Actuators and Ancillaries

Electric Actuators - FIG EA218 Electric Actuators

BOSS™ Feature rich multi-voltage, multi-function smart electric actuator with LED status light

EA218 Series of quarter turn electric actuators

Ideally suited to ball and butterfly valves, the BOSS EA218 electric actuator has 6 models offering a range of break away torques from 25 to 350Nm.
The totally user friendly EA218 electric valve actuator is designed with installers and users in mind. For installers it is quick and easy because there is no need to remove the cover to connect as all electrical connections are external via supplied 3 pin Din plugs. There are no internal terminal strips to work out.

For users it provides continuous operational status feedback via a highly visible light which flashes if, for example, the actuator has been left in 'manual' mode, or if the valve is blocked. The sequence of the flashing light indicates the likely cause.

Functional flexibility across the entire range

Functional flexibility makes the EA218 stand out. With its unique range of plug and play function conversion kits, the standard on-off EA218 can quickly be converted to a failsafe, a modulating, or a failsafe modulating actuator, from stock.
Failsafe offers the security of the EA218 being set in a pre-determined 'safe' position on loss of external power, this can be either fail close, or fail open.

A modulating actuator offers proportional control whereby the actuator's opening angle is set proportional to an input control signal. The EA218 typically uses the industry standard 4-20mA or 0-1V signals, and offers a feedback signal as standard. Failsafe modulating offers both failsafe, and modulating functionality.

How the EA218 electric 1/4 turn valve actuator works (on-off)

Electrically operated valves are driven by an electric actuator containing a motor and gearbox. On receipt of a continuous voltage signal (not pulse) the motor runs and, via a gearbox in the electric actuator, rotates the valve stem. The motor stops at the desired position (usually 0° or 90°) by an internal cam striking a micro-switch. The valve actuator remains in this position, with the voltage still applied continuously, until switched and a continuous voltage reversing signal (not pulse) is applied, which runs the motor in the opposite direction, reversing the rotation until a separate internal cam strikes a separate micro-switch and stops the motor.

Main features:

- IP67 Weatherproof, UV protected, corrosion resistant plastic housing.
- LED light gives user continuous visual actuator status feedback - if the LED is flashing, there's a problem!
- Many protective features as standard - such as over-torque and anti-condensation.
- Multi-voltage capable, automatically sensed.
- Very user friendly and easy to install - all the electrical connections are external.
- Available as standard with power open - power close (on-off) function. Stays put on loss of external power.
- Available with FAILSAFE function. Set in predetermined FAILSAFE position on loss of external power.
- Available with MODULATING, and FAILSAFE MODULATING function. Actuator movement controlled by input signal, typically 4-20mA or 0-10V. Suitable for BMS systems.

Main features of the EA218 smart electric actuator

IP67 Weatherproof, UV protected, corrosion resistant Polyamide housing.	**IP67 allows the EA218 electric actuator to be submerged, the international standard IEC60529 states:** Test duration is 30 minutes. Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1m of submersion). The lowest point of enclosures with a height less than 850mm is located 1000mm below the surface of the water, the highest point of enclosures with a height equal to or greater than 850mm is located 150mm below the surface of the water. **The EA218 complies and is therefore fully weatherproof.**
LED light gives user continuous visual actuator status feedback - if the LED is flashing, there's a problem!	The LED light provides a continuous highly visible indication of the EA218 electric actuator's operational status. If all is well, the LED is solidly lit. If it is blinking there is a problem and will not respond to remote commands - the sequence gives an indication of the likely cause. The 2 most common are: ✲☼✲☼✲ = Torque limiter has engaged (valve jammed?) ✲✲☼✲✲ = Actuator is in 'manual' mode
Many protective features as standard - such as over-torque and anti-condensation.	Over-torque protection is electronic, the EA218 constantly measures the current being drawn and compares it with pre-set parameters, if the current draw exceeds the parameter, the power is cut preventing mechanical damage to the actuator. An internal thermostatic heater, energised from the external power supplied to the power DIN connector, ensures the EA218's internal temperature remains above that at which condensation could form.
Multi-voltage capable, automatically sensed	The EA218 actuator automatically senses the external power being applied and can accept any external voltage between 85V and 220V AC or DC in the 'H' version, and 24V AC or DC in the 'L' version. In models 20 to 85, 12VDC can also be used.
Very user friendly and easy to install - all electrical connections are external.	The EA218 mounting options conform to ISO5211 F03, with a female star drive. Electrical connections are made using external DIN plugs supplied with the EA218 actuator eliminating the need to remove the actuators cover to connect.
Unique plug & play function conversion kits create FAILSAFE & MODULATING function from a standard on-off electric actuator.	Uniquely, the EA218 electric actuator can have its standard on-off functionality changed by installing of very user friendly plug and play function conversion kits. See the following page for more details. Whilst these can be retro-fitted, most BOSS EA218 actuators will be supplied with these kits fitted and tested when originally supplied.
Manufactured in the EU.	The BOSS EA218 electric valve actuators are designed and manufactured in the EU by an ISO9001 manufacturing partner that have been innovative leaders in the design and manufacturing of electric actuators for over 25 years. There is a wealth of experience in every BOSS EA218 electric actuator.

Actuators and Ancillaries
Electric Actuators - FIG EA218 Electric Actuators

Function options:

EA218 ON-OFF ELECTRIC ACTUATOR
Standard function

Power open, power close. Stays put on loss of external power. Power remains on at all times.

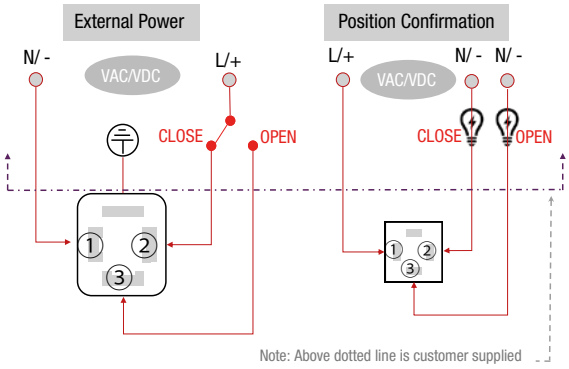
EA218 FAILSAFE ELECTRIC ACTUATOR

Fails to pre-set position on loss of external power
Power open, power close, fails to pre-set 'safe' position on loss of external power using internal industrial trickle charged rechargeable NiCad battery. Can be set to fail close (NC or Nominally closed) or fail open (NO or Nominally open) on loss of external power. The failsafe electric actuator moves to the position command applied at the time external power is restored.

Electrical Connections

In EA218 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.

ON -OFF & FAILSAFE WIRING (Same connection for either)



EA218 MODULATING ELECTRIC ACTUATOR

Movement proportional to input signal

Power is applied continuously. Movement of valve actuator is then controlled by an internally fitted digital positioner and is proportional to changes supplied in an input control signal. This input signal is typically 0-10VDC, or 4-20mA. An output signal is supplied as standard providing closed loop control. Fails closed on loss of control signal (or see configuration options below), stays put on loss of external power.

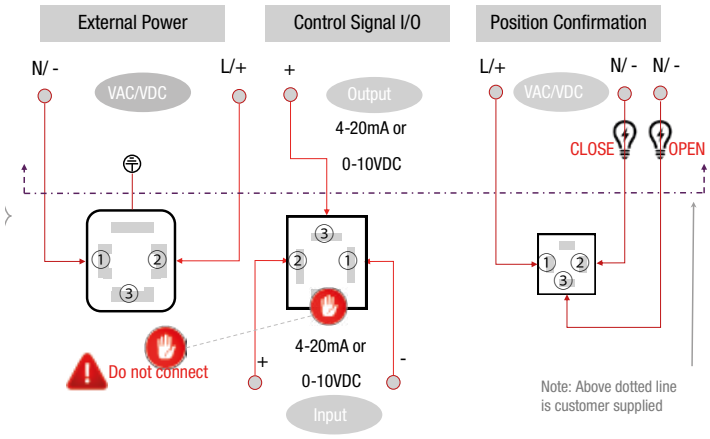
Configuration options:

1) Closes on loss of control signal

2) Opens on loss of control signal

3) Stays put on loss of control signal

MODULATING WIRING

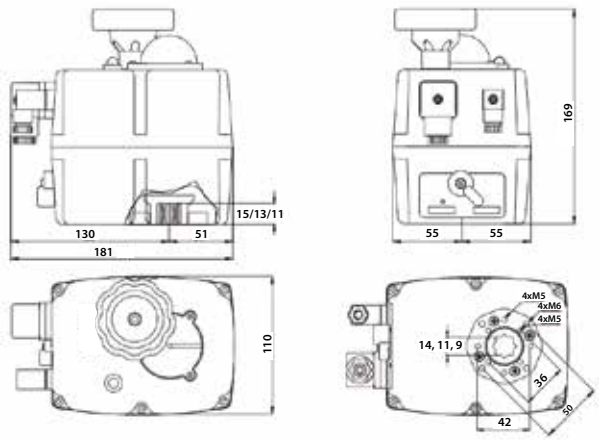


EA218 FAILSAFE MODULATING ACTUATOR

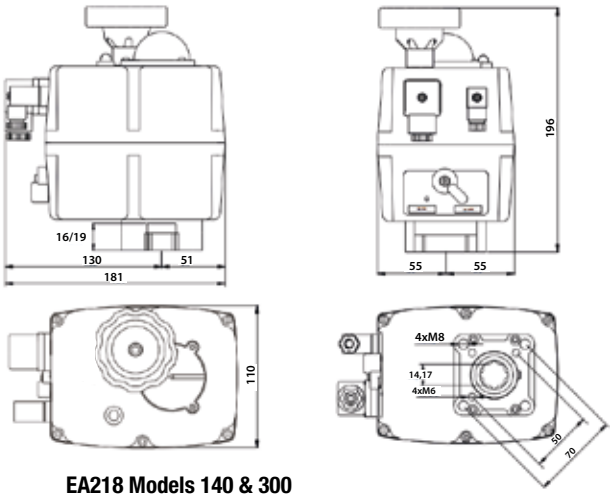
Combination of failsafe & modulating kits above:
Uses battery failsafe system and digital positioner plug and play function conversion kits to provide fail to safe position function on loss of external power in a modulating application.

NOTE ON POWER SUPPLIES
It is imperative that the power supply has sufficient capacity to drive the EA218 electric actuator. Ensure that safety factor of 3 is used to cover inrush current draw on start-up, and for increased draw over time as the brushed DC motor wears.

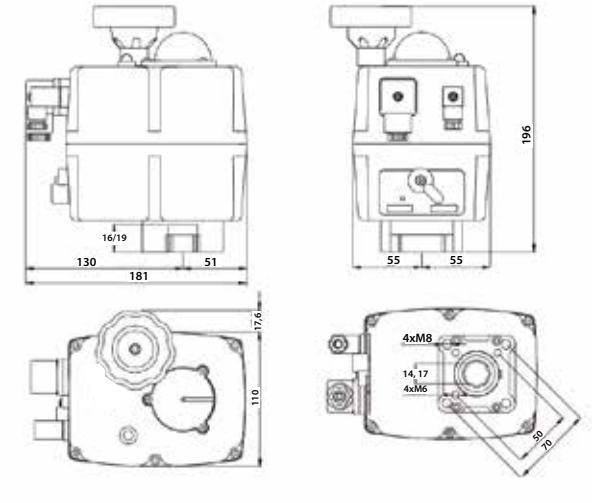
EA218 Models 20 & 35



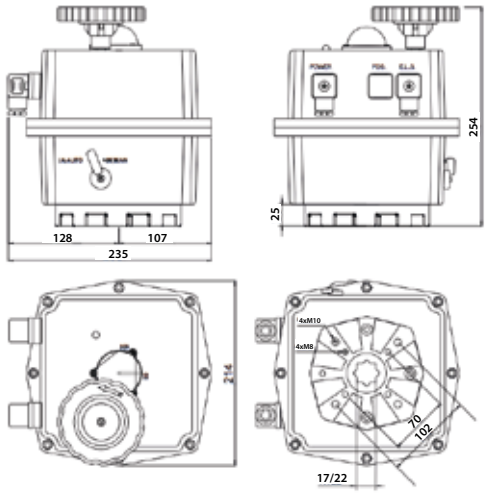
EA218 Model 55



EA218 Model 85



EA218 Models 140 & 300



Part Nos. & Specifications:	EA218 Model 20	EA218 Model 35	EA218 Model 55	EA218 Model 85	EA218 Model 140	EA218 Model 300
Product Code (High Voltage)	21800077	21800088	21800099	21800107	21800118	21800129
Product Code (Low Voltage)	21800011	21800022	21800033	21800044	21800055	21800066
Product Code (Failsafe conversion kit)	21800140	21800140	21800140	21800140	21800162	21800162
Product Code (Modulating conv. kit)	21800151	21800151	21800151	21800151	21800173	21800173
Max break-out torque Nm	25	38	60	90	170	350
Run/reseat torque Nm	20	35	55	85	140	300
Mounting (ISO5211)	F03/04/05	F03/04/05	F05/07	F05/07	F07/10	F07/10
Output drive (female star) mm	14	14	17	17	22	22
0-90° Run time Hi Volt sec+10%	10	10	14	30	34	58
0-90° Run time Low Volt sec+10%	10	10	13	30	34	58
Duty rating	75	75	75	75	75	75
Anti-condensation heater	3.5W	3.5W	3.5W	3.5W	3.5W	3.5W
Electrical connectors (DIN plugs)	DIN 43650 ISO440	DIN 43650 ISO440	DIN 43650 ISO440	DIN 43650 ISO440	DIN 43650 ISO440	DIN 43650 ISO440
End of travel confirmation	2 x SPDT micro	2 x SPDT micro	2 x SPDT micro	2 x SPDT micro	2 x SPDT micro	2 x SPDT micro
IP Rating (IEC 30529)	IP67	IP67	IP67	IP67	IP67	IP67
Ambient temperature range °C	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70
Weight Kg	1.8	1.9	2.4	3.0	5.2	5.2