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		

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 - Modulating Multi Turn S20, S50, S80 and S110.

Screen	Description
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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Screen	Description
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%

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UserSET **Manu_Spd: XXX%**	Manual Speed allows the user to dictate the speed in which the 'Manual' operation runs. Range 20% to 99%
UserSET **StallTime: 5X**	Stall Time represents the delay between the actuator detecting an error and the actuator triggering the alert signal (LED will light BLUE). Range 5X to 90X
UserSET **BrkDelay: 100ms**	Break Delay allows the actuator to delay its movement from one position to another. Range is 0ms to 990ms.
UserSET **PosiOFBrk: 100ms**	PosiOFBrk is the brake delay time in the range of DeadZone of full-close. Range is 0ms to 200ms. 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. Range is 20ms to 2000ms. *Not recommend to change default setting*.
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. *Failsafe not yet available for MT Series.*
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 %. *Failsafe not yet available for MT Series.*
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 **Posi_O: XXX%**	This setting allows the user to adjust the angle of to open position. Range –40% to 40%.

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UserSET Posi_90: XXX%	This setting allows the user to adjust the angle of the closed position. Range 80% to 130%
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: FK_ERR	FKChkMod is setting the mode of feedback signal and LED, If you set as ERR , then the LED light means the actuator is in alarm status If you set as B33 ,then the LED light blue means the actuator arrive to the B33 position.
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 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. *Failsafe not yet available for MT Series.*
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 AlarmFreq: XX/m	Alarm Freq is one kind of warning words. It means the actuator will flash HF SW on the top right corner on the screen when the number of switching control signals is over the set number. HFSW will appear if a high level of switching of signal occurs.

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UserSET **StartUpDelay: X.Xs**	StartUpDly is the displaying time of the start-up interface. The default value is 0.5s.
UserSET **Cycles: XXXXXXXX**	Cycles is a parameter which displays the running numbers of the actuator.
UserSET **ErrStall: XXXXX**	Shows the amount of times the actuator has gone into alert .
UserSET **SoftVer: vXX.X**	Shows the firmware version number.
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.
	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. As we update our Firmware guides, we will make superseded versions available for download on our website.

Need help with selecting the right actuator for your valve or application? Get in touch today, we have many years experience in automating valves. See our full range of actuators online at www.avactuators.co.uk

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