**HUAREW HWX-W3230**

# HUAREW W3230 Digital Temperature Controller User Manual

Model: HWX-W3230

## 1. Product Overview

The HUAREW W3230 Digital Temperature Controller is a versatile instrument designed for precise temperature regulation in various applications. It features a clear LED display, an NTC temperature probe, and supports both heating and cooling modes. This manual provides detailed instructions for its installation, operation, and maintenance.


Image 1.1: Front view of the HUAREW W3230 Digital Temperature Controller with its NTC temperature probe.

### Key Features:

- Wide temperature control range: -50°C to 120°C.
- High control accuracy: 0.1°C.
- Dual working modes: Heating (H) and Cooling (C).
- Equipped with a 1-meter NTC10K waterproof stainless steel probe.
- Durable ABS material construction.
- LED indicator for output status.

## 2. Product Specifications

# PRODUCT DETAILS


Mode: W3230; Power Supply: 12v

Control Accuracy:0.1℃

Measurement Accuracy:0.1℃

Measure Input:NTC10K/B3435(1M Probe)

Resolution:-9.9- 99.9 resolution 0.1 ℃;

0ther temp range:1℃

Temperatur Control Range:-50° ~120℃

Output Capacity:1 channel relay output, capiticity=20A

Environmental Requirements:-10-60℃,humidity 20%-85%RH

## Code table

| Function | Set range | Default |
|---|---|---|
| Heating/Cooling: | H/C | C |
| Return Difference: | 0.1-15 | 2 |
| Setting limits to the manimum: | 110 | 110 |
| Setting limits to the minimum: | -50 | -50 |
| Temp. Correction: | -7.0~7.0 | 0 |
| Delay Start: | 0-10min | 0 |

Image 2.1: Detailed specifications of the W3230 Temperature Controller.

| Parameter | Value |
|---|---|
| Model | HWX-W3230 |
| Power Supply | 220V AC (also available in 12V DC versions, check product label) |
| Temperature Control Range | -50°C to 120°C |
| Control Accuracy | 0.1°C |
| Measurement Input | NTC10K (1M Waterproof Probe) |
| Output Capacity | 1 channel relay output, 20A |
| Environmental Requirements | Temperature: -10°C to 60°C, Humidity: 20% to 85% RH |
| Material | ABS |

| Parameter | Value |
|---|---|
| Dimensions | 79mm x 45mm x 27mm (approx. 3.11 x 1.77 x 1.06 inches) |
| Item Weight | Approx. 50g (1.76 ounces) |


Image 2.2: Physical dimensions of the W3230 Temperature Controller.

## 3. Installation and Wiring

Proper installation and wiring are crucial for the safe and correct operation of the W3230 temperature controller. Ensure all power is disconnected before proceeding with wiring.

### 3.1 Wiring Diagram

Image 3.1: Basic wiring diagram for the W3230 Temperature Controller.

The controller has four terminals for connection:

- **+VCC:** Positive power input for the controller (e.g., 220V AC Live or 12V DC Positive).
- **-GND:** Negative power input for the controller (e.g., 220V AC Neutral or 12V DC Negative).
- **S1, S2:** Relay output terminals. These are dry contacts (isolated) and can be used to control an external load (e.g., heater, cooler) with a separate power source (110V-220V AC or 12V DC, depending on your load). Connect the load in series with one of the power lines through these terminals.

**Important Safety Note:**
Ensure the power supply voltage matches the controller's specified voltage (220V AC for this model). Incorrect voltage can damage the device. Always consult a qualified electrician if you are unsure about wiring connections, especially with high voltage AC circuits.

### 3.2 Probe Installation

The NTC temperature probe should be placed in the environment where temperature measurement and control are required. The probe is waterproof, allowing for use in humid or submerged conditions.

## 4. Operating Instructions

The W3230 controller features a simple interface with a digital display and three buttons: SET, Up (▲), and Down (▼).

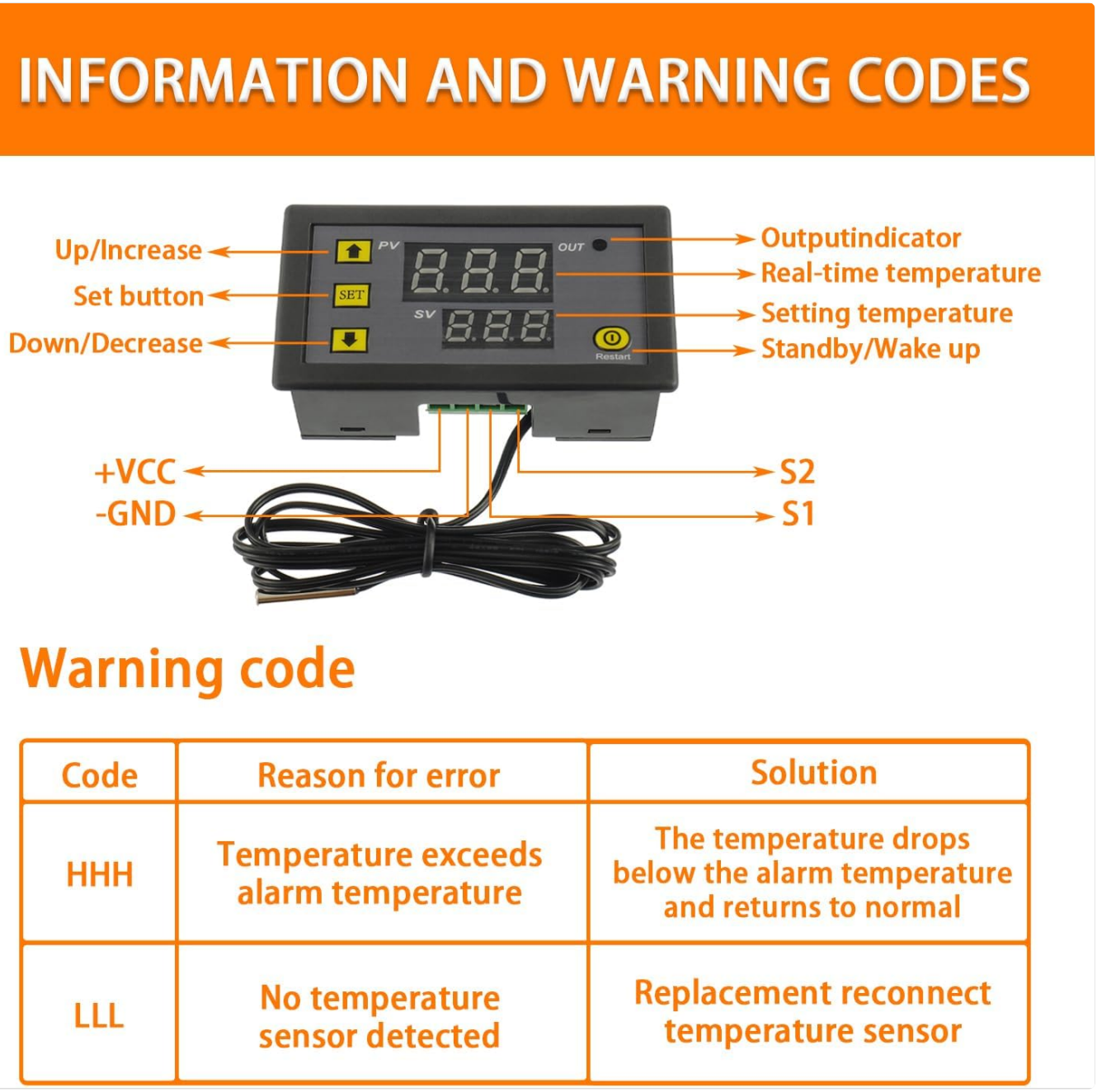


Image 4.1: Overview of the W3230 display and button functions.

## 4.1 Display Indicators:

- **PV:** Process Value (Real-time temperature).
- **SV:** Set Value (Setting temperature).
- **OUT:** Output indicator (lights up when the relay is active).

## 4.2 Basic Operation:

1. **View Current Temperature:** The large display (PV) shows the current measured temperature.
2. **View Set Temperature:** Briefly press the **SET** button once. The small display (SV) will show the set temperature. Press **SET** again or wait a few seconds for it to return to the current temperature display.
3. **Adjust Set Temperature:** Briefly press the **SET** button once. While the SV display is flashing, use the **Up (▲)** or **Down (▼)** buttons to adjust the desired temperature. Press **SET** again to confirm and exit, or wait for 10 seconds for automatic confirmation.

## 4.3 Parameter Settings (P-Codes):

To access advanced settings, press and hold the **SET** button for 5 seconds. The display will show "P0". Use the **Up (▲)** or **Down (▼)** buttons to navigate through the P-codes (P0-P8). Press **SET** to enter a specific P-code setting, then use **Up (▲)** or **Down (▼)** to adjust the value. Press **SET** again to confirm the value and return to the P-code menu. To exit the P-code menu, press and hold **SET** for 5 seconds or wait for 10 seconds without any button action.

# W3230 TEMPERATURE CONTROLLER INSTRUCTION MANUAL

Temperature control range: -50° ~120° C

Temperature control accuracy: 0.1° C

Display color: red + blue

Working power supply: 110V~220V

Sensor: NTC 10K 1 meter (with probe)

product weight: 79g(110V~220V)

Operation and display panel

| Code | Function | Set range | Default |
|---|---|---|---|
| P0 | Heat/Cool | H/C | C |
| P1 | Backlash | 0.1℃~30℃ | 0.1℃ |
| P2 | Set upper limit | -50℃~120℃ | 120℃ |
| P3 | Set lower limit | -50℃~120℃ | 120℃ |
| P4 | Calibration | -10℃~10℃ | 0℃ |
| P5 | Delayed start | 0-10min | 0 |
| P6 | Alarm temperature | -50℃~120℃ | 120℃ |
| P7 | Data lock | ON/OFF | OFF |
| P8 | Factory reset | ON/OFF | OFF |

Image 4.2: Table of P-codes and their functions.

| Code | Function | Set Range | Default |
|---|---|---|---|
| **P0** | Heating/Cooling Mode | H/C | C |
| **P1** | Hysteresis (Return Difference) | 0.1-15 | 2 |
| **P2** | Set Upper Limit | -50°C to 120°C | 120°C |
| **P3** | Set Lower Limit | -50°C to 120°C | -50°C |
| **P4** | Temperature Correction | -7.0 to 7.0 | 0 |
| **P5** | Delay Start Time | 0-10 min | 0 |

| Code | Function | Set Range | Default |
|---|---|---|---|
| **P6** | High Temperature Alarm | -50°C to 120°C | OFF (120°C) |
| **P7** | Data Lock | ON/OFF | OFF |
| **P8** | Factory Reset | ON/OFF | OFF |

## 4.4 Detailed Parameter Explanations:

The following explanations are derived from the A+ content provided, offering deeper insight into each parameter's function.

### P0: Cooling (C) / Heating (H) Mode

This parameter defines whether the controller operates in cooling or heating mode.

- **Cooling Mode (C):** When the measured temperature is greater than or equal to the set temperature, the relay closes (output ON), and the cooling device starts. When the measured temperature drops to the set temperature minus the hysteresis (P1), the relay opens (output OFF), and the cooling device stops.
- **Heating Mode (H):** When the measured temperature is less than or equal to the set temperature, the relay closes (output ON), and the heating device starts. When the measured temperature rises to the set temperature plus the hysteresis (P1), the relay opens (output OFF), and the heating device stops.

### P1: Hysteresis Setting (Return Difference)

Hysteresis prevents rapid cycling of the output device by creating a temperature differential. It is the difference between the turn-on and turn-off temperatures.

- **Example (Cooling Mode):** Set temperature = 25°C, Hysteresis (P1) = 2°C. If the temperature rises to 25°C, the cooler turns ON. It will remain ON until the temperature drops to 25°C - 2°C = 23°C, then it turns OFF. The cooler will not turn ON again until the temperature rises back to 25°C.
- **Example (Heating Mode):** Set temperature = 25°C, Hysteresis (P1) = 2°C. If the temperature drops to 25°C, the heater turns ON. It will remain ON until the temperature rises to 25°C + 2°C = 27°C, then it turns OFF. The heater will not turn ON again until the temperature drops back to 25°C.

### P2: Maximum Temperature Setting Upper Limit

This parameter sets the highest temperature that can be set as the target temperature (SV). This is a safety feature to prevent accidental high-temperature settings.
*Example: If P2 is set to 60°C, the user will not be able to set the target temperature (SV) higher than 60°C, even if the controller's maximum range is 120°C.*

### P3: Minimum Temperature Setting Lower Limit

This parameter sets the lowest temperature that can be set as the target temperature (SV). This is a safety feature to prevent accidental low-temperature settings.
*Example: If P3 is set to 0°C, the user will not be able to set the target temperature (SV) lower than 0°C, even if the controller's minimum range is -50°C.*

### P4: Temperature Correction (Calibration)

Allows for fine-tuning the temperature reading to match a known accurate thermometer. If there is a discrepancy between the controller's reading and the actual temperature, you can adjust this value.
*Example: If the controller reads 25°C but a reference thermometer reads 26°C, set P4 to +1.0. The controller will then display 26°C.*

### P5: Delay Start Time

This parameter sets a delay before the output relay activates after the temperature condition is met. This is useful for protecting compressors in refrigeration systems or other devices that require a brief delay before restarting.
*Example: If P5 is set to 5 minutes, and the temperature condition for the cooler to turn ON is met, the cooler will only start after a 5-minute delay.*

### P6: High Temperature Alarm

When the measured temperature exceeds this set alarm value, the controller will display "HHH" and may trigger an audible alarm (if equipped, or simply indicate on display). This is a warning for excessively high temperatures.

### P7: Data Lock

When set to ON, this parameter locks all other settings (P0-P6), preventing accidental changes. To modify settings, P7 must be set to OFF.

### P8: Factory Reset

Setting this to ON will restore all parameters (P0-P7) to their default factory settings. Use with caution as all custom configurations will be lost.

## 5. Troubleshooting and Warning Codes

The W3230 controller displays specific codes to indicate operational issues.

# INFORMATION AND WARNING CODES


## Warning code

| Code | Reason for error | Solution |
|---|---|---|
| HHH | Temperature exceeds alarm temperature | The temperature drops below the alarm temperature and returns to normal |
| LLL | No temperature sensor detected | Replacement reconnect temperature sensor |

Image 5.1: Warning codes displayed on the W3230 controller.

| Code | Reason for Error | Solution |
|---|---|---|
| **HHH** | Temperature exceeds alarm temperature (P6 setting) or sensor fault. | Check P6 setting. Ensure the probe is correctly connected and not damaged. Allow temperature to return to normal range. |
| **LLL** | No temperature sensor detected or sensor fault. | Verify the NTC probe is securely connected to the controller. If the connection is good, the probe may be faulty and require replacement. |

## General Troubleshooting Tips:

- **No Display/Power:** Check power connections and ensure the correct voltage is supplied to the controller.
- **Output Not Activating:** Verify P0 (Heating/Cooling mode) and P1 (Hysteresis) settings. Ensure the set temperature (SV) is appropriate for the current measured temperature (PV) and the selected mode. Check wiring to the load.
- **Inaccurate Temperature Reading:** Use P4 (Temperature Correction) to calibrate the sensor if a known accurate reference thermometer is available. Ensure the probe is not damaged or exposed to extreme conditions beyond its

operating range.

- **Settings Cannot Be Changed:** Check P7 (Data Lock) and ensure it is set to OFF.

## 6. Maintenance

The HUAREW W3230 Digital Temperature Controller requires minimal maintenance to ensure long-term reliable operation.

- **Cleaning:** Periodically wipe the controller's surface with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Probe Inspection:** Regularly inspect the NTC temperature probe for any signs of damage, kinks in the cable, or corrosion. Although waterproof, physical damage can affect its accuracy and lifespan.
- **Environmental Conditions:** Ensure the controller is operated within its specified environmental temperature and humidity ranges (-10°C to 60°C, 20% to 85% RH) to prevent damage and ensure optimal performance. Avoid direct sunlight or excessive vibrations.
- **Connection Check:** Periodically check all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or damage.

## 7. Applications

The W3230 Digital Temperature Controller is suitable for a wide range of temperature control applications due to its versatility and robust design.


Image 7.1: Examples of typical applications for the W3230 controller.

- Greenhouses and grow tents
- Incubators and terrariums
- Home brewing and fermentation
- Aquariums and vivariums
- Industrial equipment temperature control
- Domestic freezers and refrigerators (for custom control)
- HVAC systems

## 8. Warranty and Support

For warranty information and technical support, please refer to the product packaging or contact HUAREW customer service directly. Keep your purchase receipt as proof of purchase.

**Manufacturer:** HUAREW

**Model:** HWX-W3230

**ASIN:** B0CYLYSWKS

For further assistance, please visit the official HUAREW website or contact their support team through the platform where the product was purchased.