

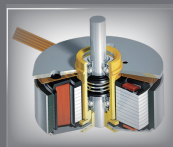
Quality

Appearance

Service



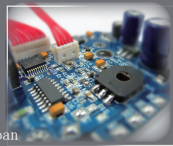
Delicate appearance



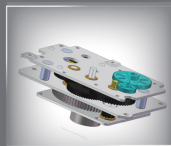
High performance
brushless motor



Precision machining
technology



Industrial grade component



Precise transmission

extremely long life span

Electric Actuator

wiring diagrams

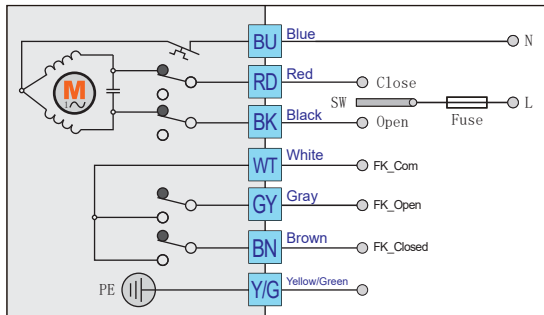
Wiring diagrams Selection Guide

Made in china Global service



Normal on/off model-wiring diagrams

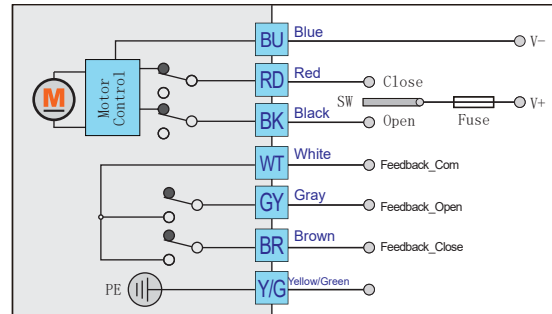
B3S



Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. When the valve is closed completely, **WT** is connect with **BN**, 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 **BN**, 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.

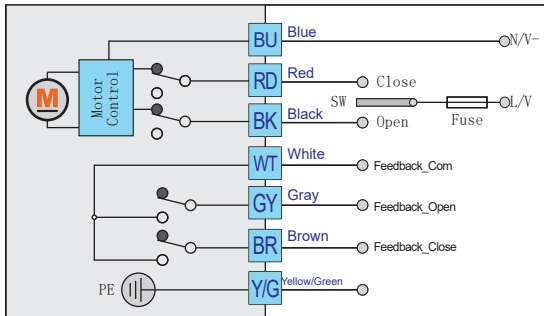
B3S- 【DC series】



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.

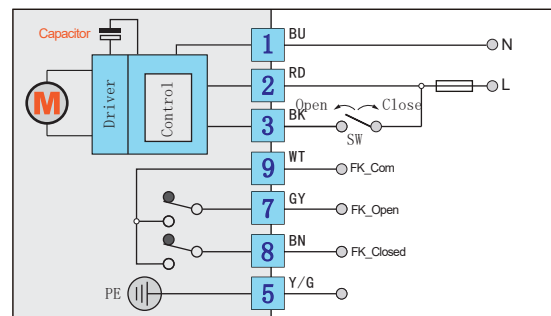
B3S- 【DC/AC series】



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.

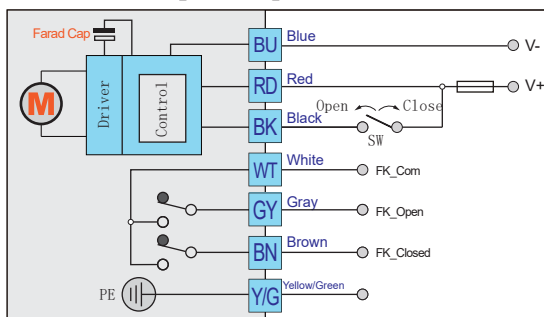
KT32S/BD3S- 【AC series】



Control instructions:

- If SW is disconnected; the actuator will drive valve close clockwise ↻. When the valve is closed completely, **9** is connected with **8**, giving signal of closing.
- If SW is connected; the actuator will drive valve open anticlockwise ↻. When the valve is open completely, **9** is connected with **7**, giving signal of opening.
- ※ Notice **9** is not connected with **8** **7**, when the actuator is running.
- ※ Notice 2: The feedback signal is a little earlier than the actual position, so please do not cut power immediately when you get the feedback signal.
- ※ Notice 3: When power cut, actuator will drive valve to close.

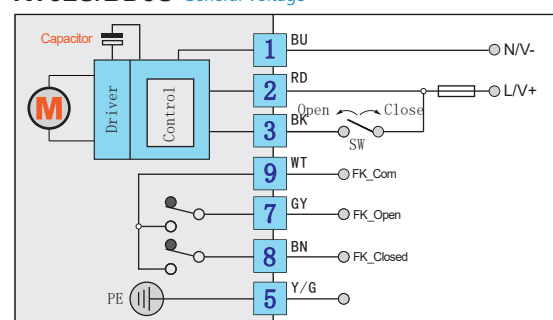
KT32S/BD3S- 【DC series】



Control instructions:

- If SW is disconnected; the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **BN**, 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** is not connected with **BN** **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.

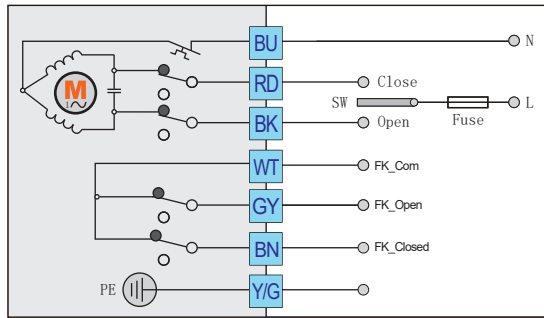
KT32S/BD3S-General Voltage



Control instructions:

- If SW is disconnected; the actuator will drive valve close clockwise ↻. When the valve is closed completely, **9** is connected with **8**, giving signal of closing.
- If SW is connected; the actuator will drive valve open anticlockwise ↻. When the valve is open completely, **9** is connected with **7**, giving signal of opening.
- ※ Notice **9** is not connected with **8** **7**, when the actuator is running.
- ※ Notice 2: The feedback signal is a little earlier than the actual position, so please do not cut power immediately when you get the feedback signal.
- ※ Notice 3: When power cut, actuator will drive valve to close.

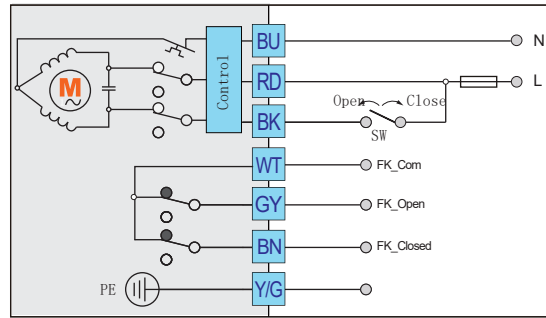
B3C



Control instructions:

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

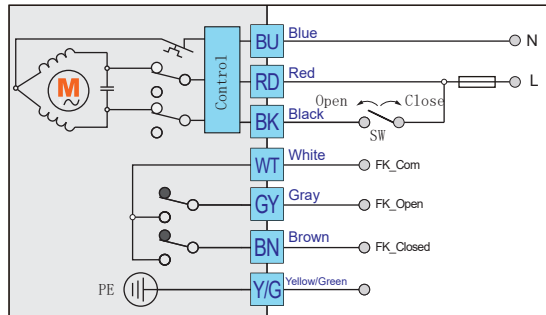
BD3C



Control instructions:

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

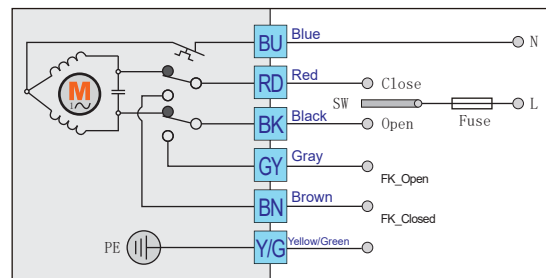
BD3S



Control instructions:

- If SW is disconnected, the actuator will drive valve close clockwise ↻. When the valve is closed completely, **WT** is connected with **BN**, 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 **BN** 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.

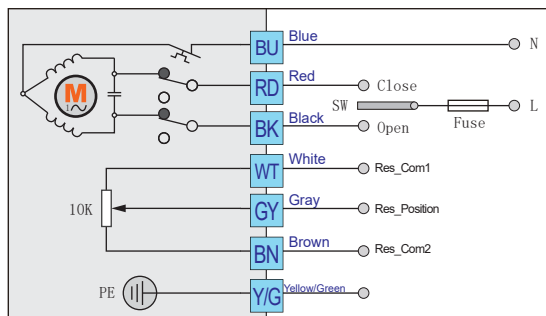
B3P



Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. When the valve is closed completely, **RD** is connect with **BN**, 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 **BN**, **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.

B3R

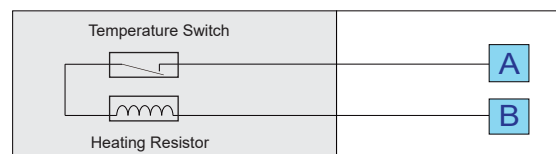


Control instructions:

- SW is connected with **RD**, the actuator will rotate clockwise ↻. The resistance value between **WT** and **BN** 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.

Optional additional items

Anti-condensation heater 【Accessory】



- ※ Notice 1: The range of power is 2W-3W.
- ※ Notice 2: The range of constant temperature heating is 25℃ ± 20%.

※Feedback signal contact load capacity:0.1A/250VAC 0.5A/30VDC.

BD3J / KT32J



- BD3.TA 【Alert】



- B33J**



B3J



- B3.1A 【Alert】

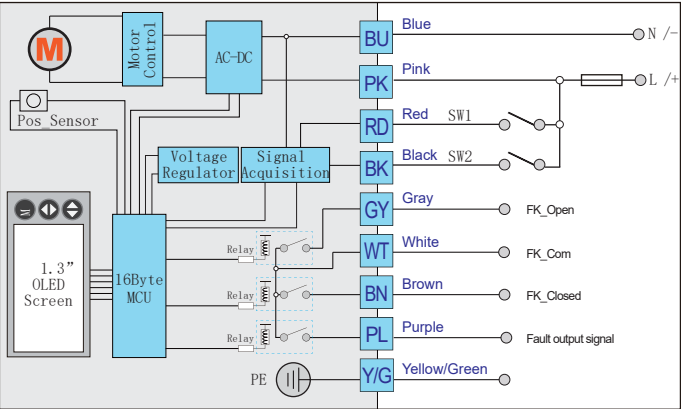


- B44



Actuator

B43JA 【Alert】

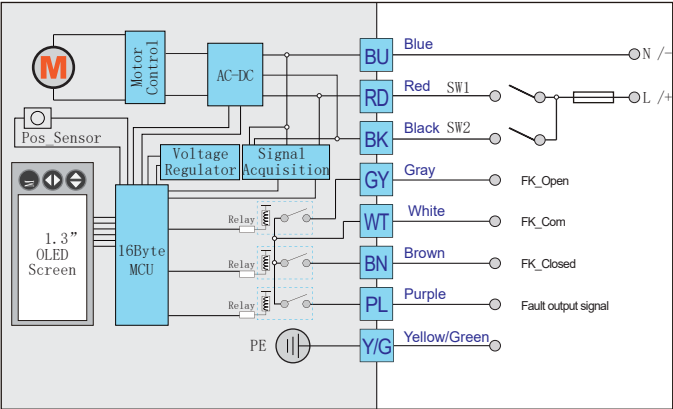


Control instructions:

- ※ Note 1: WT is not connected with GR BN 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 GR BN 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 BN
disconnect ↗	connect ↘	90°	WT connect with GR
connect ↖	connect ↘	45°(could be freely set by menu)	WT connect with GR BN

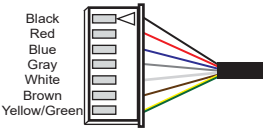


Figure 1 (7wiring diagram)

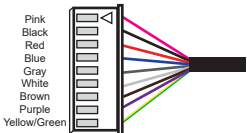
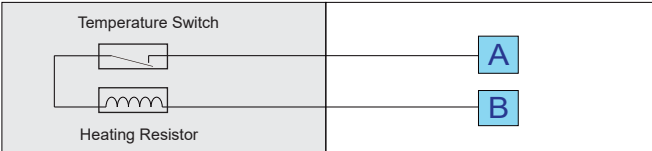


Figure 2 (9 wiring diagram)

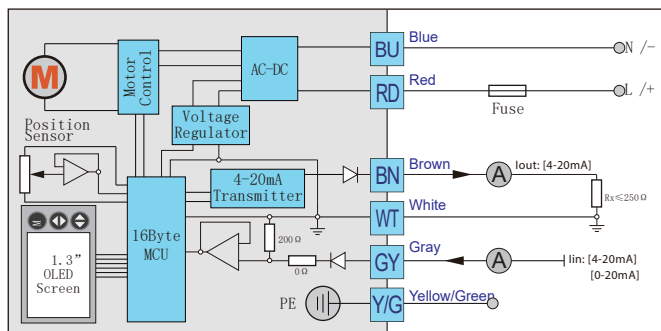
Anti-condensation heater 【Accessory】



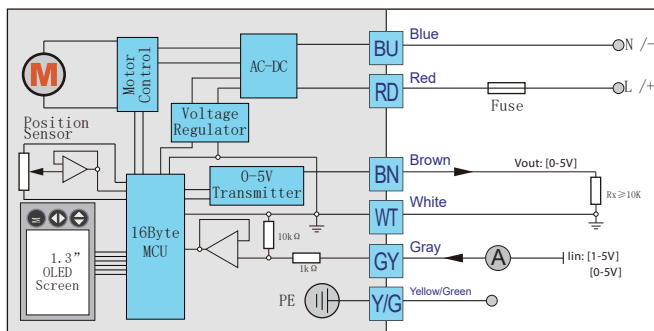
- ※ Notice 1: The range of power is 2W-3W;
- ※ Notice 2:The range of constant temperature heating is 25℃±20%.

Intelligent modulating model-wiring diagrams

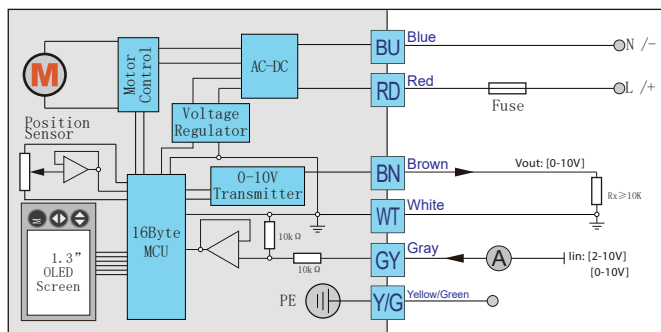
4-20mA/0-20mA



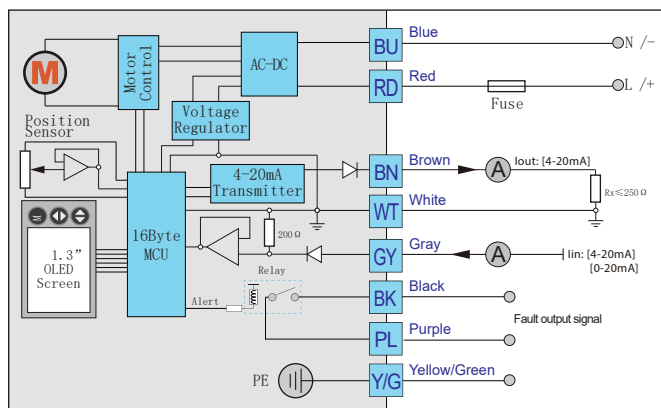
0-5V/1-5V



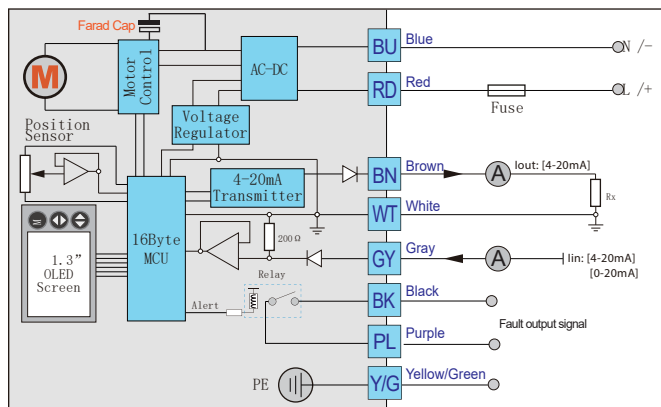
0-10V/2-10V



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** **BN** 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 **BN** is control current output:4-20mA.
- 6 $V_{out}=I_{out} \times R_x$,
 $\triangle R_x$ is recommended to use low MTD resistor.
 $\triangle V_{OUT} \leq 8V$,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.
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.

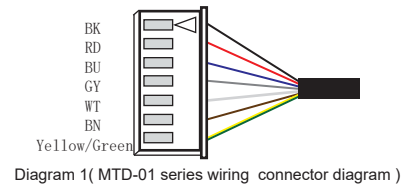
Control instructions - 【Alert / 9-core】 :

- 1 **RD** **BU** are power supply.
- 2 **GY** **WT** **BN** 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 **BN** is feedback current output: 4-20mA.
- 6 $V_{out}=I_{out} \cdot R_x$,
△ R_x is recommended to use low MTD 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 **RU** **BU** are power supply.
- 2 **GY** **WT** **BN** 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 **BN** is feedback current output: 4-20mA.
- 6 $V_{out}=I_{out} \times R_x$,
△ R_x is recommended to use low MTD 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.

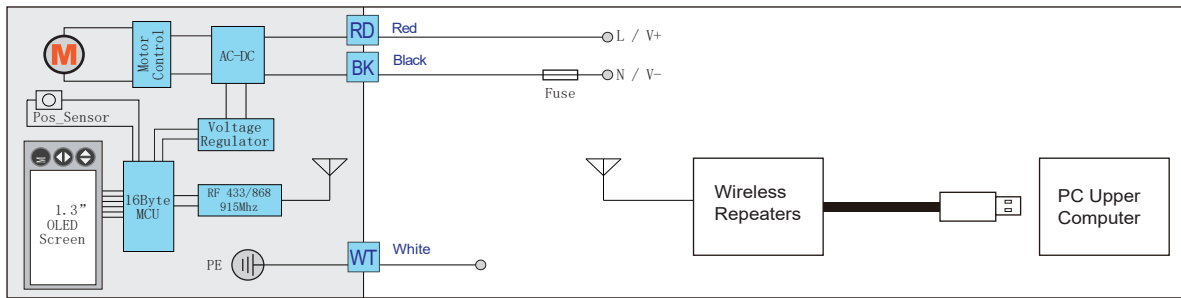
RS485/CANBUS



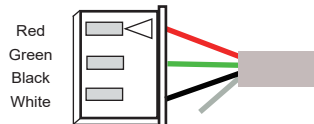
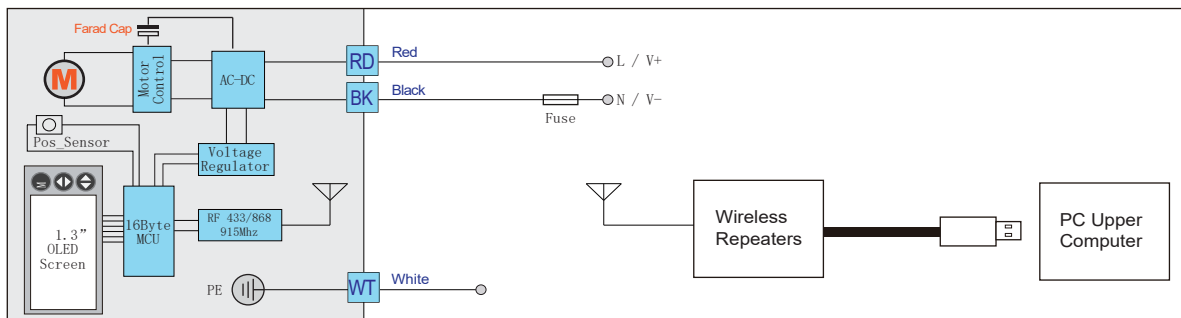
The diagram illustrates a CAN bus network topology. A power source (Power) provides VCC (Recommended DC24V) and GND. The VCC line (red) and GND line (blue) run horizontally across the top. Below these, a black line represents the RS485/CANBUS. Multiple actuators are connected to this bus. Each actuator has six pins: RD (red), BU (blue), BK (black), WT (white), GY (yellow), and BN (brown). The RD and BU pins are connected to the VCC and GND lines, respectively. The BK, WT, GY, and BN pins are connected to the RS485/CANBUS line. The actuators are connected in a daisy-chain fashion, with the RS485/CANBUS line from one actuator connecting to the BK pin of the next actuator. The final actuator in the chain is connected to a 120 Ω / 0.25W termination resistor.

Intelligent Wireless RF Bus model-->Wiring Diagram

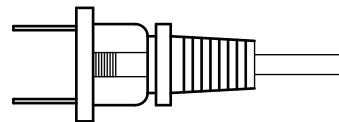
RF



RF-KT

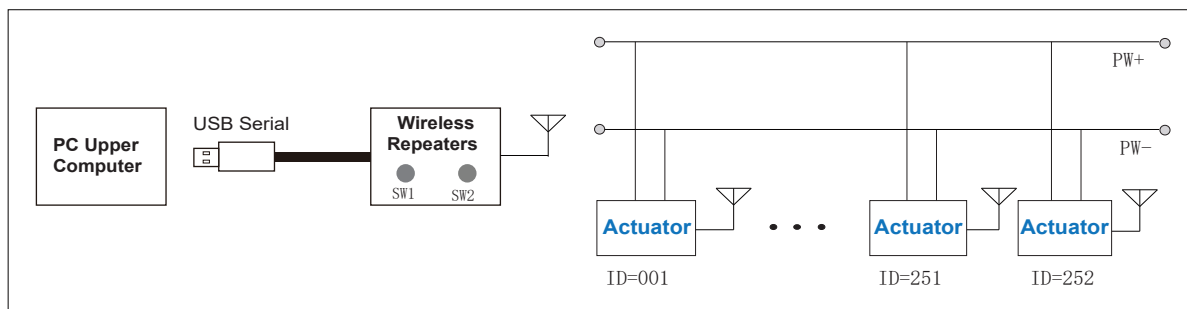


(MTD-01 series 4-core wiring diagram)



(MTD-01 series ANSI plug diagram)

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



Control instruction:

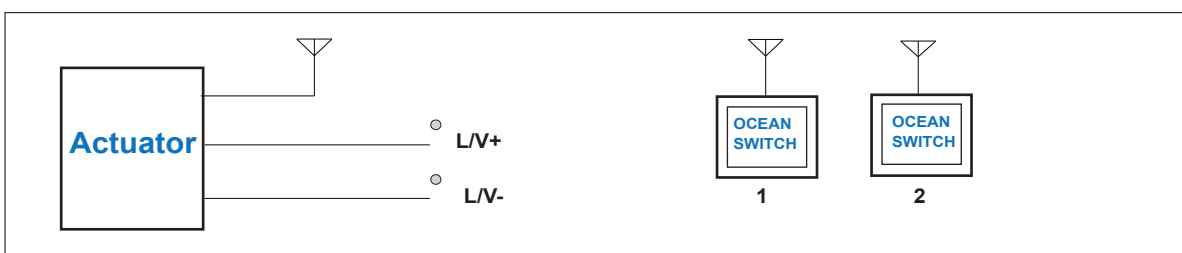
Press SW1,controller send valve-on command,controller will show the received command and message.

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 .

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.

