

REGULATING ELECTRICAL ACTUATOR + RETURN BY SUPER-CAPACITOR TCR-05-11-T-KT

FEATURES

TCR-T-KT electrical actuators are intended for motorising ¼ turn valves with a torque of 50 or 80 Nm.

Double proportional control function 4-20mA + closing manoeuvre provided by a super-capacitor. With a compact construction and plastic housing, they are especially well suited for motorising small size ball valves. The actuator has many advanced control functions which can be set from the screen. IP67 leak-tightness: to be used indoors and, possibly, outdoors under a shelter. Manual control with a key.

AVAILABLE MODELS

Supply voltages: 230V AC, 24V AC/DC.

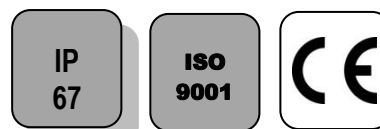
Control: 4-20 mA, 0-20 mA, 2-10V, 0-10V.

LIMITS OF USE

IP Code	IP 67
Ambient temperature	- 20°C / +60°C
Service factor	S4-50%

MECHANICAL FEATURES

Gear box	treated steel pinions
Torques	50 - 110 Nm
Angle of rotation	90° +/- 2°
Declutching	without
Override control	By key



Actuator	TCR 05T-KT32		TCR 11T-KT32	
Torques (Nm)	50		80	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Adjustment signal	4-20 mA, 0-20 mA, 2-10V, 0-10V			
Feedback signal	4-20 mA, 0-20 mA, 2-10V, 0-10V			
Manoeuvring time (s)	12	12	10	10
ISO 5211:	F05/F07 - star 14		F05/F07 - star 17	

ELECTRICAL FEATURES

Actuator	TCR 05T-KT32	TCR 11T-KT32
Motor protection	Thermal switch	
Anti-condensation	integrated	
Electrical connection	PE M20 + 1.5m cable	2 x PE M14

Actuator	TCR 05T-KT32		TCR 11T-KT32	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Power (W)	40	40	100	100
Current (A)	1,8	0,18	2,5	0,3 - 0,6
Fuse protection (A)	10	2	5	2

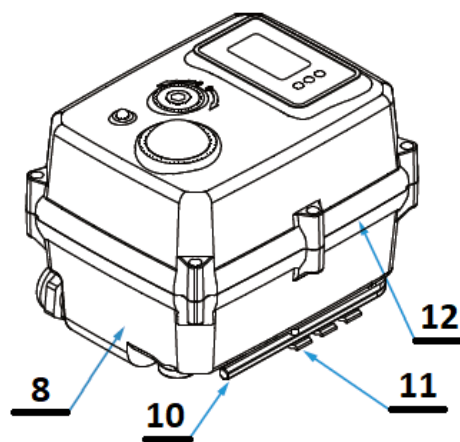
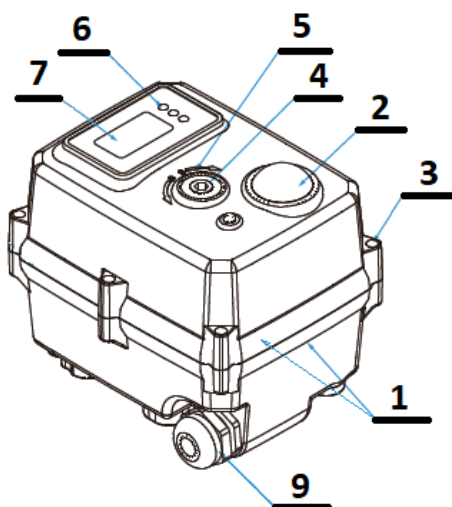
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		Ref.	FT2419B ENG
		Rev.	01
		Date	02/2020

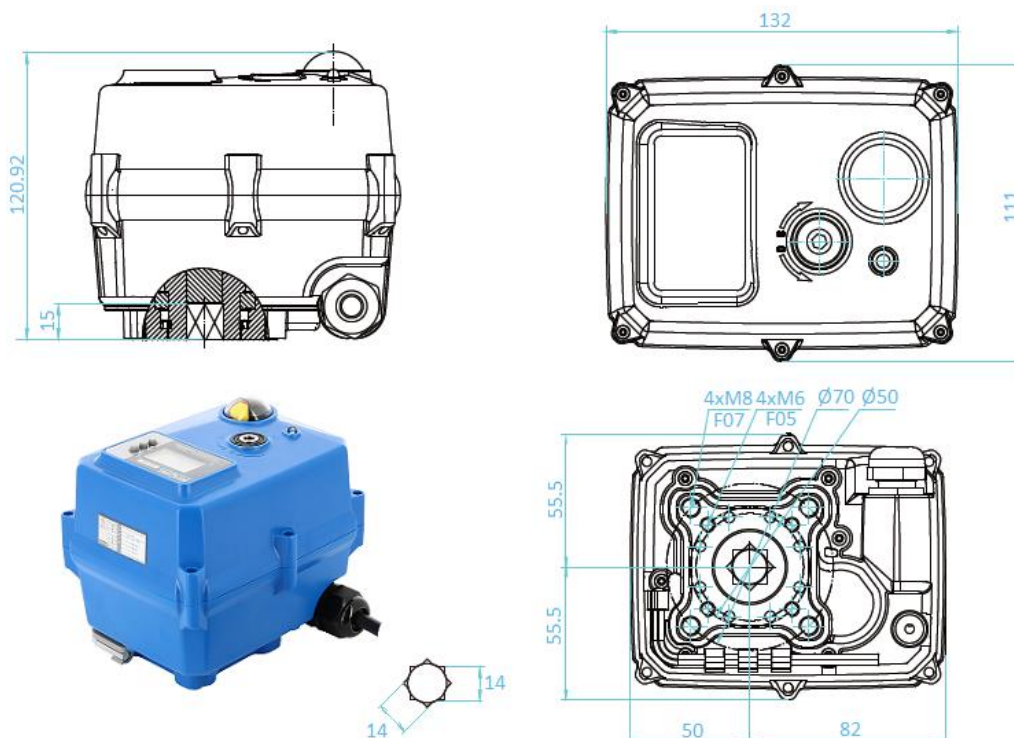
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CONSTRUCTION (TCR-05T-KT32)

TCR-05T-KT32					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	7	1.3" LCD display	OLED
2	Position indicator	Polycarbonate plastic	8	Rating plate	PVC
3	Screw x 6	Ansi 304	9	Packing gland	Nylon
4	Backup control stem	Ansi 304	10	Hex key	Steel
5	Gasket	NBR	11	Key support	Plastic (ABS)
6	Adjustment button	Rubber	12	Cover gasket	NBR
Weight (kg): 1.800					



DIMENSIONS (mm)



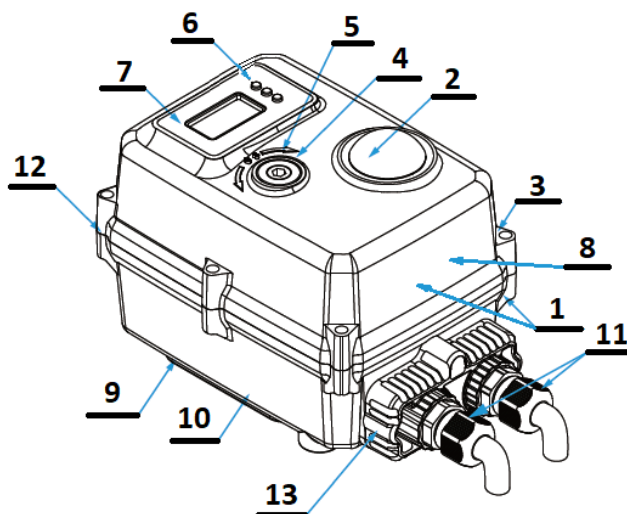
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		Ref.	FT2419B ENG
		Rev.	01
		Date	02/2020

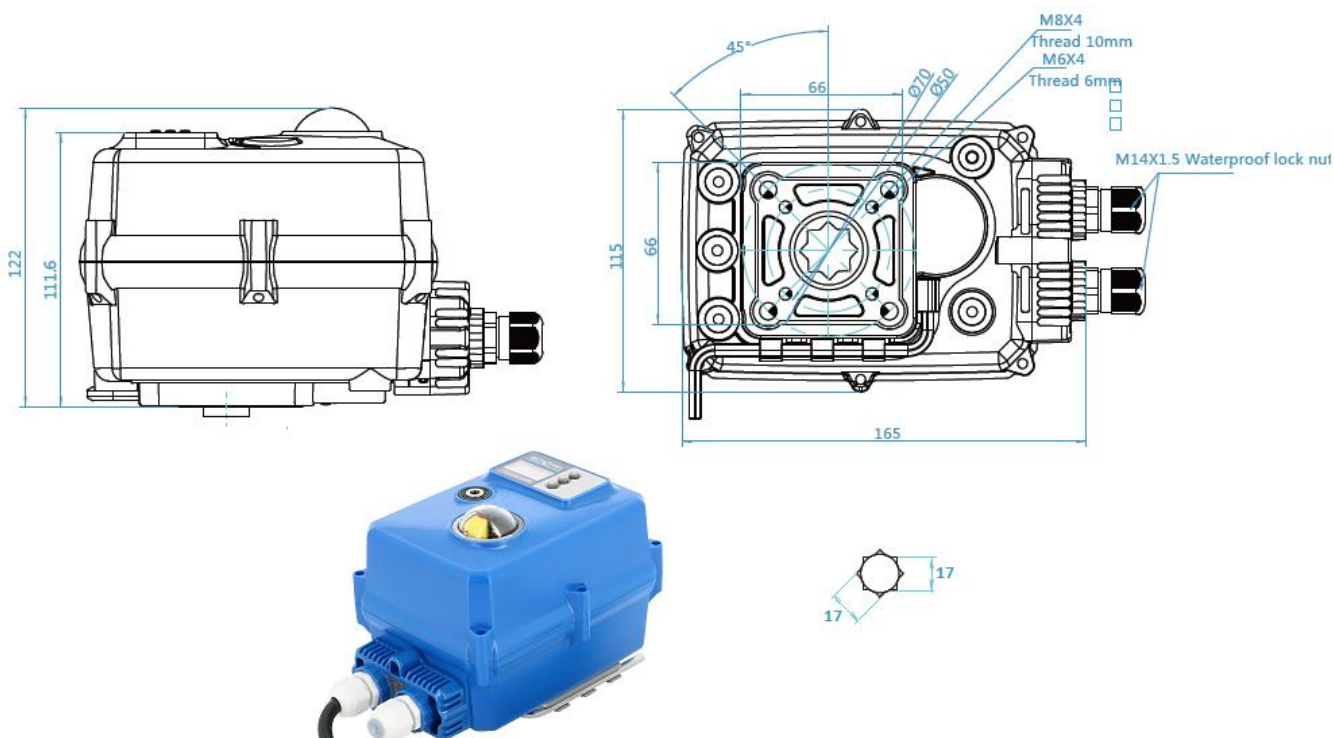
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4	Backup control stem	Ansi 304	10	Hex key	Steel
5	Gasket	NBR	11	X 2 Packing gland	Nylon
6	Adjustment button	Rubber	12	Cover gasket	NBR
Weight (kg): 2.200			13	Cable gland unit	Plastic (ABS)

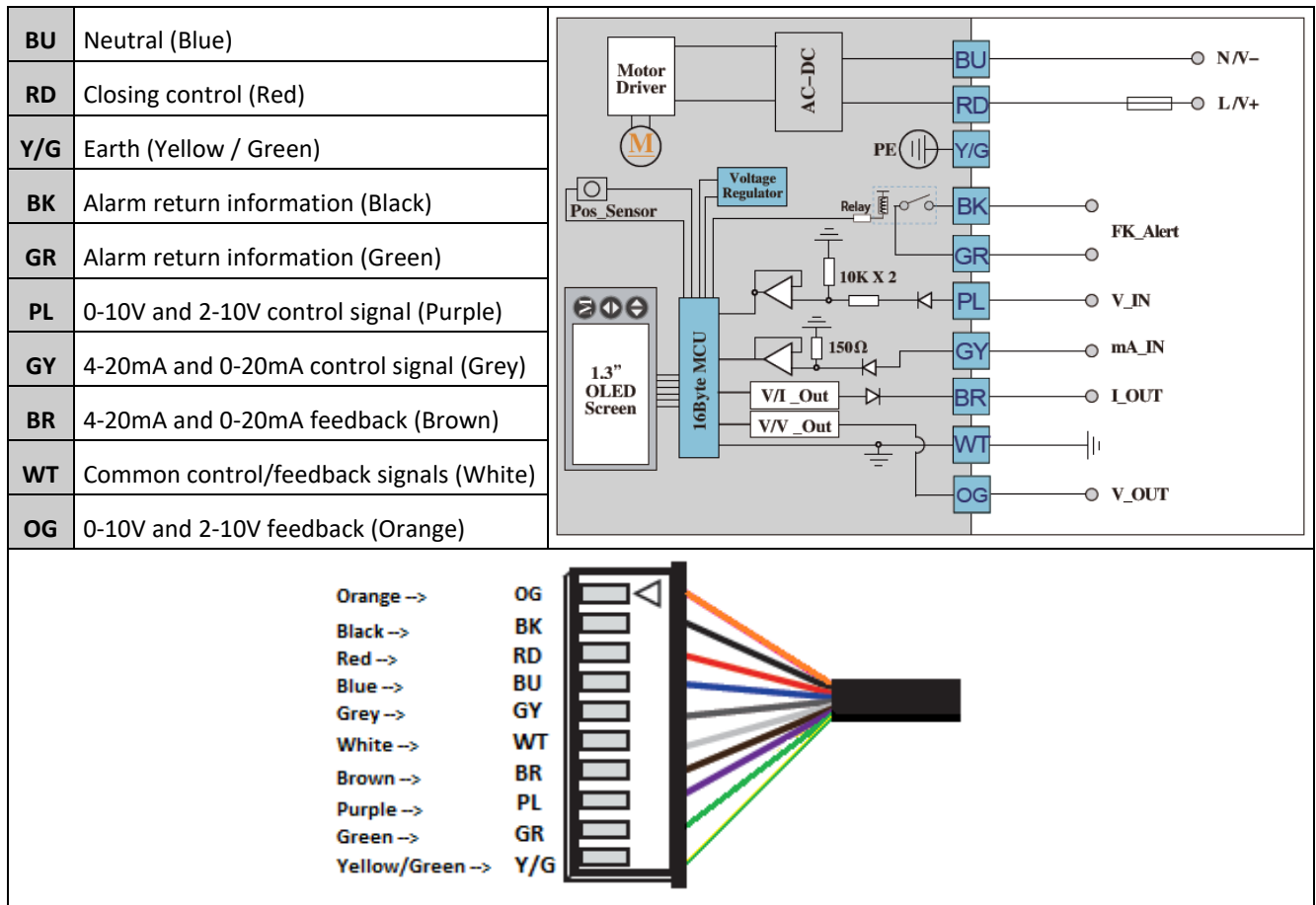


DIMENSIONS (mm)

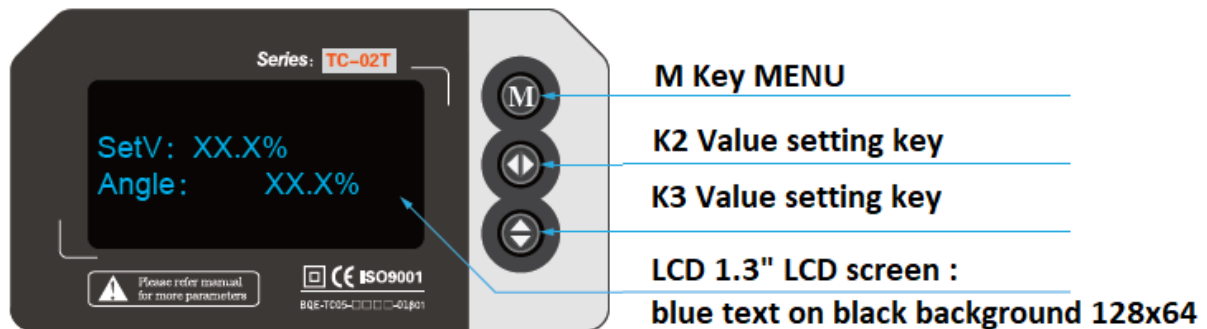


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WIRING DIAGRAM



DESCRIPTION OF THE 1.3" LCD SCREEN



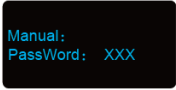
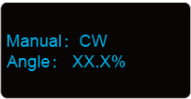
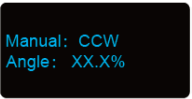
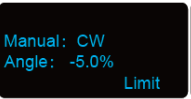
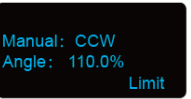
1.3" LCD angle without any blind spot, strong luminosity, automatic switching to the economy saving mode at the end of 5 minutes. The control screen displays the set value and the % of opening of the valve.

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		Ref.	FT2419B ENG
		Rev.	01
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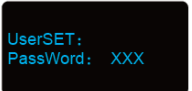
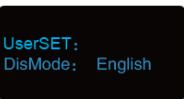
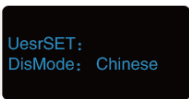
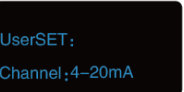
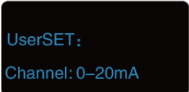
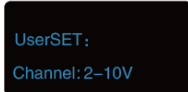
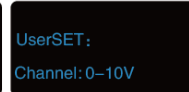
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CONTROL IN LOCAL MODE


1	Press the K3 button for 5 seconds, until "K3" flashes at the top right of the screen.	
2		Enter the password "111"
3	Press the K2 button to manoeuvre clockwise. The screen displays the % of opening. Release when the desired position is reached.	
	   	
	Press the K3 button to manoeuvre anti-clockwise. The screen displays the % of opening. Release when the desired position is reached.	

PARAMETER SETTING MENU OF THE ACTUATOR

The following functions can have their parameters set from the menu accessible on the screen:

STEP	TITLE	FUNCTION AND VALUES
1	Standby screen	If the actuator did not receive any signal in the last 5 minutes, the screen switches to standby. Press any button for 5 s. Then reactivate the screen.
2	Enter the password	Press the "M" button for more than 5 s. Enter the code "333" (use the keys K2 and K3) Press again the button "M" 
3	Choice of language	English or Mandarin  
4	Choosing the control signal	Press "K3" to chose the control signal Possible signals: 4-20mA, 0-20mA, 2-10V, 0-10V Press "M" again to continue    

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		Ref.	FT2419B ENG
		Rev.	01
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REGULATING ELECTRICAL ACTUATOR

+ RETURN BY SUPER-CAPACITOR TCR-05-11-T-KT

5	Choosing the direction of rotation of the actuator	Direct 4mA = valve closed / 20 mA = valve open Inverted 4 mA = valve closed / 20 mA = valve open
		<div>UserSET: Ctrl_Mode: Dir</div> <div>UserSET: Ctrl_Mode: Rev</div>
6	Position by absence of any control signal	In the absence of a control signal, the valve can take 3 positions: ON, OFF or KEEP
		<div>UserSET: NoCtr_Act: ON</div> <div>UserSET: NoCtr_Act: OFF</div> <div>UserSET: NoCtr_Act: KEEP</div>
7	Dead band	This function is used to set the accuracy and the sensitivity of the control: the larger the band, the lower the accuracy; the narrower the band, the more oscillating the system can be. Setting range: 0.1 to 9.9% - Setting by default: 0.8%
		<div>UserSET: DeadZone: X.X%</div> <div>UserSET: DeadZone: 0.1% This is minimum</div> <div>UserSET: DeadZone: 9.9% This is maximum</div>
8	Hysteresis adjustment	This parameter setting is a prerequisite for the next. YES = adjustment is possible NO = no adjustment is possible (value by default)
		<div>UserSET: IsGo_Hyste:Yes</div> <div>UserSET: IsGo_Hyste:No</div>
9	Hysteresis value	If the previous parameter is "YES", it is possible to set the hysteresis value between 0.1 and 9.9%. The value by default is 0.2%. Do not use the function if there is a play between the valve's stem and the actuator's square.
		<div>UserSET: Hysteres: X.X%</div> <div>UserSET: Hysteres: 0%</div>
10	Redefining the 4 mA position	Used to set another position than 0% for the 4 mA value. This function is useful for valves with an opening angle different from 90°. Range: -50% +80% - Value by default = 0.0%
		<div>UserSET: Posi4mA: XX.X%</div> <div>UserSET: Posi4mA: 0.0%</div>
11	Redefining the 20 mA position	Used to set another position than 100% for the 20 mA value. This function is useful for valves with an opening angle different from 90°. Range: +81% +220% - Value by default = 100.0%
		<div>UserSET: Posi20mA: XX.X%</div> <div>UserSET: Posi20mA: 100.0%</div>

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		Ref.	FT2419B ENG
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12	Manual adjustment of the speed of rotation	<p>This function is used for slowing down the motor. Range: 20-100% - Value by default = 100%</p>
		<div>UserSET: Manu_spd: XX%</div> <div>UserSET: Manu_spd: 20%</div> <div>UserSET: Manu_spd: 100%</div>
13	Setting the maximum speed	<p>This setting affects the available torque. Without a special need, do not change it. Range: 20-100% - Value by default = 100%</p>
		<div>UserSET: SpeedMax: XX%</div> <div>UserSET: SpeedMax: 100%</div>
14	Setting the minimum speed	<p>This setting affects the available torque. Without a special need, do not change it. Range: 20-95% - Value by default = 75%</p>
		<div>UserSET: SpeedMin: XX%</div> <div>UserSET: SpeedMin: XX%</div>
15	Setting the speed for the stroke	<p>This setting is used for setting a % of the actuator stroke during which it will slow down before reaching the setpoint value position. Range: 1-20% - Value by default = 10%</p>
		<div>UserSET: RangeAdj: XX.X%</div>
16	Braking time	<p>In order to increase the stability of the motor, the motor will slow down after a short time before reaching its setpoint value position. During current use, this function is not useful. Range: 0-50 ms – Value by default = 1 ms</p>
		<div>UserSET: Brk_Delay: XX%</div> <div>UserSET: Brk_Delay: 0 Ms</div> <div>UserSET: Brk_Delay: 50Ms</div>
17	Modification of the input signal 4 mA	<p>The function is used to modify the 4mA input signal. If the value of the parameter is increased, the signal will be increased. If the value is decreased, the signal will be decreased. It is not recommended to change the factory settings.</p>
		<div>UserSET: PWM_4mA: XXX_V</div>
18	Modification of the 20mA input signal	<p>The function is used to modify the 20mA input signal. If the value of the parameter is increased, the signal will be increased. If the value is decreased, the signal will be decreased. It is not recommended to change the factory settings.</p>
		<div>UserSET: PWM_20mA: XXX_V</div>

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		Ref.	FT2419B ENG
		Rev.	01
		Date	02/2020

REGULATING ELECTRICAL ACTUATOR

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19	Modification of the output signal 4 mA	<p>If a deviation is found on the 4mA output signal, this function is used to adjust it. If the number is increased, the current is higher. If the number is decreased, the current is lower.</p> <p>Range: 000_481_A – Value by default 191_A</p> <p>NB: always limit the lower value to 20 mA</p>
		<div>UserSET: Out_4mA: XX.X%</div> <div>UserSET: Out_4mA: 177_A</div>
20	Modification of the 20mA output signal	<p>If a deviation is found on the 20mA output signal, this function is used to adjust it. If the number is increased, the current is higher. If the number is decreased, the current is lower.</p> <p>Range: 191_1000_A – Value by default 909_A</p>
		<div>UserSET: Out_20mA: XX.X%</div> <div>UserSET: Out_20mA: 899_A</div>
21	Power supply position by default	<p>Setting the position of the valve in the event of a power cut. This manoeuvre will be carried out if the capacitor is sufficiently charged.</p> <p>Possible values:</p> <p>KEEP: unchanged position of the valve</p> <p>ON: opening of the valve</p> <p>OFF: valve closing</p> <p>Value by default: OFF</p>
		<div>UserSET: PDAction: NOCK</div> <div>UserSET: PDAction: KEEP</div> <div>UserSET: PDAction: OFF</div> <div>UserSET: PDAction: ON</div>
22	Response time	<p>Used to set the response speed of the valve. The smaller the value, the less sensitive the control. The bigger the value, the more sensitive it is. Increase the value when the response speed is too low.</p> <p>Setting range: 1x20x – Value by default 3x</p>
		<div>UserSET: StallTime: 3X</div> <div>UserSET: StallTime: 1X minimum</div> <div>UserSET: StallTime: 20X maximum</div>
23	Checking the feed signal	<p>The actuator periodically tests its electrical power supply. A change of a value will change the interval between two tests. In current use, there is no need to change this parameter.</p>
		<div>UserSET: PDChk_Time: 100%</div>

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		Ref.	FT2419B ENG
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24	Super-capacitor charge	<p>This parameter is used to set the % of charge on the super-capacitor from which on the actuator switches to the automatic mode.</p> <p>Setting range: 60-99%</p> <p>Value by default: 95%</p> <p>Do not set below 80%, the charge will be insufficient and would set off the motor alarm</p>
		<div>UserSET: BatCharge: XX%</div> <div>UserSET: BatCharge: 60% Minimum</div> <div>UserSET: BatCharge: 99% Maximum</div>
25	Actuator locking after the intervention of the super-capacitor	<p>Used to seal off the valve if an emergency manoeuvre occurred.</p> <p>Value by default: UNLOCK</p>
		<div>UserSET: MotLock: LOCK</div> <div>UserSET: MotLock: UNLOCK</div>
26	Alarm test	<p>This function is used to control whether a defect alarm is broadcast or not. It is especially used for factory testing</p> <p>Value by default: ON</p>
		<div>UserSET: Test Alarm: ON</div>
27	Exiting the menu	<p>Press K3 to exit the menu</p> <p>The system will switch back in the automatic checking mode.</p>
		<div>UserSET: ExitSET: Push K3</div>

TROUBLESHOOTING

Defect met	Cause of defect	Method of solving
Inactive actuator	Non-connected electrical grid.	Connect to the electrical grid.
	Wrong voltage.	Check the actuator's voltage.
	Motor overheating.	Check the torque on the valve.
	Faulty connection.	Check the connection to the terminal box.
	Damaged start capacitor.	Contact the supplier for repair.
No switch signal	Faulty connection.	Check the connections.
	Damaged microswitch	Change the microswitch
Valve that is not fully closed	Use the return signal from the actuator check.	Receiving a return signal does not mean that the actuator is fully closed, hence do not cut the power supply.
	The hysteresis increases due to wear or between the actuator and the valve's stem.	Readjust the limit cams. Contact the supplier for repair.
Presence of humidity or water in the actuator	Unsuitable cable cross-section being used.	Contact the supplier for repair.
	The cable connection is not leak-tight.	
	Worn sealing gaskets.	
	Loose cover screws.	Dry the internal parts and tighten the cover screws.

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