

J3CS Smart Electric Actuator Function: POWER OPEN - POWER CLOSE , FAILS 'SAFE' ON POWER FAILURE



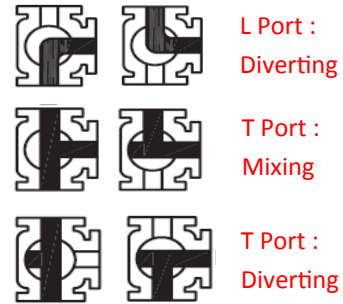
Type: 1300

Electric actuator direct mounted



Type: 1310

Electric actuator fitted via kit



3 Way Ball Valve - Flow paths

L Port: Divert duty only

T Port: Divert or Mixing duties

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:

Water, oil, air and most non-corrosive media, subject to compatibility with wetted parts in contact with media. Not for use on potable water & NOT recommended for use on steam.

Electrical actuators sized on a maximum differential pressure of 10 bar wet service, operated at least once per day. If the intended duty differs from these parameters, or is dry (air or gas) call to check JJ valve actuator sizing as a larger output actuator may be required.

Maximum working temperature of a direct mounted assembly is +70C. For higher working temperatures , consider models that have a mounting kit or TSM stem extension between the valve and smart actuator which uses air cooling to dissipate the rising heat from the valve away from the valve actuator. Should the J3CS smart actuator see more than +70C it will malfunction.

Kv Values

| | | | | | | | | |
|------|------|------|------|------|------|--------|--------|------|
| Size | 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" |
| Kv | 2.8 | 3.0 | 3.9 | 7.9 | 13.0 | 20.7 | 38.7 | 54.0 |

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

| 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 | E1304S +70°C |
| | E1314S +105°C |
| | E1324S +100°C |
| Valve body | Nickel plated brass |
| Valve ball | Chrome plated brass |
| Valve seats | PTFE |
| Valve Pressure rating | UTI 3/4" 30 bar , rest 16 bar at |
| Valve temp limits | -20 to +120°C |
| Size range | 1/4" to 2" |

3 Way ball valve information:

Full bore 3 way ball valve providing full flow and a relatively low pressure drop across the valve. Designed for automation with integrally cast ISO5211 actuator mounting platform. End connections are threaded BSP female.

3 Way brass ball valves are used to change the direction of flow as opposed to 2 way ball valves that simply isolate the flow, and are available as either a L-port or T-port design. L-port diverter valves typically divert flow from the centre port to either output port. T-port valves are used for either mixing or diverting type flow functions. As a diverting valve the T port valve provides straight through flow in one position.

J3CS FAILSAFE ELECTRIC ACTUATOR

Power open, power close, fails to pre-set position on loss of external power. Typically fails closed, but can be set to fail open. BSR Failsafe conversion kit pre-installed by J+J.

How this electric 1/4 turn valve works (on-off):

Electrically operated valves are driven by a motor and gearbox. On receipt of a continuous voltage signal the motor runs and, via a gearbox in the J+J smart electric actuator, rotates the valve stem. The motor stops at the desired position (usually 0° or 90°) by internal cams striking micro-switches. The smart valve actuator remains in this position, with the voltage still applied continuously, until switched and a continuous voltage reversing signal is applied, which runs the motor in the opposite direction, reversing the rotation until separate set of internal cams strike separate set of micro-switches.

Options:

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

Failsafe Modulating J3CS Actuator

Movement of the J3CS actuator is proportional to an input control signal, typically 4-20mA or 0-10V, but by installing our DPS (Digital Positioning System) user friendly plug and play kit, it will fail to the desired pre-set position on loss of external power. There are also options for how the J3CS modulating reacts to loss of the control signal as follows:

Configuration options:

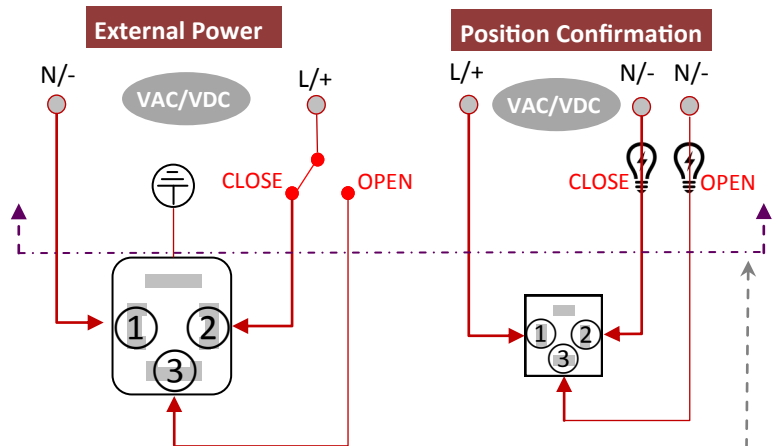
- 1) Closes on loss of control signal, or on loss of power
- 2) Opens on loss of control signal, or on loss of power
- 3) Stays put on loss of control signal



DPS Modulating plug & play kit can be installed with the BSR failsafe kit to create failsafe modulating function.

Electrical Connection - Wiring of DIN Plugs

J3CS FAILSAFE WIRING



Note: Above line above is customer supplied

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.

Pre-installed Plug & Play Function Conversion Kit:



BSR Failsafe plug & play kit (already installed by J+J in the failsafe version)

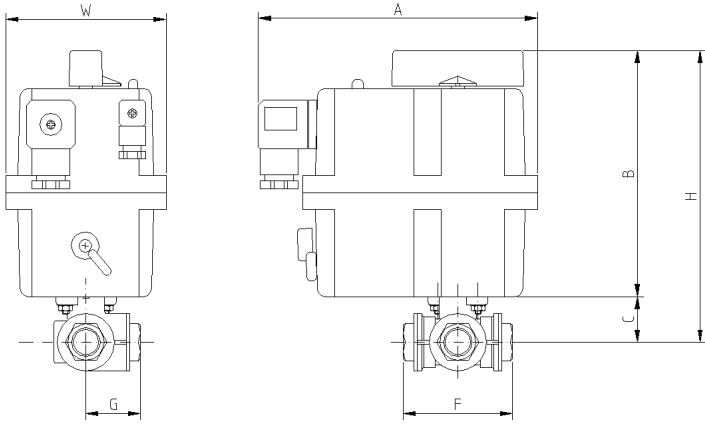
How the BSR (Battery 'Spring Return') system works:

The user friendly BSR failsafe function plug and play conversion kit adds an industrial NiCad rechargeable battery and PCB to the standard power open, power close J3CS actuator. The electric actuator continues to operate power open, power close, and whilst doing so, the battery is constantly trickle charged to keep it fully charged.

When external power is lost, a switch in the BSR PCB draws internal power from the battery to send the J3CS to the desired pre-set 'safe' position, if not already in that position.

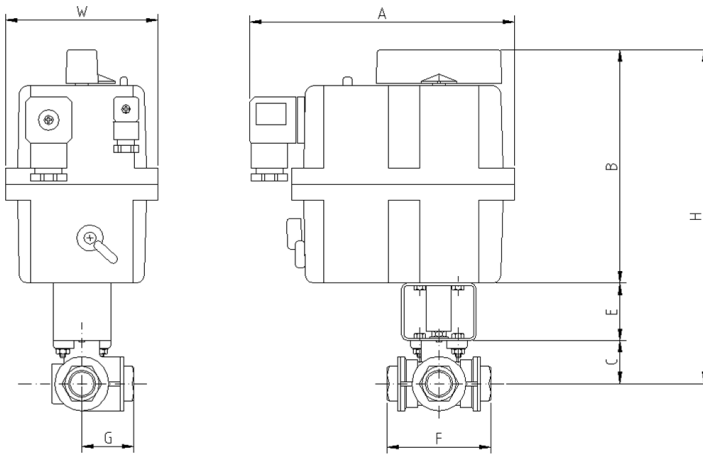
Typical Dimensions:

Type: **E1304S** Actuator direct mounted to valve



| E1304S Dimensions remain unchanged for all versions | | | | | | | |
|--|-------|-----|----|-----|-----|-----|-------|
| - On-off, failsafe, modulating and failsafe modulating | | | | | | | |
| | Model | A | E | F | H | W | Kilos |
| 1/4" | 20 | 177 | 50 | 67 | 180 | 110 | 2.1 |
| 3/8" | 20 | 177 | 50 | 67 | 180 | 110 | 2.1 |
| 1/2" | 20 | 177 | 50 | 77 | 182 | 110 | 3.7 |
| 3/4" | 20 | 177 | 50 | 87 | 191 | 110 | 2.6 |
| 1" | 20 | 177 | 50 | 105 | 196 | 110 | 3.1 |
| 1 1/4" | 20 | 177 | 50 | 123 | 209 | 110 | 4.3 |
| 1 1/2" | 35 | 177 | 70 | 139 | 245 | 110 | 6.6 |
| 2" | 55 | 177 | 70 | 166 | 281 | 110 | 10.8 |

Type: **E1314S** Actuator fitted to valve via a bracket and drive adapter



| E1314S Dimensions remain unchanged for all versions | | | | | | | |
|--|-------|-----|----|-----|-----|-----|-------|
| - on-off, failsafe, modulating & failsafe modulating | | | | | | | |
| | Model | A | E | F | H | W | Kilos |
| 1/4" | 20 | 177 | 50 | 67 | 230 | 110 | 2.3 |
| 3/8" | 20 | 177 | 50 | 67 | 230 | 110 | 2.3 |
| 1/2" | 20 | 177 | 50 | 77 | 232 | 110 | 3.9 |
| 3/4" | 20 | 177 | 50 | 87 | 241 | 110 | 2.8 |
| 1" | 20 | 177 | 50 | 105 | 246 | 110 | 3.3 |
| 1 1/4" | 20 | 177 | 50 | 123 | 259 | 110 | 4.5 |
| 1 1/2" | 35 | 177 | 70 | 139 | 295 | 110 | 6.8 |
| 2" | 55 | 177 | 70 | 166 | 331 | 110 | 11.1 |

Type: **E1324S** Actuator fitted to valve via a tubular stem extension

| E1324S Dimensions remain unchanged for all versions | | | | | | | |
|--|-------|-----|---|-----|---|-----|-------|
| - on-off, failsafe, modulating & failsafe modulating | | | | | | | |
| | Model | A | E | F | H | W | Kilos |
| 1/4" | 20 | 177 | | 67 | | 110 | |
| 3/8" | 20 | 177 | | 67 | | 110 | |
| 1/2" | 20 | 177 | | 77 | | 110 | |
| 3/4" | 20 | 177 | | 87 | | 110 | |
| 1" | 20 | 177 | | 105 | | 110 | |
| 1 1/4" | 20 | 177 | | 123 | | 110 | |
| 1 1/2" | 20 | 177 | | 139 | | 110 | |
| 2" | 20 | 177 | | 166 | | 110 | |