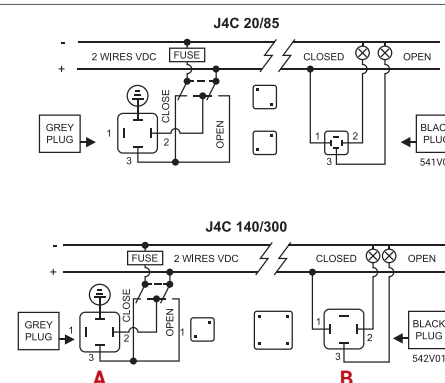
**Electrical connection: All models.**



**ON - OFF VAC**

**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 ⊕

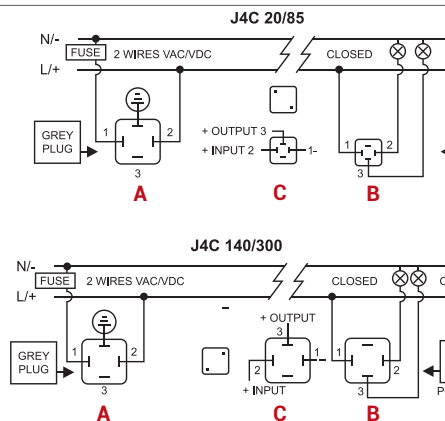
**B** = Volt free contact plug (Black plug)  
 Common PIN 1 + PIN 2 = Close confirmation of position.  
 Common PIN 1 + PIN 3 = Close confirmation of position.



**ON - OFF VDC**

**A** = Power supply plug (Grey plug)  
 Negative PIN 3 + Positive PIN 2= Close actuator.  
 Negative PIN 2 + Positive 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 = Open confirmation of position.



**POSITIONER VAC VDC**

**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 = Open 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**

**⚠ Important!** Earth connector on DPS plug should not be connected (risk of self adjustment)

**LOCAL VISUAL POSITION INDICATOR**

All J4C actuators are supplied with a local visual position indicator comprises a black base with a yellow insert that shows, both the position and direction of rotation (Fig.6).



The open and close positions have the following logos molded into the top cover OPEN 90 and CLOSE 0.  
 Opening =  Closing = 



Fig. 6 0 = CLOSE



Fig. 6 90 = OPEN

## EMERGENCY MANUAL OVERRIDE FACILITY

The **J4C** has 2 operating modes, automatic and manual, the required mode is selected by using a lever on the lower half of the actuator housing (Fig 7).

The 2 positions are marked:

- AUTO = Automatic operation
- MAN = Manual operation



**Warning:** Do not remove the selector lever securing screw, as this will allow its internal mechanism to become loose and will cause irreparable damage to the actuator's gearbox. Removing this screw will invalidate the warranty.

### When "AUTO" position is selected:

The hand wheel, of models 20,35,55, and 85 rotates automatically, it is very important not to block it, otherwise the actuator could suffer unreparable damages.

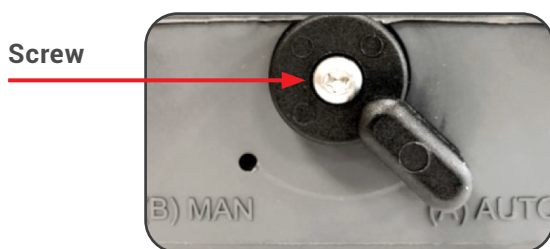


Fig. 7 J4C 20 TO 85

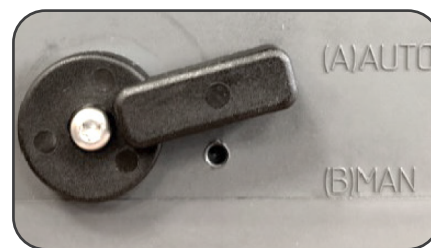


Fig. 7 J4C 140 TO 300

### When "MAN" function is selected:

1. The electronic system cuts the power to the motor after a few seconds.
2. The mechanical connection between the motor and the output shaft is disconnected.
3. The desired position can be achieved by using the manual override lever or the hand wheel.
4. There are two ways to reactive the motor after being isolated whilst in "MAN" position:
  - a) With the actuator in "MAN" function, turn the hand wheel to the open or close positions. The motor will start working. 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 could operate automatically again.

## 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:



**ACTUATOR ON-OFF OPERATIONAL STATUS**

**LED STATUS**

Actuator without power being supplied	
Open Actuator	
Close Actuator	
Stop Actuator. PIN1 (N) or (-) + PIN2+3 (F) or (+) connection (Standard mode only)	
Actuator opening	
Actuator closing	
Actuator limiter function on, open direction	
Actuator limiter function on, close direction	
Motor off, after fixed time	
Actuator in middle position. For a 3 position actuator only	
Actuator without power, working with the NO BSR system. Max.3 min.	
Actuator without power and working with the NC BSR system. Max.3 min.	

**ACTUATOR WITH POSITIONER OPERATIONAL STATUS**

**LED STATUS**

Actuator without power supply	
Actuator in the correct position	
Actuator opening	
Actuator closing	
Actuator with positioner in self-adjustmen mode	
Actuator with limiter function on, open direction	
Actuator with limiter function on, close direction	
Motor off, after fixed time	
Higher instrumentation signal. Blocked actuator need RESET	
No instrumentation signal detected or with 0mA when 0-20mA or 0V when 0-10V.	
Actuator without power supply. Working with BSR NO. For 3 min Max.	
Actuator without power supply. Working with BSR NO. For 3 min Max.	

### BSR - NC/NO SET-UP

In case of an electrical failure, the actuator which is fitted with the BSR plug-in failsafe system, will go to the pre-determined position: **NO (Normally Open)** or **NC (Normally Close)**.

Set up by using the SELDIR Jumper (Fig.9): **NC: jumper on / NO: jumper off.**



Fig. 9

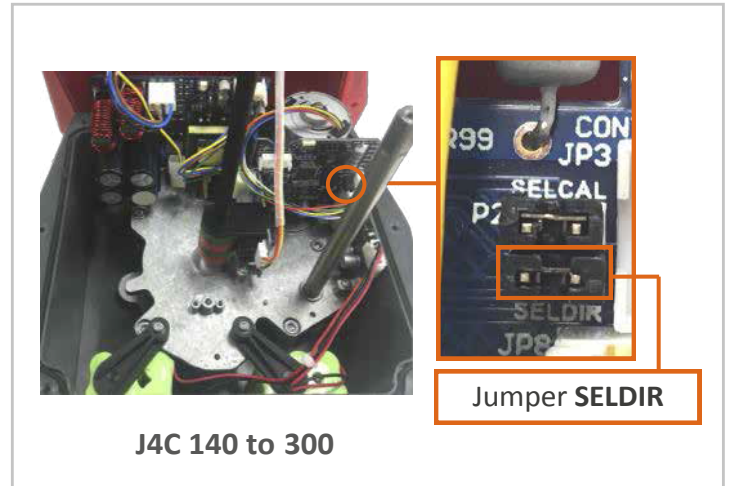


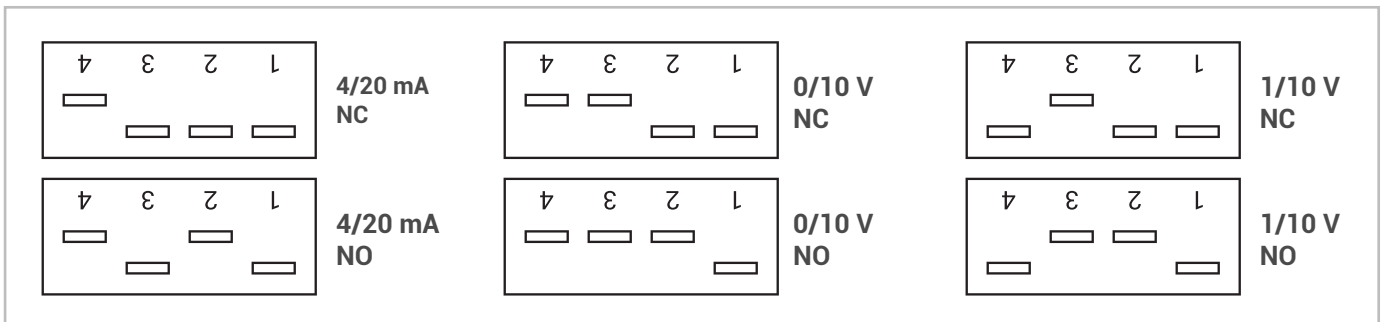
Fig. 9

### DPS

Use the configuration you need by moving the DIPs:  
Place the DIPs (Fig. 10) according to the signal you need to work with.



Fig.10



### External adjustment

**C.** plug - Connect a cable between PIN 1 (on the right side) and PIN Earth (on the bottom) (Fig. 11).

**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 (CARTER).

C. plug - Disconnect the cable between PIN 1 (on the left side) and PIN Earth (on the bottom).  
The actuator will make a complete maneuver.

The actuator is ready to connect the (4/20mA or 0/10V) signal to the C plug

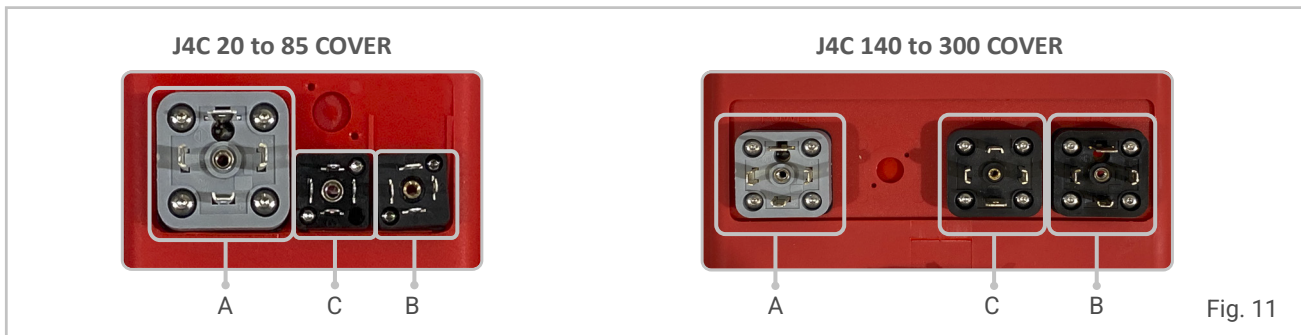


Fig. 11

## KITS BSR / KIT DPS

To make the KITS assembly, follow the steps on the instruction manual enclosed inside each kit.

## HEATER

ATC is in charge of the automatic control of inner temperature. 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 (Ex:1/4 turn valve)

It is vital that the mounting kit used to connect the electric actuator to the component (ex: valve) is correctly manufactured and assembled. The mounting bracket's holes must be drilled to ensure that the centerline of the actuator's drive is perfectly in line with the component's drive-centerline, and that the drive coupling/ adaptor rotates around this centerline. 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.

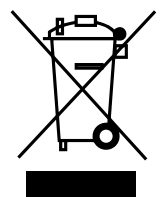
Failure to comply with these instructions will cause uneven wear and dramatically reduce the working life of the valve and actuator.

In case of a power supply failure, the actuator would stop in the position it were at this moment. When the power supply is reestablished, the actuator would keep on working following the prior direction.

### VERY IMPORTANT:

Check that any object are blocking the valve (damper, etc.). Connect the actuator, following the connection diagram on 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.

If the WEEE (Waste Electrical and Electronic Equipment) contains batteries, they must be removed and deposited separately for proper management before being deposited at the collection facilities. Batteries may contain hazardous substances that can harm the environment and human health if mishandled or disposed of improperly. Therefore, it is important to deposit them in specific containers for recycling and proper treatment. In some countries, there are selective collection programs for used batteries in supermarkets, electronic stores, or other establishments..



Num: RII-AEE: 8760