

# WSY-2系列温湿度控制器 说明书



哈尔滨市华新电力电子有限公司

## 一、用途

WSY-2系列温湿度控制仪适用于各种需要对温度、湿度同时进行检测、控制的环境。尤其适用于水利发电力/自动化系统各种高低压开关柜及机坑等温湿度环境恶劣场所的监控。

## 二、概述

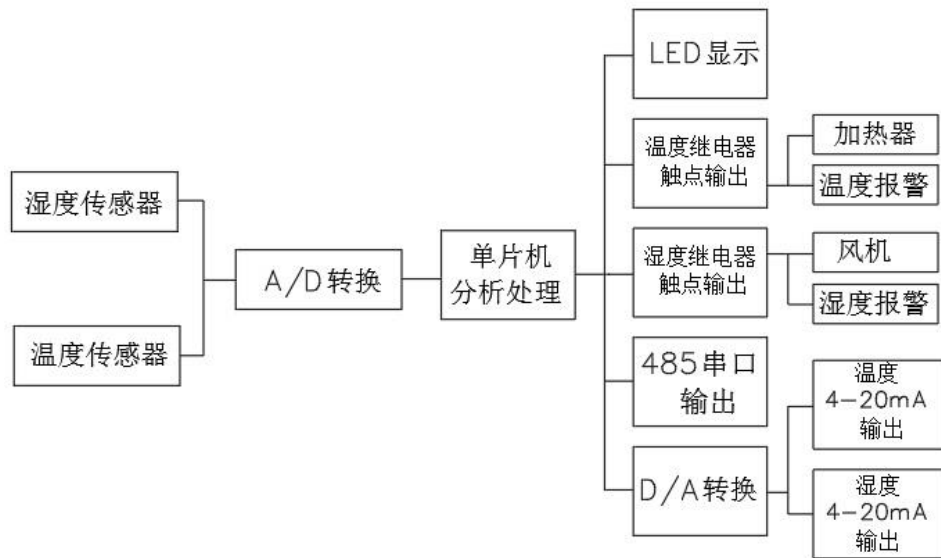
以先进的单片机为控制核心，采用高精度温湿度变送器，通过接收单路温度信号和单路湿度信号进行测量、分析、控制、信号输出。运行人员可通过按键对所监控的环境分别进行上、下限设置，仪表会根据现场情况通过触点输出自动启动风扇和加热器，以保证良好的现场温湿度状态。WSY-2A型可将温湿度信号以电流模拟量的方式提供给自动化监测系统，并通过485接口与上位机进行远程通信。

## 三、功能/技术指标

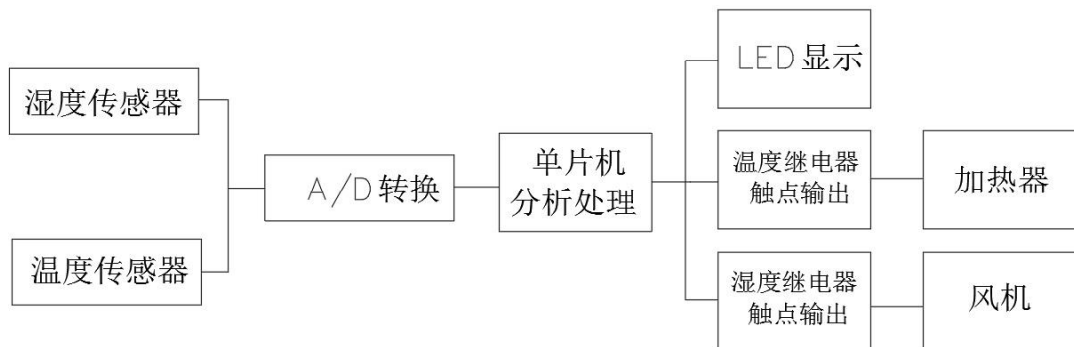
- 显示：双路3位LED
- 测量范围：温度0~99℃ 湿度0~99%RH
- 控制精度：温度±1℃ 湿度±2% RH
- 信号输出：DC 4-20 mA（只有2A有此功能）
- 上位机通信：串口 RS485（通信距离1公里）
- 输出接点： 温度AC220V/5A 常开  
湿度AC220V/5A 常开
- 多种工作电源选择：AC/DC220V、AC/DC110V、DC24V
- 电源功率： ≤10W
- 工作环境：温度：-20~70℃  
相对湿度： <95%RH

## 四、工作原理

WSY-2A原理框图



WSY-2原理框图



●温湿度仪对温度变送器、湿度变送器的信号采样后，经A/D 变换送入单片机进行逻辑判断和显示。

●当湿度高于设置上限值而温度低于设置下限值，有凝露的可能时，仪表通过输出触点控制加热器加热、风机启动并报警；当温度升至设置上限值，加热器停止工作，温度报警触点脱开；当湿度低于设置下限值，风机停止工作，湿度报警触点脱开。

●当湿度高于设置上限值但温度未低于设置下限值时，仪表通过输出触点启动风机通风，湿度报警触点闭合，但不启动加热器；当湿度降到设置下限值时，风机停止工作，湿度报警触点脱开。

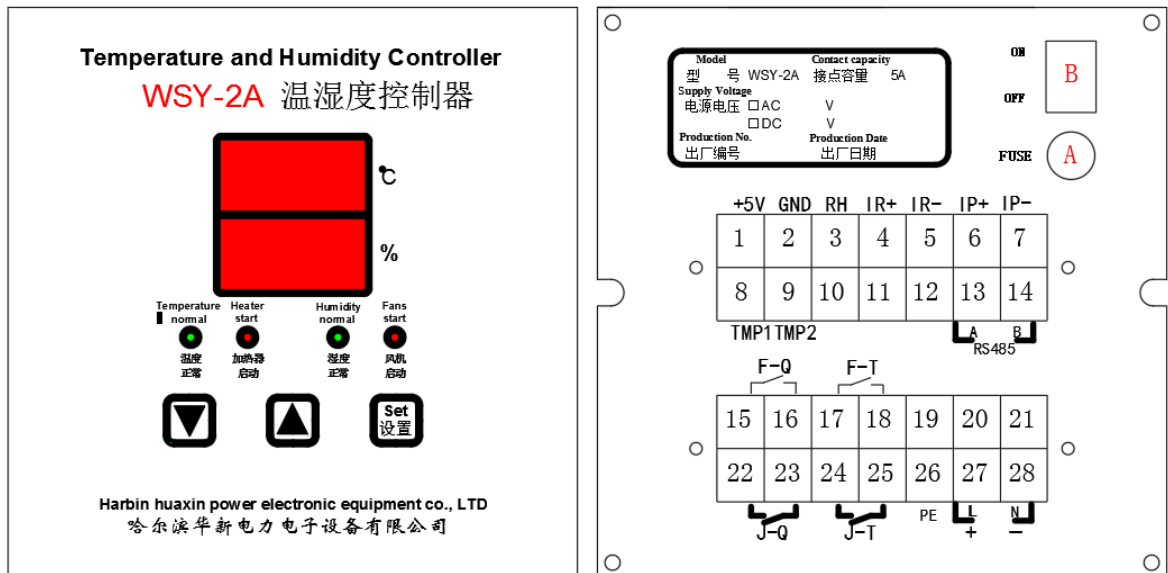
●当温度低于设置下限值但湿度未高于设置上限值时，仪表通过输出触点启动加热器加热，温度报警触点闭合，但不启动风机；当温度升到设置上限值时，

加热器停止工作, 温度报警触点脱开。

●设置: 通过“设置键”、“∧”、“∨”进行温度、湿度控制的上限和下限值设定。

## 五、面板操作/端子说明

WSY-2A 前面板及端子板接线图



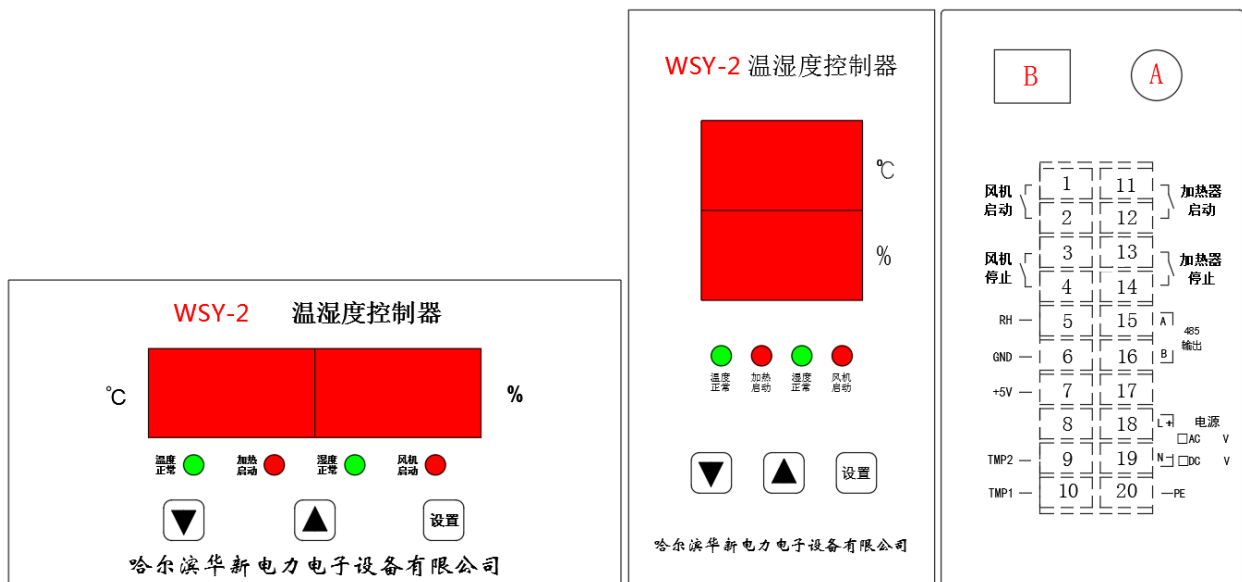
### 1、参数设置:

- 温度下限: 按下设置键, 数码管显示P-1, 通过“∧”、“∨”设置温度下限值。
- 温度上限: 继续按下设置键, 数码管显示P-2, 通过“∧”、“∨”设置温度上限值。
- 湿度下限: 继续按下设置键, 数码管显示P-3, 通过“∧”、“∨”设置湿度下限值。
- 湿度上限: 继续按下设置键, 数码管显示P-4, 通过“∧”、“∨”设置湿度上限值。

## 2、WSY-2A型端子板接线：

- 1、2、3为湿度变送器输入（+5V、GND、RH），
- 4、5为湿度监测4-20mA模拟量输出。
- 6、7为温度监测4-20mA模拟量输出。
- 8、9为温度变送器输入（TMP1、TMP2）。
- 13、14为控制仪485远程输出。
- 15、16为风机启动触点。
- 17、18为风机停止触点。
- 22、23为加热器启动触点。
- 24、25为加热器停止触点。
- 26、27、28为工作电源：PE和L+、N-（AC时为L、N；DC时为+、-）
- A为保险管（容量0.5A）
- B为电源开关

WSY-2端子板接线图



## 3、WSY-2型端子板接线：

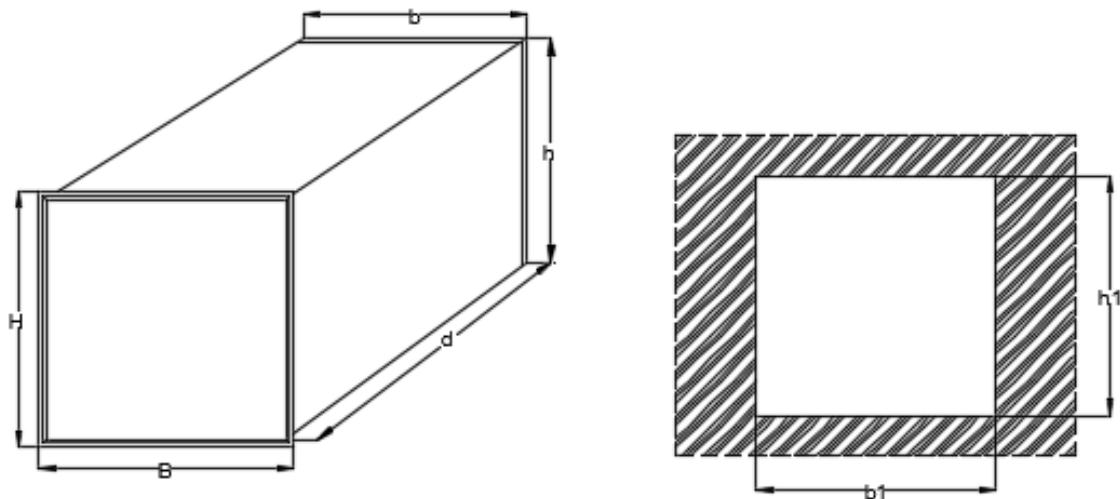
- 1、2为风机启动接点（常开）
- 3、4为风机停止接点（常开）
- 5、6、7为湿度变送器输入（RH、GND、+5V）

- 9、10为温度变送器输入 (TMP2、TMP1)
- 11、12为加热器启动接点 (常开)
- 13、14为加热器停止接点 (常开)
- 15、16为485通信远程输出
- 18、19、20为工作电源: PE和L+、N-(AC时为L、N;DC时为+、-)
- A为保险管 (容量0.5A)
- B为电源开关

## 六、安装及接线

### 1、外形尺寸及安装:

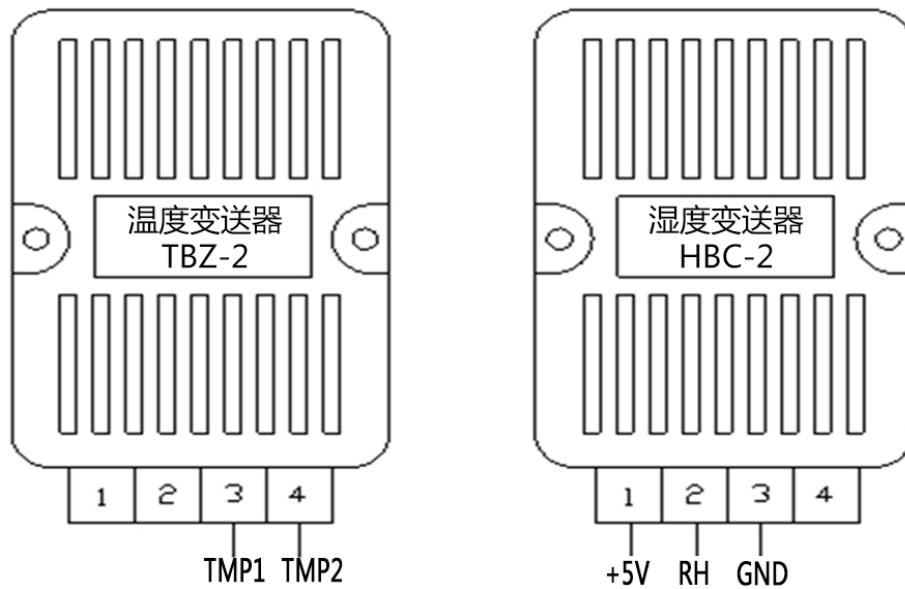
- WSY-2A尺寸图表:



外形及开孔尺寸表						单位: mm	
型号及部件	B	H	b	h	d	b1	h1
WSY-2A 主机	159	159	150	150	250	151 <sup>+1</sup> <sub>0</sub>	151 <sup>+1</sup> <sub>0</sub>

### 2、变送器的连接:

- 温度变送器和湿度变送器外形如下图所示, 可采用35mm 导轨安装或固定式安装 (孔距37mm, 孔径4mm)。



变送器端子定义图

●安装时请按上图正确接线。

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# WSY-2 Temperature and Humidity Controller User's Manual



**Harbin Huaxin Power Electronic Equipment Co.,Ltd.**



## 1. Application

WSY-2 series of temperature and humidity control instrument is suitable for various needs of temperature, humidity and detection, control environment. Especially suitable for monitoring the water conservancy and electricity / automation system of high and low voltage switchgear and isothermal humidity environment pit places.

## 2. Outline

With advanced single-chip microcomputer as the control core, high-precision temperature and humidity transmitter is adopted. Through receiving single temperature signal and single humidity signal, the measurement, analysis, control and signal output are carried out. The operating personnel can be the key to the monitoring of the environment are the upper and lower limits of instrument settings, according to the site will automatically start the fan and the heater through the contact output, to ensure the good condition of temperature and humidity. WSY-2A can provide the temperature and humidity signals to the automatic monitoring system in the manner of current analog, and communicate with the host computer through the 485 interface.

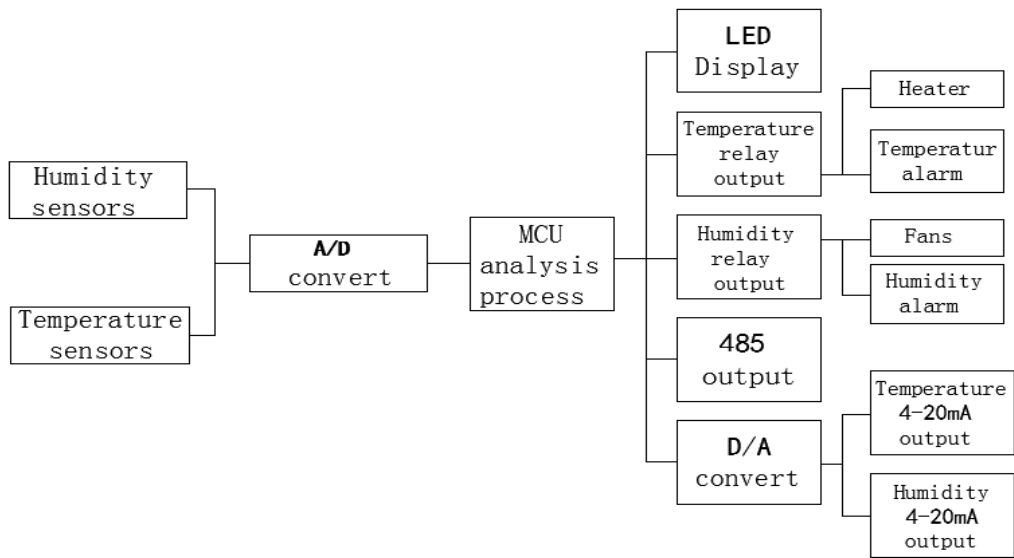
## 3. Features / Specifications

- Show: dual road 3 bit LED
- Measuring range: Temperature 0~99 degrees, Humidity 0 ~ 99%RH
- Control accuracy: Temperature + 1 degrees, Humidity + 2% RH
- Signal output: DC 4-20 mA (only 2A has this function)
- Host computer communication: Serial port RS485  
(communication distance 1 km)
- Output contact: Temperature AC220V/5A normally open  
Humidity AC220V/5A normally open

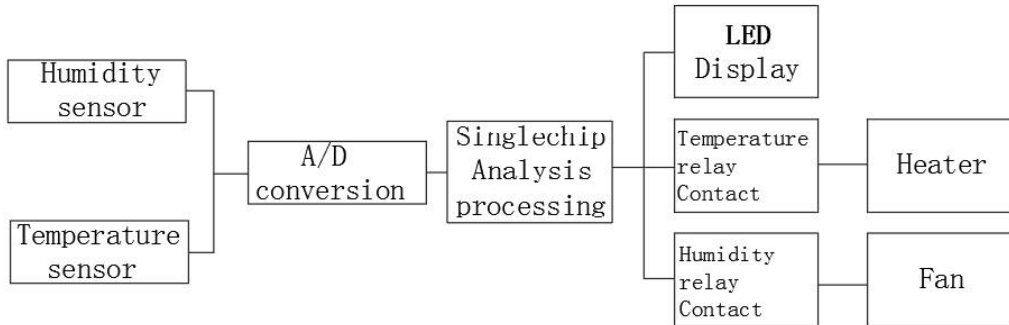
- Work power select: AC/DC220V, AC/DC110V, DC24V
- Power: Less than 10W
- The working environment: Temperature: - 20 ~ 70 C  
Relative humidity: < 95%RH

#### 4. Working principle

- After the temperature and humidity of the temperature sensor, humidity sensor signal is sampled by A / D conversion into the microcontroller logic and display
- When the humidity is above the set limit and the temperature is below the lower limit setting, there is the possibility of condensation, instrument control via output contacts heater, fan start and alarm; when the temperature was raised to set the limit, Heater stops working, the temperature alarm contact is disengaged; when the humidity is below the set limit, the fan stops working, humidity alarm contacts disengaged. When the humidity drops below set limits
- When the humidity is above the set limit but the temperature is not lower than the lower limit setting, the meter via output contacts to start the fan ventilation, humidity alarm contact closure, but do not start the heater fan stopped working, humidity alarm contacts disengaged
- When the temperature is below the set limit, but the humidity is not higher than the set limit, the meter starts by output contacts heater, temperature alarm contact closure, but do not start the fan; when the temperature is raised to set the limit , the heater stops working, the temperature alarm contacts disengaged
- Set: "Settings button", "^", "v" temperature, upper and lower limits set humidity control

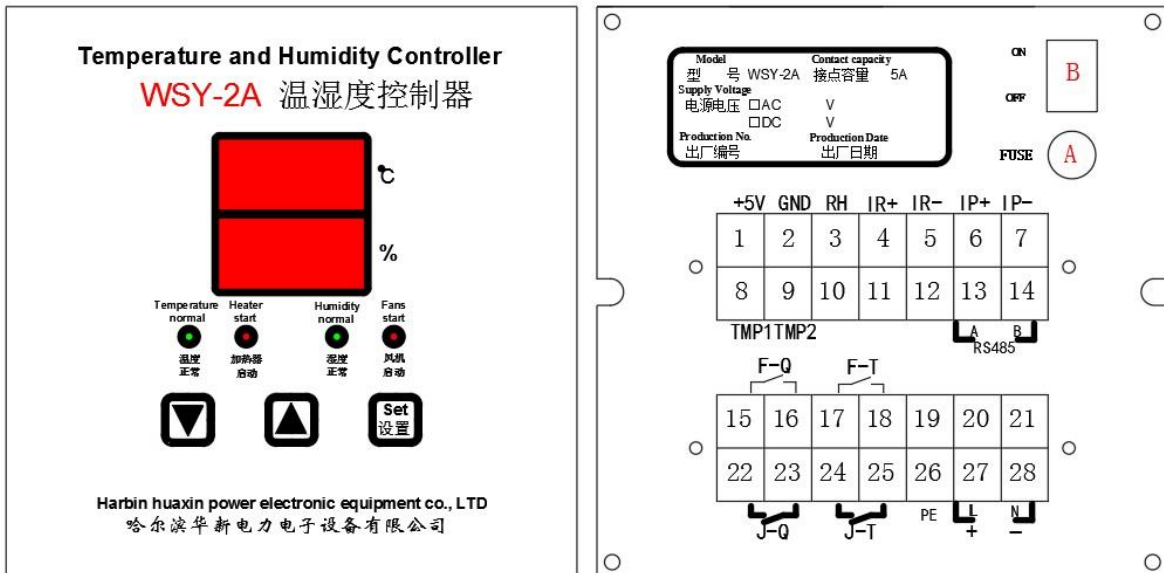


WSY-2 Block Diagram



## 5. Panel operation / Terminal description

WSY-2A front panel and terminal board wiring diagram



The parameter settings:

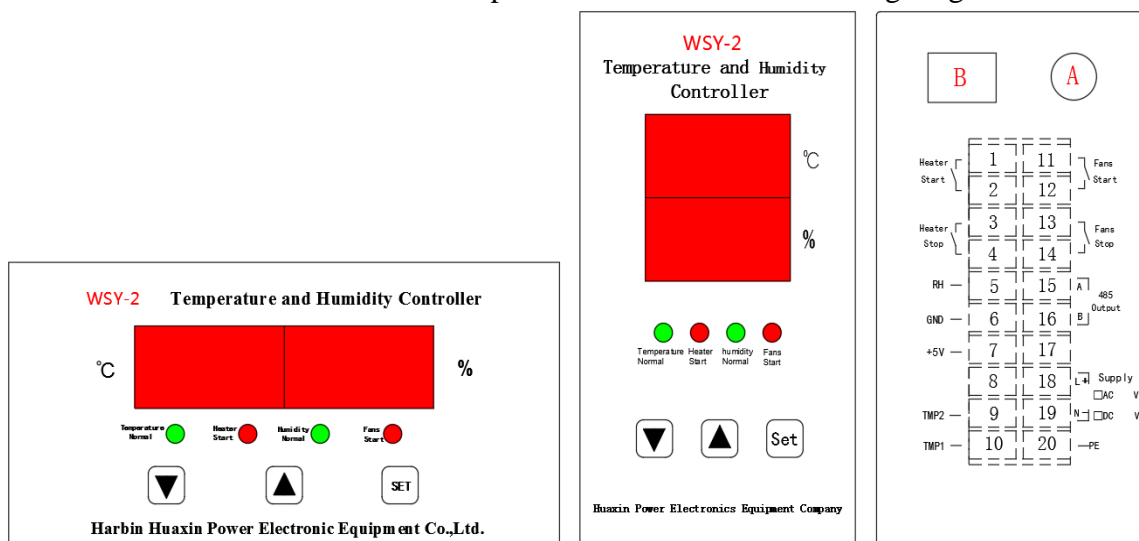
- Lower temperature: Press the Setup button, the digital show P-1, by " $\wedge$ ", " $\vee$ " to set temperature limits
- Temperature limit: Press the Setup key to continue, the digital display P-2, by " $\wedge$ ", " $\vee$ " to set the temperature limit
- Humidity limit: continue to press the Set button, digital tube show P-3 by " $\wedge$ ", " $\vee$ " to set lower humidity limits
- Humidity limit: continue to press the Set button, digital tube show P-4, by " $\wedge$ ", " $\vee$ " to set the humidity limits

WSY-2A terminal board wiring:

- 1,2,3 for humidity transmitter input (+5V, GND, RH)
- 4, 5 for humidity monitoring, 4-20mA analog output
- 6, 7 for temperature monitoring, 4-20mA analog output
- 8, 9 for the temperature transmitter input (TMP1, TMP2)
- 13, 14 for the control instrument, 485 remote output

- 15, 16 for fan start contact
- 17, 18 stop contact for fan
- 22, 23 start contact for heater
- 24, 25 stop contact for heater
- 26, 27, 28 for the power supply: PE and L+, N- (AC for L, N, DC for +, -)
- A is the safety tube (capacity 0.5A)
- B is the power switch

WSY-2 front panel and terminal board wiring diagram



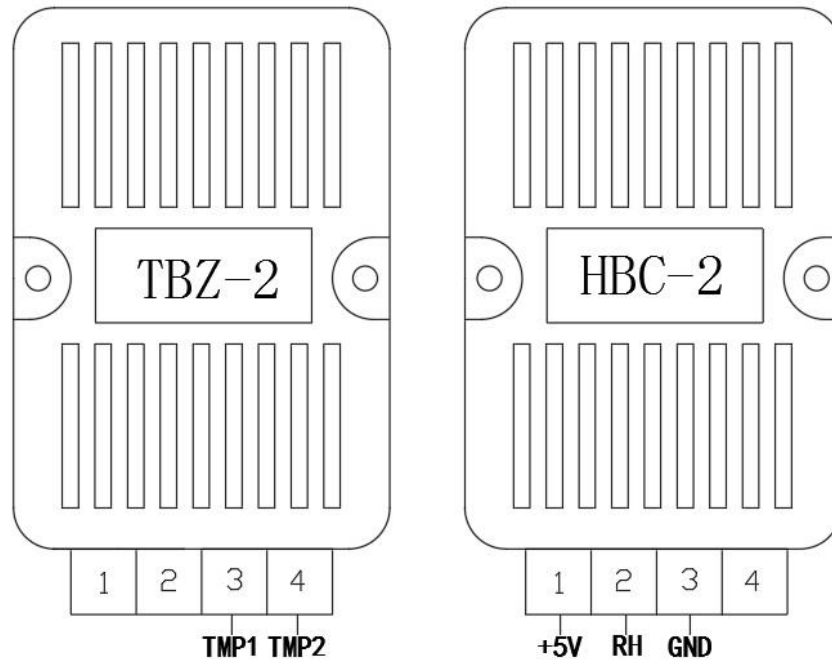
WSY-2 terminal board wiring:

- 1, 2 for heater start contact I (Chang Kai)
- 3, 4 for heater stop contact II (normally open)
- 5, 6, 7 for the humidity transmitter input (RH, GND, +5V)
- 9, 10 for the temperature transmitter input (TMP2, TMP1)
- 11, 12 for fan starting contact I (Chang Kai)
- 13, 14 for fan stop contact II (normally open)
- 15 and 16 are 485 remote outputs
- 18, 19, 20 for the power supply: PE and L+, N- (AC for L, N, DC for +, -)

- A is the safety tube (capacity 0.5A)
- B is the power switch

## 6. Sensor Wiring Notes

- Temperature and humidity sensors outline shown below, can be used 35mm rail mounting or fixed installation (pitch 37mm, aperture 4mm)



Transmitter terminal definition diagram

- Please press the correct wiring diagram when installing

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