

J3CS Smart Electric Actuator Function: MODULATING CONTROL , STAYS PUT ON POWER FAILURE

Note: J3 Actuator
(superseded by J3CS)



Type: E3015GS (GF546)

Electric actuator fitted via EasyFit-G kit

+GF+

DN15-50 1/2" - 2"

Main J3CS Smart electric actuator features:

- LED light for continual visual actuator status feedback.
- Fully weatherproof smart industrial actuator.
- Multi-voltage 24-240V capable actuator.
- All external electrical connections, no need to remove cover .
- Selectable manual override facility.
- Thermostatic anti-condensation heater.
- Electronic torque limiter.
- End of travel switches for remote open/ closed indication.
- CE marked.
- EU manufactured by J+J.

Specifications:	
Actuator housing	UV Protected Polyamide
Supply voltage range	24-240V AC or DC
IP Rating	IP67
Actuator temp limits	-20 to +70°C
Assembly temp limits	E3015GS +60°C
Valve body	uPVC
Valve ball	uPVC
Valve seats	PTFE with EPDM seals
Valve Pressure rating	16 bar at +20C
Valve temp limits	0 to +60°C
Size range	1/2" to 4"

Applications:

PVC is odourless and tasteless and is used in many applications such as potable water and many food processing. PVC has good chemical resistance and resists most solutions of acids, alkalis and salts, and solvents that can be diluted with water acids. It is not resistant to aromatic and chlorinated carbons.

Actuators sized on a maximum differential pressure of 10 bar wet service, operated at least once per day. If the intended duty is above this differential, or dry (eg: some solvents) call to check actuator sizing as a larger output actuator may be required.

Typical Kv Values

	1/2"	3/4"	1"	1 1/4"	1 1/2"
Kv	165	350	700	1000	1600
	2"	2 1/2"	3"	4"	
Kv	3100	500	7000	11000	

Ball valve information:

The GF546 is a true union ball valve particularly suited to industrial applications where high performance and reliability in service are primary considerations.

The result of over 40 years experience in manufacturing and undoubtedly one of the world's most specified ball valves, the GF546 ball valve offers quality, flexibility and reliability. It is particularly suited as an on-off ball valve but can be used in applications where an element of control is desired.

The double O ring sealed stem has a break point designed into it preventing catastrophic failure due to wear or over-torque.

Automation is made quick and easy when using the J+J manufactured 'EasyFit-G' mounting kit.

$Kv = m^3$ per hour with a 1 bar pressure drop across the valve
 CV = US gallons per hour with a 1psi pressure drop across the valve
 $Cv = Kv / 0.86$

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J3CS MODULATING ELECTRIC ACTUATOR

The J3CS Modulating is used where the position of the actuator is required to be set by a control input signal. Unlike an on-off electric actuator, a modulating actuator will rarely travel from open to closed in one movement, it may only be required to alter its position by a few degrees. This is achieved by installing our DPS (Digital Positioning System) - installed by J+J when ordered as a modulating electric actuator.

How this electric 1/4 turn valve works (Modulating):

Power permanently connected, movement of the J3CS actuator is then proportional to an input signal, typically 4-20mA or 0-10V. The DPS processor continually compares the physical position of the J3CS output shaft to the input signal, and if a difference exists, controls the motor to eliminate the difference. An output signal is provided as standard. The reaction from the J3CS actuator to a loss of control signal can be set as below, but it will stay 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

The DPS in the J3CS uses the latest magnetic position sensing technology which, when combined with digital processing, produces very accurate modulating control. This is a very Smart Red Box.

Options:

It is possible to change the J3CS actuator's function by installing user friendly plug and play function conversion kits. This will provide the following alternative function:

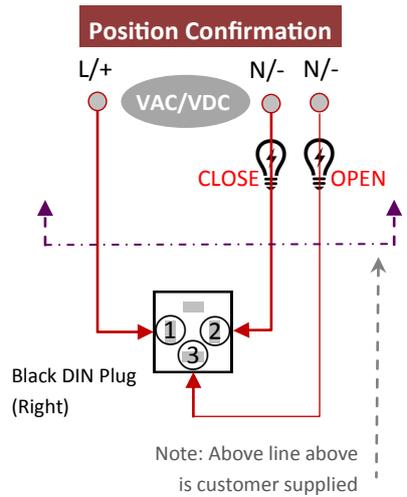
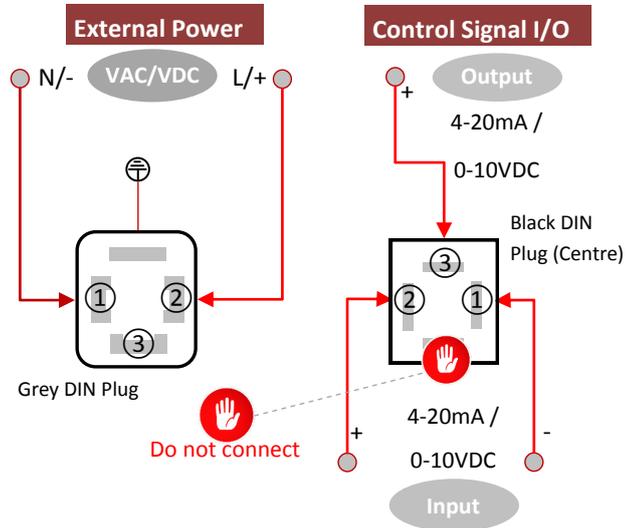
Failsafe Modulating J3CS Actuator

Adding the BSR (Battery 'Spring Return') plug and play function conversion kit to the J3CS modulating actuator, it becomes a J3CS failsafe modulating electric actuator.

The advantage this gives is that the actuator will fail to either the open or closed position, depending on how the DPS positioner is configured, in the event of an external power failure.

The BSR failsafe system comprises of an industrial rechargeable NiCad battery and a PCB containing a trickle charger and control circuitry. It can either be installed by J+J on original supply, or retro-fitted.

J3CS MODULATING 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.



BSR Failsafe plug & play kit can be added to create failsafe modulating function.

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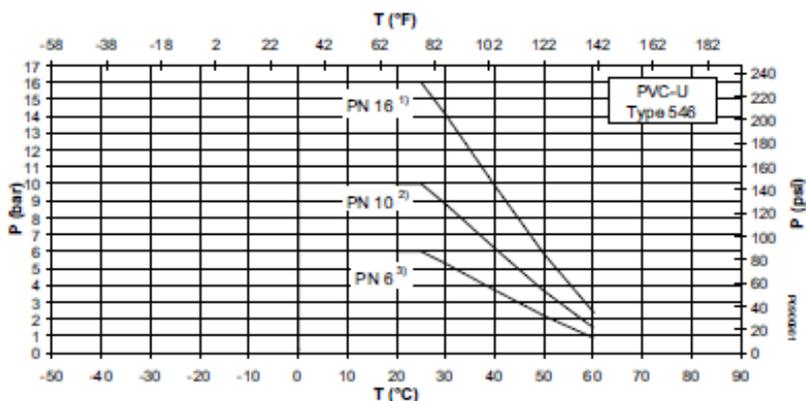
Design



1. Body	8. Backing seal
2. Union Bush	9. Body seal
3. Connection part	10. Union seal
4. Union nut	11. 2x Stem seals
5. Ball	12. Standard handle
6. Stem	13. Handle clip
7. Ball seal	

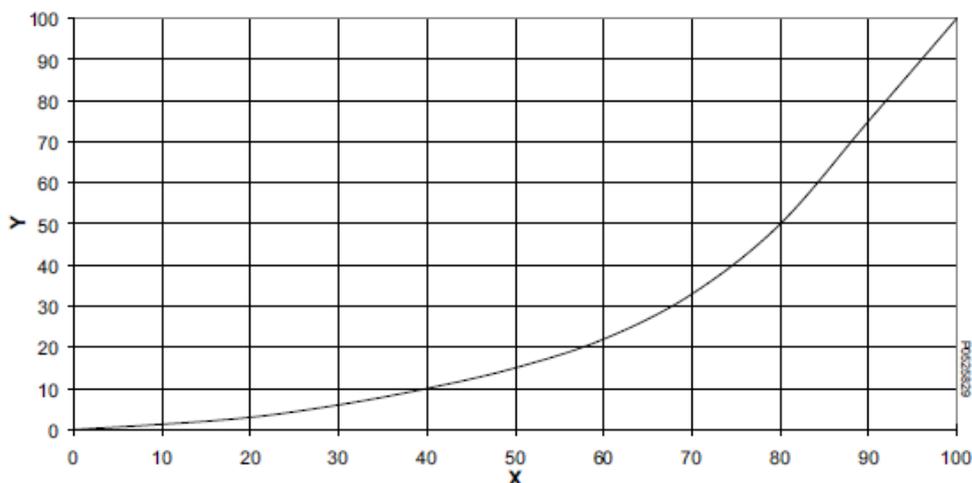
P / T-Diagrams

PVC-U



P: Permissible pressure in bar, psi, T: Temperature in °C, °F
 1) The central part of ball valve is designed for the nominal pressure PN 16
 2) Depending on the valve end, the nominal pressure is reduced to PN 10
 3) Depending on the valve end, the nominal pressure is reduced to PN 6

Flow-characteristics

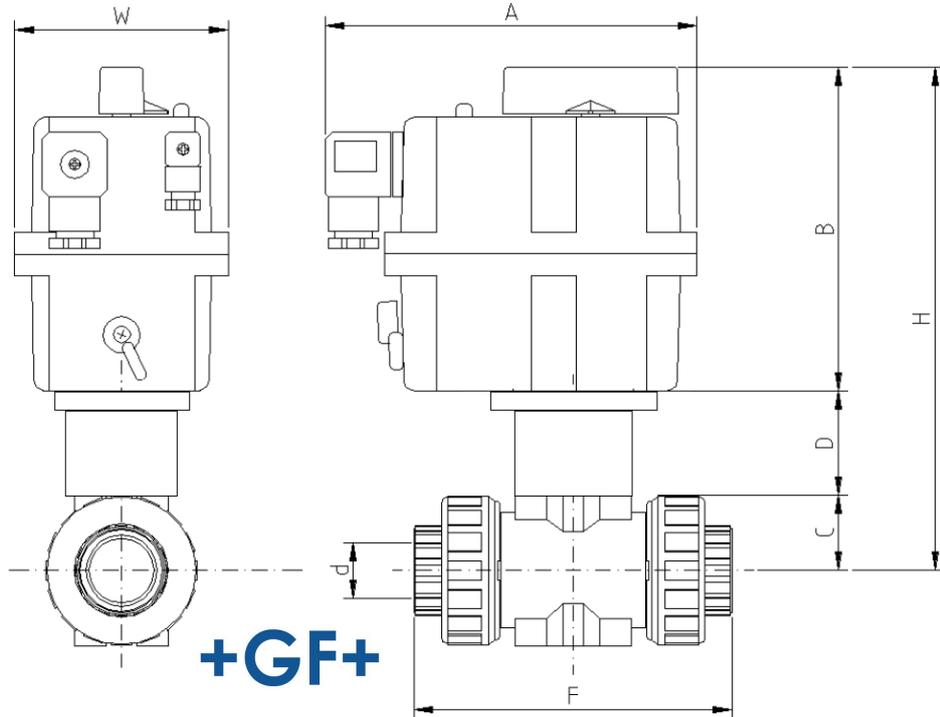


X: Open angle (%), Y: Flow factor kv, cv (%)

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Typical Dimensions:

Note: Drawing shows J3 actuator, awaiting updated drawing showing the J3CS, released in late 2016.



Type: **E3015GS** Actuator fitted to valve via the 'EasyFit-G' mounting kit manufactured by

E3015GS Dimensions remain unchanged for all versions - on-off, failsafe, modulating & failsafe modulating						
	Model	A	F	H*	W	Kilos
≤1/2"	20	177	124	203	110	
3/4"	20	177	144	207	110	
1"	20	177	154	212	110	
1 1/4"	20	177	174	220	110	
1 1/2"	20	177	194	227	110	
2"	20	177	224	240	110	
2 1/2"	55	177	284		110	
3"	55	177	300		110	
4"	55	177	340		110	

* Estimated as information unavailable from +GF+