

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



Type: E2104ES

Electric actuator direct mounted



Type: E2114ES

Electric actuator fitted via kit

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:

Potable water (ball valve is not WRAS approved), oil, air and many corrosive media, subject to compatibility with wetted parts in contact with media.

J+J Electric 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 actuator sizing as a larger output valve 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 actuator which uses air cooling to dissipate the rising heat from the valve away from the actuator. Should the J3CS smart actuator see more than +70C it will malfunction.

Typical KV Values

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
KV	6.8	6.8	12.8	29.1	47.8	72.6	106.8	213.7	273.3	495.3	871.1

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	E2104ES +70°C Direct mounted
	E2114ES +130°C Mounted via kit
	E2124ES +100°C Mounted via ext'n
Valve body	CF8M (Cast 316SS)
Valve ball	316SS
Valve seats	RPTFE
Valve Pressure rating	UTI 2" 64 bar at ambient temp
Valve temp limits	-20 to +200°C
Size range	1/4" to 4"

Ball valve information:

Full bore 3 piece construction offers in-line maintenance and provides full unrestricted flow and a very low pressure drop across the ball valve. Designed for automation with integrally cast ISO5211 actuator mounting platform. Turning the ball through 90° fully opens the valve, turning back through 90° fully closes the valve and isolates the flow. End connections are threaded BSP female. NPT, butt weld and socket weld ends are available as an option.

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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. The BSR Failsafe conversion kit is 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:

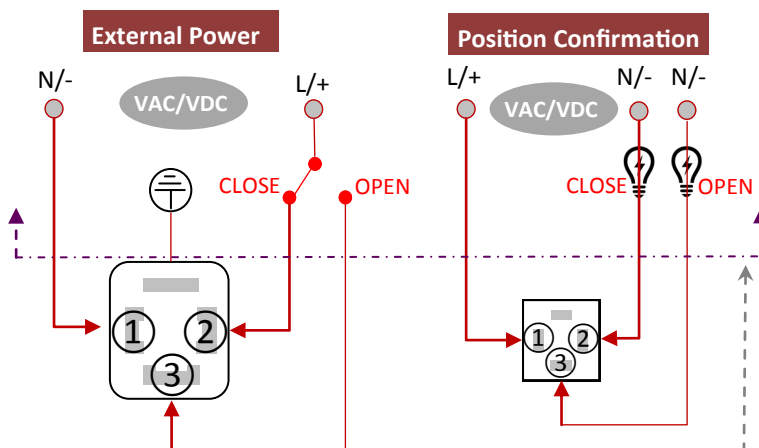
- 1) Closes on loss of control signal, or on loss of power
- 2) Opens on loss of control signal, or on loss of power
- 3) Stays put on loss of control signal



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:

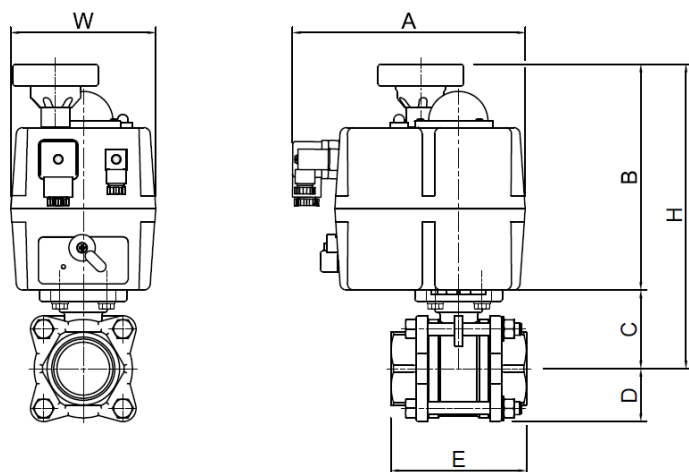
The user friendly BSR failsafe function plug and play conversion kit adds an industrial NiCad rechargeable battery and PCB to the standard power open, power close J3CS actuator. The electric actuator continues to operate power open, power close, and whilst doing so, the battery is constantly trickle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

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Typical Dimensions:

Type: **E2104ES** Actuator direct mounted to valve

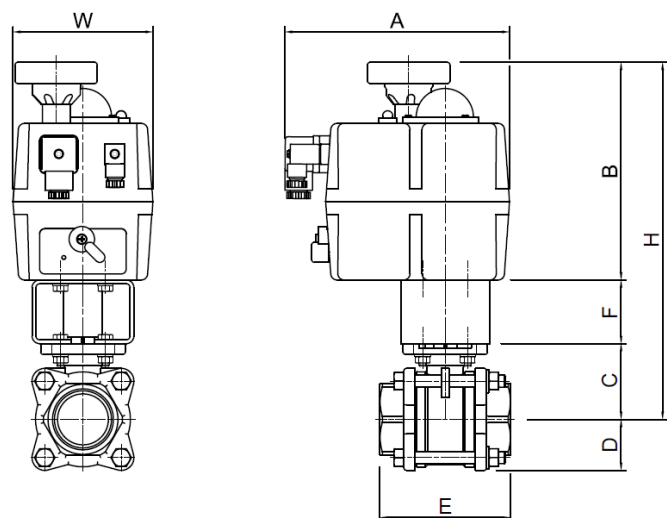


E2104ES Dimensions remain unchanged for all versions
- On-off, failsafe, modulating and failsafe modulating

	Model	A	E	H	W	Kilos
≤1/2"	20	177	66	213	110	2.2
3/4"	20	177	76	219	110	2.3
1"	20	177	86	228	110	2.8
1 1/4"	20	177	103	232	110	3.4
1 1/2"	35	177	119	249	110	5.0
2"	55	177	131	281	110	6.6
2 1/2"	85	177	164	305	110	11.0
3"	85	177	183	314	110	14.3
4"	140*	235	236	154	254	26.7

*140 = J2C-140

Type: **E2114ES** Actuator fitted to valve via a bracket and drive adapter



E2114ES Dimensions remain unchanged for all versions
- on-off, failsafe, modulating & failsafe modulating

	Model	A	F	E	H	W	Kilos
≤1/2"	20	177	50	66	263	110	2.4
3/4"	20	177	50	76	269	110	2.5
1"	20	177	50	86	278	110	3.0
1 1/4"	20	177	50	103	282	110	3.6
1 1/2"	35	177	50	119	299	110	5.2
2"	55	177	50	131	331	110	6.8
2 1/2"	85	177	70	164	375	128	12.0
3"	85	177	70	183	384	128	15.3
4"	140*	235	70	236	417	254	27.7

Type: **E2124ES** Actuator fitted to valve via a tubular stem extension

E2124ES Dimensions remain unchanged for all versions
- on-off, failsafe, modulating & failsafe modulating

	Model	A	F	E	H	W	Kilos
≤1/2"	20	177		66		110	
3/4"	20	177		76		110	
1"	20	177		86		110	
1 1/4"	20	177		103		110	
1 1/2"	35	177		119		110	
2"	55	177		131		110	
2 1/2"	85	177		164		128	
3"	85	177		183		128	
4"	140*	235		236		254	