

01 ACTUATOR PART LIST

MODELS: S20, S35, S55, S85, B20, B35, B55, B85, H20, H35, H55 & H85



02 J4C SERIES

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 TO BE CONNECTED

All our actuators model S20 to S300 are ready to work from 24-240VAC / 24-135VDC.
All our actuators model B20 to B300 are ready to work at 12 VDC/VAC ONLY.
All our actuators model H20 to H300 are ready to work from 85-240VAC/VDC.

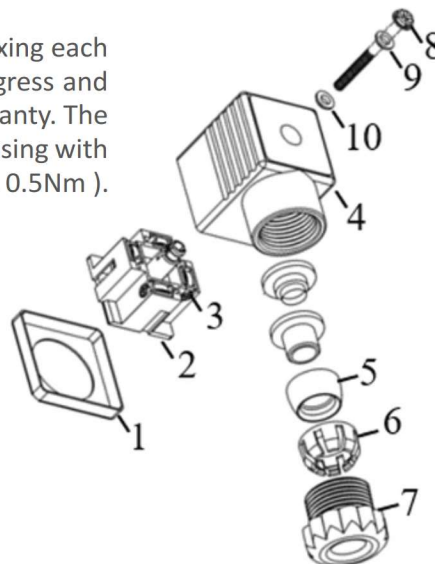
ELECTRICAL CONNECTORS

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 (Fig.1).

CONNECTOR	SMALL BLACK		BIG GREY or BLACK	
	DIN43650/C		EN175301-803 FORM A	
MODEL	min Ø	máx. Ø	min Ø	máx. Ø
J4C 20 a 300	5mm	6mm	8mm	10,5mm

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 tight the screw (8) when assembling (Max. 0.5Nm).

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



ID ACTUATOR LABEL

1	MOD: S20	SERIE: J4C	10												
2	VOLTAGE: 24-240 AC (50/60HZ) / 24-135 DC (PATENT PENDING)														
3	WORKING TIME: 9 SEC / 90°	WORKING ANGLE: 0°-90°	11												
4	TEMPERATURE: -20°C + 70° C	DUTY: 75%	12												
5	F03/04/05	IP67	13												
6	14 MAX. TORQUE: 25 Nm	CE	14												
8	SERIAL N°: 000000000000	QUALITY CONTROL	15												
9	[Barcode]	QR CODE	16												
17	<table border="1"> <tr> <td>DPS OPTION</td> <td>BSR OPTION</td> <td>POTENTIOMETER OPTION</td> </tr> <tr> <td>4-20mA ☐ 0-20mA ☐ NC ☐ NO ☐</td> <td>BSR NC ☐</td> <td>1K ☐ 10K ☐</td> </tr> <tr> <td>0-10V ☐ 1-10V ☐ STAYS PUT ☐</td> <td>BSR NO ☐</td> <td>5K ☐</td> </tr> <tr> <td colspan="3">OUT different of IN:</td> </tr> </table>			DPS OPTION	BSR OPTION	POTENTIOMETER OPTION	4-20mA ☐ 0-20mA ☐ NC ☐ NO ☐	BSR NC ☐	1K ☐ 10K ☐	0-10V ☐ 1-10V ☐ STAYS PUT ☐	BSR NO ☐	5K ☐	OUT different of IN:		
DPS OPTION	BSR OPTION	POTENTIOMETER OPTION													
4-20mA ☐ 0-20mA ☐ NC ☐ NO ☐	BSR NC ☐	1K ☐ 10K ☐													
0-10V ☐ 1-10V ☐ STAYS PUT ☐	BSR NO ☐	5K ☐													
OUT different of IN:															
			19												
			18												

- | | |
|---|---|
| 1 - Actuator Model. | 10 - Actuator Series. |
| 2 - Voltage to be connected. | 11 - Working angle. |
| 3 - Time the actuator needs to run to the indicated degrees. | 12 - Duty: 75%. Example: S20 Model - Maneuver time = 10sec. Time between maneuvers = 3.3 sec. |
| 4 - Actuator ready to bear between -20°C & + 70°C. | 13 - Actuator with the IP67 protection. |
| 5 - Plate to fix the valve to the actuator, following ISO 5211. | 14 - Actuator with the CE certificate. |
| 6 - Female output drive size, following DIN3337. | 15 - Quality Control Conformity . |
| 7 - Maximum torque break. | 16 - QR code for manufacturing. |
| 8 - Actuator serial number. | 17 - DPS options. |
| 9 - Bar code of the serial number. | 18 - BSR options. |
| | 19 - POTENTIOMETER options. |

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

LOCAL VISUAL POSITION INDICATOR



TWO YELLOW INDICATORS:
For 3 way ball valve, L port.



THREE YELLOW INDICATORS:
For 3 way ball valve, T port.

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

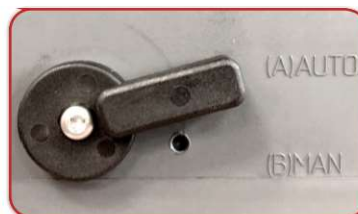


Fig. 7 J4C 140 TO 300

J4C 20 TO 85

J4C 140 TO 300



Hand Wheel
Position Indicator

Automatic - Manual



When “MAN” function is selected:

- 1 - The electronic system cuts the power to the motor after a few minutes.
- 2 - The mechanical connection between the motor and the output shaft is disconnected.
- 3 - The desired position can be achieved by using the 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 (open or close). 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 could operate automatically again.

ADJUSTMENT OF THE CAMS

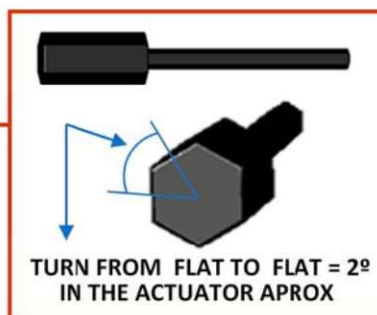


!WARNING! RISK OF ELECTRIC SHOCK INSIDE THE ACTUATOR. AUTHORIZED PERSONNEL ONLY

Under normal conditions, the actuator may only be operated with the closed cover. If work is performed on the actuator with the removed cover, the supply and control voltage must first be disconnected. Adjustments, which need to be done in the energized state, should be carried out with special insulated tools.

How to do it: Tolling: One special plastic wrench (is supplied together with the actuator). The wrench is tied together with the motor by using one plastic clamp.

To move the cams, introduce the special plastic wrench in the hole of the cam and turn it round (see both options on the enclosed pictures).



POSITION OF THE CAMS



Cams 1 and 3



Cams 2 and 4

Cam 1
cam 2
cam 3

- 1) Cam 1 is to adjust the close position.
- 2) Cam 2 is to adjust the open position.
- 3) Cam 3 is to adjust the close position confirmation.
- 4) Cam 4 is to adjust the open position confirmation.

To ensure that the position confirmation works, adjust the confirmation cams (3 & 4) 3° ($\pm 1^{\circ}$) before the motor stop.
The standard actuators are always adjusted at 0° (close) and 90° (open).



1) To adjust the close position at less than 0°.

Turn the wrench to clockwise direction - cams 1 and 3.

The cam 3 (confirmation) should press the lever of the micro switch a bit earlier than the cam 1.



2) To adjust the close position at more than 0°.

Turn the wrench to anti-clockwise direction - cams 1 and 3.

The cam 3 (confirmation) should press the lever of the micro switch a bit earlier than the cam 1.



3) To adjust the open position to more than 90°.

Turn the wrench to anti-clockwise direction - cams 2 and 4.

The cam 4 (confirmation) should press the lever of the micro switch a bit earlier than the cam 2.



4) To adjust the open position to less than 90°.

Turn the wrench to clockwise direction - cams 2 and 4.

The cam 4 (confirmation) must press the lever of the micro switch a bit earlier than the cam 2.

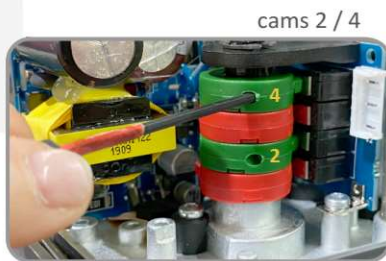


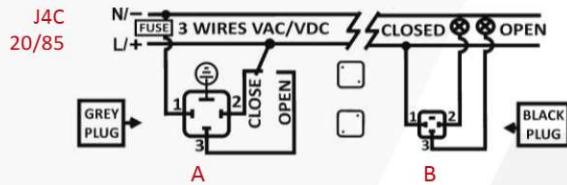
TABLE OF CONSUMPTIONS - ON-OFF ACTUATOR

J4C 20 Consumption		Unload		Max. Operational Torque 20Nm		Max. Torque Break 25Nm	
Voltage	Model	A	W	A	W	A	W
12 VDC	B20	0,75	9,06	1,80	21,60	1,95	23,36
24 VDC	S20	0,45	10,77	0,90	21,49	0,97	23,39
48 VDC	S20	0,21	9,93	0,42	20,38	0,46	22,07
110 VDC	S20 / H20	0,07	8,00	0,13	14,30	0,14	15,70
12 VAC	B20	1,04	12,51	1,85	22,18	2,28	27,32
24 VAC	S20	0,59	14,20	1,12	26,77	1,28	30,62
48 VAC	S20	0,34	16,37	0,69	33,16	0,75	36,22
110 VAC	S20 / H20	0,14	15,73	0,27	29,52	0,30	32,67
240 VAC	S20 / H20	0,10	23,76	0,15	36,43	0,16	39,07

J4C 35 Consumption		Unload		Max. Operational Torque 35Nm		Max. Torque Break 38Nm	
Voltage	Model	A	W	A	W	A	W
12 VDC	B35	0,75	9,06	2,38	28,62	2,62	31,50
24 VDC	S35	0,45	10,77	1,28	30,78	1,37	32,79
48 VDC	S35	0,21	9,93	0,56	26,72	0,59	28,20
110 VDC	S35 / H35	0,07	7,70	0,17	18,90	0,18	20,10
12 VAC	B35	1,04	12,51	2,75	33,00	3,19	38,28
24 VAC	S35	0,59	14,20	1,58	37,80	1,67	40,13
48 VAC	S35	0,34	16,37	0,92	44,04	0,99	47,31
110 VAC	S35 / H35	0,14	15,73	0,36	39,45	0,38	41,87
240 VAC	S35 / H35	0,10	23,76	0,19	45,41	0,20	47,52

J4C 55 Consumption		Unload		Max. Operational Torque 55Nm		Max. Torque Break 60Nm	
Voltage	Model	A	W	A	W	A	W
12 VDC	B55	0,70	8,45	3,04	36,43	3,42	41,05
24 VDC	S55	0,42	10,19	1,55	37,17	1,63	39,02
48 VDC	S55	0,20	9,72	0,61	29,25	0,67	32,31
110 VDC	S55 / H55	0,07	7,50	0,19	20,80	0,21	23,20
12 VAC	B55	0,94	11,30	3,43	41,18	3,78	45,41
24 VAC	S55	0,58	13,89	1,87	44,88	1,98	47,52
48 VAC	S55	0,33	15,73	1,10	52,80	1,21	58,29
110 VAC	S55 / H55	0,14	15,73	0,40	43,80	0,43	46,95
240 VAC	S55 / H55	0,09	22,70	0,20	47,52	0,21	50,16

EXTERNAL CONNECTING DIAGRAM (STANDARD)



STANDARD MODE · 3 WIRES ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Close

PIN 1 = Neutral + PIN 3 = Phase = Open

A: VDC 3 WIRES (Grey plug)

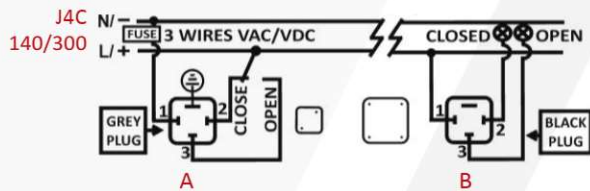
PIN 1 = (-) Negative + PIN 2 = (+) Positive = Close

PIN 1 = (-) Negative + PIN 3 = (+) Positive = Open

B = Volt free contact, plug

PIN 1 / PIN 2 = Close

PIN 1 / PIN 3 = Open



STANDARD MODE · 2 WIRES ON - OFF

A = Power supply plug

A: VDC 2 WIRES (Grey plug)

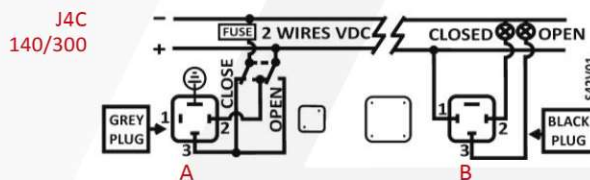
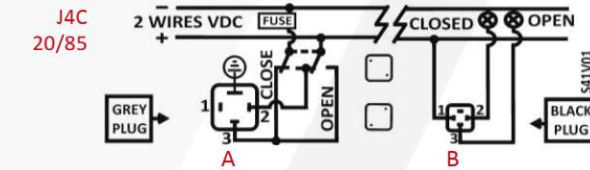
PIN 2 = (+) Positive + PIN 3 = (-) Negative = Close

PIN 2 = (-) Negative + PIN 3 = (+) Positive = Open

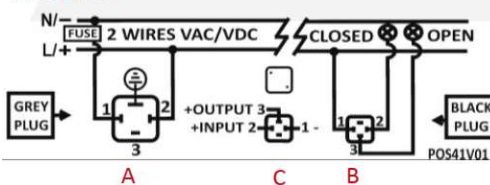
B = Volt free contact plug

PIN 1 / PIN 2 = Close

PIN 1 / PIN 3 = Open



J4C 20/85



POSITIONER

A = Power supply plug

A: VAC 2 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Power supply plug

A: VDC 2 WIRES (Grey plug)

PIN1=(-) Negative + PIN 2=(+) Positive = Power supply plug

B = Volt free contact plug

PIN 1 / PIN 2 = Closed

PIN 1 / PIN 3 = Open

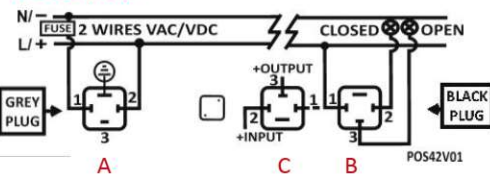
C = Instrumentation Signal

C: Input signal : 4/20mA or 0/10V

PIN 1 = (-) Negative + PIN 2 = (+) Positive = Input signal

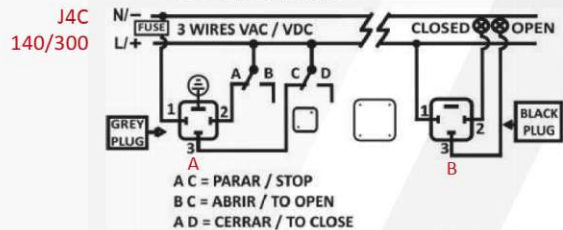
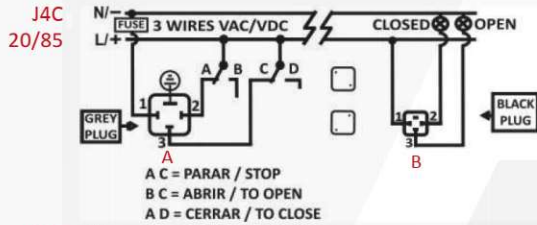
PIN 1 = (-) Negative + PIN 3 = (+) Positive = Output signal

J4C 140/300



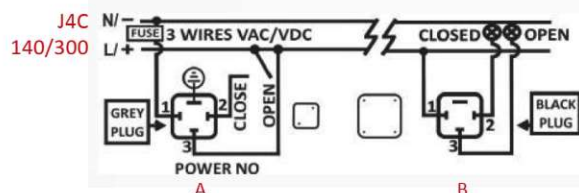
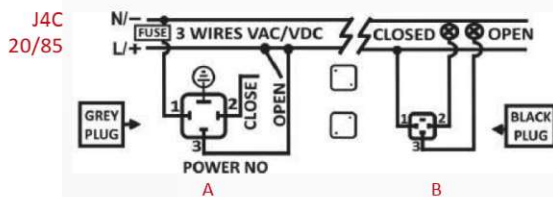
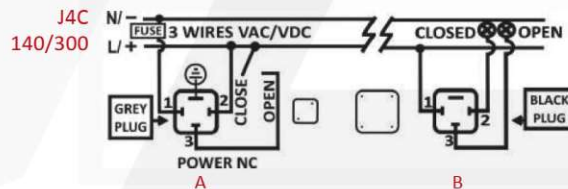
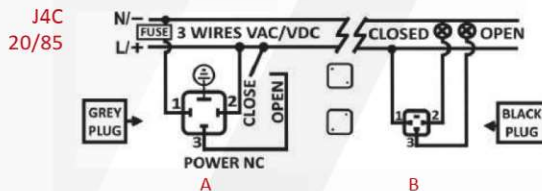
INSTRUMENTATION SIGNAL
NO VOLTAGE

EXTERNAL CONNECTING DIAGRAM (OPTIONAL)



Other options for external connection diagrams:

These options can be configured by the manufacturer or can be configured by the customer, using our J4C interface kit.



STANDARD MODE · 3 WIRES ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Close

PIN 1 = Neutral + PIN 3 = Phase = Open

PIN 1 = Neutral + PIN 2+3 = Phase = Stop

A: VDC 3 WIRES (Grey plug)

PIN 1 = (-) Negative + PIN 2 = (+) Positive = Close

PIN 1 = (-) Negative + PIN 3 = (+) Positive = Open

PIN 1 = (-) Negative + PIN 2+3 = (+) Positive = Stop

B = Volt free contact, plug

PIN 1 / PIN 2 = Close

PIN 1 / PIN 3 = Open

2 MODE ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Close

PIN 1 = Neutral + PIN 2+3 = Phase = Open

A: VDC 3 WIRES (Grey plug)

PIN 1 = (-) Negative + PIN 2 = (+) Positive = Close

PIN 1 = (-) Negative + PIN 2+3 = (+) Positive = Open

B = Volt free contact plug

PIN 1 / PIN 2 = Close

PIN 1 / PIN 3 = Open

3 MODE ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2+3 = Phase = Close

PIN 1 = Neutral + PIN 3 = Phase = Open

A: VDC 3 WIRES (Grey plug)

PIN 1 = (-) Negative + PIN 2+3 = (+) Positive = Close

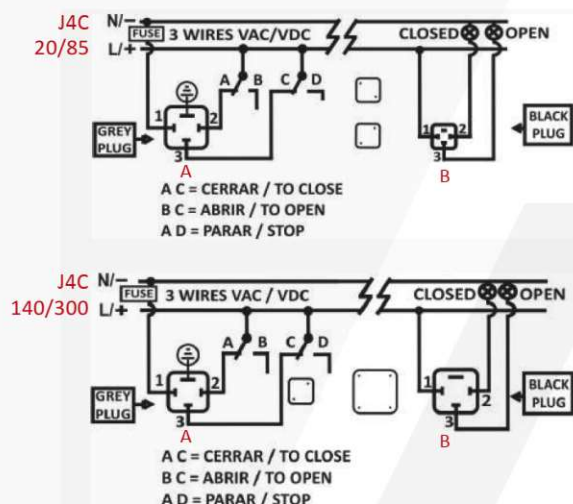
PIN 1 = (-) Negative + PIN 3 = (+) Positive = Open

B = Volt free contact plug

PIN 1 / PIN 2 = Closed

PIN 1 / PIN 3 = Open

EXTERNAL CONNECTING DIAGRAM (OPTIONAL)



4 MODE ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Stop

PIN 1 = Neutral + PIN 3 = Phase = Open

PIN 1 = Neutral + PIN 2+3 = Phase = Close

A: VDC 3 WIRES (Grey plug)

PIN 1 = (-) Negative + PIN 2 = (+) Positive = Stop

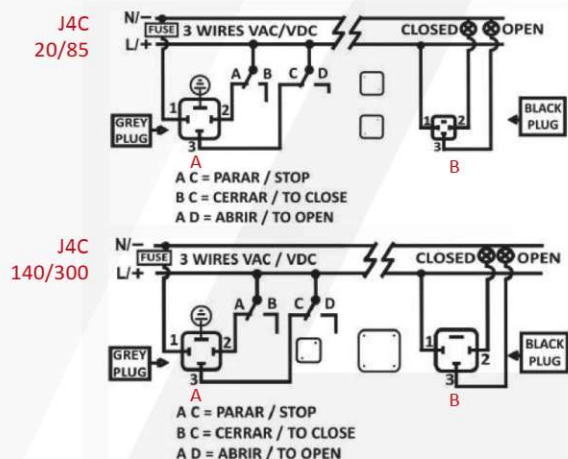
PIN 1 = (-) Negative + PIN 3 = (+) Positive = Open

PIN 1 = (-) Negative + PIN 2+3 = (+) Positive = Close

B = Volt free contact, plug

PIN 1 / PIN 2 = Close

PIN 1 / PIN 3 = Open



6 MODE ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Open

PIN 1 = Neutral + PIN 3 = Phase = Close

PIN 1 = Neutral + PIN 2+3 = Phase = Stop

A: VDC 3 WIRES (Grey plug)

PIN 1 = (-) Negative + PIN 2 = (+) Positive = Open

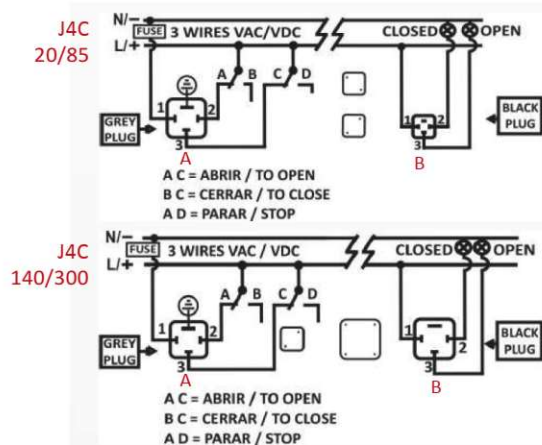
PIN 1 = (-) Negative + PIN 3 = (+) Positive = Close

PIN 1 = (-) Negative + PIN 2+3 = (+) Positive = Stop

B = Volt free contact plug

PIN 1 / PIN 2 = Close

PIN 1 / PIN 3 = Open



8 MODE ON - OFF

A = Power supply plug

A: VAC 3 WIRES (Grey plug)

PIN 1 = Neutral + PIN 2 = Phase = Stop

PIN 1 = Neutral + PIN 2+3 = Phase = Open

PIN 1 = Neutral + PIN 3 = Phase = Close

A: VDC 3 WIRES (Grey plug)

PIN 1 = (-) Negative + PIN 2 = (+) Positive = Stop

PIN 1 = (-) Negative + PIN 2+3 = (+) Positive = Open

PIN 1 = (-) Negative + PIN 3 = (+) Positive = Close

B = Volt free contact plug

PIN 1 / PIN 2 = Closed

PIN 1 / PIN 3 = Open

ACTUATOR OPERATIONAL STATUS

MODELS: 20, 35, 55, 85, 140 & 300

The **LED Light** provides visual communication between the actuator and the user.
The current operational **status** is shown by **different LED colors**.



ON-OFF ACTUATOR

ACTUATOR OPERATIONAL STATUS

Without power supply	16 white LEDs
In open position	16 green LEDs
In close position	16 red LEDs
Opening	16 yellow LEDs
Closing	16 red LEDs
Torque limiter function on, moving from close to open	16 green LEDs
Torque limiter function on, moving from open to close	16 red LEDs
Actuator in MANUAL mode (Exceeded time)	16 yellow LEDs
The actuator has stopped (no close/no open position)	16 purple LEDs
In middle position	16 yellow LEDs

ACTUATOR WITH BSR

ACTUATOR OPERATIONAL STATUS

Without power supply	
In open position	
In close position	
Opening	
Closing	
Torque limiter function on, moving from close to open	
Torque limiter function on, moving from open to close	
Actuator in MANUAL mode (Exceeded time)	
The actuator has stopped (no close/no open position)	
In middle position	
Actuator without power, working with the BSR NO system. Max.3 min., (led off)	
Actuator without power, working with the BSR NC system. Max.3 min., (led off)	
Battery protection. Danger, the battery needs recharging. BSR blocked	

ACTUATOR WITH DPS

ACTUATOR OPERATIONAL STATUS

Without power supplied	
Motor stop	
Opening	
Closing	
Self adjusting configuration	
Torque limiter function on, moving from close to open	
Torque limiter function on, moving from open to close	
Instrum. Signal overpassed. Blocked actuator. Need a re-set.	
Actuator in MANUAL mode (exceeded time)	
No Instrum. Signal pick-up. 4-20mA and 1-10V only.	

03 Datasheet - J4C 20

GENERAL CHARACTERISTICS

Housing: Anticorrosive polyamide (lid & body)
Main external shaft: Anticorrosive polyamide
External screws: stainless steel
Gears: Steel and polyamide
Visual position indicator: Polyamide

Dome: Polycarbonate
Adjustable internal cams: Polyamide
Electric motor: 24VDC Brushless motor
Insulation: Class B
(IEC 60034) Service: S4



Model	S20	B20	H20
Voltage VDC/VAC 50/60Hz-0/+5%	24-240 VAC / 24-135 VDC	12 VDC/VAC ONLY	85- 240 VAC/VDC

Model	S20/B20/H20
Operation time unload	9 Sec./90°
Maximum torque break	25 Nm / 221 lb/in
Maximum operational torque	20 Nm / 177 lb/in
Duty rating	75 %
Max. Working angle	0° to 270°
Limit switch	4 SPST NO micro (2 motor stop and 2 confirmations)
Automatic heater	3,5 W
Big Plug	EN175301-803 FORM A
Small Plug	DIN43650/C
Protection IEC 60529 rating	IP67
Temperature	-20°C +70°C / -4°F +158°F
ISO 5211 Plate	Standard: F03/F04/F05 Optional: F07 *17mm
DIN 3337 Female output drive	Standard: *14 Optional: *9, *11mm
Weight	1,8 Kg

Options

J4C 20/85 KIT DPS digital positioner:	4-20mA, 0-20mA, 0-10V or 1-10V
J4C 20/85 KIT BSR emergency fail safe kit system by battery	NC- NO
Potentiometer	1K, 5K or 10K
3 position actuator	0°-45°-90° or 0°-90°-180°

J4C 20 SIZES

