



Quality

Appearance

Service



Delicate appearance  
extremely long life span



High performance  
brushless motor



Precision machining  
technology



Industrial grade component



Precise transmission

## Electric Actuator

TCR02/TCN02

# TCR02/TCN02 Actuator Selection Guide

Made in china Global service



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## Product overview

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: DC12V,DC24V, AC24V/110V/230V
- Control feedback mode: B3S,B3P,B3R,BD3S
- High performance brushless motor,overheat/overload protection
- It can be used up to 20,000 times<sup>\*1</sup>
- ※ For AC series,it is forbidden to use two or more actuators in parallel



## Purchase guide

Model	Torque	Voltage	Wiring	Feedback <sup>*2</sup>	Time	Speed regulation	Rotation angle	Enclosure <sup>*3</sup>	Manual override	Position indicator	Housing material	Output shaft
TCR-02N TCN-02N	<b>20Nm</b>	DC12V	B3/ BD3	S Type P Type R Type	10S	None	90°/180° ≤330°	IP67 or F Type	Hexagon spanner	Mechanical indicator	ABS or Die casting aluminium	Female octagon or male square
		DC24V										
		AC24V										
		AC110V										
		AC230V			15S							

※ Female octagon output shaft selectable type:8x8,11x11,14x14mm

※ TCN-02 Series: die casting aluminium ;TCR-02 Series : ABS

Notice <sup>\*1</sup>. Service life testing condition:The result is measured under rated load,test circle (2 times of switching time),at 25 °C working temperature and 50% humidity which will be influenced by different load and working environment.

<sup>\*2</sup>. S type is passive contact feedback,P type is active feedback,while R type is potentiometer feedback,SR type needs to be customized.

<sup>\*3</sup>. F type is available in the ambient of high humidity(≥90%) but without long-term rain.

### Product overview 【Highspeed Series】

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: DC24V/AC230V
- Running time: about 1S/6S
- Control feedback mode: B2S,B3S,BD3S
- High performance brushless motor,overheat/overload protection
- It can be used up to 20,000 times<sup>\*1</sup>
- ※ For AC series,it is forbidden to use two or more actuators in parallel



### Purchase guide

Model	Torque	Voltage	Wiring	Feedback <sup>*2</sup>	Time	Speed regulation	Rotation angle	Enclosure <sup>*3</sup>	Manual override	Position indicator	Housing material	Output shaft
TCR-02NH TCN-02NH	15Nm	DC24V	B2/B3 /BD3	S Type	1S	None	90°/180° ≤330°	IP67 or F Type	Hexagon spanner	Mechanical indicator	ABS or Die casting aluminium	Female octagon or male square
AC230V		6S										

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCN-02 Series: die casting aluminium ;TCR-02 Series : ABS

### Product overview 【Failsafe Series】

- Install valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V, AC/DC24V
- KT32S:Valve close while power-off
- High performance brushless motor,overheat/overload protection
- It can be used up to 20,000 times<sup>\*1</sup>
- ※ For AC series,it is forbidden to use two or more actuators in parallel



### Purchase guide

Model	Torque	Voltage	Wiring	Feedback <sup>*2</sup>	Time	Speed regulation	Rotation angle	Enclosure <sup>*3</sup>	Manual override	Position indicator	Housing material	Output shaft
TCN-02N -KT	15Nm	AC/DC24V	KT32	S Type	15S	None	90°/180° ≤330°	IP67 or F Type	Hexagon spanner	Mechanical indicator	ABS or Die casting aluminium	Female octagon or male square
TCR-02N -KT		AC/DC 95-265V										

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice <sup>\*1</sup>. Service life testing condition:The result is measured under rated load,test circle (2 times of switching time),at 25℃ working temperature and 50% humidity which will be influenced by different load and working environment.  
<sup>\*2</sup>. S type is passive contact feedback,P type is active feedback,while R type is potentiometer feedback,SR type needs to be customized.  
<sup>\*3</sup>. F type is available in the ambient of high humidity(≥90%) but without long-term rain.

## Product overview

- Matched valves: 2-way, 3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V, AC/DC24V
- Control feedback mode: BD3J,B3J,B33J,B43J(feedback synchronous with arrival)
- Alarm output: A(Relay contact feedback)
- Achievable mode: 2 way /3 way \*1
- High performance brushless motor,overload or overheated protection of internal motor
- It can be used up to 20,000 times \*2
- Two or more actuators can be used in parallel



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode:cover-opening and interactive  
 step1:Press the button to control valve to the position of "counterclockwise full open", then save it .  
 step2:Press the button to control valve to the position of "clockwise full close",then save it to finish the valve adjustment.  
 Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU,12 bits high precision AD conversion chip are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ Non-contact positioning,control unit modular design and potting processing are applied to guarentee components work reliable and greatly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other fails caused by actuator does not put valve on/off position in place)and **output failure warning signal**.
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to "On" or "Off" direction,to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Wiring	Feedback *3	Fault signals *4	Time	Speed regulation *5	Rotation angle	Enclosure *6	Manual override *7	Position indicator	Housing material	Output shaft
TCR-02C TCN-02C	20Nm	AC/DC 24V	B3/ BD3 /B33/B44	J Type	A Type	10s	PUL/PWM	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/ Die casting aluminium	Female octagon or male square
AC/DC 95-265V													

※ Female octagon output shaft selectable type:8x8,11x11,14x14mm

※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.The third position can be set by menu.

\*2.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*3. S type is passive contact feedback,J type is relay feedback.

\*4.Fault signals are selectable function,output by relay,factory defaults settings do not take this function.

\*5.PWM mode belongs to continuous stepless speed regulation,operates steadily but has a slight impact on actuator torque output. Adjusting range is 30%-100%.

PUL mode belongs to intermittent start-stop speed regulation , no loss of actuator output torque. Adjusting range is 5%-100%.

Please refer to manual for more parameters.(Factory default maximum value is 100%).

\*6.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*7.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- ⊙ Matched valves: 2-way, 3-way ball valve and butterfly valve
- ⊙ Rated voltage: DC24V/AC230V
- ⊙ Running time: about 1s/6s
- ⊙ Control feedback mode: BD3J,B3J,B33J,B43J(feedback synchronous with arrival)
- ⊙ Alarm output: A(Relay contact feedback)
- ⊙ Achievable mode: 2 way /3 way <sup>\*1</sup>
- ⊙ High performance brushless motor,overload or overheated protection of internal motor
- ⊙ It can be used up to 20,000 times <sup>\*2</sup>
- ⊙ Two or more actuators can be used in parallel



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode:cover-opening and interactive  
step1:Press the button to control valve to the position of "counterclockwise full open", then save it .  
step2:Press the button to control valve to the position of "clockwise full close",then save it to finish the valve adjustment.  
Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU,12 bits high precision AD conversion chip are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning,control unit modular design and potting processing are applied to guarentee components work reliable and greatly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other fails caused by actuator does not put valve on/off position in place)and **output failure warning signal**.
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to "On" or "Off" direction,to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Wiring	Feedback <sup>*3</sup>	Fault signals <sup>*4</sup>	Time	Speed regulation <sup>*5</sup>	Rotation angle	Enclosure <sup>*6</sup>	Manual override <sup>*7</sup>	Position indicator	Housing material	Output shaft
TCR-02CH TCN-02CH	<b>15Nm</b>	AC/DC24V	B3/ BD3 /B33/B44	J Type	A Type	1s	PUL/PWM	90°/180°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/ Die casting aluminium	Female octagon or male square
AC230V		6s				≤330°							

※ Female octagon output shaft selectable type:8x8,11x11,14x14mm

※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

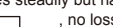
Notice <sup>\*1</sup>.The third position can be set by menu.

<sup>\*2</sup>.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

<sup>\*3</sup>. S type is passive contact feedback,J type is relay feedback.

<sup>\*4</sup>.Fault signals are selectable function,output by relay,factory defaults settings do not take this function.

<sup>\*5</sup>.PWM mode belongs to continuous stepless speed regulation,operates steadily but has a slight impact on actuator torque output. Adjusting range is 30%-100%.

PUL mode belongs to intermittent start-stop speed regulation , no loss of actuator output torque. Adjusting range is 5%-100%.

Please refer to manual for more parameters.(Factory default maximum value is 100%).

<sup>\*6</sup>.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

<sup>\*7</sup>.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- Matched valves: 2-way, 3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V–265V, AC/DC24V
- Control feedback mode: KT32J
- Alarm output: A(Relay contact feedback)
- Achievable mode: 2 way /3 way \*1
- High performance brushless motor, overload or overheated protection of internal motor
- It can be used up to 20,000 times \*2
- Two or more actuators can be used in parallel



## Product features

- △ 1.3" OLED screen, it features no view restriction, high brightness, energy saving and environment protection, in real time to show valve opening angle and external control command. Enter sleeping state automatically after about 5 minutes, it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode: cover-opening and interactive  
 step1: Press the button to control valve to the position of "counterclockwise full open", then save it.  
 step2: Press the button to control valve to the position of "clockwise full close", then save it to finish the valve adjustment.  
 Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU, 12 bits high precision AD conversion chip are applied, built-in unique algorithm, thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis, especially suitable for 3-way valve adjustment.
- △ Non-contact positioning, control unit modular design and potting processing are applied to guarantee components work reliable and greatly improve product service life; Interface uses standard connectors, convenient for installation, adjustment and replacement.
- △ Menu can report failure in real time (including stuck situation or other fails caused by actuator does not put valve on/off position in place) and output failure warning signal.
- △ Menu operation can realize exchange of valve control command.
- △ Menu operation can switch freely between remote control and local setting, press the button to realize opening/closing.
- △ Menu operation can set valve off position deviate to "On" or "Off" direction, to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time.
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Wiring	Feedback *3	Fault signals *4	Time	Speed regulation *5	Rotation angle	Enclosure *6	Manual override *7	Position indicator	Housing material	Output shaft
TCR-02C-KT TCN-02C-KT	15Nm	AC/DC 24V AC/DC 95-265V	B3/BD3 /B33/B44	J Type	A Type	15s	PUL/PWM	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/ Die casting aluminium	Female octagon or male square

- ※ Female octagon output shaft selectable type: 8x8, 11x11, 14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

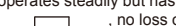
Notice \*1. The third position can be set by menu.

\*2. Test condition: Test under rated load, 25 °C working temperature and 50% humidity, one test circle (two times switching cycle), which will be influenced by different load and working environment.

\*3. S type is passive contact feedback, J type is relay feedback.

\*4. Fault signals are selectable function, output by relay, factory default settings do not take this function.

\*5. PWM mode belongs to continuous stepless speed regulation, operates steadily but has a slight impact on actuator torque output. Adjusting range is 30%-100%.

PUL mode belongs to intermittent start-stop speed regulation , no loss of actuator output torque. Adjusting range is 5%-100%. Please refer to manual for more parameters. (Factory default maximum value is 100%).

\*6. F type is suitable for the ambient of high humidity (≥90%) but without long-term rain.

\*7. Use hexagon spanner when power-off, or use button when power-on.



## Product overview

- Matched valves: 2-way, 3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V, AC/DC24V
- Control feedback mode: YW44 (achieve the level control by directly connected to the level sensor)
- Achievable mode: 2 way /3 way \*1
- High performance brushless motor, overload or overheated protection of internal motor
- It can be used up to 20,000 times \*2



## Product features

- △ 1.3" OLED screen, it features no view restriction, high brightness, energy saving and environment protection, in real time to show valve opening angle and external control command. Enter sleeping state automatically after about 5 minutes, it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode: cover-opening and interactive  
 step1: Press the button to control valve to the position of "counterclockwise full open", then save it.  
 step2: Press the button to control valve to the position of "clockwise full close", then save it to finish the valve adjustment.  
 Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU, 12 bits high precision AD conversion chip are applied, built-in unique algorithm, thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis, especially suitable for 3-way valve adjustment.
- △ Non-contact positioning, control unit modular design and potting processing are applied to guarantee components work reliable and greatly improve product service life; Interface uses standard connectors, convenient for installment, adjustment and replacement.
- △ Menu can report failure in real time (including stuck situation or other fails caused by actuator does not put valve on/off position in place) and output failure warning signal.
- △ Menu operation can realize exchange of valve control command.
- △ Menu operation can switch freely between remote control and local setting, press the button to realize opening/closing.
- △ Menu operation can set valve off position deviate to "On" or "Off" direction, to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time.
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Wiring	Feedback *3	Fault signals *4	Time	Speed regulation *5	Rotation angle	Enclosure *6	Manual override *7	Position indicator	Housing material	Output shaft
TCR-02CYW	20Nm	AC/DC 24V	YW44	J Type	A Type	10s	PUL/PWM	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/ Die casting aluminium	Female octagon or male square
TCN-02CYW		AC/DC 95-265V											

※ Female octagon output shaft selectable type: 8x8, 11x11, 14x14mm

※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

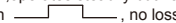
Notice \*1. The third position can be set by menu.

\*2. Test condition: Test under rated load, 25°C working temperature and 50% humidity, one test circle (two times switching cycle), which will be influenced by different load and working environment.

\*3. S type is passive contact feedback, J type is relay feedback.

\*4. Fault signals are selectable function, output by relay, factory default settings do not take this function.

\*5. PWM mode belongs to continuous stepless speed regulation, operates steadily but has a slight impact on actuator torque output. Adjusting range is 30%-100%.

PUL mode belongs to intermittent start-stop speed regulation , no loss of actuator output torque. Adjusting range is 5%-100%.

Please refer to manual for more parameters. (Factory default maximum value is 100%).

\*6. F type is suitable for the ambient of high humidity (≥90%) but without long-term rain.

\*7. Use hexagon spanner when power-off, or use button when power-on.



## Product overview

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V, AC/DC24V
- Control signal: 4-20mA,0-20mA,0-10V,0-5V,1-5V,2-10V
- Position feedback: 4-20mA
- Position accuracy: ±1%
- Alarm output: A(Relay contact feedback)
- High performance brushless motor,overload or overheated protection of internal motor
- It can be used up to 20,000 times \*1



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode:cover-opening and interactive  
 step1:Press the button to control valve to the position of "counterclockwise full open", then save it .  
 step2:Press the button to control valve to the position of "clockwise full close",then save it to finish the valve adjustment.  
 Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU,12 bits high precision AD conversion chip are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ ※TCR/TCN 02 total series and other DC24V series:built-in motor control module,variable frequency speed control of motor can realize accurate positioning.
- △ Non-contact positioning,control unit modular design and potting processing are applied to guarentee components work reliable and greatly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other fails caused by actuator does not put valve on/off position in place)and output failure warning signal.
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to "On" or "Off" direction,to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Wiring	Feedback	Fault signals *2	Rotation angle	Enclosure *3	Manual override *4	Position indicator	Housing material	Output shaft
TCN-02T	20Nm	AC/DC24V	10s	4-20mA 0-20mA	4-20mA	A Type	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02T		AC/DC 95-265V		0-5V 1-5V 0-10V 2-10V								

※ Female octagon output shaft selectable type:8x8,11x11,14x14mm

※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*2.Fault signals are selectable function,output by relay,factory defaults settings do not take this function.

\*3.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*4.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- ⊙ Matched valves: 2-way,3-way ball valve and butterfly valve
- ⊙ Rated voltage: DC24V/AC230V
- ⊙ Running time: about 1s/6s
- ⊙ Control signal: 4-20mA,0-20mA,0-10V,0-5V,1-5V,2-10V
- ⊙ Position feedback: 4-20mA
- ⊙ Position accuracy: ±1%
- ⊙ Alarm output: A(Relay contact feedback)
- ⊙ High performance brushless motor,overload or overheated protection of internal motor
- ⊙ It can be used up to 20,000 times \*1



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode:cover-opening and interactive
  - step1:Press the button to control valve to the position of "counterclockwise full open", then save it .
  - step2:Press the button to control valve to the position of "clockwise full close",then save it to finish the valve adjustment.
 Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU,12 bits high precision AD conversion chip are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ ※TCR/TCN 02 total series and other DC24V series:built-in motor control module,variable frequency speed control of motor can realize accurate positioning.
- △ Non-contact positioning,control unit modular design and potting processing are applied to guarentee components work reliable and greatly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other fails caused by actuator does not put valve on/off position in place)and **output failure warning signal**.
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to "On" or "Off" direction,to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Wiring	Feedback	Fault signals <sup>*2</sup>	Rotation angle	Enclosure <sup>*3</sup>	Manual override <sup>*4</sup>	Position indicator	Housing material	Output shaft
TCN-02TH	15Nm	AC/DC24V	1s	4-20mA 0-20mA 0-5V 1-5V	4-20mA	A Type	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02TH		AC230V	6s	0-10V 2-10V								

※ Female octagon output shaft selectable type:8x8,11x11,14x14mm

※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*2.Fault signals are selectable function,output by relay,factory defaults settings do not take this function.

\*3.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*4.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- ◎ Matched valves: 2-way,3-way ball valve and butterfly valve
- ◎ Rated voltage: AC/DC95V-265V, AC/DC24V
- ◎ Control signal: 4-20mA-KT、0-20mA-KT、0-5V-KT、  
1-5V-KT、0-10V-KT、2-10V-KT
- ◎ Position feedback: 4-20mA
- ◎ Position accuracy: ±1%
- ◎ Alarm output: A(Relay contact feedback)
- ◎ High performance brushless motor,overload or overheated protection of internal motor
- ◎ It can be used up to 20,000 times<sup>\*1</sup>



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,it could display location state and its control command during sleeping time.
- △ Original valve adjustment mode:cover-opening and interactive  
step1:Press the button to control valve to the position of "counterclockwise full open", then save it .  
step2:Press the button to control valve to the position of "clockwise full close",then save it to finish the valve adjustment.  
Thoroughly eliminate the complex and inconvenient factors caused by mechanical positioning.
- △ 16 bits high performance CPU,12 bits high precision AD conversion chip are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ ※TCR/TCN 02 total series and other DC24V series:built-in motor control module,variable frequency speed control of motor can realize accurate positioning.
- △ Non-contact positioning,control unit modular design and potting processing are applied to guarentee components work reliable and greatly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other fails caused by actuator does not put valve on/off position in place)and **output failure warning signal**.
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to "On" or "Off" direction,to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Wiring	Feedback	Fault signals <sup>*2</sup>	Rotation angle	Enclosure <sup>*3</sup>	Manual overrid <sup>*4</sup>	Position indicator	Housing material	Output shaft
TCN-02T-KT	15Nm	AC/DC24V	15s	4-20mA-KT 0-20mA-KT 0-5V-KT	4-20mA	A Type	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02T-KT		AC/DC 95-265V		1-5V-KT 0-10V-KT 2-10V-KT								

※ Female octagon output shaft selectable type:8x8,11x11,14x14mm

※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice <sup>\*1</sup>.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

<sup>\*2</sup>.Fault signals are selectable function,output by relay,factory defaults settings do not take this function.

<sup>\*3</sup>.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

<sup>\*4</sup>.Use hexagon spanner when power-off,or use button when power-on.

### Product overview

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage:AC/DC95V-265V, AC/DC24V
- Control feedback mode: RS485(Modbus),CANBus 2.0B/Mbus(customized)
- Achievable mode: 2 way /3 way <sup>\*1</sup>
- High performance brushless motor,overload or overheated protection of internal motor
- It can be used up to 20,000 times <sup>\*2</sup>
- Tow or more actuators can be used in parallel  
(※RS485 could parallel maximum 32/64/256 actuators,while CANBus parallels 110 actuators)



### Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show **Baud rate,ID address**,valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarentee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and **output failure warning signal**.
- △ Menu operation can change Bus ID address and Baud rate automatically.
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

### Purchase guide

Model	Torque	Voltage	Time	Communication	Rotation angle	Enclosure <sup>*3</sup>	Manual override <sup>*4</sup>	Position indicator	Housing material	Output shaft
TCN-02B	20Nm	AC/DC24V	10s	RS485/CANBUS2.0B Compatible Mobus	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02B		AC/DC95-265V								

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice <sup>\*1</sup>.The third position can be set by menu.  
<sup>\*2</sup>.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.  
<sup>\*3</sup>.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.  
<sup>\*4</sup>.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- ◎ Matched valves: 2-way,3-way ball valve and butterfly valve
- ◎ Rated voltage: DC24V
- ◎ Running time: about 1S
- ◎ Control feedback mode: RS485(Modbus),CANBus 2.0B/Mbus (customized)
- ◎ Achievable mode: 2 way/3 way \*1
- ◎ High performance brushless motor,overload or overheated protection of internal motor
- ◎ It can be used up to 20,000 times \*2
- ◎ Two or more actuators can be used in parallel  
(※RS485 could parallel maximum 32/64/256 actuators,while CANBus parallels 110 actuators)



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show **Baud rate,ID address**,valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening :  
Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarantee components work reliable.  
vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and **output failure warning signal**.
- △ Menu operation can change Bus ID address and Baud rate automatically.
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring convenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Communication	Rotation angle	Enclosure *3	Manual override *4	Position indicator	Housing material	Output shaft
TCN-02BH	15Nm	DC24V	1s	RS485/CANBUS2.0B Compatible Modbus	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02BH										

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.The third position can be set by menu.

\*2.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*3.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*4.Use hexagon spanner when power-off,or use button when power-on.



## Product overview

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V , AC/DC24V
- Control feedback mode: RS485(Modbus),CANBus 2.0B/Mbus (customized)
- Achievable mode: 2 way/3 way\*1
- High performance brushless motor,overload or overheated protection of internal motor
- It can be used up to 20,000 times\*2
- Tow or more actuators can be used in parallel  
(※RS485 could parallel maximum 32/64/256 actuators,while CANBus parallels 110 actuators)



## Product features

- △ 1.3” OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show Baud rate,ID address, valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarentee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and output failure warning signal.
- △ Menu operation can change Bus ID address and Baud rate automatically.
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with “Normal On/Off mechanical positioning”.
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Communication	Rotation angle	Enclosure*3	Manual override*4	Position indicator	Housing material	Output shaft
TCN-02B-KT	15Nm	AC/DC24V	15s	RS485/CANBUS2.0B Compatible Modbus	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02B-KT		AC/DC95-265V								

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.The third position can be set by menu.  
 \*2.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.  
 \*3.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.  
 \*4.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V , AC/DC24V
- Communication Mode: RF433/868/915MHZ,FSK,LORA,RF Ocean (single control)
- Communication protocol: Compatible Modbus
- Wireless Module: SX1278/SX1276/A7108
- Communication distance: The maximum is 3Km
- Achievable mode: 2 way/3 way<sup>\*1</sup>
- High performance brushless motor,overload or overheated protection of internal motor
- It can be used up to 20,000 times<sup>\*2</sup>



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show **Baud rate,ID address**,valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarentee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and **output failure warning signal**.
- △ Menu operation can change Bus ID address and Baud rate automatically.
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Communication	Rotation angle	Enclosure <sup>*3</sup>	Manual override <sup>*4</sup>	Position indicator	Housing material	Output shaft
TCN-02R	20Nm	AC/DC24V	10s	FSK/LORA(Modbus)	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02R		AC/DC95-265V		RF 433/868M/915M RF Ocean (single control)						

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice <sup>\*1</sup>.The third position can be set by menu.

<sup>\*2</sup>.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

<sup>\*3</sup>.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

<sup>\*4</sup>.Use hexagon spanner when power-off,or use button when power-on.



## Product overview

- ◎ Matched valves: 2-way,3-way ball valve and butterfly valve
- ◎ Rated voltage: DC24V/AC230V
- ◎ Running time: about 1s/6s
- ◎ Communication Mode: RF433/868/915MHZ,FSK,LORA,RF Ocean (single control)
- ◎ Communication protocol: Compatible Modbus
- ◎ Wireless Module: SX1278/SX1276/A7108
- ◎ Communication distance: The max is 3Km
- ◎ Achievable mode: 2 way/ 3 way<sup>\*1</sup>
- ◎ High performance brushless motor,overload protection of internal motor
- ◎ It can be used up to 20,000 times<sup>\*2</sup>



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show **Baud rate,ID address**,valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarentee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and **output failure warning signal**.
- △ Menu operation can change Bus ID address and Baud rate automatically.
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Communication	Rotation angle	Enclosure <sup>*3</sup>	Manual override <sup>*4</sup>	Position indicator	Housing material	Output shaft
TCN-02RH	15Nm	DC24V	1s	FSK/LORA(Modbus) RF 433/868M/915M	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCN-02RH		AC230V	6s	RF Ocean (single control)						

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice <sup>\*1</sup>.The third position can be set by menu.

<sup>\*2</sup>.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

<sup>\*3</sup>.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

<sup>\*4</sup>.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- Matched valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: AC/DC95V-265V , AC/DC24V
- Communication Mode: RF433/868/915MHZ,FSK,LORA,RF Ocean (single control)
- Communication protocol: Compatible Modbus
- Wireless Module: SX1278/SX1276/A7108
- Communication distance: The maximum is 3Km
- Achievable mode: 2 way/ 3 way \*1
- High performance brushless motor,overload or overheated protection of internal motor
- It can be used up to 20,000 times \*2



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show Baud rate,ID address, valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarentee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and output failure warning signal.
- △ Menu operation can change Bus ID address and Baud rate automatically.
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Communication	Rotation angle	Enclosure *3	Manual override *4	Position indicator	Housing material	Output shaft
TCR-02R -KT	15Nm	AC/DC24V	15s	FSK/LORA(Modbus) RF 433/868M/915M RF Ocean (single control)	90°/180° ≤330°	IP67 /F Type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCN-02R -KT		AC/DC95-265V								

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.The third position can be set by menu.

\*2.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*3.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*4.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- ⊙ Matched valves: 2-way,3-way ball valve and butterfly valve
- ⊙ Rated voltage: AC/DC95V-265V , AC/DC24V
- ⊙ Timer mode: pulse mode , time mode
- ⊙ Loop mode : loop by days , loop by weeks
- ⊙ Adopted high-performance brushless motor,Overload protection of internal motor
- ⊙ It can be used up to 20,000 times.\*1



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarantee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and **output failure warning signal**.
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Timer model	Rotation angle	Enclosure *2	Manual override *3	Position indicator	Housing material	Output shaft
TCN-02D	20Nm	AC/DC24V	10s	Pulse mode Time mode	90°/180° ≤330°	IP67/ F type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02D		AC/DC95-265V		Loop by days Loop by weeks						

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.Test condition:Test under rated load, 25 C working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*2.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*3.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- Install valves: 2-way,3-way ball valve and butterfly valve
- Rated voltage: DC24V/AC230V
- Running time: about 1s/6s
- Timer mode: pulse, timer
- Loop mode : loop by days , loop by weeks
- Adopted high-performance brushless motor,Overload protection of internal motor
- It can be used up to 20,000 times.\*1



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show, valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,espacially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarentee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and [output failure warning signal](#).
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with “Normal On/Off mechanical positioning”.
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Timer model	Rotation angle	Enclosure *2	Manual override *3	Position indicator	Housing material	Output shaft
TCN-02DH	15Nm	DC24V	1s	Pluse mode Time mode	90°/180° ≤330°	IP67 / F type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02DH		AC230V	6s	Loop by days Loop by weeks						

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

\*2.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*3.Use hexagon spanner when power-off,or use button when power-on.

## Product overview

- ⊙ Matched valves: 2-way,3-way ball valve and butterfly valve
- ⊙ Rated voltage: AC/DC95V-265V, AC/DC24V
- ⊙ Timer mode: pulse, time
- ⊙ Loop mode : loop by days , loop by weeks
- ⊙ Adopted high-performance brushless motor,Overload protection of internal motor
- ⊙ It can be used up to 20,000 times.\*1



## Product features

- △ 1.3" OLED screen,it features no view restriction, high brightness,energy saving and environment protection,in real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could display location state and its control command at sleeping time.
- △ Original valve adjustment mode-free cover-opening : Intelligent Bus is same as Intelligent On/Off series.
- △ 16 bits high performance CPU,12 bits high precision AD conversion are applied,built-in unique algorithm,thoroughly eliminate valve on/off inaccuracy caused by mechanical hysteresis,especially suitable for 3-way valve adjustment.
- △ Non-contact positioning is applied,control unit modular design and potting processing to guarantee components work reliable. vastly improve product service life;Interface uses standard connectors,convenient for installment,adjustment and replacement.
- △ Menu can report failure in real time(including stuck situation or other reasons which lead actuator fail to put valve on/off position )and [output failure warning signal](#).
- △ Menu operation can realize exchange of valve control command .
- △ Menu operation can switch freely between remote control and local setting,press the button to realize opening/closing .
- △ Menu operation can set valve off position deviate to on or off direction,to bring vonvenience to local valve adjustment compared with "Normal On/Off mechanical positioning".
- △ Menu operation can adjust valve running speed of the actuator in real time .
- △ Menu operation can restore factory default setting.

## Purchase guide

Model	Torque	Voltage	Time	Timer model	Rotation angle	Enclosure *2	Manual override *3	Position indicator	Housing material	Output shaft
TCN-02D-KT	15Nm	AC/DC24V	15s	Pluse mode Time mode	90°/180° ≤330°	IP67 / F type	Hexagon spanner /button	Mechanical indicator or OLED indicator	ABS/Die casting aluminium	Female octagon or male square
TCR-02D-KT		AC/DC95-265V		Loop by days Loop by weeks						

- ※ Female octagon output shaft selectable type:8x8,11x11,14x14mm
- ※ TCR-02 Series : ABS, TCN-02 Series: die casting aluminium

Notice \*1.Test condition:Test under rated load, 25℃ working temperature and 50% humidity,one test circle( two times switching cycle),which will be influenced by different load and working environment.

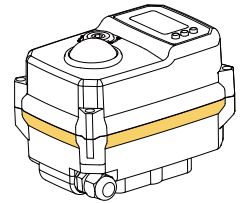
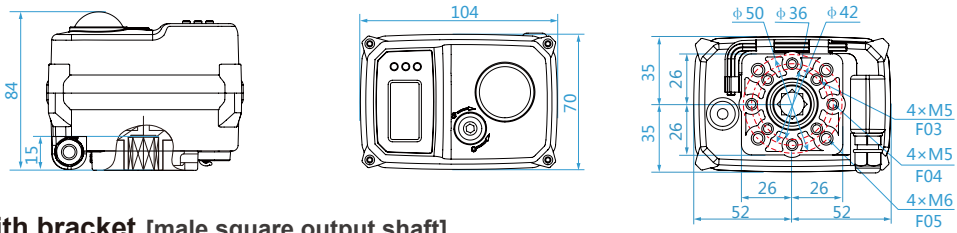
\*2.F type is suitable for the ambient of high humidity(≥90%) but without long-term rain.

\*3.Use hexagon spanner when power-off,or use button when power-on.

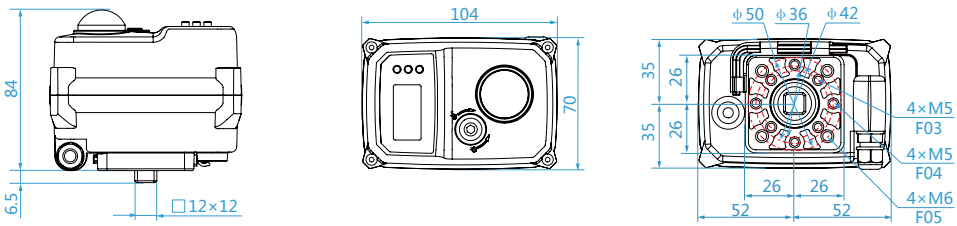
**Dimension **[TCR/TCN-02X]****

unit: mm

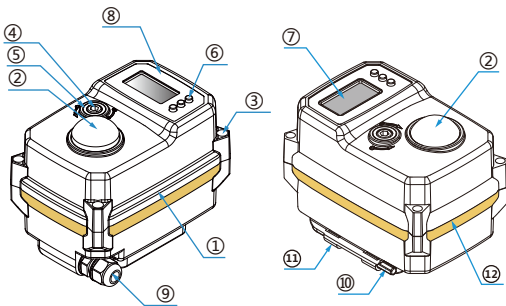
**Direct mount [female octagon output shaft]**



**With bracket [male square output shaft]**



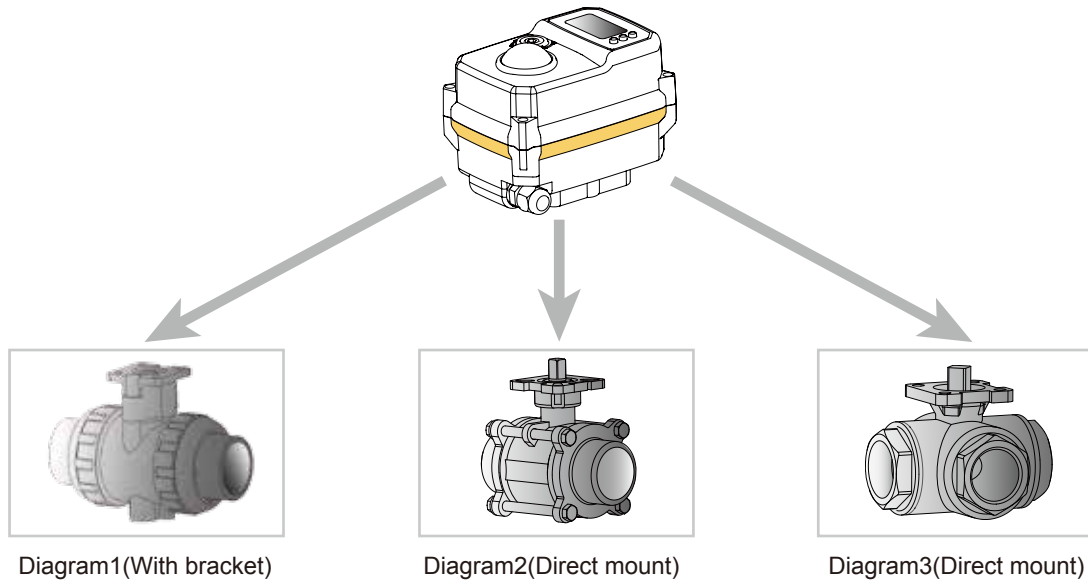
**Main parts**



	Parts	Material		Parts	Material
1	Actuator	Heatproof ABS or Casting aluminum	7	1.3" LCD Screen	OLED
2	Indicator	Transparent AS	8	Label	PVC
3	Screw X 4	304	9	Waterproof wire nut	NiLon
4	Manual shaft	304	10	Hexagon spanner	304
5	Oil seal	NBR	11	Wrench fixed	ABS
6	Button	Rubber	12	Sealing	NBR



## TCN/TCR-02 series assembling instructions



Assembly Diagram1 UPVC plastic ball valve added with bracket

Assembly Diagram2 3-piece stainless steel ball valve

Assembly Diagram3 Stainless steel 3-way ball valve

### NOTICE:

- ※ 1. When assembling with valve, it's recommend to use spring washer and flat washer to fix screw nut.
- ※ 2. It's forbidden to use anaerobic glue or UV glue. If needed, please use 704 glue and adhere quickly.
- ※ 3. Casing is avoided to contact with organic solvent, such as kerosene, butanone and etc, or the casing will be damaged.

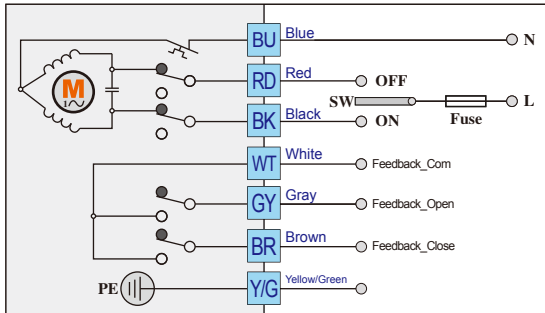
## Matched valve technical requirements

- 1. When installing ball valve, the torque value should be  $\leq 15\text{Nm}$ . If the ball valve is out of operation for a long time, the torque value of its first on or off is the maximum torque. Or you can choose ball valve with low torque.
- 2. When installing butterfly valve, the maximum torque should be  $\leq 13\text{Nm}$ . Because the torque value will increased by 10-20% after installing.
- 3. When installing direct mount type valve, the hole depth should be  $\leq 15\text{mm}$ . It requires cutting if the output shaft is longer than 15mm.
- 4. Please pay attention to the following items if you install the bracket and coupling by yourself:
  - ※ The intensity of bracket should meet the using requirements: the bracket twisting range should be  $\leq 0.2\text{mm}$  in the process of valve opening or closing.
  - ※ The parallelism of bracket should be  $\leq 0.5\text{mm}$ .
  - ※ When processing the shaft hole at both end of the coupling, ensure the accuracy and concentricity. The purpose is to ensure the mechanical hysteresis  $\leq 10^\circ$ , otherwise it will cause the actuator unable to work.
- 5. Screw should be installed with spring washer and flat washer, and we suggest you daub some sealing glue around the screw in case of screw loosening.
- 6. After installation, user should switch the valve on and off one time with hexagon spanner first. Adjust the valve after ensure it works well.



Normal on/off model-wiring diagrams 【TCN/TCR-02N】

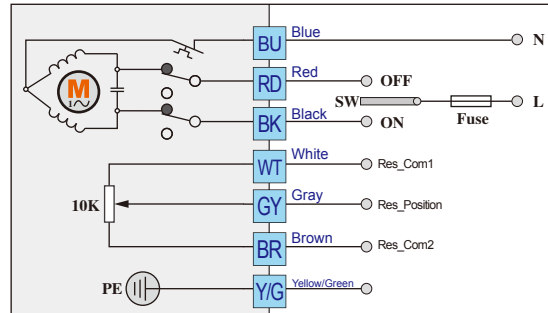
B3S



Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. When the valve is closed completely, **WT** is connect with **BR**, giving signal of full closing.
- SW is connected with **BK**, the actuator will rotate counterclockwise ↻. When the valve is open completely, **WT** is connect with **GY**, giving signal of full opening.
- ※ Notice 1: **WT** is not connected with **GY** and **BR**, when the actuator is rotating.
- ※ Notice 2: The time of feedback signal is a little earlier than the time when actuator reaches its actual position, so please do not cut power immediately after you get the feedback signal.

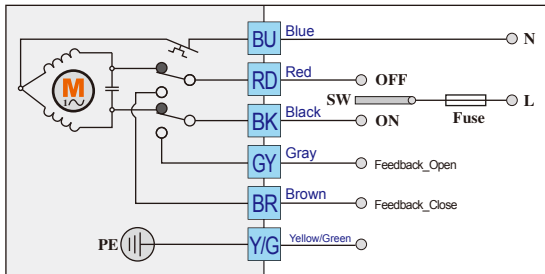
B3R



Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. The resistance value between **WT** and **BR** will decrease, the actuator will stop when the valve is closed completely.
- SW is connected with **BK**, the actuator will rotate counterclockwise ↻. The resistance value between **WT** and **GY** will increase, the actuator will stop when the valve is full open.

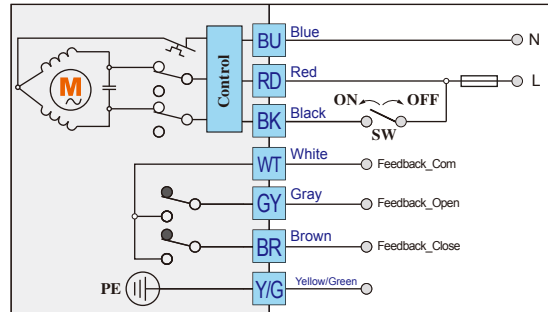
B3P



Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. When the valve is closed completely, **RD** is connect with **BR**, giving signal of full closing.
- SW is connected with **BK**, the actuator will rotate counterclockwise ↻. When the valve is open completely, **BK** is connect with **GY**, giving signal of full opening.
- ※ Notice 1: **RD** is not connected with **BR**, **BK** is not connected with **GY** when the actuator is rotating.
- ※ Notice 2: The time of feedback signal is synchronous with the time when valve reaches targeted position.

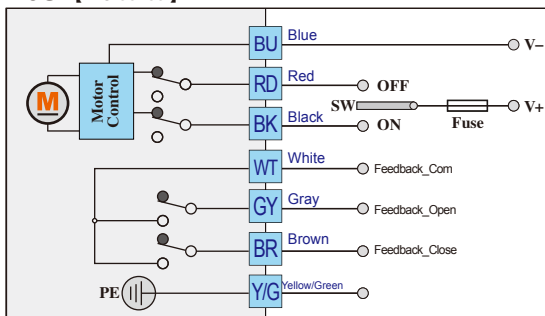
BD3S



Control instructions:

- If SW is disconnected, the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **BR**, giving signal of full closing.
- If SW is connected, the actuator will drive valve open counterclockwise ↻. When the valve is open completely, **WT** is connected with **GY**, giving signal of full opening.
- ※ Notice 1: **WT** is not connected with **GY** and **BR**, when the actuator is running.
- ※ Notice 2: The time of feedback signal is a little earlier than the time when actuator reaches its actual position, so please do not cut power immediately after you get the feedback signal.

B3S- [ DC series ]



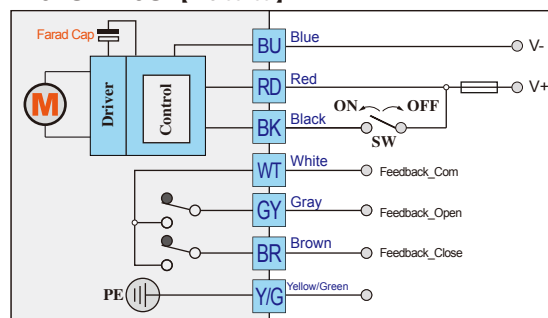
Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. When the valve is closed completely, **WT** is connect with **BR**, giving signal of full closing.
- SW is connected with **BK**, the actuator will rotate counterclockwise ↻. When the valve is open completely, **WT** is connect with **GY**, giving signal of full opening.
- ※ Notice 1: **WT** is not connected with **GY** and **BR**, when the actuator is rotating.
- ※ Notice 2: The time of feedback signal is a little earlier than the time when actuator reaches its actual position, so please do not cut power immediately after you get the feedback signal.

Wiring instructions:

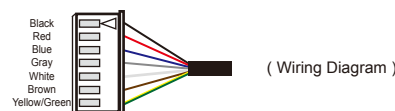
1. Fuse: please refer to manual for more parameters.
2. SW load capability: please refer to manual for more parameters.
3. Feedback signal contact load capacity: 0.1A/250VAC 0.5A/30VDC.
4. Please make sure actuator connect ground reliably (only KT32S).

KT32S/BD3S- [ DC series ]



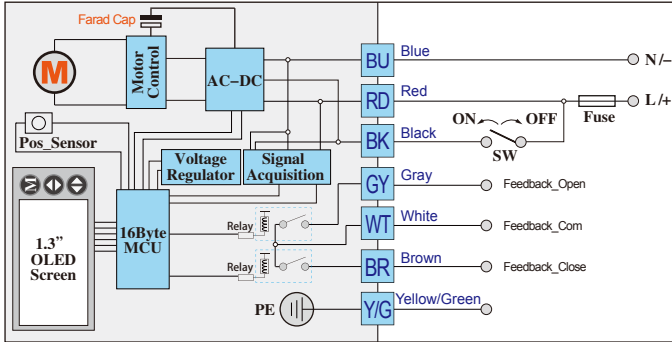
Control instructions:

- If SW is disconnected, the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **BR**, giving signal of full closing.
- If SW is connected, the actuator will drive valve open anticlockwise ↻. When the valve is open completely, **WT** is connected with **GY**, giving signal of full opening.
- ※ Notice 1: **WT** not connected with **BR** and **GY**, when the actuator is running.
- ※ Notice 2: The time of feedback signal is a little earlier than the time when actuator reaches its actual position, so please do not cut power immediately after you get the feedback signal.
- ※ Notice 3: When power cut, actuator will drive valve to close.



Intelligent on/off model-wiring diagram [TCN/TCR-02C]

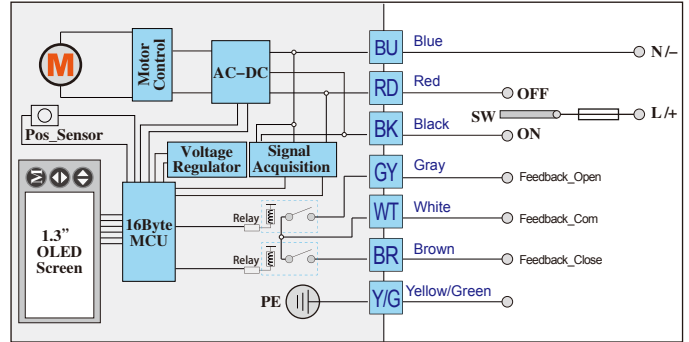
BD3J / KT32J



Control instructions: [ 7-core ]

- If SW is disconnected, the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **BR**, send signal of full closing.
- If SW is connected, the actuator will drive valve open counterclockwise ↻. When the valve is open completely, **WT** is connected with **GY**, send signal of full opening.
- ※ Note 1: **WT** is not connected with **GY** **BR**, when the actuator is operating.
- ※ Note 2: After power cut, the feedback and fault signal will disappear, **WT** is not connected with **GY** and **BR**.

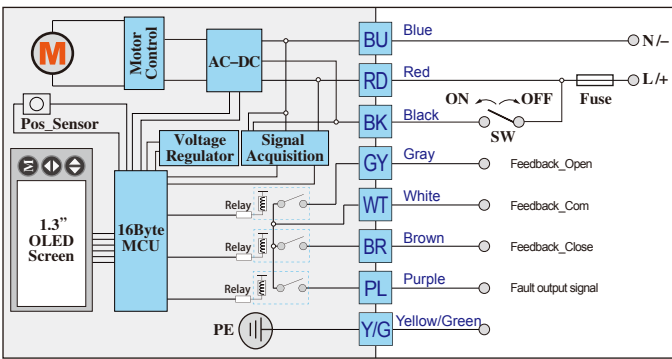
B3J



Control instructions: [ 7-core ]

- SW is connected with **RD**, the actuator will rotate clockwise ↻. When the valve is closed completely, **WT** is connect with **BR**, send signal of full closing.
- SW is connected with **BK**, the actuator will rotate counterclockwise ↻. When the valve is open completely, **WT** is connect with **GY**, send signal of full opening.
- ※ Note 1: **WT** is not connected with **GY** and **BR**, when the actuator is operating.
- ※ Note 2: After power cut, the feedback and fault signal will disappear, **WT** is not connected with **GY** and **BR**.

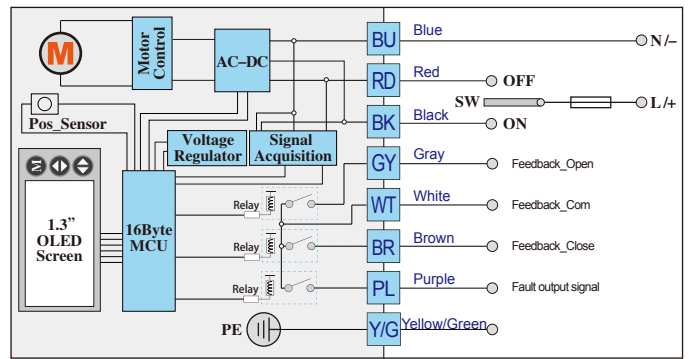
BD3JA [ Alert ]



Control instructions: [ 9-core ]

- If SW is disconnected, the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **BR**, send signal of full closing.
- If SW is connected, the actuator will drive valve open counterclockwise ↻. When the valve is open completely, **WT** is connected with **GY**, send signal of full opening.
- ※ Note 1: **BR** is not connected with **WT** **GY**, when the actuator is operating.
- ※ Note 2: When actuator is stuck or switch fails to arrive by other faults, **WT** connect with **PL**, send alarm signal.
- ※ Note 3: After power cut, the feedback and fault signal will disappear, **WT** is not connected with **GY** **BR** **PL**.

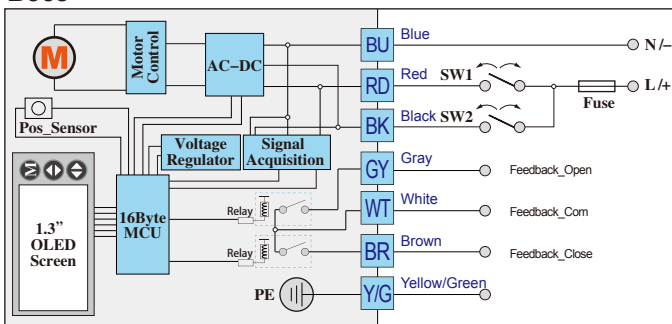
B3JA [ Alert ]



Control instructions: [ 9-core ]

- If SW is disconnected, the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **GR**, send signal of full closing.
- If SW is connected, the actuator will drive valve open counterclockwise ↻. When the valve is open completely, **WT** is connected with **GY**, send signal of full opening.
- ※ Note 1: **WT** is not connected with **GY** **BR**, when the actuator is operating.
- ※ Note 2: When actuator is stuck or switch fails to arrive by other faults, **WT** connect with **PL**, send alarm signal.
- ※ Note 3: After power cut, the feedback and fault signal will disappear, **WT** is not connected with **GY** **BR** **PL**.

B33J

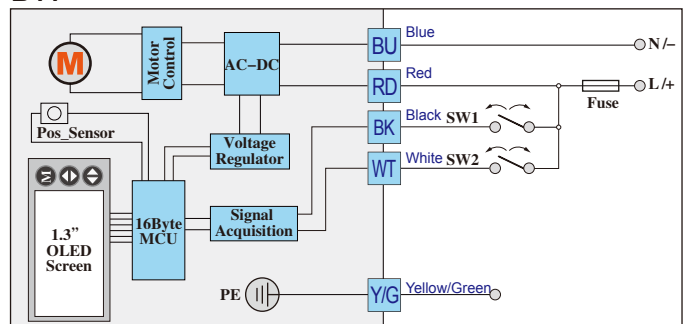


Control instructions: [ 7-core ]

SW1	SW2	Flow direction	Feedback signal
connect ↻	disconnect ↻	0°	<b>WT</b> connect with <b>BR</b>
disconnect ↻	connect ↻	90°	<b>WT</b> connect with <b>GY</b>
connect ↻	connect ↻	180° (could be free set by menu)	<b>WT</b> connect with <b>GY</b> <b>BR</b>

- ※ Note 1: **WT** is not connected with **GY** and **BR**, when the actuator is operating.
- ※ Note 2: After power cut, the feedback and fault signal will disappear, **WT** is not connected with **GY** and **BR**.

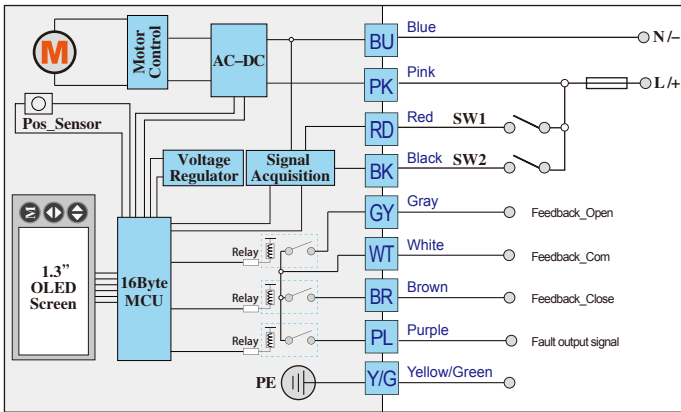
B44



Control instructions: [ 7-core ]

SW1	SW2	Control instructions
disconnect ↻	disconnect ↻	Full closing
disconnect ↻	connect ↻	Open30°±10%
connect ↻	disconnect ↻	Open60°±10%
connect ↻	connect ↻	Full opening

**B43JA [ Alert ]**

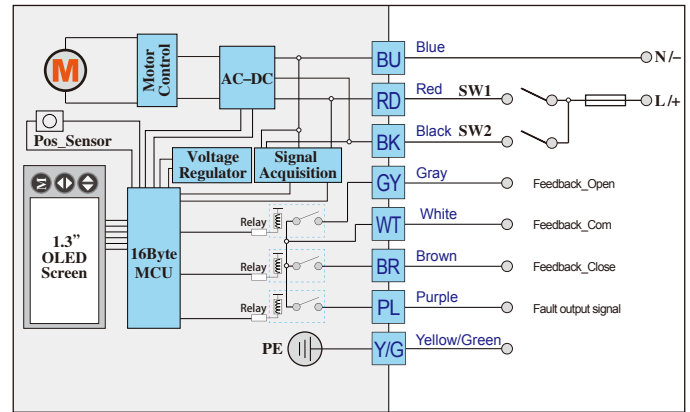


**Control instructions:**

- ※ Note 1: [WT] is not connected with [GY][BR][PL], when the actuator is running.
- ※ Note 2: When actuator was stuck or other fails which lead valve unable to open or close completely, [WT] connects with [PL], send warning signal.
- ※ Note 3: After power cut, the feedback and fail signal will disappear, [WT] is not connected with [GY][BR][PL].
- ※ Note 4: 45° is the third position, whose value (10%-90%) could be set by menu.
- ※ Note 5: When SW1, SW2 are both disconnected, it means no control signal, factory default setting is valve-off command.

SW1	SW2	Flow direction
disconnect ↖	disconnect ↖	0°
connect ↗	disconnect ↖	0°
disconnect ↖	connect ↗	90°
connect ↗	connect ↗	45° (could be freely set by menu)

**B33JA [ Alert ]**



**Control instructions**

SW1	SW2	Flow direction	Feedback signal
connect ↗	disconnect ↖	0°	[WT] connect with [BR]
disconnect ↖	connect ↗	90°	[WT] connect with [GY]
connect ↗	connect ↗	45° (could be freely set by menu)	[WT] connect with [GY][BR]

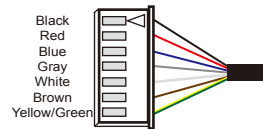


Figure 1 (7wiring diagram)

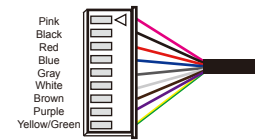
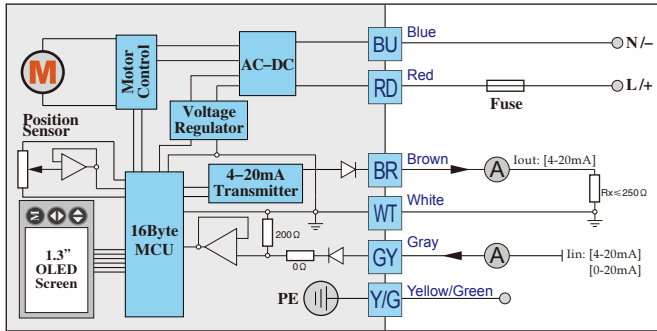


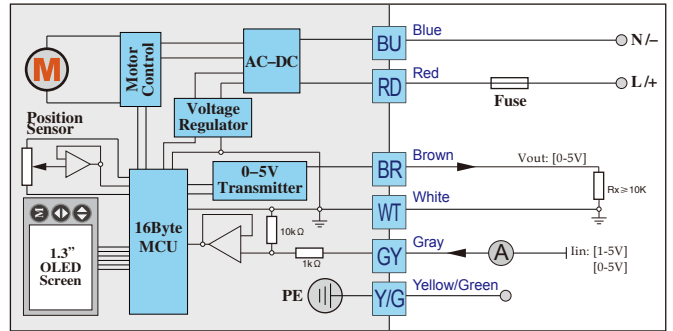
Figure 2 (9 wiring diagram)

Intelligent modulating model-wiring diagrams 【TCN/TCR-02T】

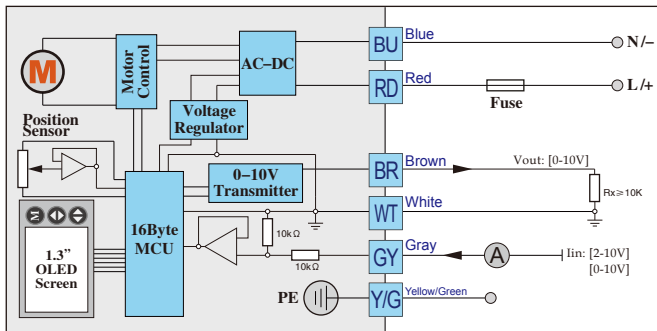
4-20mA/0-20mA



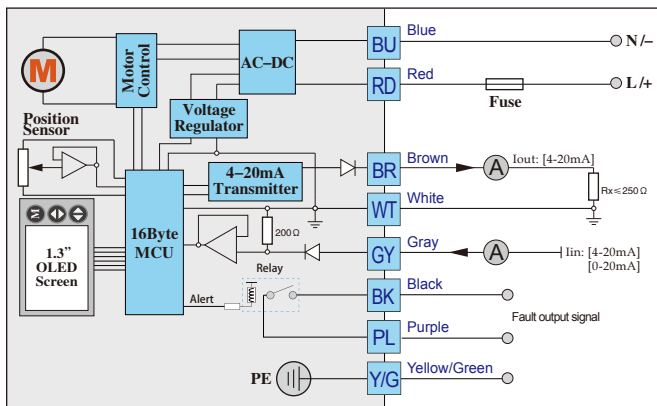
0-5V/1-5V



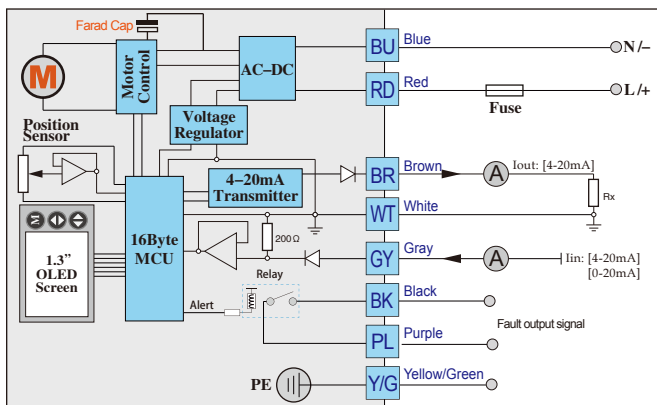
0-10V/2-10V



4-20mA-A/0-20mA-A [ Alarm ]



4-20mA-KT-A/0-20mA-KT-A [ Alarm ]



Control instructions - [ No Alert/ 7-core ] :

- 1 RD/BU are power supply.
- 2 GY/WT/BR are control input and feedback output.  
※ They are forbidden to connect the power supply, otherwise it will damage the control module.
- 3 Make sure voltage practicable range, ※ otherwise it will damage the control module.
- 4 GY is feedback current input: 4-20mA, 0-20mA, 0-5V, 0-10V, 2-10V, input impedance refers to relevant wiring diagram.
- 5 BR is control current output: 4-20mA.
- 6  $V_{out}=I_{out} \times R_x$ ,  
△  $R_x$  is recommended to use low TCR resistor.  
△  $V_{OUT} \leq 8V$ , so  $R_x \leq 400\Omega$  (recommended  $V_{out}=5V, R_x=250\Omega/0.25W$ ).
- 7 ※ For "4-20mA/1-5V/2-10V" control mode, user can set no control signal through "user setting" from menu to operate valve full-open, full-close or keep. For other control mode "0-20mA, 0-10V, 0-5V", such setting is invalid.
- 8 When actuator is stuck or there is other working fails, output fails signal.  
Contactor load capacity: 0.1A/DC24V, 50mA/230V.
- 9 0-10V output load capacity is  $\geq 10K\Omega$ , wire's resistance has impact on the accuracy, please use wire with lower resistance.



Figure 1 (7wiring diagram)

Figure2 (9 wiring diagram)

0-20mA, 0-5V, 0-10V, 2-10V can support alarm signal output function.

Control instructions - [ Alert / 9-core ] :

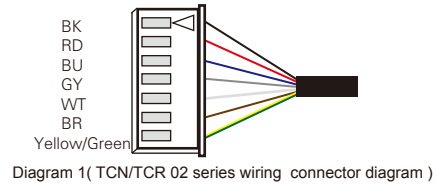
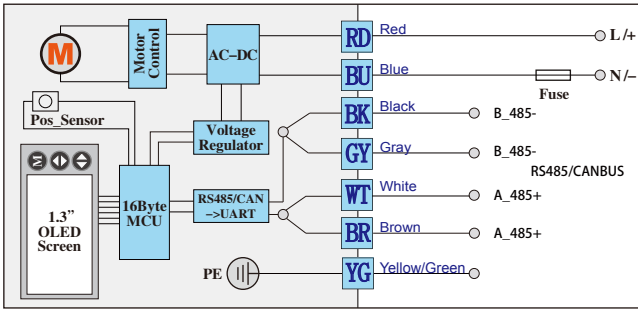
- 1 RD/BU are power supply.
- 2 GY/WT/BR are control input and feedback output.  
※ They are forbidden to connect the power supply, otherwise it will damage the control module.
- 3 Make sure voltage practicable range, ※ otherwise it will damage the control module.
- 4 GY is control current input: 4-20mA, 0-20mA, 0-5V, 0-10V, 2-10V, input impedance refers to relevant wiring diagram.
- 5 BR is feedback current output: 4-20mA.
- 6  $V_{out}=I_{out} \times R_x$ ,  
△  $R_x$  is recommended to use low TCR resistor.  
△  $V_{OUT} \leq 8V$ , so  $R_x \leq 400\Omega$  (recommended  $V_{out}=5V, R_x=250\Omega/0.25W$ ).
- 7 ※ For "4-20mA/1-5V/2-10V" control mode, user can set no control signal through "user setting" from menu to operate valve full-open, full-close or keep. For other control mode "0-20mA, 0-10V, 0-5V", such setting is invalid.
- 8 When actuator is stuck or there is other working fails, output fails signal.  
Contactor load capacity: 0.1A/DC24V, 50mA/230V.
- 9 0-10V output load capacity is  $\geq 10K\Omega$ , wire's resistance has impact on the accuracy, please use wire with lower resistance.

Control instructions: [ Alert / Failsafe/ 9-core ]

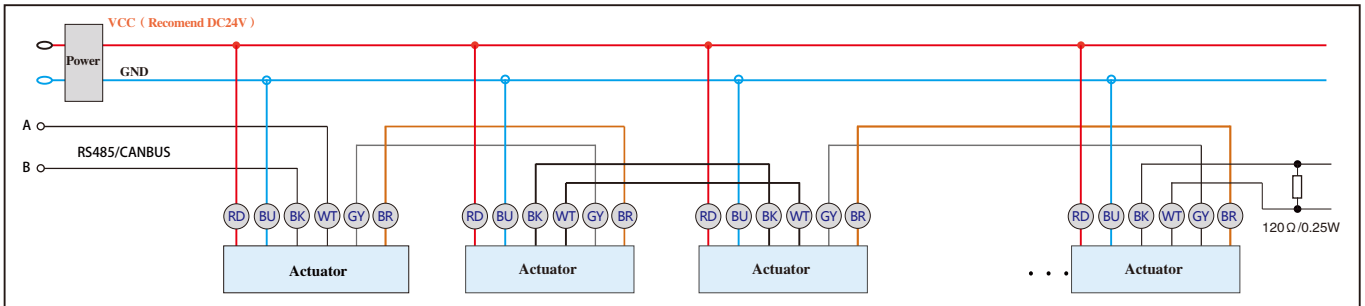
- 1 RD/BU are power supply.
- 2 GY/WT/BR are control input and feedback output.  
※ They are forbidden to connect the power supply, otherwise it will damage the control module.
- 3 Make sure voltage practicable range, ※ otherwise it will damage the control module.
- 4 GY is control current input: 4-20mA, 0-20mA, 0-5V, 0-10V, 2-10V, input impedance refers to relevant wiring diagram.
- 5 BR is feedback current output: 4-20mA.
- 6  $V_{out}=I_{out} \times R_x$ ,  
△  $R_x$  is recommended to use low TCR resistor.  
△  $V_{OUT} \leq 8V$ , so  $R_x \leq 400\Omega$  (recommended  $V_{out}=5V, R_x=250\Omega/0.25W$ ).
- 7 ※ For "4-20mA/1-5V/2-10V" control mode, user can set no control signal through "user setting" from menu to operate valve full-open, full-close or keep. For other control mode "0-20mA, 0-10V, 0-5V", such setting is invalid.
- 8 When actuator is stuck or there is other working fails, output fails signal.  
Contactor loading capacity: 0.1A/DC24V, 50mA/230V.
- 9 0-10V output load capacity is  $\geq 10K\Omega$ , wire's resistance has impact on the accuracy, please use wire with lower resistance.

**Intelligent Bus model -Wiring Diagram 【TCN/TCR-02B】**

**RS485/CANBUS 【02B-KT】**

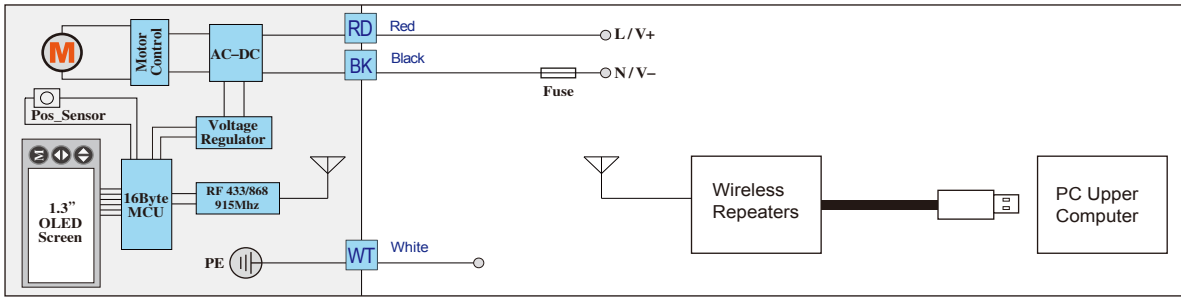


**Recommended circuit of several actuators connect in parallel**

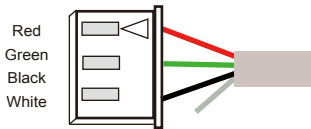
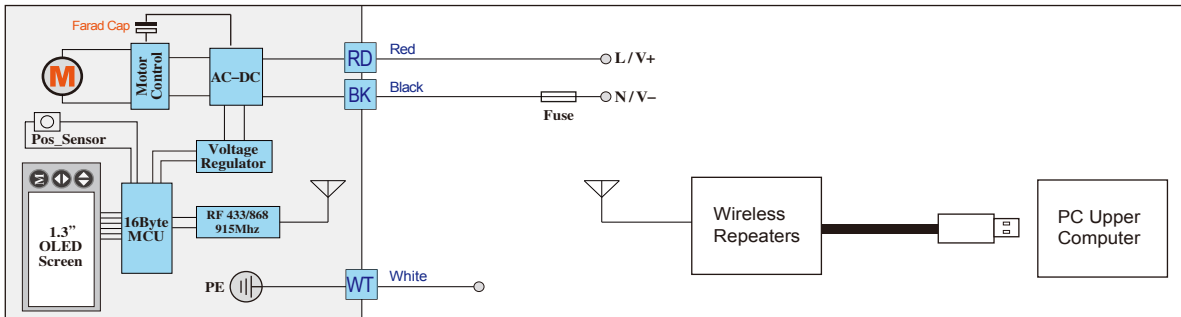


**Intelligent Wireless RF Bus model-->Wiring Diagram 【TCR/TCN-02R】**

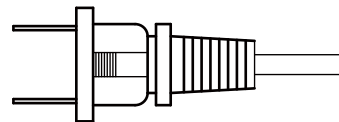
**RF**



**RF-KT**

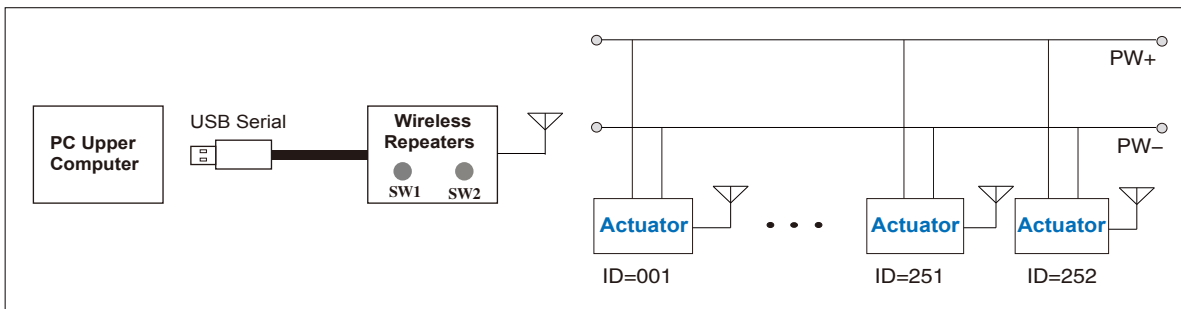


( TCR/TCR 02 series 4-core wiring diagram )



( TCR/TCR-02 series ANSI plug diagram )

※ Notice : AC110/230V series products could use ANSI plug.



**Control instruction:**

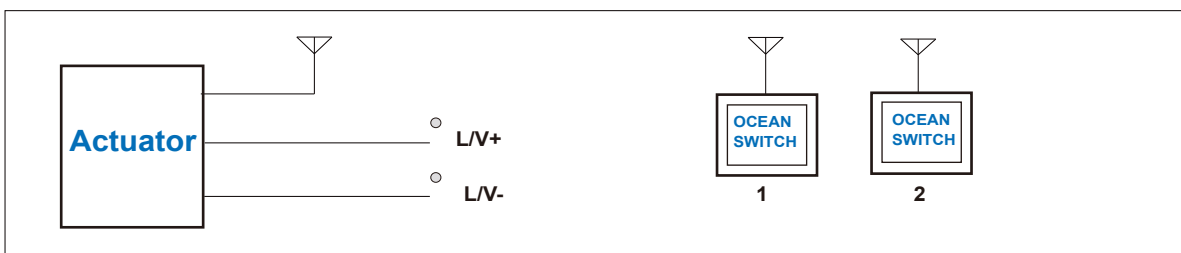
Press SW1,controller send valve-on command,controller will show the received command and message.

Press SW2,controller send valve-off command,controller will show the received command and message.

Note 1: Firstly,you need set controlled actuator ID by OLED menu,which is more suitable for single control one actuator.

Note 2: If in need of control several actuators,you can control it by PC-Serial,inside controller comes with USB Serial interrupt connect controller with PC computer,then finish install drive procedure,you can send command code by the serial on PC computer which is compatible with MODBUS. Details please refer to Modbus communication protocol.

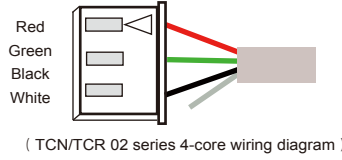
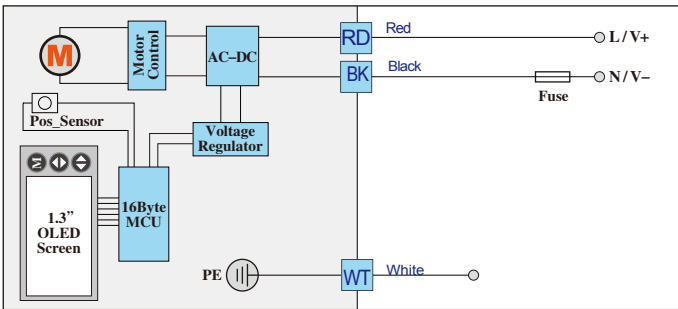
**RF-OCEAN**



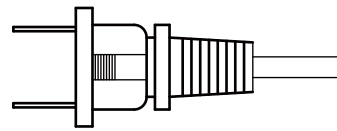
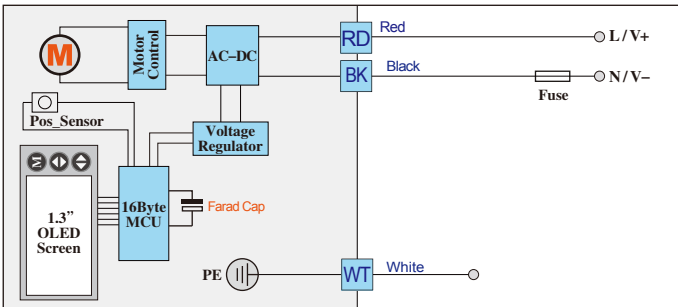
Notice: Several ocean switches could control one valve,or several valves could be controlled by one OCEAN SWITCH .

Intelligent Timer mode-->Wiring Diagrams 【TCN/TCR 02D】

TCN/TCR-02D



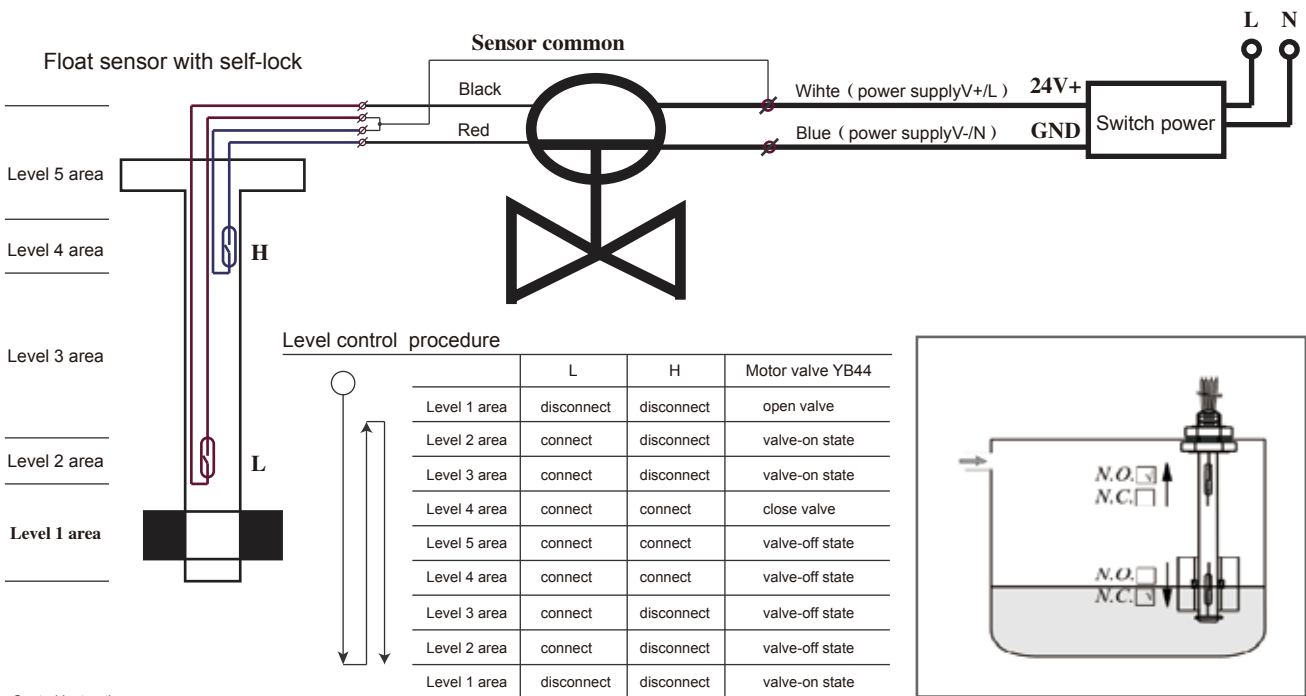
TCN/TCR-02D-KT



( TCN/TCR 02 series ANSI plug diagram )

※ Notice: AC110/230V series products could use ANSI plug.

Intelligent model ( level YW44 ) -Wiring Diagram 【TCN/TCR 02CYW】



Control instructions:

- 1 Power can be omitted,when AC230V motor valve is in use.
- 2 If DC24V motor valve is in use,switch source's power is equal to actuator maximum input power times 1.2.
- 3 Level sensor adopts reed switches(with capacity of magnetic keeping),load capacity:0.2A/DC24V,0.1A/240V.



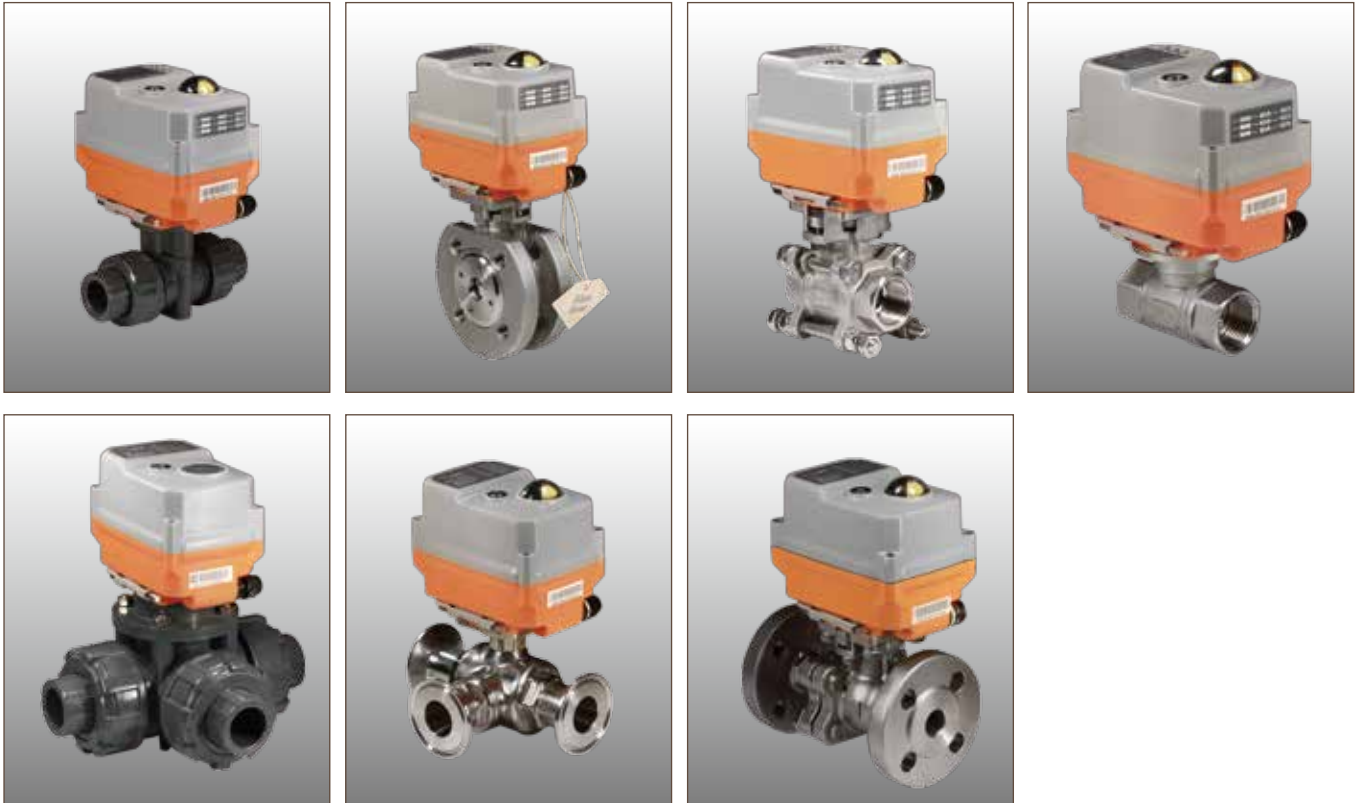
## Working environment

- This product can be used indoor and outdoor.
- This product is not explosion proof , ⚠ do not use them in flammable and explosive environment.
- You need to install protective device for the actuator if it is exposed to the rain or sunshine.
- Please pay attention to the ambient temp.
- When installing, you need to consider the reserved space for wiring and repairing.
- When power on, ⚠ it is not allowed to dismantle actuator and valve.
- When power on, ⚠ it is not allowed to do wiring.
- ✖Forbid the dropped thing hit the device and lead to improper operation.
- ✖Forbid step on it which will cause device malfunction or personal accident.
- ✖It is forbidden to do wiring project in rainy day or when there is water splash.

## Safety notice

- In order to use the device safely for a long time, please pre-read the manual carefully to ensure correct use.
- Notice item: Please understand the product specification and using method clearly to ensure personal safety danger or prevent device from damage.
- In order to indicate damage and danger, here we classify them as “warning ⚠ ” and “notice ✖ ”.
- Both of contents are very important, which should be obeyed strictly.
- “Warning ⚠ ”: It will cause death or serious injury if not obeyed.
- “Notice ✖ ”: It will cause slight injury or device damage if not obeyed.
- Subject to technical changes.

**TCN/TCR series assemble with valve real photos**



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Realize costumer greatest value **Technology**

TTC

Success comes from our persistent pursue of perfect details  
Excellence originates from our persistence of win-win philosophy