



Quality

Appearance

Service



Delicate appearance
extremely long life span



High performance
brushless motor



Precision machining
technology



Industrial grade component



Precise transmission

Electric Actuator

TCN 05/TCR 05

TCR05/TCN05 Actuator Selection Guide

Made in china Global service



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 ^{*1}
- ※ For AC series,it is forbidden to use two or more actuators in parallel



Purchase guide

Model	Torque	Voltage	Wiring	Feedback ^{*2}	Time	Speed regulation	Rotation angle	Enclosure ^{*3}	Manual override	Position indicator	Housing material	Output shaft
TCR-05N TCN-05N	50Nm	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
		DC24V										
		AC24V										
		AC110V										
		AC230V										

※ Female octagon output shaft selectable type: 14x14mm

※ TCN-05 Series: die casting aluminium ;TCR-05 Series : ABS

Notice ^{*1}. 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.

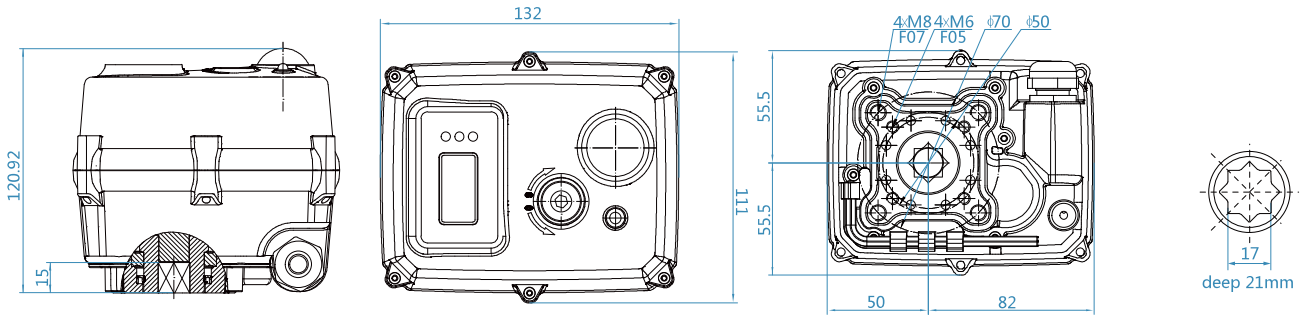
^{*2}. S type is passive contact feedback,P type is active feedback,while R type is potentiometer feedback,SR type needs to be customized.

^{*3}. F type is available in the ambient of high humidity(≥90%) but without long-term rain.

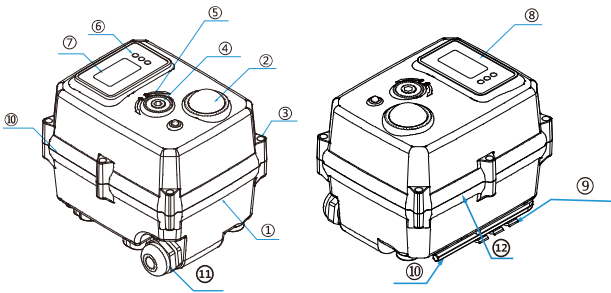
Dimension [TCR-05X]

unit: mm

Direct mount [female octagon output shaft]

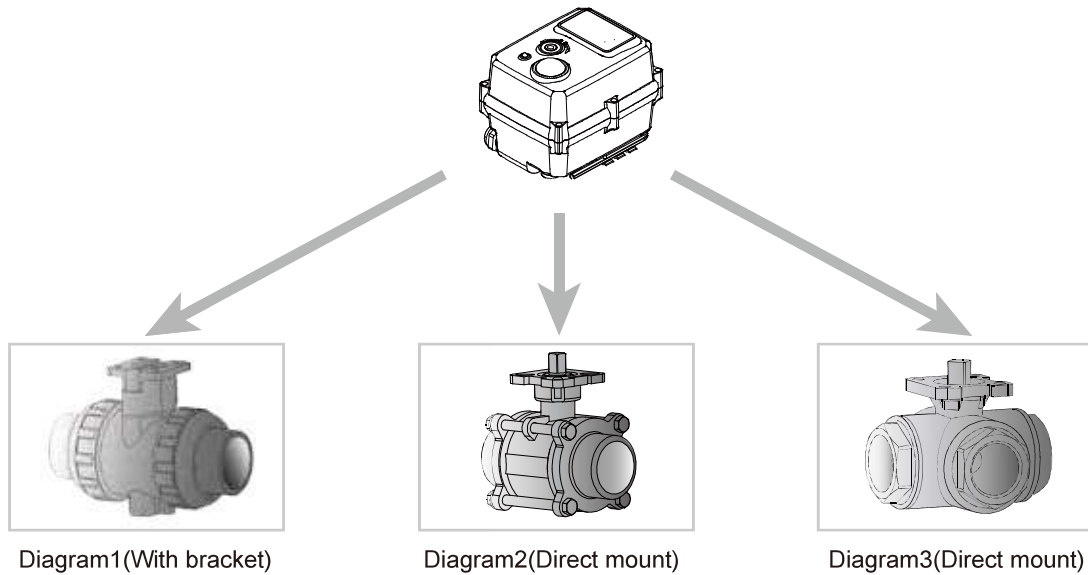


Main parts



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 6	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-05 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:

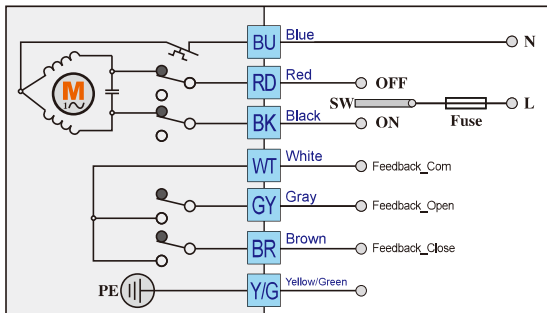
- ※ 1. When assembling with valve, it's recommend to use spring washer and flat washer to fix screw nut.
- ※ 2. It's forbidden to use anaerobic glue or UV glue. If needed, please use 704 glue and adhere quickly.
- ※ 3. Casing is avoided to contact with organic solvent, such as kerosene, butanone and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

Matched valve technical requirements

- 1. When installing ball valve, the torque value should be $\leq 35\text{Nm}$. 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 $\leq 35\text{Nm}$. 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 17mm.
- 4. Pls 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-05N]

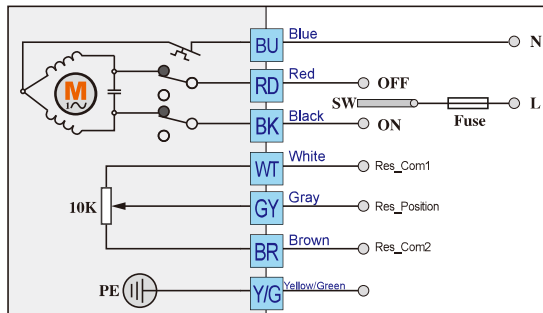
B3S



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.

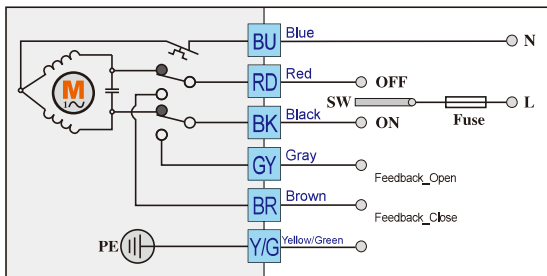
B3R



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.

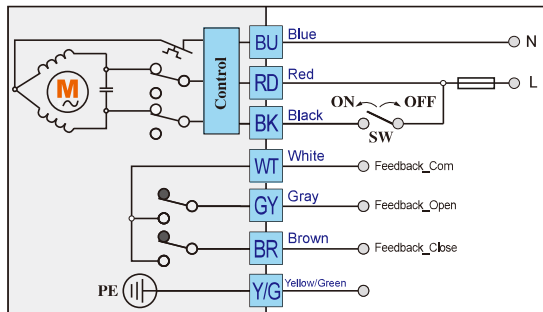
B3P



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.

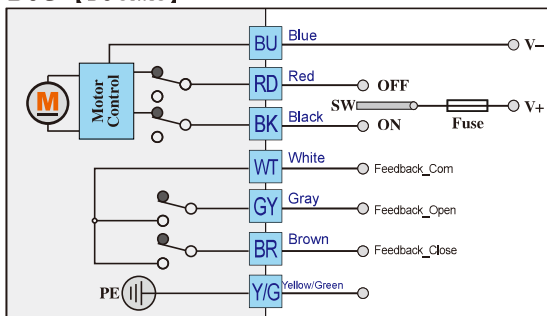
BD3S



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]



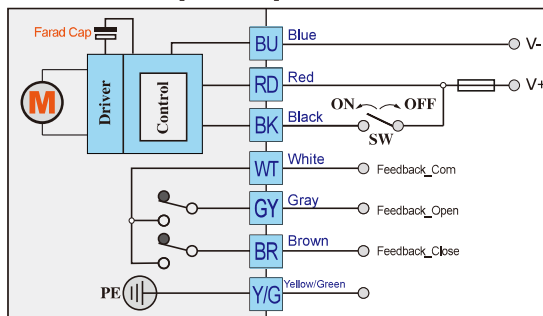
Control instructions:

- 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:

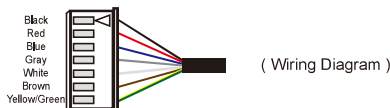
1. Fuse: please refer to manual for more parameters.
2. SW load capability: please refer to manual for more parameters.
3. Feedback signal contact load capacity: 0.1A/250VAC 0.5A/30VDC.
4. Please make sure actuator connect ground reliably (only KT32S).

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.



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.