

# WIRELESS TCR-02R LoRa ELECTRICAL ACTUATOR

## FEATURES

The TCR-02R electric actuator is intended for motorising ¼ turn valves with a torque of 20 Nm.

**WIRELESS function:** TCR-02R can be remote-controlled via the LoRa protocol. If the electrical power supply to the motor stays wired, it can also be stand-alone based on a solar panel, given its low consumption.

Different operating parameters of the actuator can be set from the screen. With a compact construction and plastic housing, the TCR is especially well suited for motorising small dimensions ball valves. Brushless motor with electronic torque limiter. IP67 leak-tightness: to be used indoors and, possibly, outdoors under a shelter. Possible installation in parallel.

## AVAILABLE MODELS

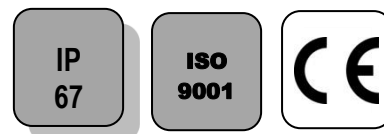
Supply voltages: 230V AC-DC, 24V AC-DC.

## LIMITS OF USE

IP Code	IP 67
Ambient temperature	- 20°C / +60°C
Relative humidity	5-95%
Service factor	S4-50%

## MECHANICAL FEATURES


Gear box	treated steel pinions
Torque	20 Nm
Angle of rotation	90° +/- 2°
Maximum angle of rotation	330° +/- 5°
Declutching	Without
Override control	By key
Manoeuvring time (s) 230 V AC-DC	15 s
Manoeuvring time (s) 24V AC-DC	10 s
ISO 5211:	F03/F04/F05 - star 11



## ELECTRICAL FEATURES

Voltage	95-265 V AC / 100-300 V DC	18-26 V AC / 22-28 V DC
Power (W)	9.6 W running / 0.12W holding	9.6 W running / 0.85W holding
Current (A)	35 mA@230V AC / 75 mA@110V AC	350 mA@24V DC
Fuse	1A	2A
Motor protection	Thermal switch	
Anti-condensation	In-built and self-controlled (2-3W)	
Electrical connection	PE M10 + 1.5m cable	
Communication frequency	868 MHz	
Communication protocol	LoRa	
Communication distance	0-3 km	

Information given as an indication only, and subject to possible modifications

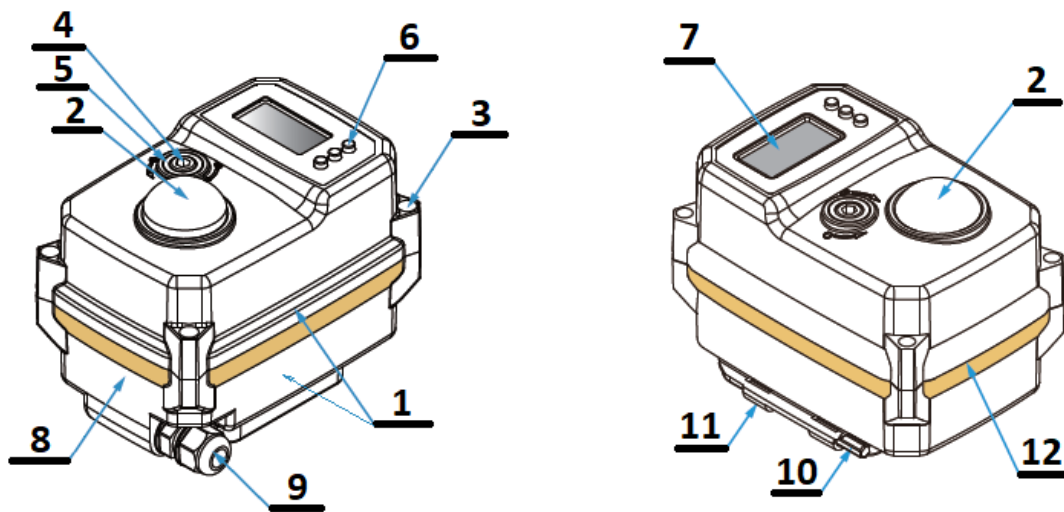
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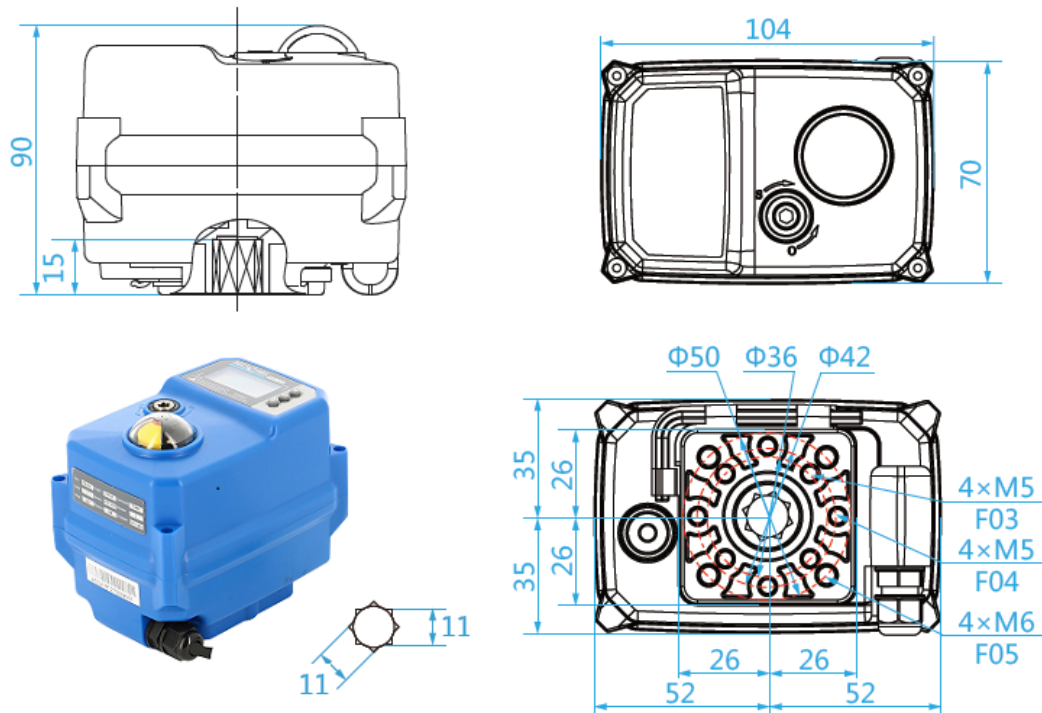
## CONSTRUCTION

TCR-02R					
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 4	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): 0.620



## DIMENSIONS (mm)

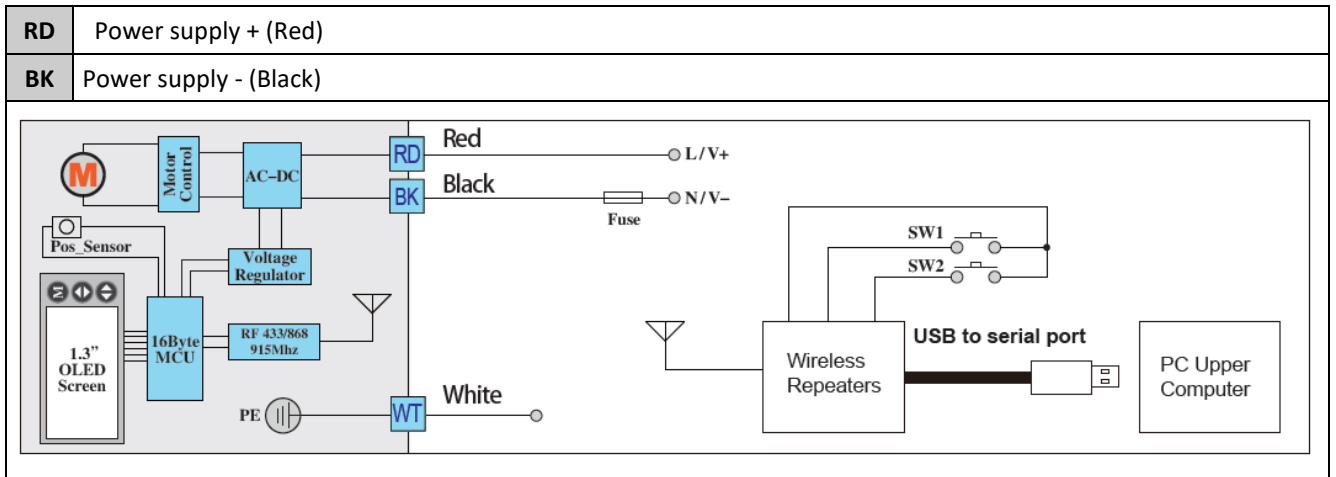


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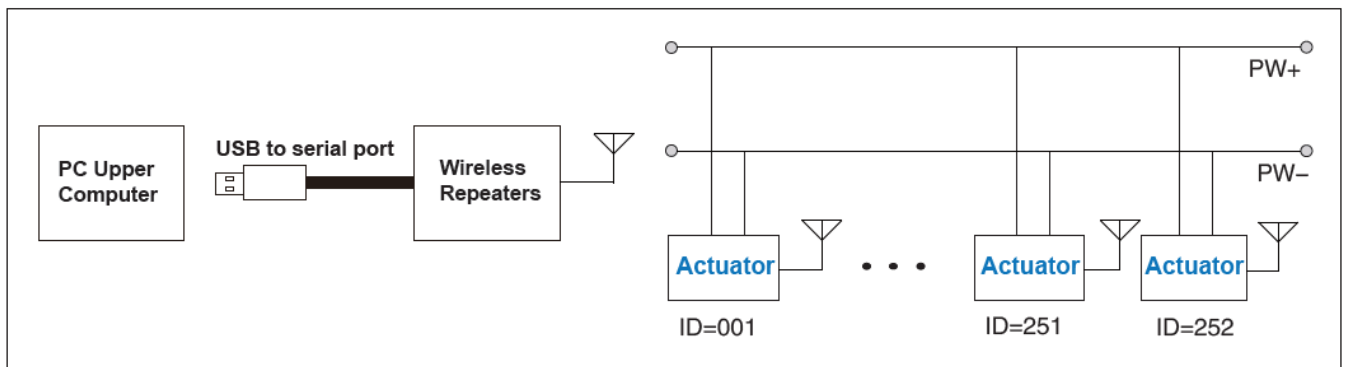
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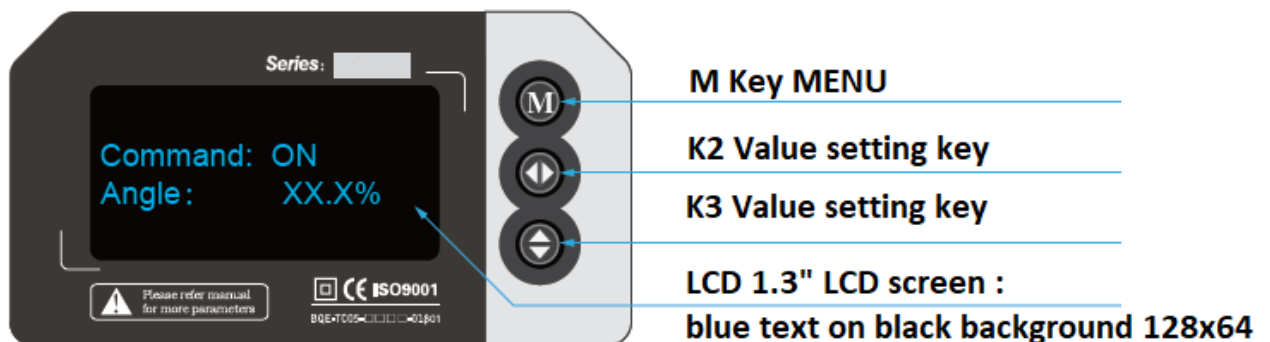
## WIRING DIAGRAM



## WIRING DIAGRAM AS RECOMMENDED FOR SEVERAL ACTUATORS IN PARALLEL



## DESCRIPTION OF THE 1.3" LCD SCREEN




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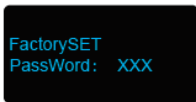

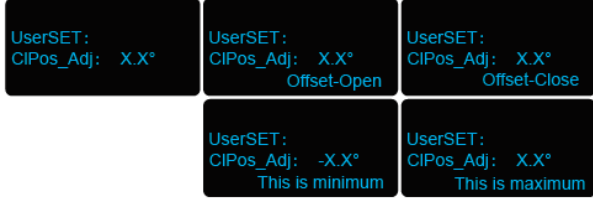
## LOCAL CONTROL MENU

It is possible to use the the screen as local control for closing or opening:

1	Switching to the manual mode	Press the “K3” button until “K3” flashes in the angle at the top right of the screen. The “Manual operation mode” message is displayed
2	Local control	Press “K2” to manoeuvre clockwise Press “K3” to manoeuvre anti-clockwise 
3	Return	Press “M” or do nothing for 1 minute to return to the control automatic control mode

## ADVANCED PARAMETER SETTING MENU

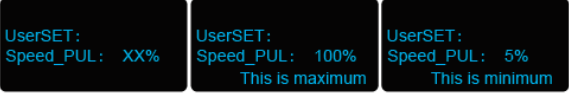
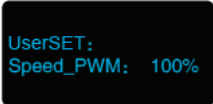
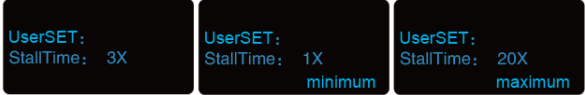
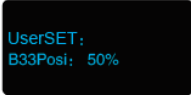
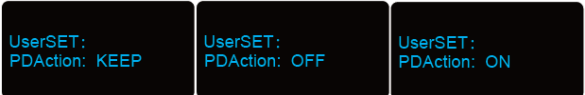
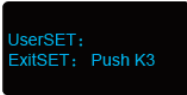
Access to the following parameter settings:

STEP	TITLE	FUNCTION AND VALUES
1	Enter the password	Press the “M” button for more than 3 seconds Enter the code “333” (use the keys K2 and K3) Press again the button “M” 
2	Choice of language	English or Mandarin 
3	Slight adjustment of the closed position	It is possible to change the closed position of the automatic valve, by a few degrees. This function is interesting if a leak is found along the line. Press key K3 to decrease the opening angle 0.1° (down to -8.5° max) and K2 to (up to -8,5° max). Press key M to move to the next parameter. 

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4	Manual adjustment of the speed of rotation	<p>This function is used for slowing down the motor.  <b>Range:</b> 20-100% - Value by default = 100%</p>
		
5	Setting the operating speed	<p>It is possible to set the operating speed of the actuator to 5 to 100% of the rated speed. The value by default, is 100%. Press key K3 to increase the speed (max 100%) or K2 to decrease it (min 5%). Press key M to move to the next parameter.  <b>N</b> : it is not recommended to combine functions 5 and 6, the actuator could become overcharged.</p>
		
6	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.  <b>Setting range:</b> 1x20x – <b>Value by default</b> 3x</p>
		
7	Parameter setting for the 3 <sup>rd</sup> position	<p>This function is accessible only on an actuator with a “B33” option  For the TRC-R standard model, the parameter setting is not available.</p>
		
8	Power supply position by default	<p>This parameter setting is not available on the standard version  <b>Parameter setting by default</b> : KEEP</p>
		
9	Exiting the menu	<p>Press K3 to exit the menu  The system will switch back in the automatic checking mode.</p>
		

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## 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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