




# INSTALLATION, OPERATION & MAINTENANCE GUIDE

- Maintenance free actuators
- No need to remove the cover, doing so will invalidate the warranty as standard
- Actuators should not be installed upside down
- Actuators can be installed outdoors, internal anti condensation feature
- Full pre and post sales support in English and Spanish

Version 001: 3/10/22 subject to change without notice

The following guide covers what to do when you receive your actuator, recommendations on how to install your actuator and simple checks if for any reason the actuator isn't working as it should. If you would like to discuss any of the points detailed here, you can contact our technical team at any time.

### Important information on receiving your Actuator:

- All our actuators are shipped within custom made package including foam insert to hold the actuator in place during shipping
- On opening the box, check that your actuator is free of any visible damage. If you can see any damage, contact your sales agent.
- Our Series 10, 20 and 50 as standard are supplied with a 0.8m pre wired cable. This will likely have been crimped ready to terminate.
- Our Series 80, 110, 200 and 400 will be supplied with a rear mounted 'Wiring Box'. Remove this to install your own cable.
- Should you receive your Series 10, 20 or 50 actuator with a white test plug, this can be removed without invalidating warranty.
- Do not remove the cover, there is no need at any stage to remove the cover. Your actuator is maintenance free.
- For Series 10, 20, 50, 80 and 110 Manual Override use, ensure power is removed. Series 200-400 has declutch push button in cover.
- Before applying power for initial power up, please double check you're applying the correct voltage to the actuator delivered.
- If buying a loose actuator, please recycle where possible all packaging to protect the environment. 

### Installation recommendations:

- |   |   |
|---|---|
| You can install your actuator horizontally or vertically                            | ✓ |
| Do not install your actuator upside down / underslung                               | ✗ |
| Your actuator is IP67 rated and doesn't need a cover to be installed externally     | ✓ |
| Do not jet wash your actuator, the actuator is not suitable for jetting             | ✗ |
| If installing a failsafe actuator, we recommend you charge before use               | ✓ |
| Do not remove power for Failsafe actuator before minimum 30 second charge           | ✗ |
| If installing a Modulating actuator, see wiring diagrams on pages 2-4               | ✓ |
| Do not apply voltage to the control and output terminals, this will damage actuator | ✗ |
| If installing a 12V, 24VAC/DC actuator, check your voltage before powering          | ✓ |
| Do not apply 110-220VAC to 12V, 24VAC or 24VDC actuators, this will damage actuator | ✗ |



English version. Available in Spanish





## MOUNTING YOUR ACTUATOR TO YOUR VALVE GUIDE

- Have you sized your actuator correctly for your application regarding Torque Nm
- Has a safety factor been applied based on the application? Wet or Dry?
- Do you require any stem adapters to match the valve stem to the actuator output?
- Will the actuator ISO5211 mounting match your valve?
- Scan your products QR code to access wiring diagrams, support documents, series datasheets, videos and much more.

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Whilst being an electric actuator manufacturer, we are also valve actuation specialists with many years experience in assembling and testing valves from a wide range of manufacturers and types of valves. Safety factors shown below should only be added if the manufacturer has not already included them in the torque data provided in their product datasheets.

### Things to consider when sizing our Actuator for your valve

Ball Valves:	Remember that a ball valve has a consistent torque requirement throughout open/close.
Butterfly Valves:	A butterfly valve has very little torque during open/close. It has high torque when seating/unseating.
Gate Valves:	If using a Multi Turn actuator, ensure the valve is 'non rising stem' design and you consider max turns available
Wet Application:	If your application is considered wet, lubricating, usually you should add 25-30% safety factory
Dry Application:	If your application is dry, such as gas or air, usually you should add 50% safety.

Below is an overview of our actuators and their mounting for ISO 5211.

### ISO 5211: International standard for mounting valves and actuators together.

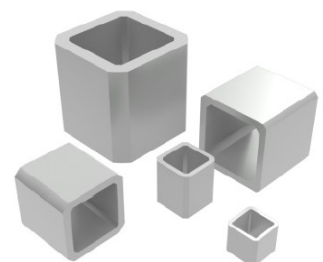
Actuator	10	20	50	80-110	200-400
Mounting	F03/05	F03/04/05	F05/07	F05/07	F07/10
Output Drive	11mm	14mm	14mm	17mm	22mm
Bolt Size	M3/M5	M3/M5/M6	M6/M8	M6/M8	M8/M10



If your valve has a smaller stem than the actuator output drive, we can supply at additional cost stem adapters. These have an ID to match the valve stem and an OD to match the actuator output. If your mounting holes don't match up, we can also offer mounting kits that consist of a stainless steel bracket and drive piece that will allow the actuator to be mounted to the valve.

### ISO 5211: International standard for mounting valves and actuators together.

Reducer	9x11	9x14	11x14	11x17	14x17	17x22
Bracket	F03/03	F03/04	F04/04	F04/05	F05/05	F05/07
	F07/07	F07/10	F10/10	F10/12		
Drives	9mm	11mm	14mm	17mm	22mm	



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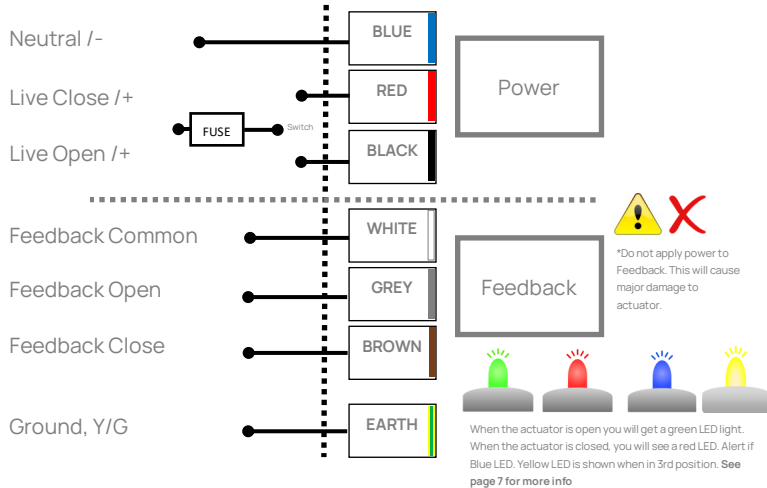


# WIRING SCHEMATICS WITHOUT ALARM

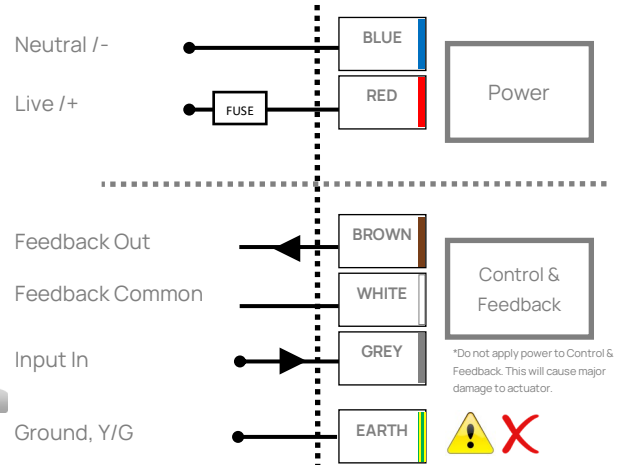
- Do not supply power to feedback / control (modulating)
- Always check the power and input signal matches your actuator
- The wiring schematics below cover 90% of the actuators that we sell.
- It is recommended that a Resistor is used on modulating actuators for feedback circuit. 250Ω for 4-20mA and 10K for 0-10V or 2-10V actuators.
- Full pre and post sales support in English and Spanish

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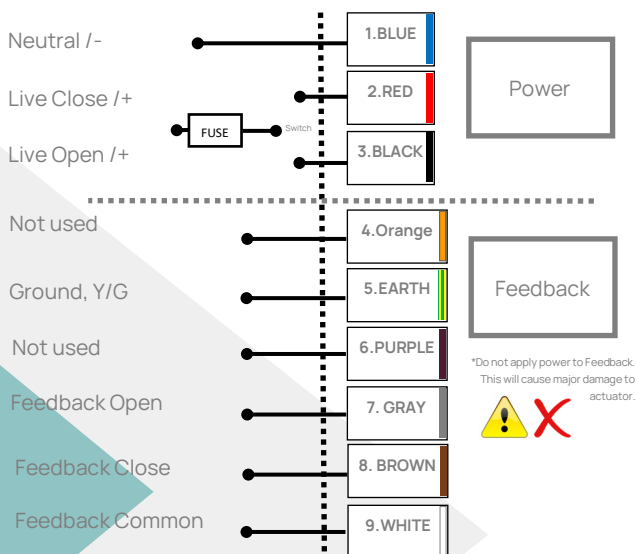
### Standard On Off, Failsafe and Hi-Speed Open/Close Wiring: Series 10 and 20 without alarm.



### Standard Modulating including Failsafe and Hi-Speed Wiring: Series 10 and 20 without alarm.

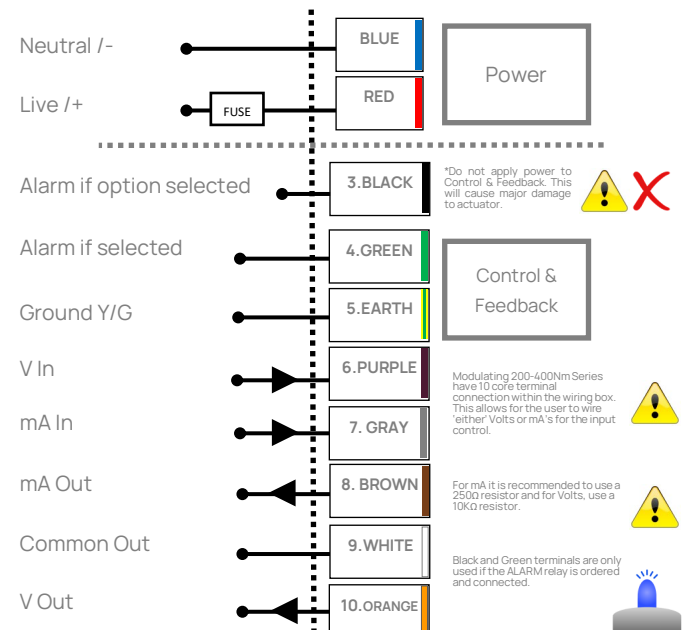


### Standard On Off, Failsafe and Hi-Speed Open/Close Wiring: Series 80-110-200-400.



For Series 80-400, remove wiring box via 4 x screws. This will expose the wiring terminal. Simply match the colours and codes you see against the above. Then re fit the wiring box and ensure seal is in place.

### Standard Modulating including Failsafe and Hi-Speed Wiring: Series 80-110-200-400



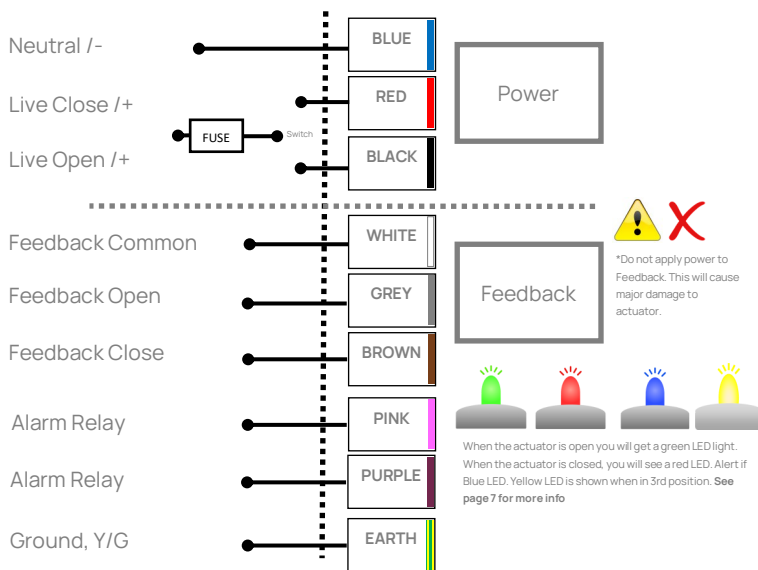
# WIRING SCHEMATICS WITH ALARM RELAYS

Additional information on how to wire our actuators. The below diagrams show how to wire Smart actuators that have the Alarm Relays option selected and installed. This will provide feedback to the PLC when the actuator goes into alarm.

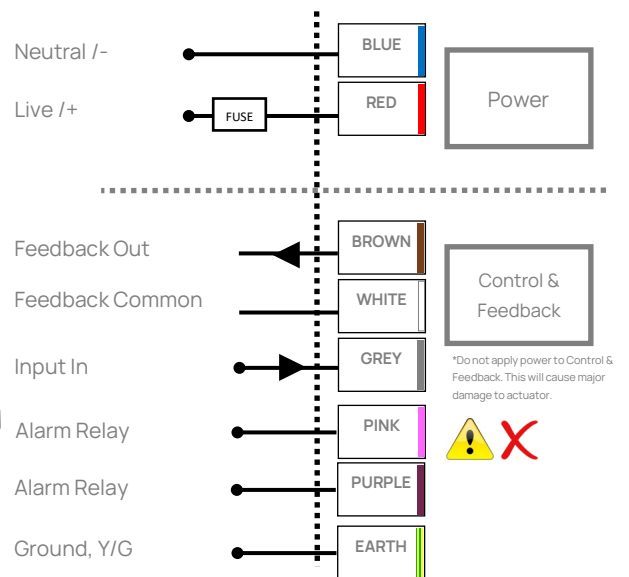


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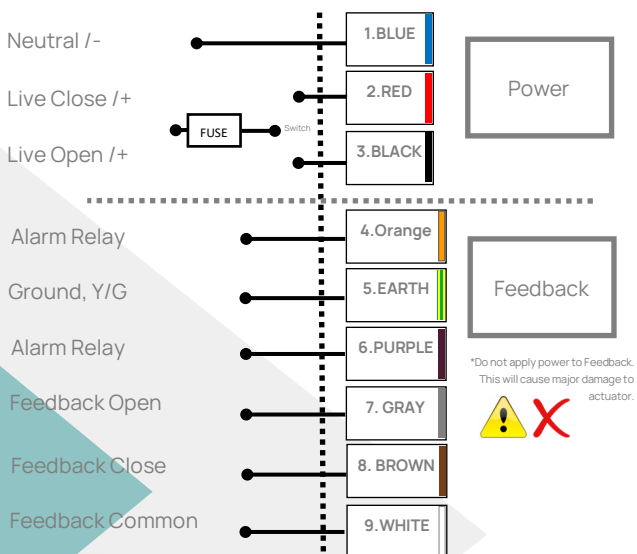
### Standard On Off, Failsafe and Hi-Speed Open/Close Wiring: Series 10 and 20 with alarm.



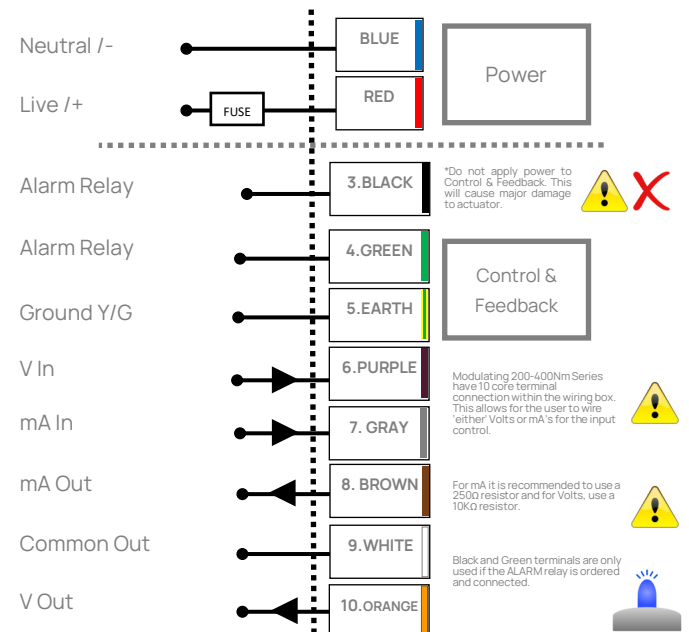
### Standard Modulating including Failsafe and Hi-Speed Wiring: Series 10 and 20 with alarm.



### Standard On Off, Failsafe and Hi-Speed Open/Close Wiring: Series 80-110-200-400 with alarm



### Standard Modulating including Failsafe and Hi-Speed Wiring: Series 80-110-200-400 with Alarm



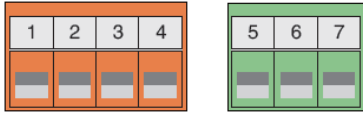

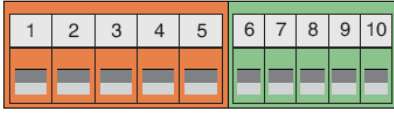

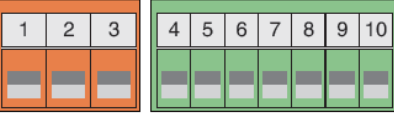

Contact our technical support team for any wiring queries that you have,

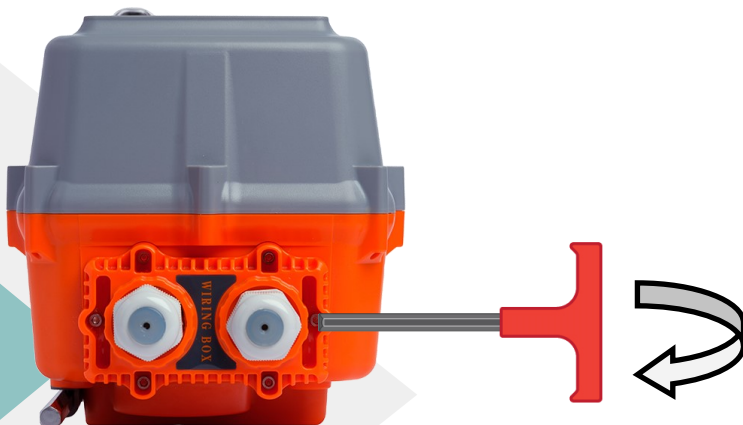
# WIRING CONNECTOR FOR SERIES 80-400: NEW FROM Q4 2022

Additional information on how to wire our actuators. The below diagrams show how to wire Smart actuators that have the Alarm Relays option selected and installed. This will provide feedback to the PLC when the actuator goes into alarm.



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New Terminal Connector for Series 80, 110, 200 and 400: replaces existing terminal connector in 2022	
<b>Series 80-110-200-400: Basic Series On Off and Failsafe (Hi Speed 80-110 only)</b> 95-265VAC supplied to orange terminals. Feedback to green terminals only.	
<b>Series 80-110-200-400: Basic Series On Off and Failsafe (Hi Speed 80-110 only)</b> 12VDC, 24VAC/DC supplied to black terminals. Feedback to green terminals only.	
<b>Series 80-110-200-400: Smart Series On Off and Failsafe (Hi Speed 80-110 only)</b> 95-265VAC supplied to orange terminals. Feedback to green terminals only.	
<b>Series 80-110-200-400: Smart Series On Off and Failsafe (Hi Speed 80-110 only)</b> 12VDC, 24VAC/DC supplied to black terminals. Feedback to green terminals only.	
<b>Series 80-110-200-400: Smart Series Modulating and Failsafe (Hi Speed 80-110 only)</b> 95-265VAC supplied to orange terminals. Feedback to green terminals only.	
<b>Series 80-110-200-400: Smart Series Modulating and Failsafe (Hi Speed 80-110 only)</b> 12VDC, 24VAC/DC supplied to black terminals. Feedback to green terminals only.	



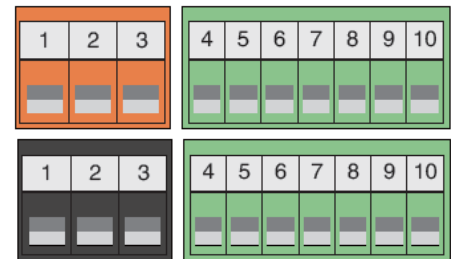
### CABLE CONNECTION & POWER RATINGS



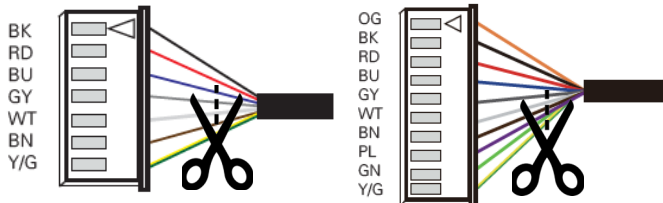
- Series 10, 20 and 50 are pre wired with 0.8m cable. Series 80 -400 have a Wiring Box
- For AVA distributors with our test box, pre wired actuators supplied with Test Plug
- For general distribution, all pre wired actuators are supplied with Crimped Ends
- Where required and ordered, pre wired actuators can be supplied with Weipu IP rated soldered or screwed plug and play connector.
- We can supply actuators with pre wired cable length up to 20m

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Cable Sizing including wire gauge:					
Cable Sizing:	10	20	50	80-110	200-400
Diameter	5.5mm	5.5mm	7.5mm	8mm	8mm
Core Diameter	1.3mm	1.3mm	2mm	2mm	2mm
Wire Gauge	16 Gauge	16 Gauge	12 Gauge	12 Gauge	12 Gauge



Note that in Q4 2022 we will be moving to new colour coded terminal strips to highlight 24V vs 95-265V.



✓ Above is our factory standard test plug. If you receive with the plug connected and don't have our test box, you can cut the plug off and terminate your cable. This will not invalidate your warranty or damage the actuator.



✓ As standard your pre wired actuator will be supplied with crimped cables, ready to install. If you receive a Weipu connector, the male/female connectors will likely be prepared with a loose cable to the PLC.



General Power Ratings: each line shows Run / Peak power rating. Peak is max rating before actuator will go into alarm														
Actuator	10		20		50		80		110		200		400	
24V On Off	12W	100W	15W	1A	25W	2.5A	60W	3A	100W	3A	120W	7.5A	150W	9.3A
95-265V On Off	12W	100W	15W	1A	25W	2.5A	60W	3A	100W	3A	120W	7.5A	150W	9.3A
24V Failsafe	20W	100W	36W	1A	40W	2.5A	60W	3A	100W	6A	120W	7.5A	180W	9.3A
95-265V Failsafe	20W	100W	36W	1A	40W	2.5A	60W	3A	100W	6A	120W	7.5A	180W	9.3A
24V Hi Speed*	50W	100W	85W	1A	40W	2.5A	60W	3A	X	X	X	X	X	X
95-265V Hi Speed*	50W	100W	85W	1A	40W	2.5A	60W	3A	X	X	X	X	X	X
24V Modulating	12W	100W	15W	1A	25W	2.5A	60W	3A	100W	3A	120W	7.5A	150W	9.3A
95-265V Modulating	12W	100W	15W	1A	25W	2.5A	60W	3A	100W	3A	120W	7.5A	150W	9.3A

\* High Speed Failsafe require a longer time to charge before use and have higher power requirements.

For actuator specific wiring, power and additional information such as what size fuse is recommended, see the actuator specific technical datasheet. Note that when the actuators are idle and are not operating, the internal heating system will draw around 0.6W power.



### WARRANTY STATEMENT & FAQ



- Basic Series has 12 month standard warranty with option of 2 year extension
- Smart Series has 24 month standard warranty with option of 3 year extension
- Terms and Conditions apply regarding the warranty that is offered.
- Got a question, see below some of the most frequently asked questions. You can also visit our website to view additional FAQs.
- Full pre and post sales support in English and Spanish

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Our Warranty Statement: see our website for full terms and conditions	
Basic Series:	All Basic series actuators carry a 12 month warranty with the option of extended warranty for 2 years.
Cover:	The cover must not have been removed, this will invalidate any warranty offered.
Operations:	The actuator has not been operated more than 20,000 times.
Gearbox:	Gearbox must not be damaged using manual override whilst power is still applied to the actuator
Voltage:	The actuator has not been supplied with the incorrect voltage supply
Dropped:	The actuator must not have been dropped causing damage to motor, housing and other internal components
Powered all times:	The actuator is powered at all times where power is available to ensure anti condensation heater works
Bar Codes:	Actuators must be returned with both Batch and Serial Number barcodes on the product.
Smart Series:	All Smart series actuators carry a 24 month warranty with the option of extended warranty for 3 years.
OLED Screen:	OLED screen must not be damaged, touch buttons should not have been damaged.
Firmware:	Actuator firmware should not have been tampered with. Firmware records, cycles ,error count etc.
Smart Cycles:	Smart actuators are valid up to 60,000 cycles or 2 years, subject to terms and conditions.
Extend Warranty:	Extended warranty available subject to application/ use. Speak to your AVA sales advisor about this.

Got a question? See if your question is answered below, if not you can check our website. Failing that, feel free to get in touch to ask us your question.

Most Common FAQ: more questions answered online	
What is KT32?	This an internal reference to failsafe actuators. Your actuator has a super capacitor fitted.
Failsafe not working?	Ensure you allow an initial charge time. Smart actuators show charge % when powered.
Do I need to connect feedback?	For on off its recommended but not essential. For Modulating we recommend it.
Do I need to change any parts?	No, our actuators are maintenance free.
Can I install outside?	Yes, all actuators are IP67 rated so are suitable for being installed externally/outdoors.
Can you supply valves?	If you would like a quote for complete actuated valves, contact your AVA reseller.
Can you accept free issue valves?	Yes, our customers send us free issued valves for us to automate, we assemble and test.



SCAN ME

## ACTUATOR NOT WORKING?

- Scan the QR code on your actuator to access support documents, wiring etc.
- Note - QR labels applied to actuators sold December 2022 onwards.
- Main things to check prior to returning your actuator to us
- We are an ISO 9001-2015 certified company and have a Returns Process
- If your actuator is not working, do not remove the cover unless instructed to do so
- If your actuator has a Blue LED the actuator is in an alarm condition, see below
- Not resolved your query? You can find additional support online or call us/ email us.

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If your actuator is not working, check the following to try and help resolve.	
Actuator wont power up?	90% of reported issues are found to be wiring related, check you have the correct wiring and power
Actuator still wont power up	If you have checked power, wiring and everything on the PLC side, get in touch to discuss further.
Failsafe wont close valve?	Ensure the actuator has sufficient charge and was given sufficient initial charge time.
Actuator wont close?	Actuator will open but not close, check wiring. Sometimes residual voltage on both pins causes this.
Modulating actuator is hunting/ twitching?	A modulating actuator can appear to be twitching or moving continuously. This can be caused by the input signal. You can adjust via the firmware the 'Dead Zone' to reduce this. See firmware guide.
Actuator shows Overload when trying to operate valve? Moves a little then stops, then shows Overload	This would tell us that the valve the actuator is mounted to has a valve blockage or the torque is too high for the actuator. This can be tested through remove the actuator from the valve and operating the actuator again. If the actuator operates, the issue is the valve. If the problem reoccurs you can contact us to discuss further.
Actuator shows Alert? Signal sent to move but actuator doesn't move?	This would tell us that the motor has most likely had a motor failure, if you are sending a command signal to the actuator and the actuator doesn't respond within a set time period, the actuator will put itself into alarm display alarm. If you have a Smart series 200-400, you enter the diagnostic menu to check critical components, see Password Guide document.
Blue LED is showing	This would relate to the two above mentioned scenarios.
Actuator is spinning 360 degrees with out stopping?	This would only occur on a Basic actuator and is likely to have been caused by vibration or the actuator being dropped which has caused internal micro switches to become loose. Actuator should be returned to us for re working.
I need to change working angle of my actuator?	For Basic actuators, this should be done by our trained staff. For Smart actuators, this process can be explained to you over the phone, you can also see our support document for this.
Can my actuator output an alarm condition to my PLC?	Yes, if you have ordered the Alarm Relay option, the actuators are supplied capable of outputting to your PLC that the actuator is in alarm.
Is my actuator suitable for a hazardous area?	<u>Only our EX series offer suitability to be used in a hazardous/ explosion proof application.</u> Our actuators are Not ATEX rated. They carry only a local test house approval in Asia for Zone 1-2 use.
Actuator cannot operate via manual override?	Ensure that manual override is only ever used when power is removed. Operating whilst power is applied can cause irreparable damage to the gearbox.
I need to reset my actuator	If you have made a change in the firmware that you want to undo, hold all 3 buttons and enter 6666.