

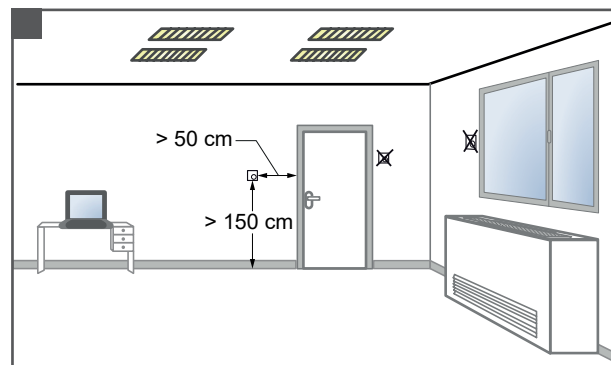
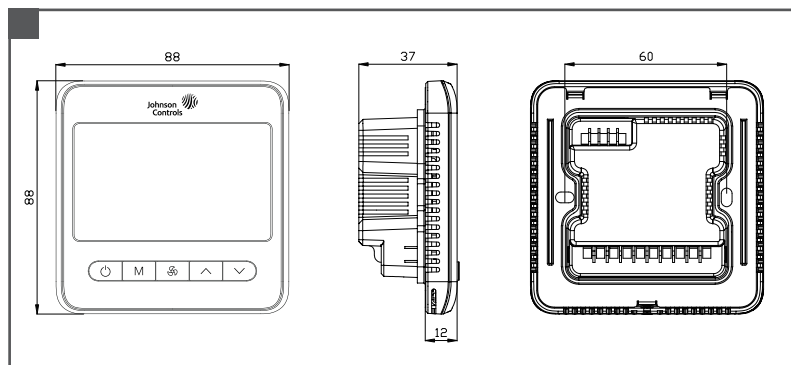
T7000e

液晶数字式温控器

LCD Digital Thermostat

安装说明书 Installation Guide

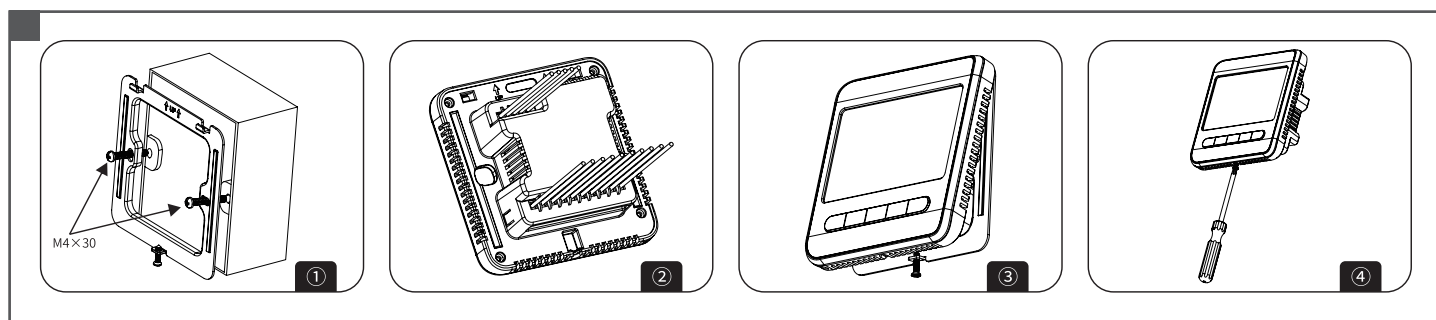
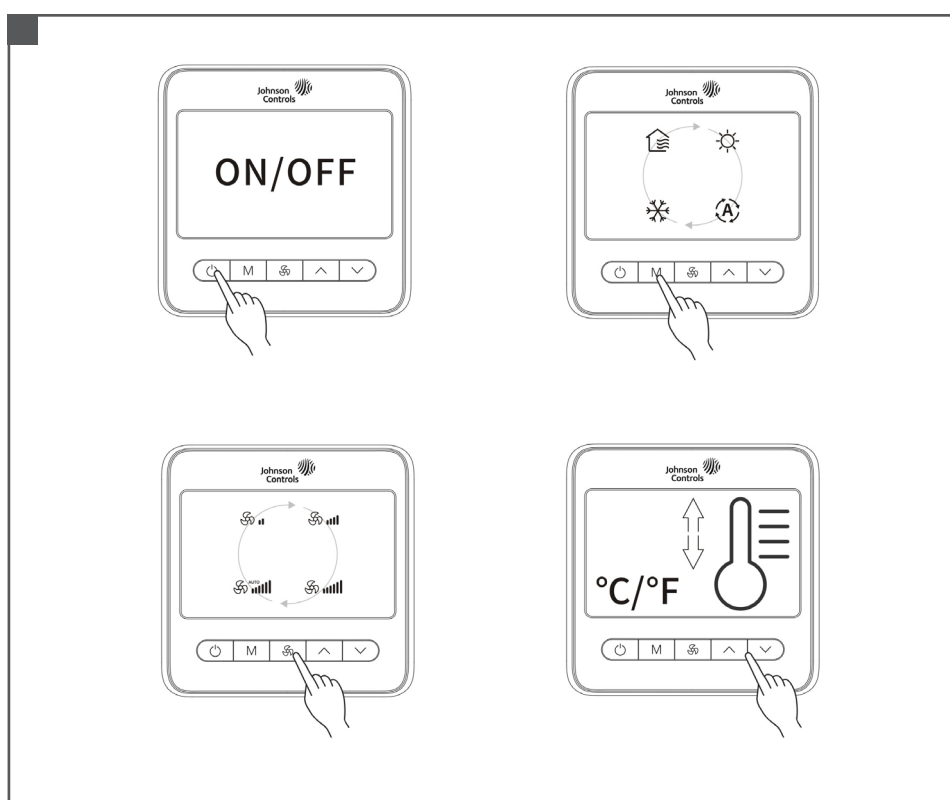
FAN-8941(1123)



**Ambient
工作环境**

MAX	MIN	MAX	MIN
50°C	0°C	60°C	-30°C
99°F	32°F	140°F	-22°F

MAX 90% RH
MIN 5% RH



Building Efficiency

Headquarters: Milwaukee, Wisconsin, USA

Branch Offices: Principal Cities World-wide

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表 1: 应用接线图 Table 1: Application Wiring Table

型号 Model	应用描述 Application Description	接线图 Wiring Diagram	应用描述 Application Description	接线图 Wiring Diagram
T7300- TF60- 9KS0	应用: 00 支持2管制、 开关式3线阀、 3速风机 (Tio2/ESP功能, 默认关闭)		应用: 00 支持2管制、 开关式2线阀、 3速风机 (Tio2/ESP功能, 默认关闭)	
	应用: 01 支持4管制、 开关式3线阀、 3速风机		应用: 01 支持4管制、 开关式2线阀、 3速风机	
T7700- TF60- 9KS0	应用: 00 支持2管制、 开关式3线阀、 3速风机 (Tio2/ESP功能, 默认关闭)、 Modbus RTU通讯		应用: 00 支持2管制、 开关式2线阀、 3速风机 (Tio2/ESP功能, 默认关闭)、 Modbus RTU通讯	

型号 Model	应用描述 Application Description	接线图 Wiring Diagram	应用描述 Application Description	接线图 Wiring Diagram
T7700- TF60- 9K50	应用: 01 支持4管制、 开关式3线阀、 3速风机、 Modbus RTU通讯		应用: 01 支持4管制、 开关式2线阀、 3速风机、 Modbus RTU通讯	
	Application: 00 Support 4-pipe cooling /heating, on/off 3 wiring valve, 3-speed fan controls, Modbus RTU		Application: 01 Support 4-pipe cooling /heating, on/off 2 wiring valve, 3-speed fan controls, Modbus RTU	
T7300- TF60- 9M50	应用: 00 支持2管制、 开关式3线阀、 ECM风机 (Tio2/ESP功能, 默认关闭)		应用: 00 支持2管制、 开关式2线阀、 ECM风机 (Tio2/ESP功能, 默认关闭)	
	Application: 00 Support 2-pipe cooling /heating, on/off 3 wiring valve, ECM fan (Tio2/ESP function, it is off by default.)		Application: 00 Support 2-pipe cooling /heating, on/off 2 wiring valve, ECM fan (Tio2/ESP function is off by default.)	
T7300- TF60- 9M50	应用: 01 支持2管制、 比例调节阀、 3速风机		应用: 02 支持2管制、 比例调节阀、 ECM风机 (Tio2/ESP功能, 默认关闭)	
	Application: 01 Support 2-pipe cooling /heating, Modulating valve, 3-speed fan controls		Application: 02 Support 2-pipe cooling /heating, Modulating valve, ECM fan (Tio2/ESP function is off by default.)	

型号 Model	应用描述 Application Description	接线图 Wiring Diagram	应用描述 Application Description	接线图 Wiring Diagram
T7300- TF60- 9MS0	应用：03 支持4管制、 开关式3线阀、 ECM风机		应用：04 支持4管制、 开关式2线阀、 ECM风机 (Tio2/ESP功能， 默认关闭)	
	Application: 03 Support 4-pipe cooling /heating, on/off 3 wiring valve, ECM fan		Application: 04 Support 4-pipe cooling /heating, on/off 2 wiring valve, ECM fan (Tio2/ESP function is off by default.)	
T7700- TF60- 9MS0	应用：05 支持4管制、 比例调节阀、 3速风机			
	Application: 05 Support 4-pipe cooling /heating, Modulating valve, 3-speed fan controls			
T7700- TF60- 9MS0	应用：00 支持2管制、 开关式3线阀、 ECM风机 (Tio2/ESP功能， 默认关闭)、 Modbus RTU通讯		应用：00 支持2管制、 开关式2线阀、 ECM风机 (Tio2/ESP功能， 默认关闭)、 Modbus RTU通讯	
	Application: 00 Support 2-pipe cooling /heating, on/off 3 wiring valve, ECM fan (Tio2/ESP function is off by default.), Modbus RTU		Application: 00 Support 2-pipe cooling /heating, on/off 2 wiring valve, ECM fan (Tio2/ESP function is off by default.), Modbus RTU	

型号 Model	应用描述 Application Description	接线图 Wiring Diagram	应用描述 Application Description	接线图 Wiring Diagram
T7700- TF60- 9MS0	应用: 01 支持2管制、 比例调节阀、 3速风机、 Modbus RTU通讯		应用: 02 支持2管制、 比例调节阀、 ECM风机 (Tio2/ESP功能, 默认关闭)、 Modbus RTU通讯	
	应用: 03 支持4管制、 开关式3线阀、 ECM风机、 Modbus RTU通讯		应用: 04 支持4管制、 开关式2线阀、 ECM风机 (Tio2/ESP功能, 默认关闭)、 Modbus RTU通讯	
	应用: 05 支持4管制、 比例调节阀、 3速风机、 Modbus RTU通讯			

型号 Model	应用描述 Application Description	接线图 Wiring Diagram	应用描述 Application Description	接线图 Wiring Diagram
T7300- TF61- 9MS0	应用：00 支持2管制、 开关式3线阀、 ECM风机 (Tio2/ESP功能， 默认关闭) Application: 00 Support 2-pipe cooling /heating, on/off 3 wiring valve, ECM fan (Tio2/ESP function is off by default.)			
	应用：01 支持2管制、 比例调节阀、 3速风机 Application: 01 Support 2-pipe cooling /heating, Modulating valve, 3-speed fan controls			
	应用：03 支持4管制、 开关式3线阀、 ECM风机 Application: 03 Support 4-pipe cooling /heating, on/off 3 wiring valve, ECM fan			
	应用：04 支持4管制、 开关式2线阀、 ECM风机 (Tio2/ESP功能， 默认关闭) Application: 04 Support 4-pipe cooling /heating, on/off 2 wiring valve, ECM fan (Tio2/ESP function is off by default.)			

型号 Model	应用描述 Application Description	接线图 Wiring Diagram	应用描述 Application Description	接线图 Wiring Diagram
T7300- TF61- 9MS0	应用：05 支持4管制、 比例调节阀、 3速风机 Application: 05 Support 4-pipe cooling /heating, Modulating valve, 3-speed fan controls	0~10V Heat Valve 0~10V Cool Valve NTC/BI AO2 GND AO1 S2 S1 L VC VO K2 K1 24V 0 低中高低 LOW MED HI 风机 Fan 零线 N 火线 L AC100~240V 50/60Hz		



INSTALLATION INSTRUCTIONS FOR THE TECHNICIAN / FITTER
READ THIS INSTRUCTION SHEET AND THE SAFETY WARNINGS CAREFULLY BEFORE INSTALLING AND SAVE IT FOR FUTURE USE

REPAIR AND REPLACEMENT

Do not attempt to repair the T7000e Series thermostat. In case of an improperly functioning control, contact the nearest Johnson Controls® representative, and specify the desired product code number. When contacting the supplier for a replacement please state the type/model number of the control located on the data plate or cover label.

IMPORTANT

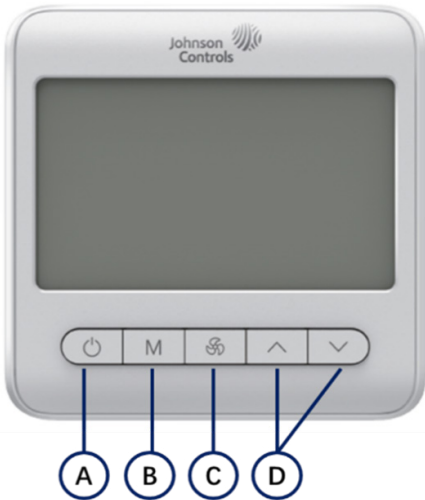
- Use this T7000e Series Thermostat only as an operating control. Where failure or malfunction of the T7000e Series Thermostat could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the system. Incorporate and maintain other devices such as supervisory or alarm systems or safety or limit controls intended to warn of, or protect against, failure or malfunction of the T7000e Series Thermostat.
- Do not install this thermostat in condensing, wet, or damp environments. Moisture may cause damage to the thermostat.
- Do not remove PCB from the enclosure cover. Removing the PCB from the enclosure cover voids the product warranty.
- Make all wiring connections in accordance with local, nation, and regional regulations. Do not exceed the T7000e Series thermostat's electrical ratings.
- Remove LCD plastic film before use.

WARNING

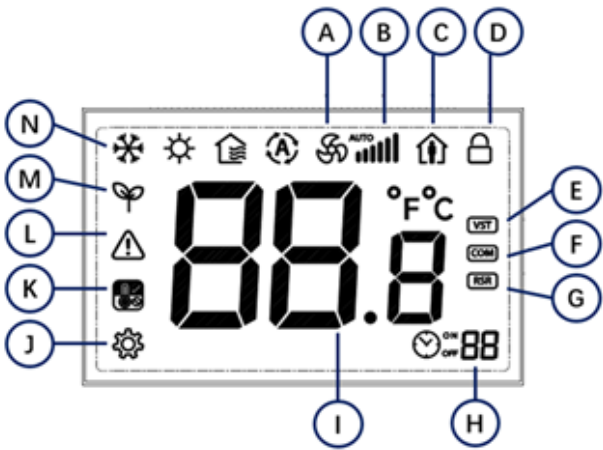
Disconnect power supply before making electrical connections. Contact with components carrying hazardous voltages can cause electrical shock and may result in severe personal injury or death.

- Risk of Electrical Shock: Ground the thermostat according to local, national, and regional regulations.
Failure to ground the thermostat may result in electrical shock and severe personal injury and death.
- Risk of Electrical Shock and Property Damage: Insulate and secure each unused wire lead before applying power to the thermostat.
Failure to insulate and secure each unused wire lead may result property damage, electrical shock, and severe personal injury or death.

T7000e interface



Callout	Feature
A	Power button
B	Working mode button
C	Fan speed adjustment button
D	Up and down buttons



Callout	Feature
A	Fan Auto
B	Fan speed High/Med/Low
C	Occupancy
D	Keypad lock
E	Valve status
F	Communication
G	Remote sensor
H	Delay on/off
I	Temperature value
J	Setting
K	Low temperature protection
L	Alarm
M	TiO2/ESP
N	Cooling/Heating/Ventilating/Auto

Instructions

• On/Off :

To turn the thermostat on, press the "⏻" key briefly; and to turn it off, press " " once again. After startup, the thermostat runs based on the settings before the last shutdown.

• Temperature setting:

When the thermostat is in the power-on state, press the "▼" key to decrease the set temperature; and press the "▲" key to increase the set temperature. The set temperature changes by 0.5° C/1° F each time.

Press the "M" or "🌀" key briefly, or wait for 3 seconds without any operation to save the settings.

• Mode selection:

When the thermostat is in the power-on state, press the "M" key to switch the working mode. The LCD screen displays "❄️" for cooling, "☀️" for heating, "🏠" for ventilation, and "🔄" for AUTO (only for the four-pipe system).

Press the "🌀", "▲" or "▼" key briefly, or wait for 3 seconds without any operation to save the settings.

Users can also configure the desired mode in the parameter settings according to their needs.

• Fan speed selection:

When the thermostat is in the power-on state, press the "🌀" key to set the air velocity of the fan to "🌀(low)", "🌀🌀(medium)", "🌀🌀🌀(high)" or "🌀🌀🌀(AUTO)". In automatic mode, the thermostat will automatically run at the optimal air velocity according to the room temperature and the set temperature value. Press the "M", "▲" or "▼" key briefly, or wait for 3 seconds without any operation to save the settings.

Users can also configure the required fan speed in the parameter settings according to their needs.

Note: Automatic fan is unavailable in ventilation mode.

• Key lock function:

The corresponding keys can be locked/unlocked by modifying the E2, E3, E4 and E5 parameters. If the keys are locked by modifying the parameters, the corresponding keys can be locked by simultaneously holding down the "M" and "🌀" keys for 2 seconds on the non-parameter setting interface. Other personnel are prohibited from operating the thermostat. To unlock the keys, simultaneously hold down the "M" and "🌀" keys for 2 seconds once again.

• Health function: (The health function is unavailable in the factory settings by default. This function is only used when the corresponding application is selected and the thermostat is configured with a health module of ESP or TiO2.)

When the parameter P1 is set to 000 and the thermostat is in the power-on state, hold down the "🌀" key for 3 seconds to enter the function setting interface, where the health icon "🌿" flickers and the temperature area displays "On/Off". Then press the "▲" or "▼" key to enable/disable the health function. When the function is on, the icon "🌿" lights up. Press the "M" or "🌀" key, or wait for 3 seconds without any operation to save the settings.

When the parameter P2 is set to 001, the health module will automatically start and stop with the fan.

• Automatic ON/OFF setting:

Automatic ON setting: When the thermostat is in the power-off state, hold down the "⏻" key for 3 seconds to enter the automatic on setting menu. The clock icon "🕒" and the icon "ON" are displayed, and the numerical value is flickering. Press the "▲" or "▼" key to adjust the setting time of automatic on. After the setting is completed, it will be saved if no operation is performed for 6 seconds.

Automatic OFF setting: When the thermostat is in the power-on state, hold down the "⏻" key for 3 seconds to enter the automatic off setting menu. The clock icon "🕒" and the icon "OFF" are displayed, and the numerical value is flickering. Press the "▲" or "▼" key to adjust the setting time of automatic off. After the setting is completed, it will be saved if no operation is performed for 6 seconds.

Cancel automatic ON/OFF time setting: Enter the menu interface of time setting, and adjust the time values of automatic on and off to 00 to cancel the automatic on/off function.

Note: The time setting of automatic on and off is only valid for one day.

After the automatic OFF function is set, if you manually turn the thermostat off before its set time, the automatic off function will be cancelled.

After the automatic ON function is set, if you manually turn the thermostat on before its set time, the automatic on function will be cancelled.

• Low temperature protection function:

When the thermostat is turned off and the indoor temperature is lower than the set value of low temperature protection, the thermostat automatically starts heating, displays the icon "🔥" of low temperature protection and opens the water valve, and the fan runs at a high speed; when the indoor temperature is 2° C higher than the set temperature for low temperature protection, the thermostat will automatically turn off the output.

• Standby and screen-off functions:

When no operation is performed by pressing keys, enter the standby interface after reaching the screen-off time. In this case, the backlight will go off. Then press any key to exit the standby interface, and the backlight will light up.

Note: The key for turning on the backlight will not trigger the functional response. The backlight turn-on time and brightness can be set in the parameter items.

• Dry contact output function selection:

When users set the parameter P2 to 000, the room is occupied if the input dry contact is open, and the icon "🏠" is displayed; while the room is unoccupied if the input dry contact is closed, and the icon "🔒" is displayed. When the parameter is set to 001, the room occupancy status is opposite.

When users set the parameter P2 to 003, a dew point risk warning is generated if the input dry contact is open, and the fault icon "⚠️" is displayed. In this case, all valves, fans and other outputs are shut off, and the first two digits of the temperature value show the fault code E1. When the parameter is set to 004, a dew point risk warning is generated if the input dry contact is closed, and the fault icon " " is displayed. In this case, all valves, fans and other outputs are shut off, the first two digits of the temperature value show the fault code E1, and the displayed icon indicates that the room is occupied by someone.

When users set the parameter P2 to 005, the open circuit indicates that the room is occupied; while the short circuit indicates that the room is unoccupied, and the fans and valves are shut off. That is, the room is occupied if the input dry contact is open, and the icon "🏠" is displayed; while the room is unoccupied if the input dry contact is closed, and the icon "🔒" is displayed.

• Restart function after a power failure:

The thermostat has the restart function after a power failure, that is, when it is powered on again after a power failure, the on/off state is the same as that before the power failure occurs.

If users don't need this function, they can set the parameter P0 to 001, that is, the thermostat will be in the off state after it is powered on regardless of whether it is on before the power failure.

• Remote temperature sensor:

When the thermostat's terminals S1 and S2 are connected to external sensors and the parameter P2 is set to 002, the built-in NTC sensor will automatically fail.

• Temperature adjustment:

If users want the temperature displayed by the thermostat to be higher or lower than the actual temperature ($\pm 5^{\circ}\text{C}/\pm 9^{\circ}\text{F}$), they can perform the following operations:

- When the thermostat is in the power-off state, hold down the "M" key for 3 seconds to enter the parameter setting interface, press the "M" key to switch to the parameter group Hx, press the "🔑" key to switch to the parameter H2, and then press the "▲" or "▼" key to adjust the temperature value.

• Filter cleaning reminder:

After the parameter E8 is set, the thermostat will record the filter's service time according to the thermostat power-on time. When the filter's service time reaches the set cleaning time, the thermostat displays the fault icon "⚠️" and the corresponding filter warning code E4 to remind users to replace the filter. After replacing the filter, users need to enter the parameter E9, set it to 1, and wait for 3 seconds to reset the filter cleaning reminder and the filter's service time. After the reset, the filter cleaning reminder is cleared, and calculation for the filter's service time restarts.

• Remote setting: (applicable to T7700 network models)

The thermostat can receive the compliance instructions from the building control equipment, and the icon "COM" on the LCD interface will light up.

When the communication is abnormal, the icon "COM" flickers.

• Restore to factory settings:

If users want to restore the thermostat to the factory settings, they can perform the following operations:

- When the thermostat is in the power-off state, hold down the "M" key for 3 seconds to enter the parameter setting interface, press the "M" key to switch to the parameter group Hx, press the "🔑" key to switch to the parameter H6, press the "▲" or "▼" key to adjust the value to 01, and then keep the selected value for 3 seconds to restore to the factory settings.

Parameter setting

When the thermostat is in the power-off state, hold down the "M" key for 3 seconds to enter the parameter setting interface. In this interface, press the "M" key to switch parameter groups cyclically, press the "🔑" key to switch parameter items one by one, and press the "▲" or "▼" key to adjust parameters.

Parameter Item	Parameter Name	Parameter Setting Range (Default Value)	Functional Meaning	Applicable Model
P0	Restart after a power failure	00	00: Restore to the state before the power failure; 01: off	All
P1	TiO ₂ /ESP Manual/Linkage	00	00: Manual operation of TiO ₂ /ESP function	Displayed when supporting the application of TiO ₂ /ESP
			01: Linkage between the TiO ₂ /ESP function and fans	

Parameter Item	Parameter Name	Parameter Setting Range (Default Value)	Functional Meaning	Applicable Model
P2	Dry contact input function selection	00	00: Key card function (open)	All
			01: Key card function (closed)	
			02: External sensor	
			03: Dew point risk warning (open)	
			04: Dew point risk warning (closed)	
			05: The open circuit indicates that the room is occupied, while the short circuit indicates that the room is unoccupied, and the fans and valves are shut off.	
P3	Temperature display on the LCD screen	00	00: The room temperature is displayed when it is in the normal state.	All
			01: The set temperature is displayed when it is in the normal state.	
P4	Conversion between Celsius and Fahrenheit	00	00: Celsius (°C); 01: Fahrenheit (°F)	All
P5	Product model definition	/	00: NG1; 01: NG2; 02: NG3; 03: NG4; 04: NG5 Users cannot modify them, and only product models are displayed.	All
P6	Application selection	00	T7300-TF60-9KS0: 00: Support 2-pipe on-off 2/3-wire valves, 3-speed fans and the TiO₂/ESP function 01: Support 4-pipe on-off 2/3-wire valves and 3-speed fans T7700-TF60-9KS0: 00: Support 2-pipe on-off 2/3-wire valves, 3-speed fans, Modbus RTU communication and the TiO₂/ESP function 01: Support 4-pipe on-off 2/3-wire valves, 3-speed fans and Modbus RTU communication T7300-TF60-9MS0: 00: Support 2-pipe on-off 2/3-wire valves, ECM fans and the TiO₂/ESP function 01: Support 2-pipe proportional control valves and 3-speed fans 02: Support 2-pipe proportional control valves, ECM fans and the TiO₂/ESP function 03: Support 4-pipe on-off 3-wire valves and ECM fans 04: Support 4-pipe on-off 2-wire valves, ECM fans and the TiO₂/ESP function 05: Support 4-pipe proportional control valves and 3-speed fans T7700-TF60-9MS0: 00: Support 2-pipe on-off 2/3-wire valves, ECM fans, Modbus RTU communication and the TiO₂/ESP function 01: Support 2-tube proportional control valves, 3-speed fans and Modbus RTU communication 02: Support 2-pipe proportional control valves, ECM fans, Modbus RTU communication and the TiO₂/ESP function 03: Support 4-pipe on-off 3-wire valves, ECM fans and Modbus RTU communication 04: Support 4-pipe on-off 2-wire valves, ECM fans, Modbus RTU communication and the TiO₂/ESP function 05: Support 4-pipe proportional control valves, 3-speed fans and Modbus RTU communication T7300-TF61-9MS0: 00: Support 2-pipe on-off 2/3-wire valves, ECM fans and the TiO₂/ESP function 01: Support 2-pipe proportional control valves and 3-speed fans 02: Support 2-pipe proportional control valves, ECM fans and the TiO₂/ESP function 03: Support 4-pipe on-off 3-wire valves and ECM fans 04: Support 4-pipe on-off 2-wire valves, ECM fans and the TiO₂/ESP function 05: Support 4-pipe proportional control valves and 3-speed fans	All

Parameter Item	Parameter Name	Parameter Setting Range (Default Value)	Functional Meaning	Applicable Model
P7	Software version	/	U00~99 (U12 stands for the V12 version.)	All
H0	Set the lower temperature limit	5°C (41° F)	Setting range: 0-48.5°C (32-120° F)	All
H1	Set the upper temperature limit	35°C (95° F)	Setting range: 1-49.5°C (33-121° F)	All
H2	Temperature offset	0°C (0° F)	Setting range: -5-5°C (-9-9° F)	All
H3	Backlight turn-on time setting	20	Setting range: 5-99 seconds	All
H4	Backlight brightness setting	80	Setting range: 10-100%	All
H5	Operational mode selection	00	00-Cooling/Heating/Ventilation	All
			01-Cooling/Ventilation	
			02-Heating/Ventilation	
			03-Cooling/Heating/AUTO/Ventilation (only for the 4-pipe system)	
H6	Restore defaults	00	00: Not restore	All
			01: Restore After being restored, it is automatically set to 00.	
H7	Communication address	01	Setting range: 1-64	T7700
H8	Baud rate setting	00	00: 9600 bps	T7700
			01: 4800 bps	
E0	Set value of cooling in the unoccupied state	26°C (79° F)	Setting range: 26-32°C (72-90° F)	All
E1	Set value of heating in the unoccupied state	18°C (64° F)	Setting range: 10-21°C (50-70° F)	All
E2	Key lock (on/off key)	00	00: Unlocked	All
			01: Locked	
E3	Key lock (mode key)	00	00: Unlocked	All
			01: Locked	
E4	Key lock (fan speed key)	00	00: Unlocked	All
			01: Locked	
E5	Key lock (up/down key)	00	00: Unlocked	All
			01: Locked	
E6	Low temperature protection	00	00: Disabled	All
			01: Enabled	
E7	Set value of low temperature protection	5°C (41° F)	Setting range: 1-10°C (34-50° F)	All
E8	Set filter's service time	0	0 indicates that the filter's timekeeping is turned off, 10 indicates that the filter's service time is 1,000 hours, and 22 indicates that the filter's service time is 2,200 hours.	All
E9	Reset the filter's service time and reminder	00	00: Not reset; 01: Reset After being reset, it is automatically set to 0.	All
F0	Fan mode after reaching the set temperature under the automatic air velocity	00	00: Run at a low air velocity.	All
			01: Turn off the fan.	
F1	Time to delay turning off the fan	0	Setting range: 0-100 seconds Under the automatic air velocity gear, the time to delay turning off the fan after it meets the corresponding conditions.	All
F2	Fan mode in the unoccupied state	00	00: Turn off the fan.	All
			01: Run at low speed	

Parameter Item	Parameter Name	Parameter Setting Range (Default Value)	Functional Meaning	Applicable Model
F3	Fan speed selection	00	00: 3-speed fan: low+medium+high+AUTO	All
			01: 2-speed fan: low+medium+AUTO	
			02: 1-speed fan: low	
F4	ECM fan minimum voltage setting	0.0	Setting range: 0.0-9.0 V	Displayed when supporting the application of ECM fans
F5	ECM fan maximum voltage setting	10.0	Setting range: 1.0-10.0 V	Displayed when supporting the application of ECM fans
F6	High speed fan output voltage setting	6.0	Setting range: 0.0-10.0 V (according to the lowest voltage of F4 and the highest voltage of F5)	Displayed when supporting the application of ECM fans
F7	Medium speed fan output voltage setting	4.5	Setting range: 0.0-10.0V (according to the lowest voltage of F4 and the highest voltage of F5)	Displayed when supporting the application of ECM fans
F8	Low speed fan output voltage setting	3.0	Setting range: 0.0-10.0V (according to the lowest voltage of F4 and the highest voltage of F5)	Displayed when supporting the application of ECM fans
U0	Dead band for valve control	1°C (2° F)	"Return difference of valve action control Setting range: 0.5-2°C (1-4° F)"	All
U1	proportional band for proportional valve PID control	5	Proportional value of proportional valves Setting range: 0-99	Displayed when supporting the application of proportional control valves
U2	KI parameter for proportional valve PID control	10	Integral value of proportional valves Setting range: 0-99	Displayed when supporting the application of proportional control valves
U3	Sample time for proportional valve PID control	10	Sampling time of proportional valves Setting range: 1-99 seconds	Displayed when supporting the application of proportional control valves
U4	Minimum voltage value of proportional valves	0.0	Setting range: 0.0-9.0 V	Displayed when supporting the application of proportional control valves
U5	Maximum voltage value of proportional valves	10.0	Setting range: 1.0-10.0V	Displayed when supporting the application of proportional control valves

NOTE

- Modify parameter "Application selection "and it will take effect 3 seconds later, then software will reset
- Modify parameter "Restore defaults "and it will take effect after 3 seconds later, then thermostat will shut down. If you need to turn on the thermostat, press the power button
- Modify parameter "Reset the filter's service time and reminder "and it will take effect 3 seconds later

Troubleshooting

Failures	Possible Causes	Solutions
The thermostat cannot be turned on.	The thermostat is not powered on.	Power on the thermostat.
	The front and rear panel cables of the thermostat are not installed properly.	Install the front and rear panel cables of the thermostat properly.
	The power cord of the thermostat is connected incorrectly or poorly.	Connect the power cord of the thermostat correctly.
The thermostat's screen icon "⚠" flickers.	A failure occurs on the communication line.	Check the communication wiring for the thermostat.
		Check the communication address and the baud rate setting.
The thermostat's fault icon "⚠" appears, and the screen displays the fault code.	E0: The thermostat's temperature sensing probe	When the thermostat is connected to an external remote sensor: Check whether the remote sensor is selected in the parameter setting. When the thermostat is not connected to any external remote sensor: Replace the thermostat.
	E4: Filter warning: The filter reaches its set service time.	After replacing the filter, enter the parameter setting interface to reset the filter's service time and reminder.
	EE: A failure occurs on the thermostat's EEPROM chip.	Replace the thermostat.
	HI: The ambient temperature is too high.	It will automatically restore after the ambient temperature drops.
	Lo: The ambient temperature is too low.	It will automatically restore after the ambient temperature rises.



Compliance

Johnson Controls declares that these products are in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive.



安装指导

请在安装前仔细阅读该安装指导和安全警告

维修和替换：

不要试图现场维修 T7000e 系列温控器。如果 T7000e 不能正常工作，请与附近江森自控办事处联系。当联系办事处更换产品的时候，请说明外部标签或参数表上印有的类型 / 型号。

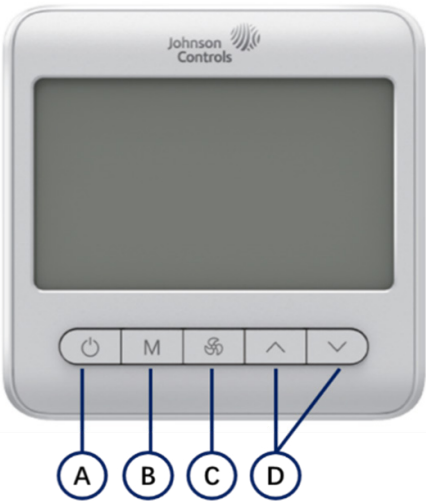
重要：

- T7000e 系列温控器仅用作设备控制。当 T7000e 系列温控器调节装置失灵或故障时可能会导致人员伤亡，财产损失及其他设备损坏。请在系统中增加预防措施，如使用监控及报警系统、保护开关等，来加强此温度调节装置的机能失效和故障时的保护。
- 不要把 T7000e 装在结露、潮湿或有湿气处。湿气会损坏温控器。
- 不要拆卸外壳中的 PCB，拆卸 PCB 板将不再享有质保服务。
- 使所有接线符合国家、地区和当地的规定。不要超过 T7000e 系列温控器电气参数。
- 使用前请移除 LCD 塑料保护膜。

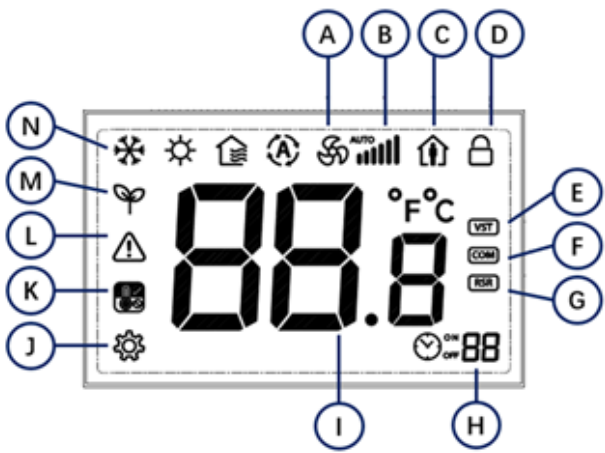
警告：

- 在进行电器接线时确保电源断开。在带电时连接各部件可能引起电击，从而导致人员受伤甚至死亡。
- 电击危险：按照国家、地区和当地的规定给温控器接地。接地失效可能导致电击和人员受伤甚至死亡。
 - 电击危险和财产损失：在温控器通电前把未使用的线头保护好，使之绝缘。任何一个未使用的线头未被绝缘和保护可能导致财产损失，电击和人员受伤甚至死亡。

T7000e 界面



编号	功能
A	开关键
B	模式键
C	风速键
D	上下调节键



编号	功能
A	风机自动
B	风机速度 高 / 中 / 低
C	有 / 无人模式
D	键盘锁
E	阀状态
F	通讯
G	外置传感器
H	定时开关机
I	温度读数
J	设置
K	低温保护
L	警告
M	TiO ₂ /ESP
N	制冷 / 制热 / 通风 / 自动模式

使用说明

• 开 / 关机：

短按“”键一次开机；再短按一次关机，开机后机组按上次关机前的设定运行。

• 设定温度：

开机状态下，按“”键降低设置温度，按“”键升高设置温度，每按键一次设置温度变化 0.5°C/1°F。

短按“M”、“”键或 3s 无操作则保存设置。

• 模式选择：

开机状态下，按“M”键进行工作模式切换。液晶显示“”表示制冷，显示“”表示制热，显示“”表示通风，显示“”表示自动（仅四管制时有自动模式）。

短按“”、“”或“”键或 3s 无操作则保存设置。

用户也可根据自身需求在参数设置中进行配置需要的模式。

• 风速选择：

开机状态下，按“”键选择风机风速：“”（低）、“”（中）、“”（高）、“”（自动）”风速。

自动模式下，机组会根据房间温度和设定温度值自动运行最优风速。短按“M”、“”或“”键或 3s 无操作则保存设置。

用户也可根据自身需求在参数设置中进行配置需要的风速。

注：通风模式下无自动风速。

• 按键锁功能：

通过修改参数 E2,E3,E4,E5 可以实现锁定 / 解锁相应按键。如果通过参数对按键设置了锁定，非参数设置界面下，同时按下“M”和“”键 2s 即可将设置的对应按键锁上，禁止其他人员对温控器进行操作。如要解除锁定，再次同时按下“M”和“”键 2s 即可解锁。

• 健康功能：（出厂设置默认无，仅当选择对应应用且机组配置了 ESP 或 TiO2 健康模块时使用）

当参数项“P1”设置为“00₀”时，开机状态下，按“”键 3s，进入功能设置，健康图标“”闪烁，温度区域显示“On/OF”，按“”或“”键选择健康功能的开启 / 关闭，“On”表示开启，“OF”表示关闭，功能开启后图标“”点亮。按“M”、“”键或 3s 无操作则保存设置。

当参数项“P2”设置为“00₁”时，健康模块将随风机自动启停。

• 定时开关机设置：

定时开设置：关机状态下，长按“”键 3s 进入定时开设置菜单，此时显示时钟图标“”及“ON”图标，同时数值闪烁，按“”或“”键调整定时开的时间，设置完成后 6s 无操作确认保存。

定时关设置：开机状态下，长按“”键 3s 进入定时关设置菜单，此时显示时钟图标“”及“OFF”图标，同时数值闪烁，按“”或“”键调整定时关的时间，设置完成后 6s 无操作确认保存。

取消定时开关机设置：进入定时设置菜单界面，将定时开机和定时关机的时间。

数值调整为“00”，即可取消定时开关机功能。

注：设定一次的定时开关机时间只能执行一次，即只在一天内有效。

设置定时关机，如果定时时间未到，手动关机后，那么定时关机取消。

设置定时开机，如果定时时间未到，手动开机后，那么定时开机取消。

• 低温保护功能：

温控器处于关机状态，当室内温度低于低温保护设定值时，温控器自动开启制热并显示低温保护图标“”，开启水阀，同时风机高速运行；当室内温度高于低温保护设定温度 2°C 时，温控器自动关闭输出。

• 待机、熄屏功能：

当没有按键操作情况下，达到熄屏时间后进入待机界面，背光熄灭，此时按下任意按键，退出待机界面同时背光变亮。

注：唤醒背光的按键不触发功能响应。背光开启时间设置和背光亮度的设置可在参数项中进行设置。

• 干接点输出功能选择：

当用户将参数项“P2”设置为“00₀”时，输入干接点常开代表有人，显示图标“”输入干接点常闭则代表无人，显示图标“”设置为“00₁”时则相反显示。

当用户将参数项“P2”设置为“00₃”时，输入干接点常开代表露点报警，显示故障图标“”，同时关闭所有阀、风机、其他输出，温度数值前两位显示故障代码 E1；设置为“00₄”时，输入干接点常闭代表露点报警时，显示故障图标，同时关闭所有阀、风机、其他输出，温度数值前两位显示故障代码 E1；此时显示有人状态。

当用户将参数项“P2”设置为“00₅”时，开路表示有人，短路表示无人，关闭风扇和阀门，即输入干接点常开代表有人，显示图标“”，输入干接点常闭则代表无人，显示图标“”。

• 掉电重启功能：

温控器具有掉电重启功能，即断电后再次上电，开、关机状态和断电前相同。

如用户无需此功能，可参数项“P0”设置为“00₁”，即不管断电前是否开机，上电后温控器都处于关机状态。

• 外接温度传感器：

当温控器端子 S1、S2 接上外置传感器，同时将参数项“P2”设置为“00₂”时，内置 NTC 传感器自动失效。

• 温度调整：

如果用户希望温控器显示的温度高于或低于实际温度（±5° C/±9° F），可进行以下操作：

· 在关机状态下，长按“M”键 3s 进入参数设置界面，再按“M”键切换至参数组“Hx”项，接着按“”键切换至参数项“H2”后，按“”或“”键调整温度值。

• 滤网清洗提醒：

当用户对参数项“E8”进行设置后，温控器按上电开机时间记录滤网时间，当滤网使用计时达到设定的清洗时间后，温控器显示故障图标“”及对应的滤网报警代码“E4”，提醒用户进行更换滤网。

更换滤网后，用户进入参数项，将“E9”设置为 1，保持 3s，便可重置滤网清洗提醒和滤网计时，重置后滤网清洗提醒清除，滤网重新开始计时。

• 远程设定：（适用于 T7700 联网型温控器）

温控器可以收到楼控设备发出的合规指令，液晶界面的“”图标会长亮。

通讯异常时，“”图标闪烁。

• 恢复出厂设定：

· 如果用户希望将温控器恢复到出厂时的设定，可进行以下操作：

在关机状态下，长按“M”键 3s 进入参数设置界面，再按“M”键切换至参数组“Hx”项，接着按“”键切换至参数项“H6”后，按“”或“”键调整至“01”，保持选择值 3s 后执行恢复操作。

参数设置

关机状态下，长按“M”键 3s, 即可进入参数设置界面，此界面下，按“M”键循环切换参数组，按“”键循环逐项切换参数项，按“”或“”键调节参数。

参数项	参数名	默认值	功能含义	适用型号
P0	掉电重启开关机	00	00: 恢复掉电前状态；01: 关闭	所有
P1	TiO ₂ /ESP 手动 / 联动	00	00: 手动操作 TiO ₂ /ESP 功能；01: TiO ₂ /ESP 功能与风机联动	支持 TiO ₂ /ESP 功能的应用
P2	干接点输入功能选择	00	00: 房卡功能（常开）；01: 房卡功能（常闭）；02: 外部传感器 03: 露点报警（常开）；04: 露点报警（常闭） 05: 开路表示有人，短路表示无人，关闭风扇和阀门	所有

参数项	参数名	默认值	功能含义	适用型号
P3	LCD 屏温度显示	00	00: 正常状态下显示房间温度; 01: 正常状态下显示设置温度	所有
P4	摄氏度华氏度转换	00	00: 摄氏度 (°C); 01: 华氏度 (°F)	所有
P5	产品型号定义	/	00: NG1; 01: NG2; 02: NG3; 03: NG4; 04: NG5 注: 用户不可修改, 仅显示产品型号。	所有
P6	可选择的应用	00	T7300-TF60-9KS0: 00: 支持 2 管制、开关式 2/3 线阀, 3 速风机, TiO ₂ /ESP 功能 01: 支持 4 管制、开关式 2/3 线阀, 3 速风机 T7700-TF60-9KS0: 00: 支持 2 管制、开关式 2/3 线阀, 3 速风机, Modbus RTU 通讯, TiO ₂ /ESP 功能 01: 支持 4 管制、开关式 2/3 线阀, 3 速风机, Modbus RTU 通讯 T7300-TF60-9MS0: 00: 支持 2 管制、开关式 2/3 线阀, ECM 风机, TiO ₂ /ESP 功能 01: 支持 2 管制、比例调节阀, 3 速风机 02: 支持 2 管制、比例调节阀, ECM 风机, TiO ₂ /ESP 功能 03: 支持 4 管制、开关式 3 线阀, ECM 风机 04: 支持 4 管制、开关式 2 线阀, ECM 风机, TiO ₂ /ESP 功能 05: 支持 4 管制、比例调节阀, 3 速风机 T7700-TF60-9MS0: 00: 支持 2 管制、开关式 2/3 线阀, ECM 风机, Modbus RTU 通讯, TiO ₂ /ESP 功能 01: 支持 2 管制、比例调节阀, 3 速风机, Modbus RTU 通讯 02: 支持 2 管制、比例调节阀, ECM 风机, Modbus, RTU 通讯, TiO ₂ /ESP 功能 03: 支持 4 管制、开关式 3 线阀, ECM 风机, Modbus, RTU 通讯 04: 支持 4 管制、开关式 2 线阀, ECM 风机, Modbus, RTU 通讯, TiO ₂ /ESP 功能 05: 支持 4 管制、比例调节阀, 3 速风机, Modbus RTU 通讯 T7300-TF61-9MS0: 00: 支持 2 管制、开关式 2/3 线阀, ECM 风机, TiO ₂ /ESP 功能 01: 支持 2 管制、比例调节阀, 3 速风机 02: 支持 2 管制、比例调节阀, ECM 风机, TiO ₂ /ESP 功能 03: 支持 4 管制、开关式 3 线阀, ECM 风机 04: 支持 4 管制、开关式 2 线阀, ECM 风机, TiO ₂ /ESP 功能 05: 支持 4 管制、比例调节阀, 3 速风机	所有
P7	软件版本	/	U00~U99 (U12 代表 V1.2 版本)	所有
H0	设定温度下限	5°C (41°F)	设定范围: 0~48.5°C (32~120°F)	所有
H1	设定温度上限	35°C (95°F)	设定范围: 1~49.5°C (33~121°F)	所有
H2	温度偏移	0°C (0°F)	设定范围: -5~5°C (-9~9°F)	所有
H3	背光开启时间设置	20	设定范围: 5~99 秒	所有
H4	背光亮度设置	80	设定范围: 10~100%	所有
H5	可操作模式选择	00	00: 制冷+制热+通风; 01: 制冷+通风; 02: 制热+通风 03: 制冷+制热+通风+自动 (仅四管制有)	所有
H6	恢复默认值	00	00: 不恢复; 01: 恢复; 恢复完成后, 此位自动置为 00	所有
H7	通讯地址	01	设定范围: 1~64	T7700 联网型
H8	波特率设置	00	00: 9600bps; 01: 4800bps	T7700 联网型

参数项	参数名	默认值	功能含义	适用型号
E0	无人状态制冷设定值	26° C (79° F)	设定范围: 26~32° C (72~90° F)	所有
E1	无人状态制热设定值	18° C (64° F)	设定范围: 10~21° C (50~70° F)	所有
E2	按键锁 (开关键)	00	00: 不锁定; 01: 锁定	所有
E3	按键锁 (模式键)	00	00: 不锁定; 01: 锁定	所有
E4	按键锁 (风速键)	00	00: 不锁定; 01: 锁定	所有
E5	按键锁 (上下键)	00	00: 不锁定; 01: 锁定	所有
E6	低温保护	00	00: 关闭; 01: 开启	所有
E7	低温保护设定值	5° C (41° F)	设定范围: 1~10° C (34~50° F)	所有
E8	滤网时间设置	0	设定范围: 0~50; 0 表示关闭, 10 代表滤网时间 1000 小时, 22 代表滤网时间 2200 小时	所有
E9	滤网时间及提醒复位	00	00: 不复位; 01: 复位; 复位完成后, 此位自动置为 00	所有
F0	自动风速下达到设定温度后风机模式	00	00: 低速运行; 01: 关闭运行	所有
F1	风机延时关闭时间	0	设定范围: 0~100 秒	所有
F2	无人状态下风机模式	00	00: 关闭运行; 01: 低速运行	所有
F3	风机档位	00	00: 三速风机: 低速 + 中速 + 高速 + 自动; 01: 两速风机: 低速 + 中速 + 自动; 02: 一速风机: 低速	所有
F4	ECM 风机最低电压设置	0.0	设定范围: 0.0~9.0V	支持 ECM 风机的应用
F5	ECM 风机最高电压设置	10.0	设定范围: 1.0~10.0V	支持 ECM 风机的应用
F6	高速风输出电压设置	6.0	设定范围: 0.0~10.0V (根据 F4 最低电压跟 F5 最高电压决定)	支持 ECM 风机的应用
F7	中速风输出电压设置	4.5	设定范围: 0.0~10.0V (根据 F4 最低电压跟 F5 最高电压决定)	支持 ECM 风机的应用
F8	低速风输出电压设置	3.0	设定范围: 0.0~10.0V (根据 F4 最低电压跟 F5 最高电压决定)	支持 ECM 风机的应用
U0	阀控制死区	1° C (2° F)	设定范围: 0.5~2° C (1~4° F)	所有
U1	比例调节阀 PB 值	5	设定范围: 1~10	支持比例调节阀的应用
U2	比例调节阀 KI 值	10	设定范围: 0~99	支持比例调节阀的应用
U3	比例调节阀采样时间	10	设定范围: 1~99 秒	支持比例调节阀的应用
U4	比例调节阀最小电压值	0.0	设定范围: 0.0~9.0V	支持比例调节阀的应用
U5	比例调节阀最大电压值	10.0	设定范围: 1.0~10.0V	支持比例调节阀的应用

注意

- 修改参数“可选择的应用”延迟 3 秒生效, 软件会复位
- 修改参数“恢复默认值”延迟 3 秒生效, 温控器会关机, 如需开机, 请按开关键
- 修改参数“滤网时间及提醒复位”延迟 3 秒生效

故障检修

故障现象	可能原因	解决方法
温控器不开机	温控器未供电	接通温控器电源
	温控器前后面板排线未安装到位	将温控器前后面板排线安装到位
	如果屏幕一直显示“bo”，说明处于待升级状态	完成升级就能恢复正常使用
	温控器电源线接错或接线不良	正确接好温控器电源线
温控器屏幕图标“COM”闪烁	通讯线路故障	检查与温控器通讯接线 检查通讯地址和波特率设定
温控器故障图标“  ”出现， 屏幕显示故障代码	E0: 温控器感温探头：传感器短路或断路	有接入外置远程传感器：检查是否在参数设置中选择远程传感器 未接入外置远程传感器：更换温控器
	E4 滤网报警：滤网达到滤网时间设定值	更换滤网后进入参数设置中进行滤网时间及提醒复位
	EE 温控器 EE 芯片故障：EE 芯片损坏	更换温控器
	HI: 环境温度过高	环境温度下降后自动恢复
	Lo: 环境温度过低	环境温度上升后自动恢复

	
Compliance	Johnson Controls declares that these products are in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive.

产品中有害物质的名称及含量

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
塑胶部件	○	○	○	○	○	○
电路板及组件	×	○	○	○	○	○
金属部件	○	○	○	○	○	○

本表格依据 SJ/T11364 的规定编制

○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T26572 规定的限量要求以下

×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求

（产品中使用的物料超出 SJ/T11364 标准，但在欧盟 RoHS 中，此项为豁免，因目前技术无法有符合 SJ/T11364 的替代材料）



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