

PerGar XH-W3002

PerGar XH-W3002 Digital Temperature Controller Module (12V) Instruction Manual

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your PerGar XH-W3002 Digital Temperature Controller Module. This device is designed for precise temperature control in various applications, offering both heating and cooling modes. Its robust design and accurate sensing capabilities make it suitable for a wide range of industrial and scientific uses.

Key features include a durable ABS housing, a versatile NTC10K waterproof probe, a broad temperature range of -50°C to 110°C with 0.1°C control accuracy, and a maximum output capacity of 10A. It is ideal for use in air conditioning systems, incubators, equipment chassis, and other temperature-sensitive environments.

2. SAFETY INFORMATION

- Ensure the input voltage matches the module's specified voltage (12V for this model). Incorrect voltage can cause damage or malfunction.
- All wiring should be performed by qualified personnel to prevent electrical hazards.
- Do not expose the module to excessive moisture or extreme temperatures outside its operating range, except for the waterproof probe.
- Disconnect power before performing any installation, wiring, or maintenance.
- Keep the device away from flammable materials.

3. PRODUCT OVERVIEW

The PerGar XH-W3002 is a compact digital temperature controller featuring a clear LED display for current temperature and status. It includes three control buttons (SET, Up, Down) for easy configuration. The module comes with a 1-meter NTC10K waterproof probe for accurate temperature sensing.



Figure 3.1: Front view of the PerGar XH-W3002 Digital Temperature Controller Module.



Waterproof Probe: Approx. 1meter / 3.3ft

Figure 3.2: Close-up of the module's digital display and control buttons (SET, Up, Down).



Figure 3.3: Detail of the NTC10K waterproof temperature probe.

4. SETUP AND WIRING

The XH-W3002 module can be directly installed or embedded into the panel of industrial control equipment. Proper wiring is essential for safe and correct operation.

4.1 Wiring Diagram

DC12V/24V wiring



AC220V wiring



Figure 4.1: Wiring diagram for the XH-W3002. Ensure to use the correct wiring for your power supply (DC12V/24V or AC220V).

4.2 Connection Instructions (12V Model)

- **Power Input:** Connect the 12V DC power supply to the designated input terminals. Typically, the red wire is positive (+) and the black wire is negative (-).
- **Load Output:** Connect your heating or cooling device (load) to the output terminals. For DC loads, ensure correct polarity if applicable. The module acts as a switch, controlling the power to the load based on temperature.
- **Temperature Probe:** Insert the NTC10K waterproof probe into the environment where temperature needs to be measured and controlled. The probe is non-polar and can be connected in either orientation.

Important: This specific model operates on 12V DC. Do not connect it to AC power or higher DC voltages unless you have a different variant of the XH-W3002.

5. OPERATING INSTRUCTIONS

Once wired and powered on, the module will display the current temperature measured by the probe.

5.1 Setting the Desired Temperature

1. Press the **SET** button once. The displayed temperature will flash.
2. Use the **Up (▲)** and **Down (▼)** buttons to adjust the desired temperature setpoint.
3. Press the **SET** button again to confirm the setting, or wait for approximately 5 seconds for the display to stop flashing and automatically save the setting.

5.2 Parameter Settings (P-Codes)

To access advanced settings, long press the **SET** button for approximately 3 seconds. The display will show "P0". Use the **Up (▲)** and **Down (▼)** buttons to navigate through the parameters (P0-P6). Press **SET** once to view/modify a parameter, then use **Up (▲)** and **Down (▼)** to change its value. Press **SET** again to confirm the change. Long press **SET** or wait to exit the parameter settings.

- **P0: Heating (H) / Cooling (C) Mode**

- **H (Heating Mode):** The output turns ON when the current temperature is below the setpoint minus hysteresis,

and turns OFF when it reaches the setpoint.

- **C (Cooling Mode):** The output turns ON when the current temperature is above the setpoint plus hysteresis, and turns OFF when it reaches the setpoint.

- **P1: Hysteresis Setting (0.1-30°C)**

- This value determines the temperature difference between the setpoint and when the output switches off. For example, if set to 2°C in heating mode with a setpoint of 25°C, the heater turns on at 23°C and off at 25°C.

- **P2: Upper Temperature Limit (Max 110°C)**

- Sets the maximum adjustable temperature setpoint.

- **P3: Lower Temperature Limit (Min -50°C)**

- Sets the minimum adjustable temperature setpoint.

- **P4: Temperature Correction (-10 to 10°C)**

- Allows for calibration of the temperature reading if there is a discrepancy with a known accurate thermometer.

- **P5: Delay Start Time (0-10 minutes)**

- Sets a delay before the output turns ON after the temperature condition is met. Useful for protecting compressors in cooling systems.

- **P6: High Temperature Alarm (0-110°C, default OFF)**

- If the current temperature exceeds this value, the module may trigger an alarm (e.g., display 'HHH' or flash).

6. MAINTENANCE

- **Cleaning:** Keep the module's housing and display clean using a soft, dry cloth. Avoid using abrasive cleaners or solvents.
- **Probe Care:** Ensure the temperature probe is free from debris or buildup that could affect its accuracy. While waterproof, avoid unnecessary physical damage to the probe cable.
- **Connection Check:** Periodically inspect all wiring connections to ensure they are secure and free from corrosion.
- **Environmental Conditions:** Operate the module within its specified environmental conditions to ensure longevity and reliable performance.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Display is off	No power, incorrect wiring, faulty power supply.	Check power connections, ensure correct voltage (12V DC), verify power supply functionality.
Temperature not controlling	Incorrect setpoint, wrong mode (Heating/Cooling), probe disconnected/faulty, hysteresis too large.	Verify set temperature, check P0 (mode) setting, ensure probe is connected and functional, adjust P1 (hysteresis).

Problem	Possible Cause	Solution
Inaccurate temperature reading	Probe not properly placed, temperature correction (P4) set incorrectly, faulty probe.	Ensure probe is in the correct sensing location, check P4 setting, replace probe if suspected faulty.
Display shows 'HHH' or 'LLL'	'HHH' indicates temperature above upper limit or probe open circuit. 'LLL' indicates temperature below lower limit or probe short circuit.	Check probe connection, ensure probe is within measurement range, replace probe if damaged.

8. SPECIFICATIONS

Feature	Detail
Model	XH-W3002
Material	ABS (Heat Resistant, Shock Resistant)
Temperature Range	-50°C to 110°C
Control Accuracy	0.1°C
Output Capacity	Maximum 10A
Input Voltage	12V DC
Temperature Probe	NTC10K, 1 meter (3.3 ft) waterproof
Dimensions	5.91 x 3.94 x 1.57 inches (approx.)

9. WARRANTY AND SUPPORT

For any questions, concerns, or technical assistance regarding your PerGar XH-W3002 Digital Temperature Controller Module, please refer to the downloadable e-manual or contact our customer service. While specific warranty details are not provided in this document, PerGar is committed to providing responsive support for its products.

Please visit the official PerGar website or contact your retailer for the most up-to-date warranty information and support options.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question