Q-BAIHE XH-W2020

Q-BAIHE W2020 220V Miniature Digital Thermostat Instruction Manual

1. Introduction

Thank you for choosing the Q-BAIHE W2020 Miniature Digital Thermostat. This device is designed for precise temperature control in various applications, offering both heating and cooling functionalities. With its clear digital display and user-friendly interface, the W2020 provides reliable and accurate temperature management. Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage.

2. Safety Information

Please observe the following safety precautions to prevent personal injury or damage to the device:

- Ensure the power supply voltage matches the device's specified voltage (220V AC for this model). Incorrect voltage can cause severe damage.
- All wiring should be performed by a qualified electrician or knowledgeable individual to prevent electrical shock.
- Disconnect power before performing any wiring or maintenance.
- Do not expose the device to water, moisture, or corrosive environments.
- Ensure proper ventilation around the device to prevent overheating.
- Do not exceed the maximum output current or power ratings of the device.

3. Product Overview

The Q-BAIHE W2020 thermostat features a compact design with a clear digital display and intuitive control buttons. It includes a high-precision NTC temperature sensor for accurate readings.

Figure 3.1: Front view of the Q-BAIHE W2020 thermostat. The digital display shows the current temperature, and the 'SET', 'Up', and 'Down' buttons are visible for configuration.

Figure 3.2: The Q-BAIHE W2020 thermostat with its detachable temperature sensor and back cover. This view highlights the

NTC sensor probe and the compact design of the main unit.

4. Technical Specifications

Specification	Value
Product Name	Intelligent Digital Display Thermostat
Power Supply Voltage	AC 220V
Output Voltage	Equal to Supply Voltage
Output Current	Maximum 10A
Maximum Power (220V)	2200W
Temperature Control Range	-50°C to 110°C
Control Accuracy	0.1°C
Refresh Rate	4 times/second
Display Size	0.56 inch Red Three-Digit Digital Tube
Appearance Size	75mm x 35mm x 85mm
Net Weight	165g

5. Setup and Installation

5.1 Mounting

The W2020 thermostat is designed for panel mounting. Ensure the mounting hole dimensions are approximately 70.5mm x 29mm for a secure fit. Allow sufficient space for wiring connections at the back of the unit.

5.2 Wiring Diagram

Refer to the diagram below for correct wiring. Ensure all connections are secure and insulated. This model operates on 220V AC. The output voltage will be the same as the input voltage.

Figure 5.1: Wiring terminals for the Q-BAIHE W2020 thermostat. The 'IN' terminals are for power input (220V AC), 'OUT' terminals are for connecting the heating/cooling load, and 'NTC' terminals are for the temperature sensor.

- **Power Input (IN):** Connect your 220V AC power supply to the 'IN' terminals. Observe correct polarity if applicable, though for AC, live and neutral can be interchanged.
- **Load Output (OUT):** Connect your heating or cooling device (e.g., heater, fan, compressor) to the 'OUT' terminals. The thermostat will switch power to this load based on your temperature settings.
- **Temperature Sensor (NTC):** Connect the provided NTC temperature sensor to the 'NTC' terminals. The sensor is non-polar, so connection direction does not matter.

5.3 Sensor Placement

Place the temperature sensor in the area where you wish to measure and control the temperature. Ensure it is not directly exposed to heat sources, cold drafts, or excessive moisture, which could lead to inaccurate readings.

6. Operating Instructions

6.1 Power On/Off

Once wired correctly, apply power to the 'IN' terminals. The digital display will illuminate, showing the current measured temperature.

6.2 Setting the Target Temperature

1. Press the **SET** button once. The display will flash, indicating that you are in temperature setting mode.
2. Use the **Up** and **Down** buttons to adjust the desired target temperature.
3. Press the **SET** button again to confirm and save the setting, or wait a few seconds for it to automatically save and exit.

6.3 Parameter Settings (Advanced)

To access advanced parameter settings, press and hold the **SET** button for approximately 3-5 seconds until the display shows 'P0'. Use the **Up** and **Down** buttons to navigate through the parameters (P0-P6). Press **SET** again to enter a specific parameter's setting, adjust with **Up**/**Down**, and press **SET** to confirm. Hold **SET** again to exit, or wait for automatic exit.

- **P0: Heating/Cooling Mode (H/C)**
  Set to 'H' for heating mode (output turns on when temperature is below target). Set to 'C' for cooling mode (output turns on when temperature is above target).
- **P1: Hysteresis Setting (0.1-30°C)**
  This sets the temperature difference between the turn-on and turn-off points. For example, if target is 25°C and hysteresis is 2°C in heating mode, output turns on at 23°C and off at 25°C.
- **P2: Upper Temperature Limit (110°C)**
  Sets the maximum adjustable target temperature.
- **P3: Lower Temperature Limit (-50°C)**
  Sets the minimum adjustable target temperature.
- **P4: Temperature Correction (-10 to 10°C)**
  Allows calibration of the temperature reading if there's a discrepancy with a known accurate thermometer.
- **P5: Delay Start Time (0-10 minutes)**
  Sets a delay before the output turns on, useful for protecting compressors in cooling systems.
- **P6: High Temperature Alarm (0-110°C)**
  If the measured temperature exceeds this value, the thermostat will trigger an alarm (e.g., flashing display).

7. Maintenance

The Q-BAIHE W2020 thermostat requires minimal maintenance:

- **Cleaning:** Wipe the display and casing with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Sensor Care:** Ensure the temperature sensor is clean and free from debris. Avoid bending or damaging the sensor probe.
- **Connections:** Periodically check wiring connections to ensure they remain secure.

8. Troubleshooting

- **No Display:**
  Possible Cause: No power or incorrect wiring.
  Solution: Check power supply connections and ensure 220V AC is correctly applied to the 'IN' terminals.
- **Temperature Reading Inaccurate:**
  Possible Cause: Sensor faulty, improperly placed, or needs calibration.
  Solution: Check sensor connection. Relocate sensor away from direct heat/cold sources. Use P4 parameter to calibrate if necessary.
- **Device Not Heating/Cooling:**
  Possible Cause: Incorrect mode (P0), target temperature not set correctly, or load wiring issue.
  Solution: Verify P0 is set to 'H' for heating or 'C' for cooling. Ensure target temperature is appropriate. Check connections to the 'OUT' terminals and the connected load device.

- **Display Shows 'LLL' or 'HHH':**
  Possible Cause: Sensor error (open circuit or short circuit).
  Solution: Check the NTC sensor connection. If the issue persists, the sensor may be damaged and require replacement.

9. Warranty and Customer Support

Q-BAIHE products are manufactured to high-quality standards. For specific warranty information or technical support, please refer to the product packaging or contact your retailer. Keep your purchase receipt as proof of purchase.