

J3CS Smart Electric Actuator Function: MODULATING CONTROL , FAILS SAFE ON POWER FAILURE



Note: J3 Actuator
(superseded by J3CS)

Type: **E3016GS (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.

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 | |

| 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 | E3016GS +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" |

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 = m³ 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 FAILSAFE 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:

With external 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.

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.

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.

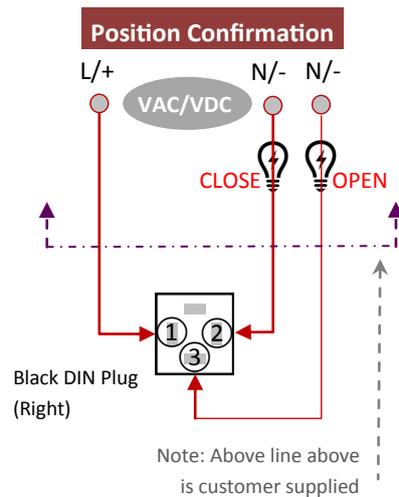
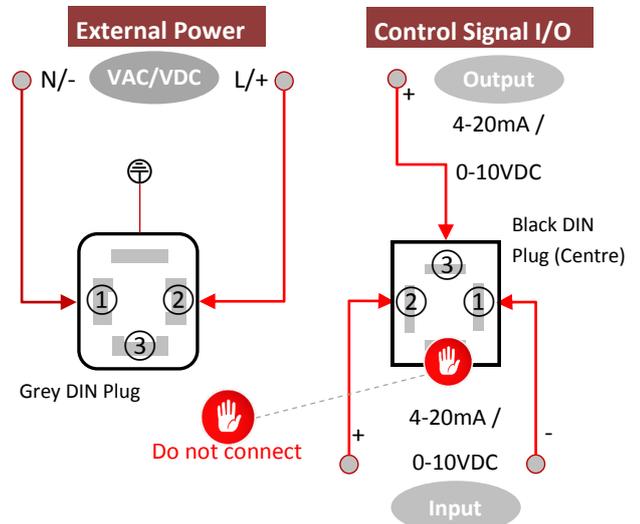
The advantage this gives is that the actuator will fail to either the open or closed position, depending on how the DPS positioner is configured, in the event of an external power failure.

The BSR failsafe system comprises of an industrial rechargeable NiCad battery and a PCB containing a trickle charger and control circuitry.

Whilst generally the J3CS failsafe modulating electric actuators are supplied with the BSR failsafe and DPS modulating kits pre-installed and function tested by J+J, the BSR and DPS kits can be supplied to be installed by the user into an on-off J3CS as they are very user friendly, simple to install and are plug and play. The DPS is self calibrating so no complex set-up procedure is necessary.

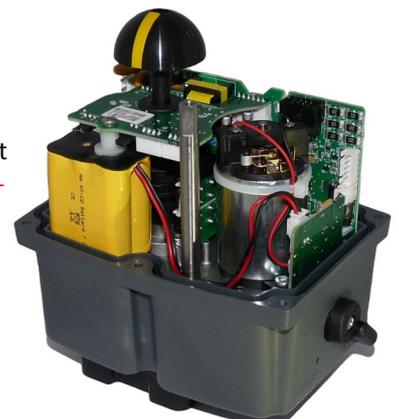
This is a very Smart Red Box.

J3CS FAILSAFE MODULATING WIRING



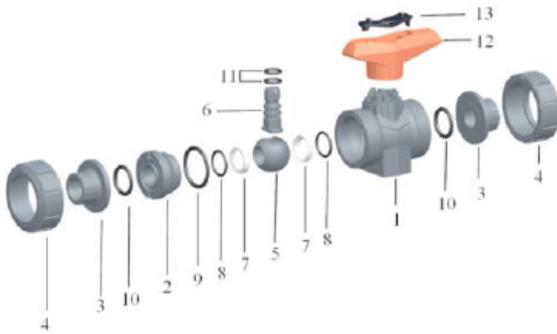
In J+J electric actuators all electrical connections are made externally using the external DIN plugs supplied with the actuator. There is no need to remove the valve actuator's cover to connect electrically. There are no terminals internally to connect to.

BSR Failsafe plug & play kit pre-installed to create failsafe modulating function.



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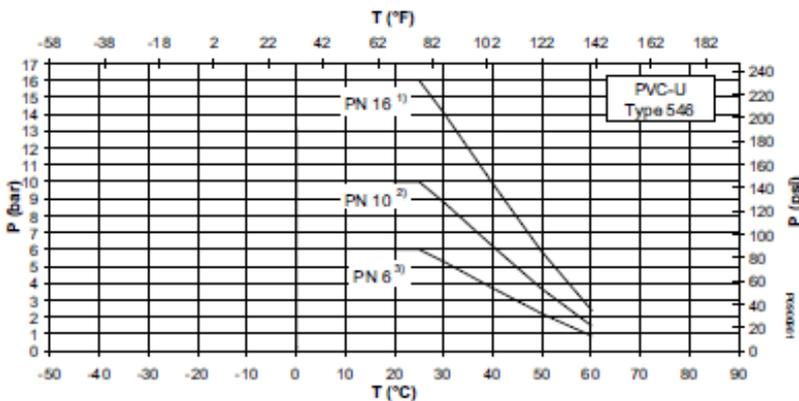
Design



| | |
|--------------------|---------------------|
| 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 | |

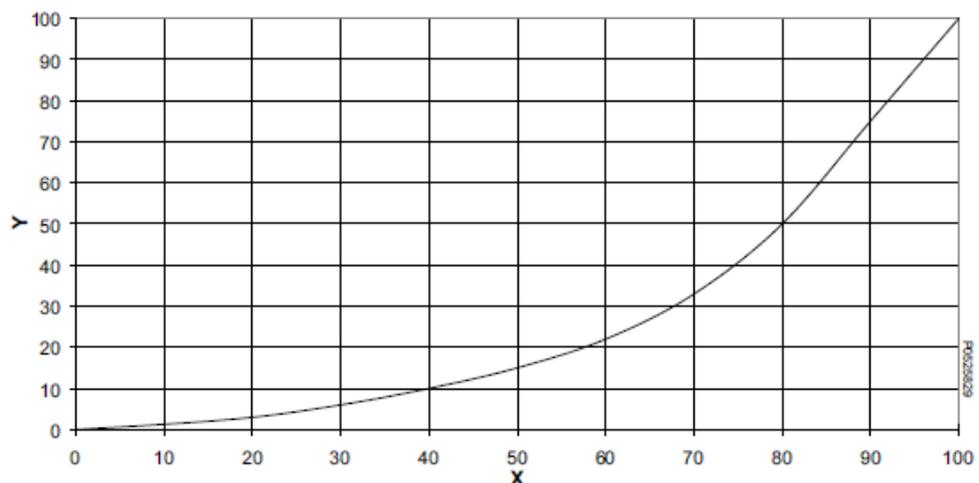
P / T-Diagrams

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

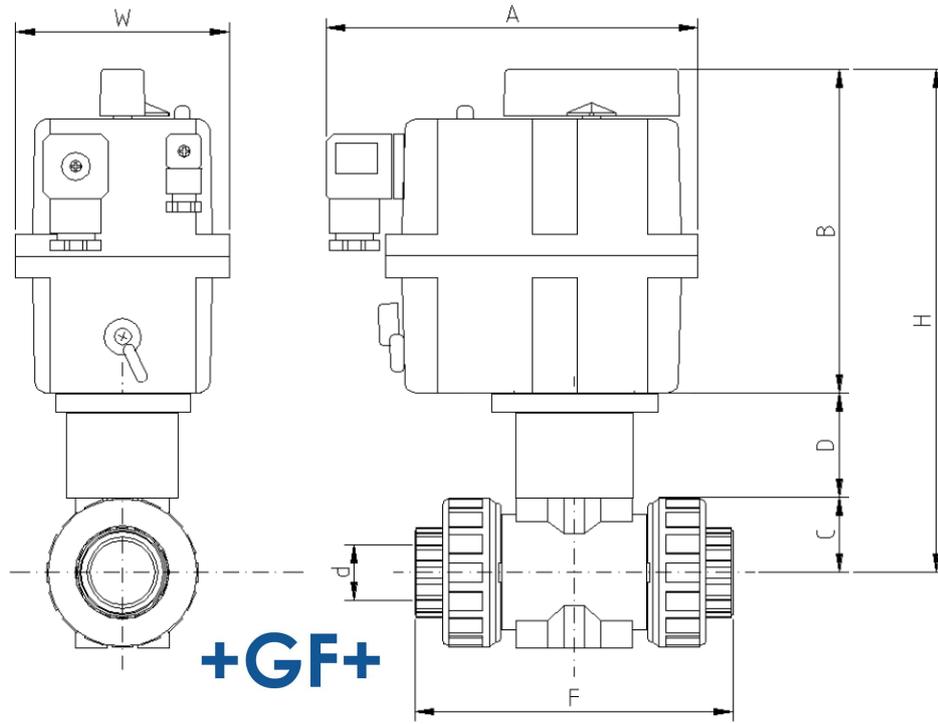


X: Open angle (%), Y: Flow factor kv, cv (%)

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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+