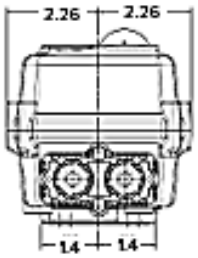
DynaQuip Smart SV70 Product Guide

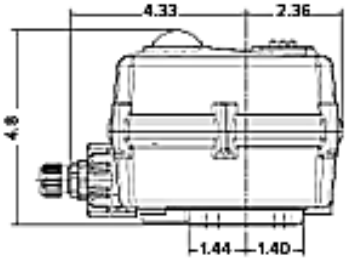
The Smart SV70 is a truly smart electric actuator designed to cover a wide range of functional applications. It is fully electronic using digital magnetic positioning and entirely run by firmware. The smart version is recognisable by the introduction of a bright OLED screen and external push buttons that are used to set and adjust the AVA Smart actuator. Available in ON OFF, Modulating, Failsafe, Hi Speed, Failsafe Modulating, Hi Speed Modulating, Timer, Wireless and BUS. Standard features include:

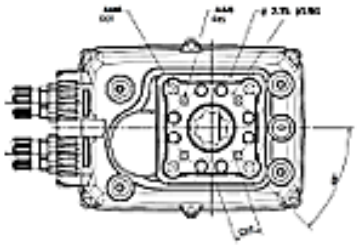
● OLED Screen ● User friendly local button controls ● Brushless motors

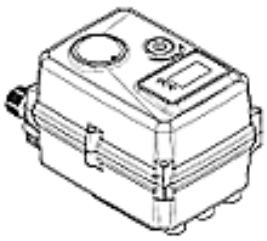
Smart Specifications

	SV70
Max Rated torque output in./lbs.	Break 708 in./lbs. / Run 708 in./lbs.
Voltage range	24VDC/VAC, 110 - 220VAC
Mounting (ISO5211) x drive (female octagon)	F05 & F07 x 17mm
Ingress Protection	IP67
Electrical connection	Terminal Strip via gland
End of travel confirmation (dry contact/volt-free)	2 x Electronic relays
Local visual position indicator	Dome style
Housing material	ABS
Weight	4.85 lbs.







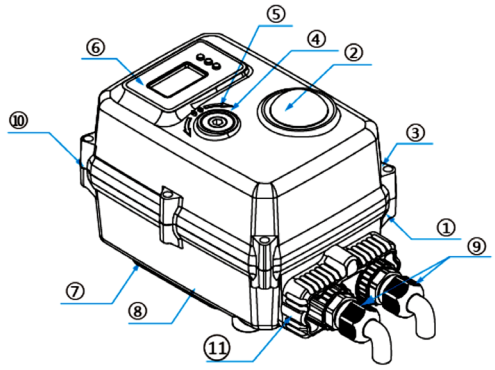


CE Ex RoHS compliant

DynaQuip SV70 Data Sheet On-Off and Failsafe

Model: SV70 ON-OFF & SV70 FAILSAFE ELECTRIC ACTUATORS			
Specification	**High Voltage**	**Low Voltage**	
Rated Voltage	95-265VAC	24VAC/DC	DC12V
Voltage Range	AC95-265V / DC100-300V	AC18-26V / DC22-32V	AC18-26V / DC22-32V
Consumption On/Off	30W @ running 3.9W holding	28W @ running 2.10W @holding	28W @ running 2.10W @holding
Peak current On/Off	0.26A @ 5ms @ AC230V	2.50A @ 5ms @ DC24V	2.50A @ 5ms @ DC12V
Consumption Failsafe	30W @ running 3.9W holding	28W @ running 2.10W @holding	28W @ running 2.10W @holding
Peak current Failsafe	0.52A @ 5ms @ AC230V	4.5A @ 5ms @ DC24V	4.5A @ 5ms @ DC12V
Fuse On/Off	2A	5A	5A
Fuse Failsafe	10A	10A	10A
Maximum Break Torque	708 in./lbs.	708 in./lbs.	708 in./lbs.
Run & Reseat Torque	708 in./lbs.	708 in./lbs.	
Manual Operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied		
Run time On/Off	10 sec	10 sec	10 sec
Run time Failsafe	10 sec	10 sec	10 sec
SMART FEATURES:			
Operating frequency	Not continuous, 75% duty cycle but recommended to allow ≥ 1 minute between cycles. DC uses Brushless Motor		
Position Indication	Magnetic with digital sensing. No mechanical cams fitted.		
Mounting restriction	None, can be mounted at any angle. Leave room for space to operate manually, and for electrical connection		
End Position indication	Micro-switches operated by adjustable internal cams, set slightly ahead of the final motor stop position.		
ISO:5211	F05 & F07 with 17mm x 21mm deep female drive.		
Working Angle	Factory set at 90^{o} $\pm 2^{o}$, maximum angle of rotation 360^{o}		
Smart Screen	1.3" Color OLED screen with touch buttons used for display and menu to customize functionality of actuator		
Ingress protection	IP67		
Max media temp	≤ 176 °F		
Ambient temp	-4 to +140 °F (ABS)		
Cable Length	Flying lead 2.62 ft. as standard with 7 core cable 0.02 cm. voltage rated AC300V		
Ambient humidity	5-95% RH non-condensing		
Explosion proof	No, prohibited. Do not use in hazardous areas		
Housing	Plastic (ABS)		
Weight	4.85 lbs.		

Main Parts

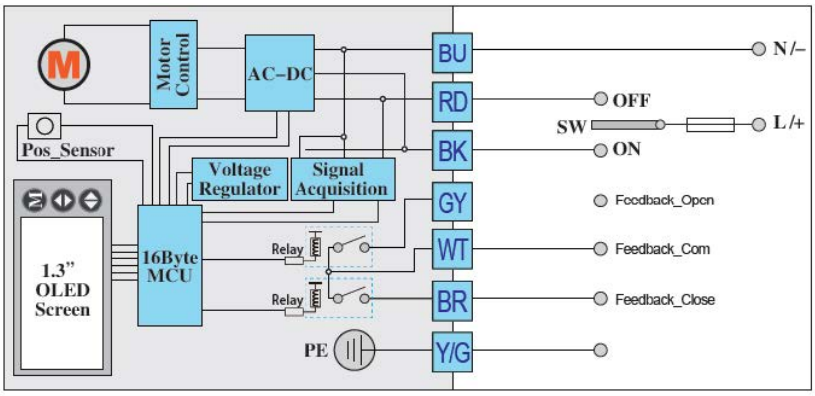


Item	Parts	Material
1	Actuator including part 11	ABS
2	Indicator	Transparent AS
3	Screw x 4	304
4	Manual Shaft	304
5	Oil Seat	NBR
6	Label	PVC
7	Wrench Fixed	ABS
8	Hexagon Wrench	Steel
9	Weatherproof Cable connector	Nylon
10	Cover Seal	NBR

SV70 Wiring On-Off and Failsafe

Standard Wiring for On/Off SV70 Actuators

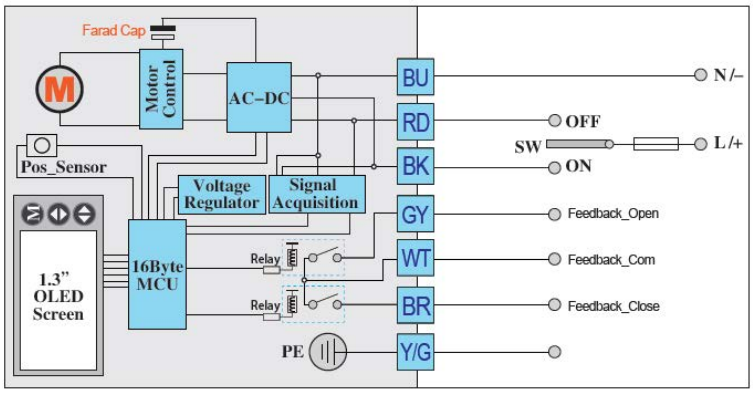
Standard Wiring for our AVA Smart SV70 series actuators including all voltages, 12VDC, 24VAC/DC and 95-265VAC 50/60Hz. Our ON-OFF actuators use a simple 3 wire system for control and 3 wire feedback connection as below. Note that the internal Space heater is pre wired and doesn't require additional wiring. When the actuator is powered, the internal heater will operate.



Standard Wiring for Failsafe SV70 Actuators

Standard Wiring for our AVA Smart Failsafe actuators including all voltages, 12VDC, 24VAC/DC and 95-265VAC 50/60Hz. Our Failsafe actuators use a simple 2 wire system for control and 3 wire feedback connection as below. The Failsafe actuators use capacitors and as such will require an initial charge period. After this point, the actuator will charge whilst opening and on removing power from Pin 2 (Red) the actuator will close. Re applying power to Pin 2 will Open the actuator and again charge the capacitor.

Note that the internal Space heater is pre wired and doesn't require additional wiring. When the actuator is powered, the internal heater will operate.



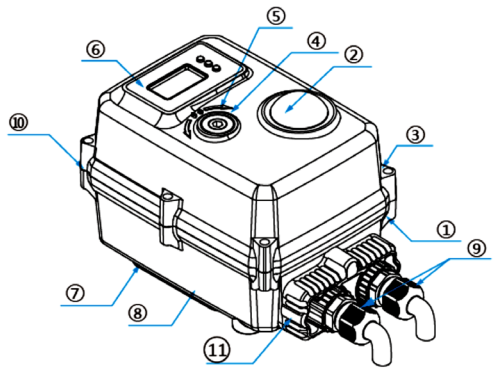
Wiring Instructions:

Fuse: Please refer to the manual for more parameters.
SW switching capability: please refer to manual for more parameters.
Feedback signal contact load capacity: 0.1A/250VAC 0.5A/30VDC.
Please make sure actuator connect ground reliably.

DynaQuip SV70 Data Sheet Modulating & Modulating Failsafe

Model: SV70 MODULATING & SV70 FAILSAFE ELECTRIC ACTUATORS			
Specification	**High Voltage**	**Low Voltage**	
Rated Voltage	95-265VAC	24VAC/DC	DC12V
Voltage Range	AC95-265V / DC100-300V	AC18-26V / DC22-32V	AC18-26V / DC22-32V
Consumption On/Off	30W @ running 3.9W holding	28W @ running 2.10W @holding	28W @ running 2.10W @holding
Peak current On/Off	0.26A @ 5ms @ AC230V	2.50A @ 5ms @ DC24V	2.50A @ 5ms @ DC12V
Consumption Failsafe	30W @ running 3.9W holding	28W @ running 2.10W @holding	28W @ running 2.10W @holding
Peak current Failsafe	0.52A @ 5ms @ AC230V	4.5A @ 5ms @ DC24V	4.5A @ 5ms @ DC12V
Fuse On/Off	2A	5A	15A
Fuse Failsafe	10A	10A	15A
Maximum Break Torque	708 in./lbs.	708 in./lbs.	708 in./lbs.
Run & Reseat Torque	708 in./lbs.	708 in./lbs.	
Manual Operation	Yes, by hexagonal wrench (supplied in clip) when no power is being applied		
Run time On/Off	10 sec	10 sec	10 sec
Run time Failsafe	10 sec	10 sec	10 sec
SMART FEATURES:			
Operating frequency	Not continuous, 75% duty cycle but recommended to allow ≥ 1 minute between cycles. DC uses Brushless Motor		
Position Indication	Magnetic with digital sensing. No mechanical cams fitted.		
Mounting restriction	None, can be mounted at any angle. Leave room for space to operate manually, and for electrical connection		
End Position indication	Micro-switches operated by adjustable internal cams, set slightly ahead of the final motor stop position.		
ISO:5211	F05 & F07 with 17mm x 21mm deep female drive.		
Working Angle	Factory set at 90^{o} $\pm 2^{o}$, maximum angle of rotation 360^{o}		
Smart Screen	1.3" Color OLED screen with touch buttons used for display and menu to customize functionality of actuator		
Ingress protection	IP67		
Max media temp	≤ 176 °F		
Ambient temp	-4 to +140 °F (ABS)		
Cable Length	Flying lead 2.62 ft. as standard with 7 core cable 0.02 cm. voltage rated AC300V		
Ambient humidity	5-95% RH non-condensing		
Explosion proof	No, prohibited. Do not use in hazardous areas		
Housing	Plastic (ABS)		
Weight	4.85 lbs.		
Options	Extended flying lead option, per meter. Alarm output relays.		

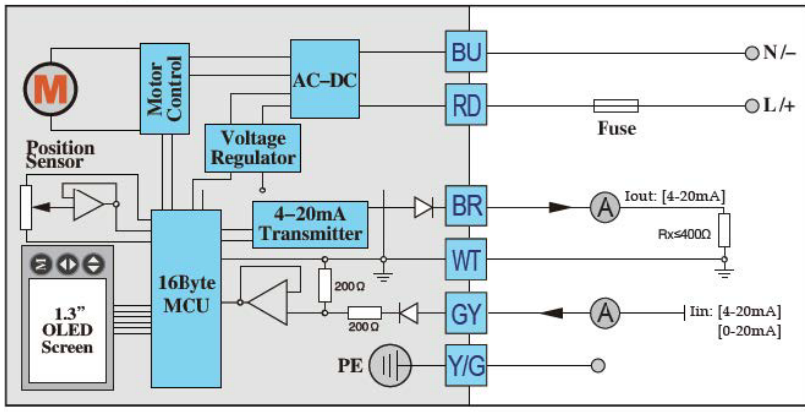
Main Parts



Item	Parts	Material
1	Actuator including part 11	ABS
2	Indicator	Transparent AS
3	Screw x 4	304
4	Manual Shaft	304
5	Oil Seat	NBR
6	Label	PVC
7	Wrench Fixed	ABS
8	Hexagon Wrench	Steel
9	Weatherproof Cable connector	Nylon
10	Cover Seal	NBR

Standard Wiring for Modulating SV70 Actuators

Standard Wiring for our AVA Smart 60/80 series actuators including all voltages, 12VDC, 24VAC/DC and 95-265VAC 50/60Hz. Our ON-OFF actuators use a simple 2 wire system for power and 3 wire control and feedback connection as below and 3 wire input/ output and common loop for modulating control. Note that the internal Space heater is pre wired and doesn't require additional wiring. When the actuator is powered, the internal heater will operate.



Wiring Instructions:

Fuse: Please refer to the manual for more parameters.
SW switching capability: please refer to manual for more parameters.
Feedback signal contact load capacity: 0.1A/250VAC 0.5A/30VDC.
Please make sure actuator connect ground reliably.

SV70 Smart Actuator Menu and Screen Overview

Introducing our Smart Screen and Menu Feature

All of our Smart actuators, Series SV70 are available, as standard with the color OLED screen and 3 button menu system as indicated in the image below. The screen will display as standard the input command that the actuator is receiving from its controller and the angle that it is currently at. The screen will also display any ALERT conditions such as an over torque condition or valve jam and will also indicate when power is lost where capacitor is fitted or control signal has been lost for modulating actuators.

Local Control

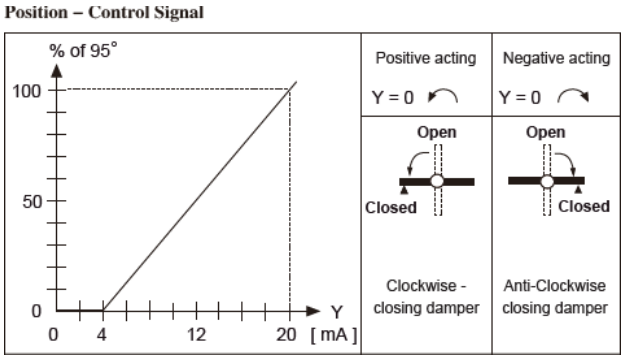
All actuators come with Local Control to allow the actuator to be locally used to open and close via the touch buttons. When a modulating actuator is being used, you can use the open and close buttons to jog the actuator in small Incremental movements.

M button is used to enter and switch menus.
K2 is used in conjunction with K3 for adjusting values.
K3 is used for changing settings, navigating menus, exiting and saving.
OLED Screen with clear blue letters against a black background.

Actuator Function Customization

The menu system will vary from actuator to actuator and we have specific actuator User Guides available for each actuator. Note that Firmware is updated from time to time to improve the performance and functionality of our actuators. As a result, the user guides can vary from the actuator you have. This is controlled via firmware versions. When powering the actuator or entering/ exiting a menu, you can see the firmware version number.

The menu functionality does vary but in general is used to make changes to the actuators standard functionality including working angle, speed control, 2 or 3 position setups, adjust opening and closing including setting of limit switches.



SCREEN BY SCREEN USER GUIDE AND INSTRUCTION MANUAL FOR SV70 SMART FAILSAFE SERIES

M Key: to switch menus

K2 Key: to switch Flash Item or adjust values

K3 Key: to modulate numerical value

Screen 1.3"OLED,Blue word against black background， 128X64

Step	Menu Operation:- Manual Mode	
1	Press and hold the K3 button, as shown above, for around 3 seconds. You will see K3 flashing in the top right-hand corner. The actuator is now in Manual mode. The actuator will now not respond to control signals from the PLC until taken out of Manual Mode. The actuator can be opened and closed as follows: Press K3 button, the actuator will OPEN Press K2 button, the actuator will CLOSE Press M button or without pressing any button for around 6 seconds, the actuator will exit Manual Mode.	 

Step	Menu Operation:- USER Setting Mode	
2	Long Press the M button, until you can see 'M' flashing in top right-hand corner. After around 3 seconds, enter user setting mode. The first screen you will see is dead zone setting. Dead zone setting main task is adjust the accuracy and sensitivity of the actuator. The adjustments are in degrees. The bigger the dead zone, the less ac-curate and sensitive the actuator is. The smaller the dead zone is the more accurate and sensitive the actuator is. The range is 0.3° to 3.9°, the system default is 1.0°.	

Step	Menu Operation:- Dead zone setting	
3	Long Press the M button, until you can see 'M' flashing in top right-hand corner. After around 3 seconds, enter user setting mode. The first screen you will see is dead zone setting. Dead zone setting main task is adjust the accuracy and sensitivity of the actuator. The adjustments are in degrees. The bigger the dead zone, the less ac-curate and sensitive the actuator is. The smaller the dead zone is the more accurate and sensitive the actuator is. The range is 0.3° to 3.9°, the system default is 1.0°. Press K3 button to increase the figure one by one Press K2 button to decrease the figure one by one Press M to enter next setting	

Step	Menu Operation:- Mechanical hysteresis setting	
4	• Mechanical hysteresis setting. It means the differential between valve rotating in the clockwise direction to 50% position and rotating as anti-clockwise to 50% position. 0.0-12% range available, 0.5% is the system default. • Press K3 to increase 0.1 by holding the button. K2 will decrease the value. Once you have set the actuator to the desired setting you can proceed to the next menu by pressing M.	

Step	Menu Operation:- Slight adjustment to valve-off positon	
5	Slight adjustment to valve-off position is to adjust the CLOSED position of the actuator. This is primarily used for where you want to allow for an inaccuracy between the valve stem and the actuator output drive. If the tolerance is not right, the actuator output drive can move a few degrees before it connects to the valve stem. This can mean that the actuator stops moving before the valve is in the fully closed position. This feature enables you to allow for this and effectively let the actuator over travel. • Press K3 button to decrease 0.1° and the menu will show “Offset-Open” which indicates valve-off (CLOSE) position is moving towards the valve-on position (OPEN). If the menu shows “This is maximum”, which means the set value is out of range of valve-off limits. • Press K2 button to increase 0.1° and the menu will show “Offset-Close” which indicates the actuator is moving towards valve-off position. If the menu shows “This is minimum” it means the set value is out of range of valve-off limits. • Press M button to enter next setting.	

Step	Menu Operation:- Speed Control, running speed PULSE MODE	
6	The running speed is the time is takes for the actuator to fully open or fully close. The run time is effected by the voltage of the actuator (see technical datasheets for more information) but this screen is used to slow down the running speed from the standard factory running speed. For Hi Speed please see Hi Speed series. The bigger the set value is, the shorter the switch time is. The smaller the value is set, the longer the switch time is. The range is 5%- 100%. The default is 100%, this will be the running speed set by factory and shown in datasheets. Press K3 button to increase by 5%. Press K2 button to decrease by 5%. Press M button to enter next setting item. PUL = PULSE—this means that the motor will be receive short supply of volt-age to achieve the desired working time. Motor will run stop run as per user setting to achieve the speed you need for open/close.	

Step	Menu Operation:- Speed Control, running speed PWM MODE	
7	The running speed is the time is takes for the actuator to fully open or fully close. The run time is effected by the voltage of the actuator (see technical datasheets for more information) but this screen is used to slow down the running speed from the standard factory running speed. For Hi Speed please see Hi Speed series. The bigger the value the faster the actuator will OPEN or CLOSE. The smaller the value is the slower the actuator will OPEN or CLOSE. The value range is 20% to 100%. The default is 100%. Press K2 to decrease the value Press K3 to increase the value Press M to enter next setting. Note that step 7 is Final step. PWM can impact the torque, contact technical support for more information. PWM = Pulse Width Modulating which is our alternative speed control meth-od to PUL. PWM allows you to digitally set the working speed based on the angle of rotation as one continuous movement, rather than start, stop, start stop as the PULSE mode will.	

Step	Time at Plugging Turn	
8	This screen refers to the actuator output alarm signal after plugging. The smaller the number the bigger the sensitivity is. The bigger the number the lower the sensitivity is. Range is 1-20% and the system default is 3%. Press K3 to increase by 0.1 and K2 to decrease by 0.1. Press M to proceed to next screen.	

Step	Menu Operation:- Power Down Command	
9	This option allows you to set the actuators failsafe command. On losing power and now moving to the set failsafe position, the actuator can be set as follows: 1 - KEEP = Stays put on power loss 2 - ON = Moves to the open position 3 - OFF = Moves to the closed position	

Step	Menu Operation:- Battery Charge	
10	Select the amount of charge required for the battery. This allows you to set the level of charge required in the battery before the actuator will respond to a command. The range is 60-99% but the default is set at 95% and we would recommend this setting is not changed. Use K3 to increase and K2 to decrease the setting. M will go to the next screen.	

Step	Menu Operation:- Motor Self Lock	
11	The motor self-lock refers to the actuator in a failsafe situation. The motor will lock once the failsafe position is reached. However, if set to UNLOCK then the actuator can be used manually and the motor will not be LOCKED. Use K3 to cycle the different options and M to go to the next screen.	

Step	Exit Setup	
12	This screen is the final screen you will see before returning to AUTO mode by saving changes and exiting or returning to screen 1. To save Press K3 and you will see the screen change to show software version, number of cycles and errors (note you won't see number of cycles on modulating actuators) and you will then be returned to the AUTO mode.	

Step	FAULT / ALERT Conditions	
13	The Smart series of AVA electric actuators have a number of displays that will occur under certain conditions. The actuators can detect certain errors or alarm conditions and display them on screen. The following Terminology is used to display the following faulty/conditions; • NOCTRL - This is referring to Modulating actuators and is advising the user that the actuator cannot see its digital input command. If using 4-20ma or 0—10V for example, check your supply and connection on the wiring of the actuator. Once the actuator can see the Control input signal again it will work as it should normally. • PWRCUT - For Failsafe actuators, the actuator can detect when the power is removed. The actuator will use its alternative power source (capacitor on SV70 or battery for 60/110 series) to open or close the actuator or stay put. Once power is restored the error message will disappear and the actuator will work as it should normally. • ALERT - There are 3 common conditions under which an ALERT will display. They are as follows; ALERT - Torque Limiter, this will occur when the actuator experiences an over torque condition due to excessive torque in the valve. The actuator has a set maximum torque limiter and monitors an increase in current draw as an indicator or of an over torque situation. The other cause of the torque limiter to operate would be a valve jam. The actuator will stop to protect the gear-box, you can reverse the signal to see if this clears any valve jam. Reverse the signal once more to see the actuator stops in the same place it did previously. Once the jam is cleared of the valve torque issue is resolved, the actuator will work again and the ALERT screen will disappear. ALERT - Torque Limiter sensor failure - note that there is a sensor monitoring current draw, if this hardware fails then it would replicate the same condition as a torque limiter issue without there being a torque issue. This is non re-pairable by the user and should be returned to the supplier. To check this, remove actuator from valve and test free of the valve. If ALERT displays return to supplier. ALERT– Motor Failure, this will occur if the motor within the actuator develops a fault. This is not repairable by the user. It is identified by applying a control signal to the actuator, if the actuator does not move but you can hear the motor attempting to turn followed by an ALERT and the actuator is not fitted to a valve, this is a sign that the motor could have failed. Return to supplier.	  

DynaQuip SV70 Modulating Manual

SCREEN BY SCREEN USER GUIDE AND INSTRUCTION MANUAL FOR SV70 SMART MODULATING SERIES

M Key: to switch menus

K2 Key: to switch Flash Item or adjust values

K3 Key: to modulate numerical value

Screen 1.3"OLED,Blue word against black background， 128X64

Step	Menu Operation:- Manual Mode	
1	Press and hold the K3 button, as shown above, for around 3 seconds. You will see K3 flashing in the top right-hand corner. The actuator is now in Manual mode. The actuator will now not respond to control signals from the PLC until taken out of Manual Mode. The actuator can be opened and closed as follows: Press K3 button, the actuator will OPEN Press K2 button, the actuator will CLOSE Press M button or without pressing any button for around 6 seconds, the actuator will exit Manual Mode.	 

Step	Menu Operation:- USER Setting Mode	
2	Long Press the M button, until you can see 'M' flashing in top right-hand corner. After around 3 seconds, enter user setting mode. The first screen you will see is Control Select setting. Control Select is to change / set the input /output control signal. Selectable from 0-10 and 4-20mA for example.	

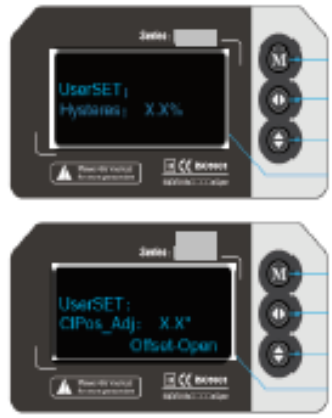
Step	Menu Operation:- Control Select	
3	Here you can select one of the following control options: 4-20mA 0-20m A 0-10V 2-10 V Use the K3 button to select through the different options. Press M to go to the next screen.	

Step	Menu Operation:- Control Setting	
4	Select between direct and reverse acting. Here you can select at a touch of a button if you want 4ma to be closed (standard) and 20ma to be open or if you want to reverse this so that 4ma becomes open and 20ma becomes closed. Use the K3 button to select through the different options. Press M to go to the next screen.	

Step	Menu Operation:- No Control Command Setting	
5	This option is used to set if the actuator should Open, Close or Stay Put on command signal being lost. ON = Open Position on loss of command signal (4ma or 0-10v) OFF = Closed Position on loss of command signal (4ma or 0-10v) KEEP = Stay in current position on loss of command signal (4ma or 0-10v) Use the K3 button to select through the different options. Press M to go to the next screen.	

Step	Menu Operation:- Dead Zone Setting	
6	Dead Zone setting main task is to adjust the accuracy and the sensitivity, the unit of measurement is degrees. The bigger the dead zone is the less accurate the actuator is and the lower the dead zone is the more the accurate the actuator is. If too sensitive sometimes the actuator can have 'hunting issue' if input PLC is not as sensitive. Press K3 to increase 0.1 Press K2 to decrease 0.1 Press M to enter next setting.	

Step	Menu Operation:- Slight adjustment to valve-off position	
7	Slight adjustment to valve-off position is to adjust the CLOSED position of the actuator. This is primarily used for where you want to allow for an inaccuracy between the valve stem and the actuator output drive. If the tolerance is not right, the actuator output drive can move a few degrees before it connects to the valve stem. This can mean that the actuator stops moving before the valve is in the fully closed position. This feature enables you to allow for this and effectively let the actuator over travel. • Press K3 button to decrease 0.1° and the menu will show “Offset-Open” which indicates valve-off (CLOSE) position is moving towards the valve-on position (OPEN). If the menu shows “This is maximum”, which means the set value is out of range of valve-off limits. • Press K2 button to increase 0.1° and the menu will show “Offset-Close” which indicates the actuator is moving towards valve-off position. If the menu shows “This is minimum” it means the set value is out of range of valve-off limits. • Press M button to enter next setting.	

Step	Menu Operation:- Mechanical hysteresis setting	
8	• Mechanical hysteresis setting. It means the differential between valve rotating in the clockwise direction to 50% position and rotating as anti-clockwise to 50% position. 0.0-12% range available, 0.5% is the system default. • Press K3 to increase 0.1 by holding the button. K2 will decrease the value. Once you have set the actuator to the desired setting you can proceed to the next menu by pressing M.	

Step	Menu Operation:- Minimum Speed	
9	Minimum speed selects the lowest working time / speed from moving to the set position. The lower the speed the more accurate the actuator will be. For high speed modulating actuators, select series S6029-S11029 for high speed and high accuracy. The range is 10-80% with the default being set at 60% Press K3 to increase by 0.1 and K2 to decrease by 0.1. Press M to go the next screen.	

Step	Menu Operation:- Speed Control, running speed PWM MODE	
10	The running speed is the time is takes for the actuator to fully open or fully close. The run time is effected by the voltage of the actuator (see technical datasheets for more information) but this screen is used to slow down the running speed from the standard factory running speed. For Hi Speed please see Hi Speed series. The bigger the value the faster the actuator will OPEN or CLOSE. The smaller the value is the slower the actuator will OPEN or CLOSE. The value range is 20% to 100%. The default is 100%. Press K2 to decrease the value Press K3 to increase the value Press M to enter next setting. Note that step 7 is Final step. PWM can impact the torque, contact technical support for more information. PWM = Pulse Width Modulating which is our alternative speed control meth-od to PUL. PWM allows you to digitally set the working speed based on the angle of rotation as one continuous movement, rather than start, stop, start stop as the PULSE mode will.	

Step	Time at Plugging Turn	
11	This screen refers to the actuator output alarm signal after plugging. The smaller the number the bigger the sensitivity is. The bigger the number the lower the sensitivity is. Range is 1-20% and the system default is 3%. Press K3 to increase by 0.1 and K2 to decrease by 0.1. Press M to proceed to next screen.	

Step	Menu Operation:- Speed Modulation Range	
12	Speed modulation range is referring to the opening differential between the actuator operating from the current position to the set position. If the differential is more than the speed modulation range, the actuator starts to have linear deceleration from max speed to minimum speed. When the speed in-creases the torque output can be effected. Range is 10-100% and the default is 20%.	

Step	Menu Operation:- Brake Time Delay	
13	It means the actuator operating to stated position from command being given can be delayed. The unit is Millisecond and the range is 1-50ms from signal command being sent and the actuator moving to that position. The de-fault is 1ms. At this setting the actuator is fully responsive.	

Step	Menu Operation:- Out 4ma Modifying	
14	If 4mA deviation value of output current is big, user can adjust it by this screen. If the number increases, output current will be greater. If the number decreases then the output will be smaller. Press K3 to increase the figure one by one Press K2 to decrease the figure one by one Press M to access next screen.	

Step	Menu Operation:- Power Down Command (Failsafe Only)	
15	This option allows you to set the actuators failsafe command. On losing power and now moving to the set failsafe position, the actuator can be set as follows: 1 - KEEP = Stays put on power loss 2 - ON = Moves to the open position 3 - OFF = Moves to the closed position	

Step	Menu Operation:- Battery Charge (Failsafe Only)	
16	Select the amount of charge required for the battery. This allows you to set the level of charge required in the battery before the actuator will respond to a command. The range is 60-99% but the default is set at 95% and we would recommend this setting is not changed. Use K3 to increase and K2 to decrease the setting. M will go to the next screen.	

Step	Menu Operation:- Motor Self Lock (Failsafe Only)	
17	The motor self-lock refers to the actuator in a failsafe situation. The motor will lock once the failsafe position is reached. However, if set to UNLOCK then the actuator can be used manually and the motor will not be LOCKED. Use K3 to cycle the different options and M to go to the next screen.	

Step	Exit Setup	
18	This screen is the final screen you will see before returning to AUTO mode by saving changes and exiting or returning to screen 1. To save Press K3 and you will see the screen change to show software version, number of cycles and errors (note you won't see number of cycles on modulating actuators) and you will then be returned to the AUTO mode.	

Step	FAULT / ALERT Conditions	
19	The Smart series of AVA electric actuators have a number of displays that will occur under certain conditions. The actuators can detect certain errors or alarm conditions and display them on screen. The following Terminology is used to display the following faulty/conditions; • NOCTRL - This is referring to Modulating actuators and is advising the user that the actuator cannot see its digital input command. If using 4-20ma or 0—10V for example, check your supply and connection on the wiring of the actuator. Once the actuator can see the Control input signal again it will work as it should normally. • PWRCUT - For Failsafe actuators, the actuator can detect when the power is removed. The actuator will use its alternative power source (capacitor on SV70 or battery for 60/110 series) to open or close the actuator or stay put. Once power is restored the error message will disappear and the actuator will work as it should normally. • ALERT - There are 3 common conditions under which an ALERT will display. They are as follows; ALERT - Torque Limiter, this will occur when the actuator experiences an over torque condition due to excessive torque in the valve. The actuator has a set maximum torque limiter and monitors an increase in current draw as an indicator or of an over torque situation. The other cause of the torque limiter to operate would be a valve jam. The actuator will stop to protect the gear-box, you can reverse the signal to see if this clears any valve jam. Reverse the signal once more to see the actuator stops in the same place it did previously. Once the jam is cleared of the valve torque issue is resolved, the actuator will work again and the ALERT screen will disappear. ALERT - Torque Limiter sensor failure - note that there is a sensor monitoring current draw, if this hardware fails then it would replicate the same condition as a torque limiter issue without there being a torque issue. This is non re-pairable by the user and should be returned to the supplier. To check this, remove actuator from valve and test free of the valve. If ALERT displays return to supplier. ALERT– Motor Failure, this will occur if the motor within the actuator develops a fault. This is not repairable by the user. It is identified by applying a control signal to the actuator, if the actuator does not move but you can hear the motor attempting to turn followed by an ALERT and the actuator is not fitted to a valve, this is a sign that the motor could have failed. Return to supplier.