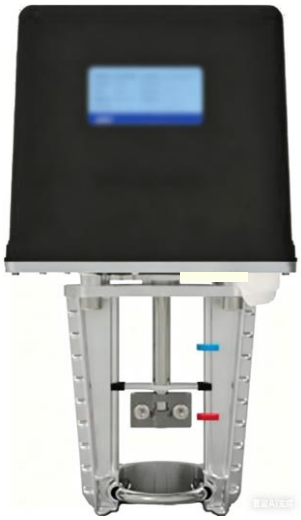
ITF Electric Control Valve Actuator Operation Manual



Product Overview

ITF…K series electric regulating valve actuators are matched with Hailin cast iron flanged valve bodies. They are applicable to central air conditioning systems and heating systems, and can realize floating control and proportional control with standard signals of DC 0(2)-10V or 4(0)-20mA.

Matching valve models are as follows:：

ITF02D Series; ITF03D Series; ITF04D Series。

Rated Thrust：

ITF …10K	1000N	Rated Stroke：22mm
ITF …15K	1500N	Rated Stroke：22mm
ITF …18K	1800N	Rated Stroke：25mm
ITF …30K	3000N	Rated Stroke：50mm

Product Technical Parameters

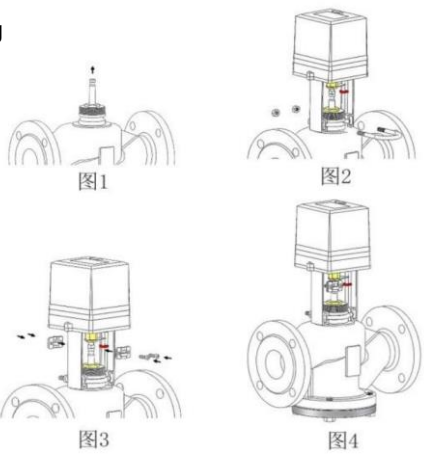
- Three-position floating type, powered by AC24V or AC220V.
- Proportional regulating type, powered by AC24V or AC220V.
  - DC 0(2)～10V control signal (factory default: 2-10V)
  - DC (0)4～20mA control signal (positioner impedance: 250 Ω)
  - DC 0(2)～10V feedback signal (factory default: 2-10V)
  - DC (0)4～20mA feedback signal (load capacity ≤ 500 Ω)
- Proportional regulating type, with one-click adaptive valve zero/full position function.；
- Proportional regulating type; it can be set via DIP switches to realize on-site manual control or remote automatic control；
- Proportional regulating type. The valve can be set via DIP switches to fully open, fully close or remain stationary when the control signal is disconnected；
- Optional Function：
  - Passive limit position contacts；
  - 2K or 10K potentiometer feedback；
  - Manual zero and full scale adjustment；
- Control Accuracy: Basic Error: ±1%；Dead Band: ±1%；
- Environment： -10～50℃；1%-90%RH non-condensing；Free of corrosive gases；Mechanical vibration: less than 1g；Ingress Protection IP54。

Model and Specifications

Model List	Output Force	Power Supply	Power	Signal Type		RunningSpeed （s/mm 50Hz）
				Control Signal	Feedback Signal	
ITF-Y2-10K	1000N	AC24V	6.7 VA	0(2)…10V or 4(0)…20mA	0(2)…10V or 4(0)…20mA	3.9
ITF-X2-10K	1000N	AC24V	5.5 VA	3-digit floating point	-	3.9
ITF-X1-10K	1000N	AC220V	5.5 VA	3-digit floating point	-	3.9
ITF-Y2-15K	1500N	AC24V	6.7 VA	0(2)…10V or 4(0)…20mA	0(2)…10V or 4(0)…20mA	3.9
ITF-X2-15K	1500N	AC24V	5.5 VA	3-digit floating point	-	3.9
ITF-X1-15K	1500N	AC220V	5.5 VA	3-digit floating point	-	3.9
ITF-Y2-18/30K	1800N/3000N	AC24V	18 VA	0(2)…10V or 4(0)…20mA	0(2)…10V or 4(0)…20mA	3.1
ITF-X2-18/30K	1800N/3000N	AC24V	16 VA	3-digit floating point	AC24V	3.1
ITF-Y1-18/30K	1800N/3000N	AC220V	18 VA	0(2)…10V or 4(0)…20mA	0(2)…10V or 4(0)…20mA	3.1
ITF-X1-18/30K	1800N/3000N	AC220V	16 VA	3-digit floating point	AC220V	3.1

Actuator Assembly Schematic

ITF-10/15/18K
Assembly Drawing



ITF-30K Assembly
Drawing

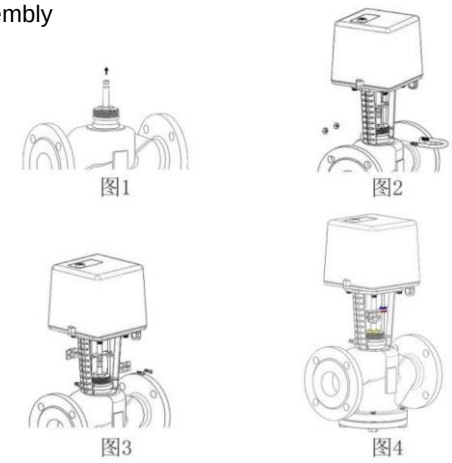


图 1： First, pull the valve stem up to the top limit of the valve body.；

图 2： Remove the U-bolt from the actuator, then loosen the clip on the actuator shaft. Align the actuator shaft against the valve stem, then press downwards together until the bottom of the actuator rests on the mounting surface of the valve body；

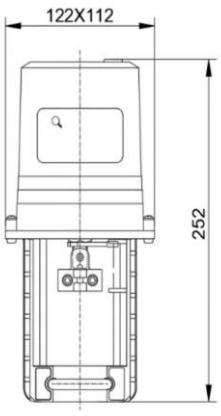
图 3： Fit the U-bolt in place and tighten the two M8 nuts. The maximum tightening torque for the nuts is 16 N·m. Next, connect the actuator shaft to the valve stem, and ensure zero clearance between the two contact surfaces.If there is a gap between the actuator shaft and the valve stem, operate the manual override of the actuator, and rotate counterclockwise with the spare hex key (see Figure 5) until the two parts are in tight contact.Secure the actuator shaft and valve stem with the clip. Pay attention to the installation direction of the clip; the notch of the clip shall clamp onto the actuator shaft. Finally, tighten the two M6×16 screws.Tool required: 5 mm hexagon socket wrench

图 4： After assembly, push the two indicator rings (one red and one blue) on the actuator bracket tightly to the pointer position. The assembly of the actuator and regulating valve body is thus completed.

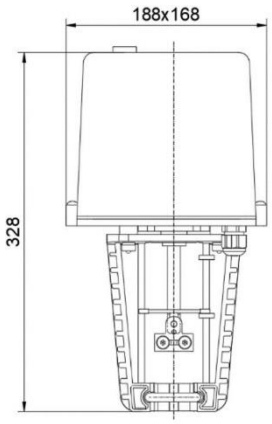
图 5

Note: After completing the assembly of the proportional regulating actuator, commissioning is mandatory before use. Open the actuator housing and wire it in accordance with the drawing. Press and hold the SET key for 3 seconds to activate the self-adaptive procedure and complete the electrical commissioning.

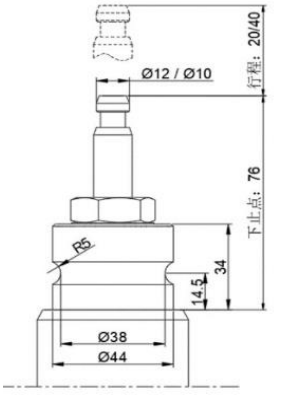
Structural Dimensions and Mounting Orientation



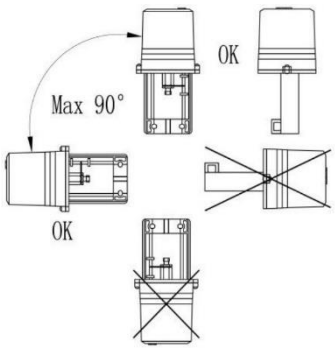
ITF-10/15



ITF-18/30

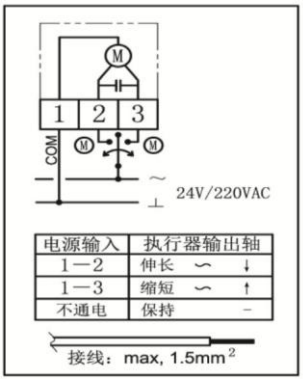


Matching Valve Body Interface Dimension Drawing

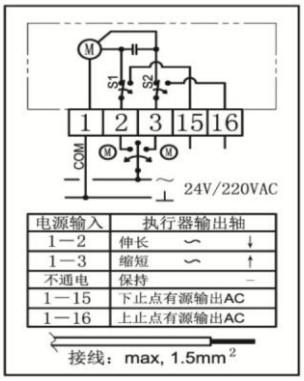


Mounting Direction

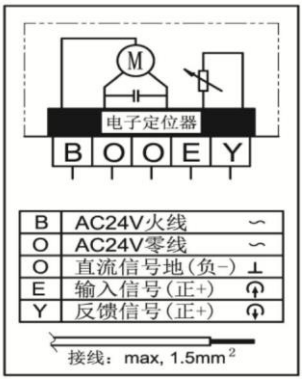
Wiring Diagram



ITF-X2-10/15K
ITF-X1-10/15K



ITF-X2-18/30K
ITF-X1-18/30k

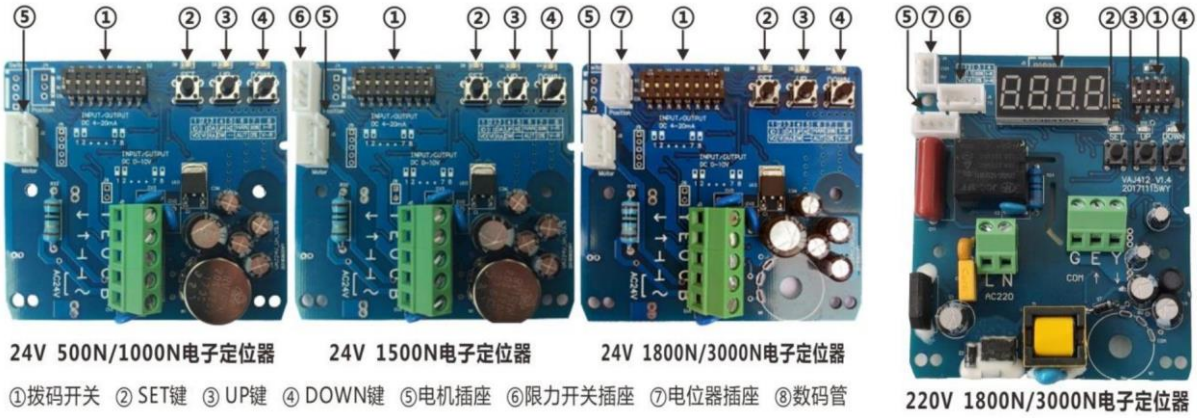


ITF-Y2-10/15K
ITF-Y2-18/30K

ITF-Y1-18/30K

电源输入：Power Input ；执行器输出轴：Actuator Output Shaft ；伸长：Extension ；缩短：Retraction；
不通电：De-energized；保持：Hold；接线：Wiring；下止点有源输出AC: Lower limit active output AC；
上止点有源输出AC: Upper limit active output AC; AC24V火线：AC24V Live Wire；AC24V 零线：AC24V Neutral Wire；
直流信号地（负-）：DC Signal Ground (Negative -)；输入信号（正+）：Input Signal (Positive+)；
反馈信号（正+）：Feedback Signal (Positive +)；AC220V火线：AC220V Live Wire；AC220V 零线：AC24V Neutral Wire

Electronic Positioner Setup

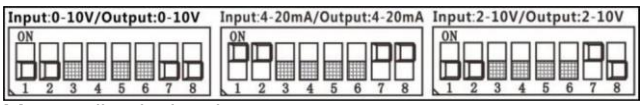


电子定位器：Electronic Positioner；拨码开关：DIP Switch；SET键：SET Key；UP键：UP Key

DOWN 键：DOWN Key;电机插座：Motor Socket；限力开关插座：Torque Limit Switch Socket
电位器插座：Potentiometer Socket；数码管：Digital Tube

Press SET key for 3 seconds to start adaptive program.	The actuator shaft moves downward first. Meanwhile, the SET and UP indicators flash, and the DOWN indicator stays steady on. After reaching the lower limit position, it pauses briefly for data storage. Then the shaft starts moving upward, with the SET and DOWN indicators flashing and the UP indicator staying steady on. After reaching the upper limit position, it pauses briefly for data storage. All indicators stop flashing, and the adaptation process is completed.。

24V Positioner Setting Method



1st bit: Feedback signal type

ON: Current signal，OFF: Voltage signal

2nd bit: Control signal type，This DIP switch must be operated synchronously with the 8th bit. Set both the 2nd and 8th bits to **ON** for current control; set both the 2nd and 8th bits to **OFF** for voltage control.

3rd bit: DA / RA action mode

OFF: RA action mode (the actuator shaft moves upward as the signal increases)

ON: DA action mode (the actuator shaft moves downward as the signal increases)

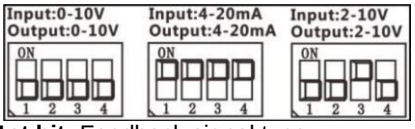
4th & 5th bit: Operation mode selection when control signal is disconnected (Forced operation mode)

When the 5th bit is OFF:

When the 4th bit is OFF, the actuator shaft runs downward to the lower stop point.

When the 4th bit is ON, the actuator shaft moves upward to the upper stop point.

220V Positioner Setting Method



1st bit: Feedback signal type

ON: Current signal，OFF: Voltage signal。

2nd bit: Control signal type This DIP switch must be operated synchronously with the 4th bit. Set both the 2nd and 4th bit to **ON** for current control; set both to **OFF** for voltage control.

3rd bit: Start point of control and feedback signals

OFF：0%　DC0-10V、DC0-20mA

ON：20%　DC2-10V、DC4-20mA

4th bit: Resistance matchingThis DIP switch must be set synchronously with the 2nd bit.Set both the 4th bit and the 2nd bit to ON for current matching; set both to OFF for voltage matching.

When the 5th bit is ON: The 4th DIP switch becomes invalid, and the actuator shaft will remain stationary when the control signal is disconnected.。

6th bit: Local manual control / Remote automatic control mode

OFF: Remote automatic control, controlled by remote input signal.

ON: Local manual control. Remote input signals are not accepted at this mode. Press the UP key, and the actuator shaft moves upward with the UP indicator lit; press the DOWN key, and the actuator shaft moves downward with the DOWN indicator lit.;

7th bit: Start point of control and feedback signals

OFF：0%　DC0-10V、DC0-20mA

ON：20%　DC2-10V、DC4-20mA

8th bit: Resistance matching This DIP switch must be operated synchronously with the 2nd bit.

Set both the 8th bit and the 2nd bit to ON for current matching; set both to OFF for voltage matching.

- In automatic control mode, press and hold the SET key and UP key simultaneously for 3 seconds to enter manual control mode. At this time, the digital tube function display shows "H". Press the UP key to move the actuator shaft upward, and press the DOWN key to move it downward. It will return to automatic control mode automatically if there is no operation for more than 10 seconds, or by pressing and holding the SET key and UP key simultaneously for 3 seconds again.
- Forward/Reverse Action Setting: In automatic control mode, press and hold the SET, UP and DOWN keys simultaneously for 3 seconds to enter the engineer setting mode. Short press the SET key to make the function digit flash for editable status. Then press the UP or DOWN key to set the function digit parameter to 2. Next, short press the SET key again to make the value digit flash for editable status. Finally, press the UP or DOWN key to set the value digit parameter to 0 or 1 (0 = Forward action, 1 = Reverse action). If no operation is performed within 10 seconds after successful setting, the parameters will be automatically saved and the system will return to automatic control mode.
- Fault Codes: E01 – Stall alarm；E02 – Input signal line open circuit alarm；E03 – Upper limit alarm；E04 – Lower limit alarm；

The system will return to automatic control mode if no operation is performed for more than 10 seconds at any step above.

Installation, Transportation and Maintenance

■ Before powering on, confirm that the supply voltage is consistent with the voltage marked on the nameplate of the actuator.。

■ Reserve sufficient space for maintenance and commissioning during installation. The actuator is not allowed to be installed upside down, and ambient temperature shall be observed. For actuators installed outdoors, a protective cover must be fitted with proper ventilation and heat dissipation. Do not allow the interior of the actuator to get wet or frost over.

■ The actuator shall not be operated in an exposed state to prevent mechanical entanglement or electric shock hazards. It is prohibited to place any objects or equipment on the actuator.

■ Appropriate packaging must be provided according to transportation conditions for delivery to the installation site。

■ Store in a dry and well-ventilated place to avoid moisture. Cover it to prevent dust accumulation, and apply anti-corrosion paint on bright metal surfaces.

Note: Cut off the power supply of the equipment before carrying out any maintenance work. Unauthorized personnel are prohibited from opening the protective cover of the actuator.

During maintenance: If it is necessary to force the electric valve open or closed, the valve can be operated via the mechanical handwheel. If no mechanical handwheel is equipped, the valve may be opened or closed by powering on the actuator for operation.

After start-up: Check the paint surface. Repaint any damaged areas to prevent corrosion. Regularly inspect the reliability of mechanical connections on the valve body, and check whether the lubrication of gears and transmission parts is dry. If necessary, add an appropriate amount of factory-specified solid grease. Do not arbitrarily use non-specified lubricants, so as to avoid sintering and accelerated wear. A regular inspection interval of three months is recommended.