SERIES 200-400 MODULATING
FIRMWARE SUPPORT DOCUMENT

USER GUIDE VERSION 11.4

- Screen by screen user guide
- Covers Smart Modulating, Failsafe and Hi Speed
- For On Off, Modbus, Multi Turn or Timer, see specific guides.
- Firmware guides are updated on a continuous basis for on going development and improvement of our actuators.
- We will release an update to show changes between software as and when we release new firmware versions.
- Check our Product Library online at www.avactuators.co.uk/support

SMART ACTUATORS WITH OLED SCREEN, TOUCH BUTTONS AND SMARTMENU™

All of our Smart actuators have a colour OLED screen and 3 x touch buttons. The screen will typically tell you all you need to know about your actuator, from the input command to the actual position, any problems with the actuator such as loss of power (if failsafe) or flash ALERT if the actuator as an alarm condition such as an over torque situation or valve jam. As standard, all of our actuators have Local Control as explained below. The touch buttons are used to navigate our onboard firmware to adapt and change the actuator settings to enable you, the user to customise our Smart actuators to your application and own specific requirements. Need to change the working angle, no problem. Need to change the speed, no problem. Need to setup a 3 position configuration, no problem. It's all possible using our Smart actuator series.

How to access the main customer accessible menus:	
Main Menu:	Hold M for 3 seconds and enter the password 333 to access main user Main Menu.
Local Control:	Hold K3 (bottom button) for 3 seconds and enter the password 111 to access Local Control / manual override
Reset:	Need to go back to factory reset/default settings? Hold all 3 buttons for 3 seconds and enter 6666.
Note:	If the actuators is left in a menu screen without a change in 120 seconds, the actuator will exit the menu.

Understanding the default screen: this is the screen you will see when not in a menu but the actuator is powered					
1.	BUS ID: *Only used on Modbus actuators*	5.	Internal Temperature in °C	9.	Firmware version number shown on power up/exiting menu. Cycles count shows how many times actuator has operated open/close.
2.	Set Value: *Input command and % 0-100*	6.	Internal humidity shown as a %		
3.	Angle: *Actual position of actuator 0-100%*	7.	Motor RPM		
4.	Input Signal type & Precision Sensor	8.	Failsafe Capacitor charge: *if applicable*		

New feature, we are adding a QR label to all of our products that will enable users of our product to have quicker and more direct access to support documents via our new purpose built QR website. Simply scan the QR code using your Smart phone camera and you will be taken directly to the specific actuator you have on site and will have access to Technical Datasheets, Firmware guides and product support videos.

SCAN ME

English version. Available in Spanish

Screen by Screen Firmware guide for Smart Actuators Series 200-400 only

UserSET **PassWord: XXX**	User settings are accessed by holding down the 'M' button for ~3 seconds, after this time the screen will request a password. The User Settings password is simply: 333 Use 'K2' to select the column and 'K3' to change the number.
UserSET **DisMod: English**	Display Mode allows the user to choose English or Chinese. If you hard reset the actuator using 6666 password, this will default the actuator to Chinese. To change back to English, simply hold M, enter 333, press M to go to the first screen and press K2 to select English.
UserSET **DeadZone: X.X%**	DeadZone is a sensitivity feature which allows for much more accurate positioning. The AVA default setting stops the actuator from hunting on a signal.
UserSET **DW_Close: X.X%**	DW_Close is the system default parameter. It is not necessary to adjust this value. The system default is 0.8-1.5.
UserSET **StallTime: 1X**	Stall Time represents the delay between the actuator detecting an error and the actuator triggering the alert signal (LED will light BLUE).
UserSET **BrkDelay: 100ms**	Break Delay allows the actuator to delay its movement from one position to another.
UserSET **PosiOFBrk: 100ms**	PosiOFBrk is the brake delay time in the range of Deadzone of full-close. The default is 80ms.
UserSET **SWDIR_Dly: 0ms**	Switch Direction Delay is similar to the above setting, although this is based on a sudden change of direction rather than end of travel.
UserSET **PDChk_Time: 20x**	Power Down Check Time dictates the delay on the actuator using the capacitors to close on loss of power. E.g. if loss if power lasts 2 seconds the actuator would not immediately begin to close. *Only applicable if actuator is Failsafe type*

Screen by Screen Firmware guide for Smart Actuators Series 200-400 only

UserSET PDAction: 20x	Power Down Action allows the user to dictate the failsafe position. Whether that be Open, Close, complete the last signal given or Keep in position. *Only applicable if actuator is Failsafe type*
UserSET CapCharge: XXX%	Failsafe actuator capacitors should be fully charged before the actuator is operable and therefore the default setting reflects this. But with this setting you can change the actuator to power on at an earlier %. *Only applicable if actuator is Failsafe type*
UserSET TestAlarm: ON	To replicate an 'Alert' situation we can set the 'Test Alarm' to 'ON'. This will turn the LED BLUE, if you purchased your actuator with an alarm relay, this will also generate a signal.
UserSET Manu_Spd: XXX%	Manual Speed allows the user to dictate the speed in which the 'Manual' operation runs.
UserSET Posi_4mA: XXX%	This allows you to set your 4mA or 0V position. Default is 0.0%.
UserSET Posi20mA: XXX%	This allows you to set your 20mA or 10V position. Default is 100.0%
UserSET RevDis: Normal	4-20mA: Control direction: Direct acting (Dir), Reverse acting (Rev). Direct acting: 4mA means valve is totally off, 20mA means valve is totally on. Reverse acting: 4mA means valve is totally on, 20mA means valve is totally off.
UserSET DisPosi: Pos420	DisPosi is the setting to displaying mode. This parameter is setting to the display value of Posi 4mA and Posi 20mA. 0-100%:is logic displaying value;Pos420 is practical position value.
UserSET FKChkMod: Pos420	FKChk Mod is setting the mode of feedback. Feedback must match the input.

Screen by Screen Firmware guide for Smart Actuators Series 200-400 only

UserSET **B33Posi: XX%**	B33 is the AVA version of a 3rd position. This setting allows the user to adjust the angle of that 3rd position. Note that the range of the actuator for open and close is 0-100%. Example, if you set the B33 to 50% it will set the mid position as 45 degrees or 50% open.
UserSET **Ctrl_Mode: Dir**	Control Mode is our onboard feature which allows a signal to be swapped. For example, with 'Dir' selected 4mA would be Closed or with 'Rev' selected 4mA would be Open.
UserSET **NoCtr_Act: On**	When the input signal is lost, for example 4-20mA or 0-10V, but actuator still has power, the actuator can use the power to move to a preset position. This can be ON (open) OFF (closed) KEEP (keep current position) or B33 (this is a 3rd position set in firmware)
UserSET **IsGo_Hyste: Yes**	This setting is a prerequisite to the next option 'Hysteresis'. This option simply enables or disables the Hysteresis function. The default is 'NO'.
UserSET **Hysteres: X.X%**	As per the previous screen, you must select 'YES' to enable this function. This option would be used if the output drive does not engage with the valve stem immediately. The actuator will move to the set % before it starts its 90° turn.
UserSET **SpeedMax: XX%**	This setting allows the user to adjust the maximum running speed of the actuator. 100% is the default. *Note speed control can reduce torque output*
UserSET **SpeedMin: XX%**	This setting allows the user to adjust the maximum running speed of the actuator. 100% is the default. *Note speed control can reduce torque output*
UserSET **PosiFOFSpd: XX%**	PosiFOFSpd is the actuator running speed in the range of deadzone. The system default is 85﹪.
UserSET **RangeAdj: XX.X%**	Set the actuator to reach the control range for the specified position. The default is 10.0%

How to access the main customer accessible menus:

UserSET **Channel: 4To20mA**	When modulating you will wire the actuator based on 4-20mA or 0-10V. This setting is how you inform the actuator which of the signals you are giving. The default is 4-20mA.
UserSET **MVF_FiltCoe: 15**	The actuator will digitally filer the input signal. The bigger value, the better filter effect, but the responding time of the actuator to the signal will be longer. So, this value should not be too high. _Not recommended to change default setting_
UserSET **LPF_FiltCoe: 15**	LPF_FiltCoe: Low-Pass-Filter. The smaller coefficient, the more stable filtering effect, the lower sensitivity; The bigger coefficient, the higher sensitivity, the more unstable filtering effect. _Not recommended to change default setting_
UserSET **SampPerod: XXms**	SamPerod is sampling period of control signal. The shorter the period, the more sensitivity of sampling to control signal. _Not recommended to change default setting_
UserSET **Out_4mA: X.X%**	If the deviation value of the output current of 4mA is large, it can be adjusted by modifying this value
UserSET **Out_20mA: XX%**	If the deviation value of the output current of 20mA is large, it can be adjusted by modifying this value
UserSET **ExitSET: Push K3**	Once you have made any of the necessary changes, please press K3 to save and exit. You will see the message 'SaveOK' appear and the actuator will display a 'Thank you for your use' message and default back to the default screen that displays actuator input and actual position.
Re Calibration **Required** ⚠️	If you change your actuator's control signal from the default of 4-20ma to 2-10V for example, you will need to recalibrate the actuator using the input signal you have. We have produced a step by step guide for doing this on our website. Please ensure you follow our guide if you need to change the input control signal.

Screen by Screen Firmware guide for Smart Actuators Series 200-400 only	
UserSET BothIN_ON: KEEP	This setting allows you to set how you want the actuator to respond on receiving input voltage to both the ON and OFF command. Usually you will operate the actuator by either powering ON (open) or powering OFF (closed) but if you apply power to both ON and OFF at the same time, we can allow certain the following functionality. Both ON and OFF: KEEP: this will keep the current position of actuator
UserSET BothIN_OFF: KEEP	ON: this will go to the ON (open) position of actuator OFF: this will go to the OFF (close) position of actuator B33: this will go to the B33 / 3rd position
UserSET ExitSET: Push K3	Once you have made any of the necessary changes, please press K3 to save and exit. You will see the message 'SaveOK' appear and the actuator will display a 'Thank you for your use' message and default back to the default screen that displays actuator input and actual position.
  Manual: OFF Angle: XX.XX% K2 OFF	Local Control / Manual Control under power: This mode is to control the actuator locally when power is applied to the actuator. Simply hold the bottom button (K3) for 3-4 seconds and enter the password 111 and press M. Once in the menu you will see Manual displayed on screen, the actuator can now be controlled by pressing K2 (middle button) and K3. This will open/close the actuator. To exit the screen simply press M and you will return to the powered mode and the actuator will return to the signal currently being applied. If the actuator is left in Local Control, after approx. 45 seconds the actuator will return to the powered mode. Remember to not use the Manual Override via Allen key when power is applied. Refer to the Installation, Operation and Maintenance guide.

For more support documents, video and general product information visit www.avactautors.co.uk.

To view other Firmware guides for Modulating actuators and Series 200-400, click on the image of the actuator. As we update our Firmware guides, we will make superseded versions available for download on our website.

English version. Available in Spanish