

# **WSK-W2S2K2**

## **Temperature & Humidity Controller**

### **User Manual**

**Version: 1.10**

**Revision: 2025.1**

## Read me

**When you use WSK series Digital-type Temperature & Humidity controller, be sure to carefully read this user manual, and be able to fully understand the implications, the correct guidance of operations in accordance with user manual, which will help you make better use WSK series Temperature & Humidity controller, and help to solve the various problems at the scene.**

1. Before the meter turning on the power supply, be sure that the power supply within the provisions of the instrument;
2. When installation, the current input terminal must non-open, voltage input terminals must Non-short circuit;
3. Communication terminal (RS232 or RS485) is strictly prohibited to impose high pressure;
4. Be sure the instrument wiring consistent with the internal system settings;
5. When communicating with the PC, instrument communication parameters must be consistent with the PC.



- **Please read carefully before using this user manual**
- **Please save this document**

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## 1. - SUMMARIZE

WSK Series Temperature and Humidity Controller is a measurement device used on temperature and humidity control. and the humidity control module is integrated in the system, greatly improving the suitability of the equipment, obtaining the temperature and humidity change from the sensor and sending the measured data to the electronic processor. The output device will then control the temperature variation within a specific range.

With high technological content, using load control relay output, has fast output response, accurate PID parameter auto-tuning, support, Modbus communication protocol and is built-in with various output types, allowing different systems to reach a stable control status very quickly, can be used in the worst environment for long-term use, applied to the various occasion which need temperature and humidity control.

It is the ideal product to protect the normal efficient operation of power equipment and to reduce cost. And can be used in other place need of temperature and humidity control.

### FEATURES

- DIN(48X48mm) Temperature Controller;
- Support multi sensor input (K, S, Wre, T, E, J, B, N, CU50, PT100);
- Wide control range -50~99°C;
- Indication and control accuracy 0.5°C, high measurement;
- Accuracy  $\pm 0.2\%FS$ ;
- Use large capacity relay;
- Output and alarm format can be set by user;
- Built-in digital filter reduces interfere;
- Self-calibration technology, keep stabilization;
- 0.39" height LED, prevent dazzle, highly visible display;
- Switching power supply and low consumption.

### APPLICATION

- High and low voltage switchgears;
- Industrial temperature regulation;
- Automotive cooling systems;
- Air conditioners, HVAC systems;
- Medical equipment temperature regulation.

## 2.- SPECIFICATIONS

### Basic Parameters

Power supply	85V-256VAC/DC, 50Hz or Customize (refer to the label)
Power consumption	≤ 1.8W
Dimension	48W x 48H x 80D mm.

### Control Output

Relay output	2-Route 250VAC, 5A 1PH, resistive load or passive node
RS-485 communication	MODBUS ASCII / RTU communication protocol

### Input

Temperature	-40~99°C
Temp sensor accuracy	+/-0.2 °C
Humidity	1~98%RH
Hum sensor accuracy	+/-3.0%RH
Cable length	2 m.(3m option)
Sampling rate	400 msec /per scan

### Display

Display method	2-line x 3 character 7-segment LED display
Keypads	Menu, Enter, Increase, Decrease

### Environment

Protection (TH)	Anti-containing acid, alkali, salt gas
Relative humidity	<93%, Non-condensing
Storage environment	-10~55°C ; 20 ~ 93%RH ; Noncondensing

### 3.- INSTALLATION AND START-UP



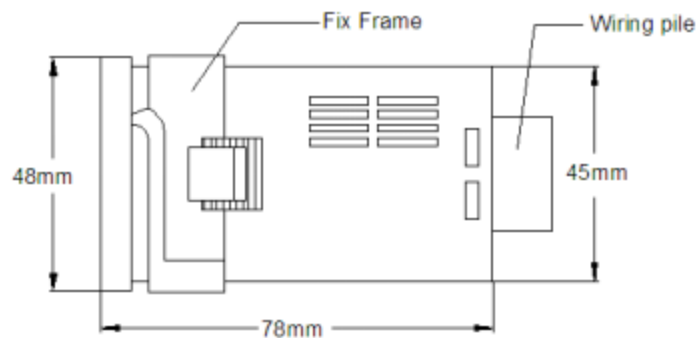
The manual you hold contains information and warnings that -users should follow in order to guarantee a proper operation of all the instrument functions and keep it in safety conditions. The instrument must not be powered on and used until its definitive assembly is on the cabinet's door.

**If the instrument is not used as manufacturer's specifications, the protection of the instrument will be damaged.**

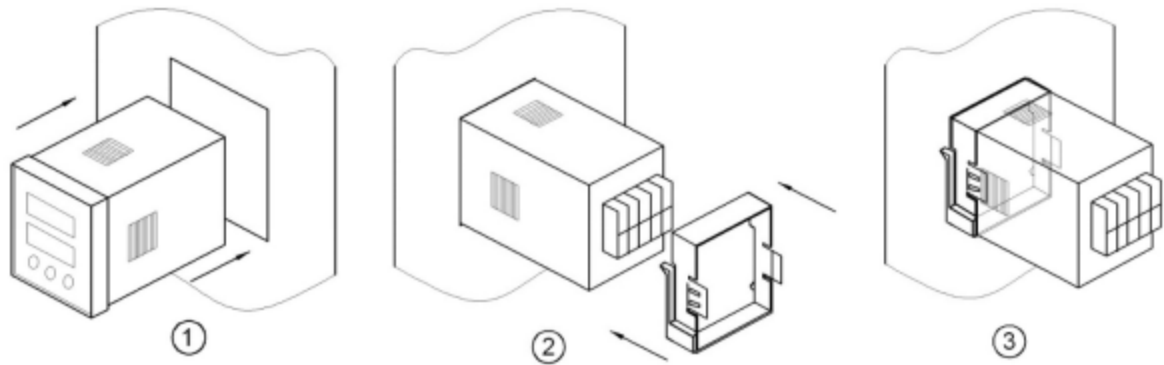
When any protection failure is suspected to exist (for example, it presents external visible damages), the instrument must be immediately powered off. In this case contact a qualified service representative.

#### 3.1- Panel mounting

Controller is to be mounted on panel (cut-out  $45+0.5 \times 45+0.5 \text{ mm}$ ). All connections keep inside the cabinet.



1. Insert the controller through the panel cutout.
2. Insert the mounting bracket into the mounting groove at the top and bottom of the controller and push the mounting bracket forward until the bracket stops at panel wall.
3. Completion status

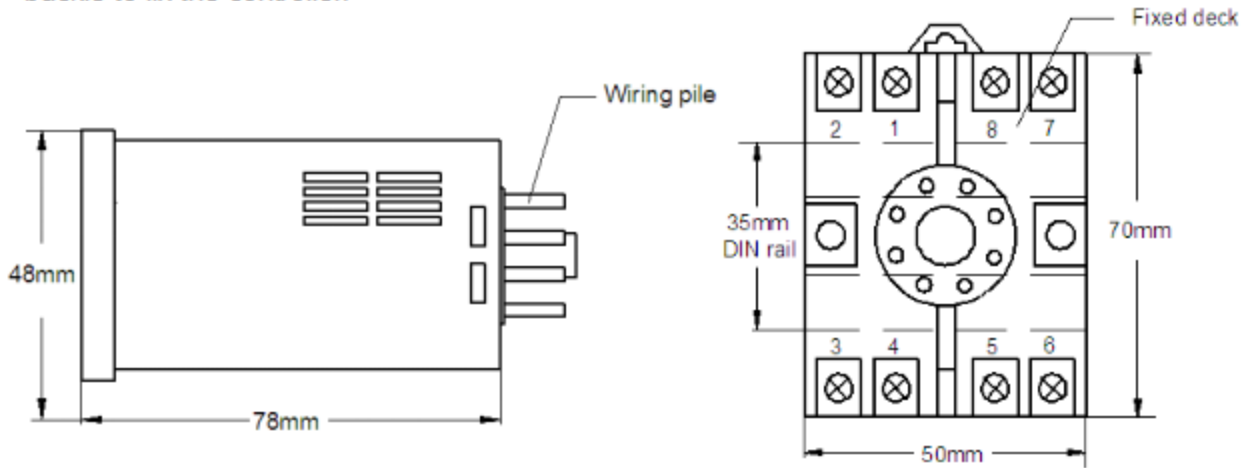


**Notes:**

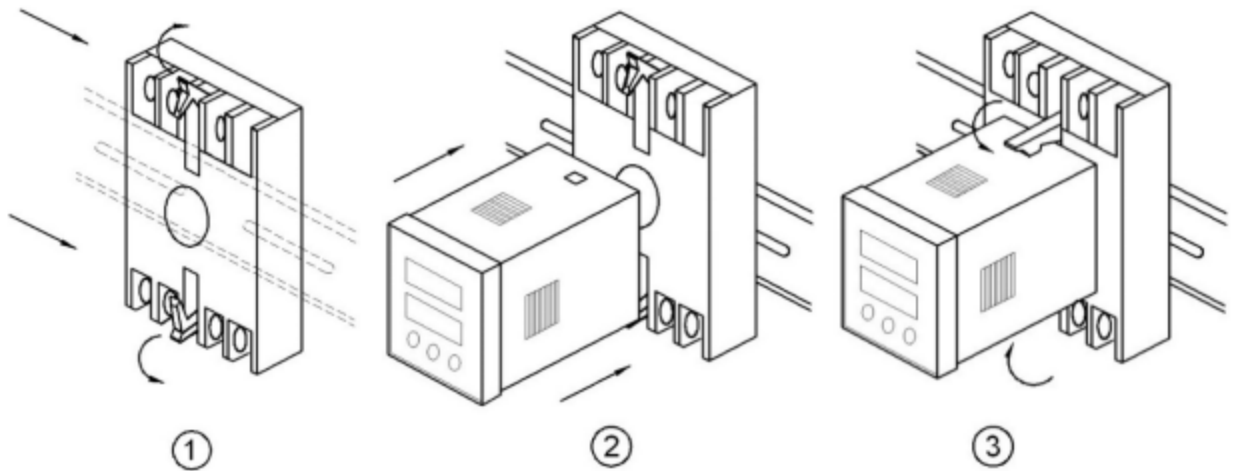
1. The controller must not be power on until this is completely installed;
2. Panels shall not exceed 12 mm maximum thickness, if more than this range, please consider using the rail mounting.

### 3.2- DIN rail mounting

Controller is using the installation socket, socket follow the 35mm DIN standard, and uses a fixed buckle to fix the controller.



1. Place socket to a position on the DIN rail, expand the fixed buckle, and wiring.
2. Insert the controller to the bracket forward until stops at the end. (Pins will make the controller installed in the correct direction).
3. Turn the buckle down to the fixed hole.




**Notes:**

1. Socket are of the points, please sure that the interface 1.2.7.8 is at the upwards.
2. Mounting holes with pins, if you cannot successfully install, please check the direction of socket.
3. Before the installation is completed, do not to power on.



## 4.- OPERATION MODE

When the WSK series controller is powered up, all the LED indicator will on, and controller start self- test to check the sensor status. After some seconds, the controller is ready for operation and shows one of the available screens.

**Note:** If there is any sensor off line, the display will show “” to indicate the sensor failure.

### Button explanation:



**Up key:** Press this key to increase values displayed on the display. Hold down this key to speed up the incremental action.



**Down key:** Press this key to decrease values displayed on the display. Hold down this key to speed up the decrements.



**Menu key:** Pressing the "Menu" key the can open the programming menu and return to previous menu.



**Enter key:** Pressing the "Enter" key, you exit it with saving any modification that you might have done, in menu operation press "Enter" key; user can go to the next menu.




## 5.- SETUP PROCEDURE

The SETUP procedure of the **WSK Series** is performed by means of several SETUP options.


Once into the SETUP, use the keyboard to select different options and enter required variables:

### Password enter

A 3-figure password is required to be entered (in case that this password is not correct, will not be set on the meter).

- At normal display mode, press  to enter the programming mode, meter display, then press  ; Controller display "  ",

- Ask for the password. Press  and  to increase or decrease the number, to switch password.

- After password switch press  to confirm the input. If password is correct, meter can enter next setting.

If password is correct, meter can enter to next setting.

Code	Description
1.7A	<b>Probe 1 Temperature alarm value</b> When probe 1 detect temp raise/decline this value will act contactor 1(K1)
2.H1	<b>Probe 1 Hysteresis value</b> After probe 1 over the trig value, will reverse down the value can release contact action.
3.7b	<b>Probe 1 Temperature trig value</b> When probe 1 detect temp raise/decline this value will act contactor 2(K2)
4.7c	<b>Probe 2 Temperature alarm value</b> When probe 2 detect temp raise/decline this value will act contactor 1(K1)
5.H2	<b>Probe 2 Hysteresis value</b> After probe 1 over the trig value, will reverse down the value can release contact action.
6.7d	<b>Probe 2 Temperature trig value</b> When probe 2 detect temp raise/decline this value will act contactor 2(K2)
7.Co	<b>Control mode</b> 0 for Rising edge control (heating type) 1 for Falling edge control (cooling type)
8.5n	<b>RS485 setting</b> Disabled

**Notes:**

Each piece of sensor produced by Blue Jay Technologies Co. Ltd is 100% tested to exacting specifications. But the in the normal use condition, the measurement value will be a slight deviation. For ensure the controller running well, users schedule maintenance personnel, more details please refer to [Chapter 7](#).

Not all the WSK series controller have RS485 port, please check the label on product you're your controller does not have the RS485 port, please pass in this section.

## 6.- SAFETY CONSIDERATIONS



All installation specification described at the previous chapters named: **INSTALLATION AND STARTUP, INSTALLATION MODES and SPECIFICATIONS.**

Please note that with the instrument powered on, the terminals could be dangerous to touching and cover opening actions or elements removal may allow accessing dangerous parts. This instrument is factory-shipped at proper operation condition.

- ◆ The device must have a professional installation and maintenance.
- ◆ Any operation of the device, you must cut off the input signal and power.

## 7.- MAINTENANCE

The WSK series controller does not require any special maintenance. No adjustment, maintenance or repairing action should be done when the instrument is open and powered on, should those actions are essential, high-qualified operators must perform them.

Before any adjustment, replacement, maintenance or repairing operation is carried out, the controller must be disconnected from any power supply source.

When any protection failure is suspected to exist, the controller must be immediately put out of service. The controller's design allows a quick replacement in case of any failure.

For any inquiry about the instrument performance or whether any failure happens, contact to Blue Jay's technical service.

### *Blue Jay - After-sales service*

For any inquiry about the instrument performance or any failure, contact to Blue Jay's technical service.

### *Blue Jay - After-sales service*

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