TH-B/OLED Digital Controller

Version：V1.4(20180510)。

Specifications

Supply voltage：DC 88V～370V,AC 85V～265V,47Hz～63Hz

Temperature measuring range：-40℃～+85℃，precision ±0.5℃（25℃），resolution 0.1℃

Humidity measuring range：0～99.9%RH，precision ±5%RH(20～80%RH)，resolution 0.1%RH

Operating conditions：Temperature-40℃～+70℃，Humidity≤95%RH without condensation

Insulation resistance：between operating power and contacts：be equal or more than 20MΩ

Dielectric strength：between operating power and contacts：

2000VAC，50Hz，1min

Contact capacity：

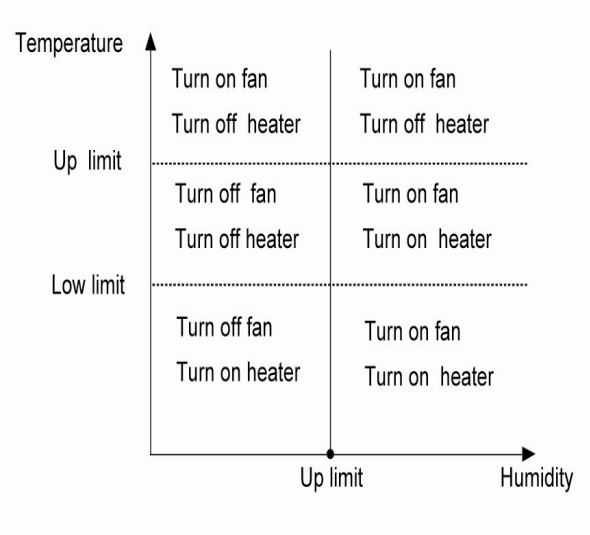
heater（normally open）、fan（normally open）：6A@250VAC

Break alarm（normally open）、overrun alarm（normally open）：3A@250VAC

abnormal/loss of power alarm（normally close）：3A@250VAC

Power of heater or fan：DC 85V~265V, AC 85V~265V

Control graph



Named rules

Model	TH	-B	-D	-10	/OLED

Model series

THS=Temperature & Humidity (1 sensor)

THS2=Temperature & Humidity(2 sensors)

Struction

B = 48*96

Output mode

D=RS485, V=0~5V, I=4~20mA

Installation mode

10=flushbonading

Display mode

OLED=OLED display

TH-B/OLED Parameter default value

Name	Parameter default value
Temperature control	Up-limited value=40 ℃ Low-limited value=5℃
Humidity control	Up-limited value=85%RH
Temperature for alarm	Up-limited value=55℃ Low-limited value=-20℃
Humidity for alarm	Up-limited value=90%RH
Returning difference of temperature for control	Up-limited returning difference value =10℃ Low-limited returning difference value=10℃
Returning difference of Humidity for control	Up-limited returning difference value =10%

Note: The parameter settings range is shown in the "TH-B/OLED parameter settings rule".

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TH-B/OLED terminals

	definition			definition	
1	Power	+KM	13	Output	485-A
2		-KM	14		GND2
3		NC	15		485-B
4		NC	16		GND2
5	Heater		17	Sensor 1	+5V
6			18		DATA1
7	Fan		19		SCK1
8			20		GND
9	COM		21	Sensor 2	+5V
10	Broken line		22		DATA2
11	Limita-tion		23		SCK2
12	Loss of power/ abnormal-ity		24		GND

In the figure above : Terminal 1 is connected to the positive terminal of the power supply, Terminal 2 is connected to the negative terminal of the power supply. Terminals 17, 18, 19, and 20 are connected to +5V, DATA, SCK, and GND of the first sensor in sequence. Terminals 21, 22, 23, and 24 are connected to the +5V, DATA, SCK, and GND of the second sensor in sequence. Terminals 5 and 6 are connected to heaters, and terminals 7 and 8 are connected to fans. Terminal 9 is the common terminal of all alarm contacts. Terminal 10 receives the other end of the alarm. Terminal 11 is connected to the other end of the alarm. Terminal 12 is connected to the other end of the alarm. Model TH-BD output port 13, 15 RS485 A, B line, model TH-BV or TH-BI output 13,14,15,16 connected to the temperature analog positive end, temperature analog negative Side, humidity analog positive end, humidity analog negative end.

LED indication

“RUN”：it lights when the controller runs normally.

“LOAD1”： heater operating indicator；

“LOAD2”：fan action indicator；

“ALARM”：it lights when abnormity, including sensor error, break of heater or fan, over the limited alarm value, jump of temperature value and EEPROM error.

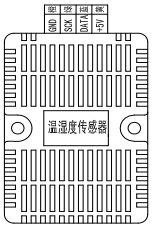
Sensor terminal diagram

(OT+)

(OT-)

(OH+)

(OH-)



TH-B/OLED Digital Controller Function

(1)When measured value of temperature＜low-limited value of temperature，or measured value of humidity ＞up-limited value of humidity also measured value of temperature＜up-limited value of temperature - up-limited returning difference pf temperature，turn on heater.

2)When measured value of temperature＞low-limited value of temperature + low-limited returning difference of temperature，or measured value of humidity < up-limited value of humidity - returning difference of humidity, turn off heater.

(3)When measured value of temperature > up-limited value of temperature , or measured value of humidity > up-limited value of humidity, turn on fan.

(4)When measured value of temperature < up-limited value of temperature - up-limited returning difference of temperature, or measured value of humidity < up-limited value of humidity - returning difference of humidity, turn off fan.

(5)When turn on and turn off fan at the same time, turn on fan.

(6)When turn on and turn off heater at the same time , when measured value of temperature <(up-limited value of temperature - up-limited returning difference of temperature)，turn on heater; when measured value of temperature >(up-limited value of temperature - up-limited returning difference of temperature + 0.4℃)，turn off heater.

(7) Has RS485 output or 0~5V output or 4~20mA output.

(8) For TH2-B (two-way sensor access) products, the temperature and humidity values measured by two sensors are cyclically displayed. The control function can be controlled according to the set action criteria.

(9) The disconnection self-test and the sensor can be switched back and forth. Select On or Off in the Switch menu. The sensor in the motion reference (Judge menu) must be on. Which sensor is closed does not alert the sensor to abnormal.

High priority logic

①When the judge sensor error or jump of temperature (temperature change ≥2℃ in 3 senconds) ,all contacts of operation are open , contact of overrun is open , contact of abnormal alalrm is close.

②When the CPU fails, the power failure/abnormal contact is closed and all other contacts are disconnected.

RS485 parameters

Name	Parameter
Communi-cation mode	Half-Duplex RS485
Frame formation	(E，8，1)、(O，8，1)、(N，8，2) default：(N，8，2)
Baud rate	19200、9600、4800、2400、1200 for setting default：9600
Address scope	1~247 for setting
Parallel connection	30 interfaces of RS485 (signal re-peater required beyond 30)

Analog output parameters

Name	Parameter
Output style	0~5V（load impedance≥10KΩ） 4~20mA（load impedance≤500Ω） (-40~85℃，0~99.9%RH for default corresponding range , special corre-sponding range can be customized)
Output precision	Level 0.5

Display alarm

Abnormal sensor: The OLED displays "SENSOR1" or "SENSOR2". CPU error: The OLED displays "CPU".

Heater breakage: OLED display "HEAT1".

Broken fan: OLED display "FAN".

Alarm over limit: The panel displays "OVER".

Contact alarm

Break alarm：the function that break self-checking is only for the opened contacts of heater and fan .The contact of break alarm will be closed when the con-troller detects disconnection of heaters or fan.

Overrun alarm：Contact of overrun alarm will be closed when measured value is beyond the setting value of overrun alarm.

Abnormal/power off alarm：contact of abnormal/ power off will be closed when the sensor is abnor-mal ,or measured value is overrun, or the controller is power off， or temperature measured value jumps, or Heater1 or heater2 or fan breaks.

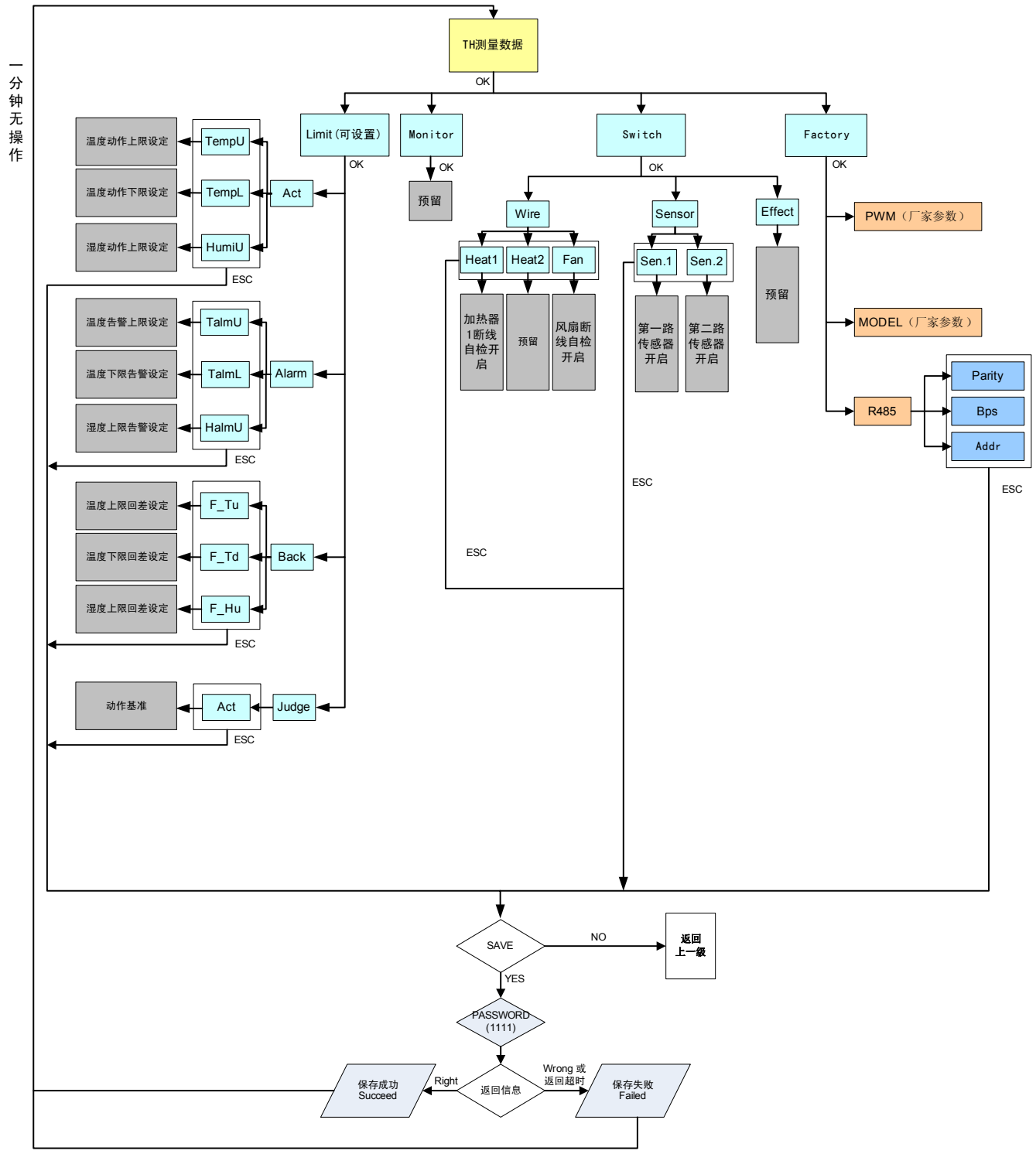
TH-B/OLED Setting rules of parameter

Name	Parameter setting scope
Tem-perature setting scope for control	-30~+70℃ Up-limited>low-limited+10℃ Default: Up-limited value=40 ℃ Low-limited value=5℃
Humidity setting scope for control	20%~90%RH indicate up-limit value Default: Up-limited value=85%RH
Tem-perature setting scope for alarm	-30~+70℃ Up-limited ≥ low-limited +10℃ Default: Up-limited value=55℃ Low-limited value=-20℃
Humidity setting scope for alarm	20%~90%RH indicate up-limited value default： Up-limited value=90%RH
Return-ing differ-ence of tempera-ture for control	Returning difference of temperature should be set within 1~10℃Default: Up-limited returning difference value =10℃ Low-limited returning difference value=10℃
Return-ing differ-ence of Humidity for con-trol	Returning difference of temperature should be set within5%~20%RH Default: returning difference value =10%RH
Setting scope for control	up-limited value of temperature - up-limited returning difference of tempera-ture≥low-limited value of temperature + low-limited returning difference of temperature

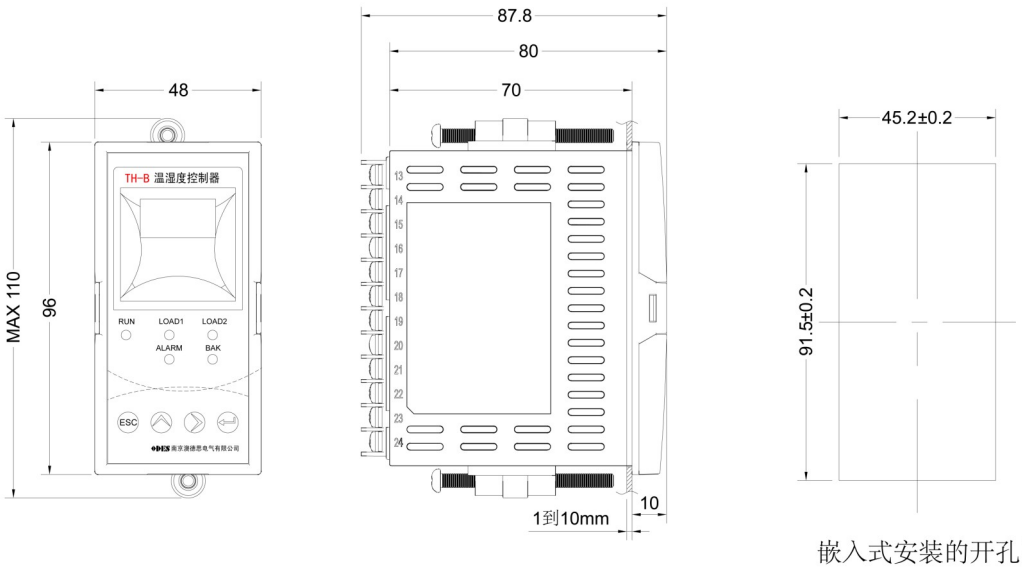
Note: If the setting value isn't in the rated ranges, it will not be confirmed.

When the controller is abnormal, it won't run normally until all the wrongs are resolved.

TH-B/OLED Operation Menu



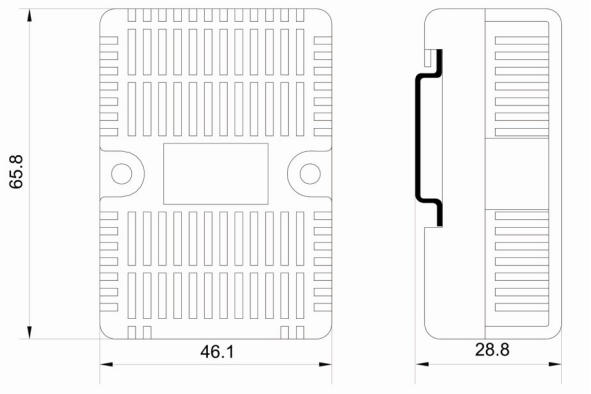
TH-B/OLED Size diagram （mm）



嵌入式安装的开孔图

Supporting sensor installation dimension drawing

The sensor is mounted on the rail. The dimensions of the installation are as follows:



Sensor line length

Line lengths are 1m, 1.5m, 2m, 2.5m, 3m, 4m, 6m, 9m are optional, are flame-retardant wire, special length can also be customized for you.

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