SERIES 20-110 MT MODULATING
FIRMWARE SUPPORT DOCUMENT



USER GUIDE VERSION 13.9

- Screen by screen user guide
- Covers Smart Series Multi Turn Modulating
- For Series 20, 50, 80 and 110Nm actuators
- Our products are continually developed through Firmware revisions.
- 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

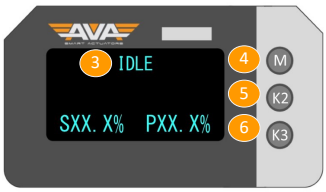
Version 001: 13/10/22 subject to change without notice

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.

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.	Input Command: ON = Open OFF = Closed	5.	K2 = Button used in Smart Menu	9.	On power up shows the total number of errors. You can also view this screen whenever exiting a menu. *Note that this information turns off quickly.
2.	Angle: Shown as %. 0% is Closed 100% Open	6.	K3 = Button used Smart Menu/Local Control		
3.	IDLE: Actuator is waiting next command	7.	On power up, shows Firmware Version Number		
4.	M = Button to enter / use in Smart Menu	8.	On power up, shows total number of cycles		

SCAN ME

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.

English version. Available in Spanish

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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 Channel: 4To20mA	When modulating you will wire the actuator based on 4-20mA or 0-10V. The default is 4-20mA. Other options include 1-5V, 0-20mA and 2-10V. Note that in Series 10/20 you must order specific to your requirement. You cannot change via firmware. Series 50-110 you can change via firmware, but should always re calibrate your actuator.
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. Range 5-16 *Not recommended to change default setting*.
UserSET LPF_FiltCoe: 0.1	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. Range 0 -0.1 *Not recommended to change default setting*.
UserSET SampPerod: XXms	SampPerod is sampling period of control signal. The shorter the period, the more sensitivity of sampling to control signal. *Not recommended to change default setting*. *Range is 20ms—250ms*
UserSET SetTurns: XX.XX	Here you can set the number of turns required for your valve. Series 20 has a max number of turns of 5, Series 50 has a max number of turns of 15 and the Series 80-110 have a max number of turns of 20. See our Multi Turn datasheet for more details.
UserSET Md360° 1x:XX.XX%	Md360 allows you set a different % of a turn with a set turn. So for example you can adjust each turn individually in addition to setting the above overall turns of the actuator. *In general this setting is not required to be changed.* The number of screens determines how many screens are shown. For example, for Series 20, there are 5 additional screens. Range is 90-110%
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.

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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 pre-set 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. Range is 0.0% to 9.0%
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. Range is 0.3% to 9.9%.
UserSET DW_Close: X.X%	DW_Close is the system default parameter. It is not necessary to adjust this value. Range is 0.5% to 1.2% *Not recommend to change default setting*. Range is
UserSET SpeedMax: XXX%	Maximum speed setting: mainly to adjust the maximum speed of the actuator when running, the value range is "minimum speed" ‹ operation Speed ‹ 100%. The higher the value, the higher the operating speed, and the maximum speed will not exceed its rated speed. Range 86% to 100% *Note speed control can reduce torque output*
UserSET SpeedMin: XXX%	Minimum speed setting: mainly adjust the minimum speed of the actuator operation, the value range is 25%‹ the operating speed is ‹Maximum speed. The smaller the value, the slower the running speed, and the minimum speed will not be less than 25% of the rated speed. Range 20% to 100% *Note speed control can reduce torque output*
UserSET PosiFOFSpd: XX%	PosiFOFSpd is the actuator running speed in the range of dead zone. The system default is 85%. Range is 20% to 99% *Not recommend to change default setting*.
UserSET RangeAdj: XX.X%	Set the actuator to reach the control range for the specified position. Range is 1.0% to 25.0% The default is 10.0%