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> Greluma DC 12V 20A Digital Temperature Controller User Manual

Greluma ZL968LUM

Greluma DC 12V 20A Digital Temperature Controller User Manual

Model: ZL968LUM | Brand: Greluma

INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your Greluma DC 12V 20A Digital Temperature Controller. This versatile device is designed for precise temperature control in various heating and cooling applications, featuring a wide temperature range and a waterproof NTC 10K probe.

SAFETY INFORMATION

- Ensure the power supply matches the specified DC 12V. Incorrect voltage may damage the device.
- All wiring should be performed by a qualified individual to prevent electric shock or damage.
- Do not exceed the maximum load current of 20A for the relay output.
- Keep the device away from water and excessive humidity, except for the waterproof probe.
- Disconnect power before performing any wiring or maintenance.
- The device is designed for indoor use within specified environmental conditions (-10°C to 60°C, humidity 20%-85% RH).

PRODUCT OVERVIEW

The Greluma Digital Temperature Controller features a clear digital display, intuitive buttons, and a robust design for reliable performance.



Figure 1: Front view of the Greluma Digital Temperature Controller showing the dual digital display (PV and SV), control buttons (SET, Up, Down), and Restart button. The NTC waterproof probe is connected.

Key Components:

- **Digital Display:** Two displays show the Process Value (PV - actual temperature) and Set Value (SV - desired temperature).
- **Control Buttons:**
 - **SET Button:** Enters parameter setting mode.
 - **Up (▲) Button:** Increases values or navigates menus.
 - **Down (▼) Button:** Decreases values or navigates menus.
- **Restart Button:** Resets the device.
- **NTC 10K Waterproof Probe:** For accurate temperature measurement in various environments.
- **Relay Output:** 10A/20A relay for controlling heating or cooling loads.

SETUP

Wiring Instructions:

Refer to the wiring diagram below for proper connection of power and load. Ensure all connections are secure before applying power.

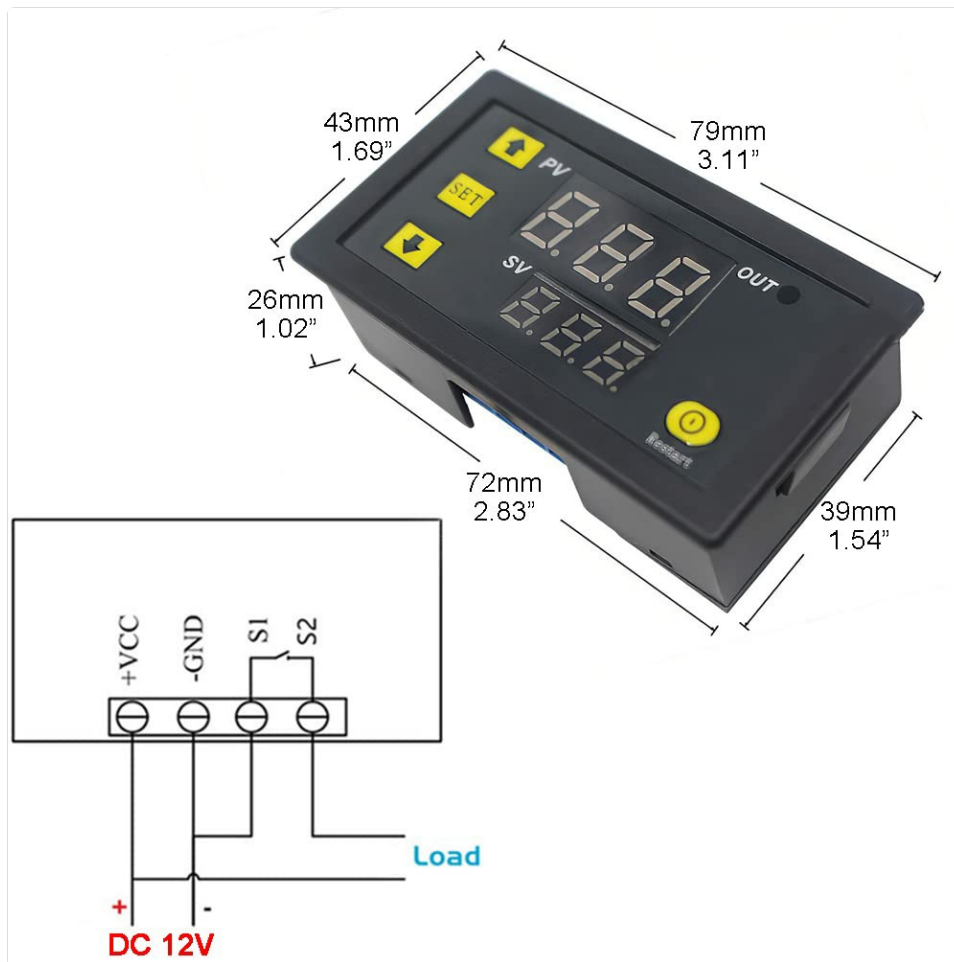


Figure 2: Wiring diagram showing connections for DC 12V power input (+VCC, -GND) and load output (S1, S2). The NTC probe connects to the dedicated port.

1. Connect the DC 12V power supply to the **+VCC** and **-GND** terminals.
2. Connect your heating or cooling load to the **S1** and **S2** relay output terminals. The relay acts as a switch for the load.
3. Insert the NTC 10K waterproof temperature probe into its designated port. Ensure it is fully seated.
4. Once all connections are made, apply DC 12V power. The upper digital tube will display the actual measured temperature (PV), and the lower digital tube will display the preset temperature (SV).
5. If the display shows "-- --", check if the temperature sensor is missing or damaged.

OPERATING INSTRUCTIONS

The thermostat panel has three keys: +, -, and SET.

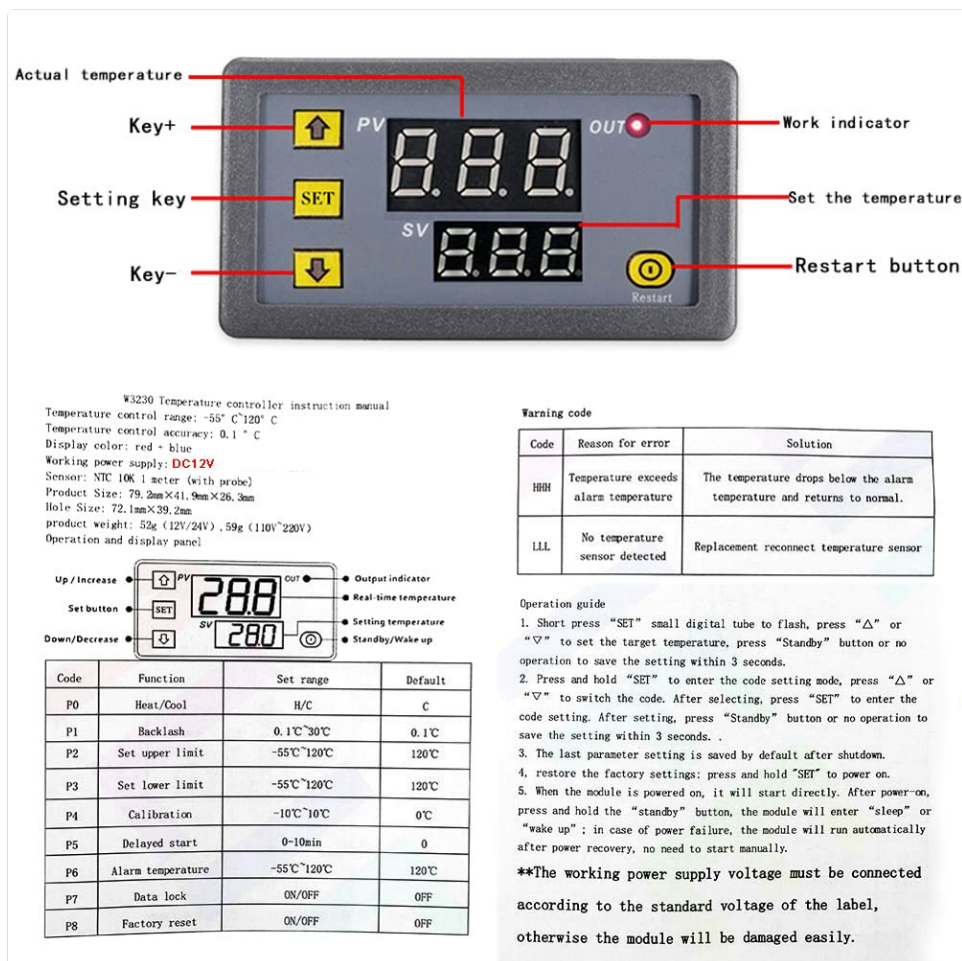


Figure 3: Detailed view of the control panel with button labels and a table of programmable functions (P0-P8) and their settings.

Setting the Temperature:

- Short press the **SET** button. The lower digital tube (SV) will flash.
- Use the **Up (▲)** and **Down (▼)** buttons to adjust the desired temperature (SV).
- Press **SET** again or wait 3 seconds for the setting to be saved automatically.

Parameter Settings (P0-P8):

Long press the **SET** button for 5 seconds to enter the parameter setting mode. Use the **Up (▲)** and **Down (▼)** buttons to navigate between parameters (P0-P8). Press **SET** to select a parameter, then use **Up (▲)** and **Down (▼)** to change its value. Press **SET** again to confirm and exit the parameter setting, or wait 3 seconds for automatic saving.

Parameter Code Table

Code	Function	Set Range	Default
P0	Heat/Cool Mode	H/C	C (Cooling)
P1	Return Difference (Hysteresis)	0.1-15°C	2°C
P2	Set Upper Limit	-55°C to 120°C	120°C
P3	Set Lower Limit	-55°C to 120°C	-50°C
P4	Temperature Correction	-7.0 to 7.0°C	0°C
P5	Delay Start Time	0-10 minutes	0 minutes
P6	High Temperature Alarm	-55°C to 120°C	OFF

Code	Function	Set Range	Default
P7	Data Lock	ON/OFF	OFF
P8	Factory Reset	ON/OFF	OFF

Mode Selection (P0):

- **P0 = H (Heating Mode):** The relay closes when the actual temperature (PV) is below the set temperature (SV) minus the return difference (P1). It opens when PV reaches SV.
- **P0 = C (Cooling Mode):** The relay closes when the actual temperature (PV) is above the set temperature (SV) plus the return difference (P1). It opens when PV reaches SV.

Restart Button:

Press the **Restart** button to reboot the device. This can be useful if the device becomes unresponsive or after changing critical settings.

MAINTENANCE

- Keep the device clean and free from dust. Use a soft, dry cloth for cleaning.
- Regularly check wiring connections for looseness or corrosion.
- Ensure the temperature probe is clean and free from debris that might affect its accuracy.
- Store the device in a dry, cool place when not in use.

TROUBLESHOOTING

Warning Codes and Solutions

Code	Reason for Error	Solution
"-- --"	Temperature sensor missing or damaged.	Check sensor connection or replace the NTC temperature sensor.
"HHH"	Temperature exceeds upper limit (P2) in heating mode.	The relay will disconnect. The temperature should drop below the alarm temperature and return to normal operation. Adjust P2 if necessary.
"LLL"	Temperature falls below lower limit (P3) in cooling mode.	The relay will disconnect. The temperature should rise above the alarm temperature and return to normal operation. Adjust P3 if necessary.

General Troubleshooting:

- **Device not powering on:** Check DC 12V power supply connections and ensure correct polarity.
- **Load not switching:** Verify wiring to the load, check the relay indicator light (on means closed, off means disconnected), and ensure the temperature settings (SV, P0, P1) are appropriate for the current temperature.
- **Inaccurate temperature reading:** Ensure the NTC probe is correctly installed and not damaged. Consider using the P4 (Temperature Correction) parameter to fine-tune the reading if a known offset exists.

SPECIFICATIONS

Feature	Detail
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Feature	Detail
Model	W3230 (ZL968LUM)
Power Supply	DC 12V
Temperature Control Range	-50°C to 110°C (-58°F to 230°F)
Control Accuracy	0.1°C
Measurement Input	NTC 10K Waterproof Probe (1 meter)
Output Capacity	1 Channel Relay Output, 20A
Display Type	Digital
Environmental Requirements	Temperature: -10°C to 60°C, Humidity: 20%-85% RH
Product Dimensions (L x W x H)	79mm x 43mm x 26mm (approx. 3.11" x 1.69" x 1.02")
Hole Size	72mm x 39mm (approx. 2.83" x 1.54")
Weight	48 Grams



Mode: W3230; Power Supply: **DC 12V**
 Control Accuracy:0.1 °C
 Measurement Accuracy:0.1 °C
 Measure Input: NTC10K/B3435(1M Probe)
 Resolution:-9.9 - 99.9 resolution 0.1 °C; Other temp range:1 °C
 Temperatur Control Range:-50°C - 110°C
 Output Capacity: 1 channel relay output, capiticity=20A
 Environmental Requirements:-10 - 60°C, 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

Figure 4: Image showing detailed specifications and the parameter code table for the temperature controller.

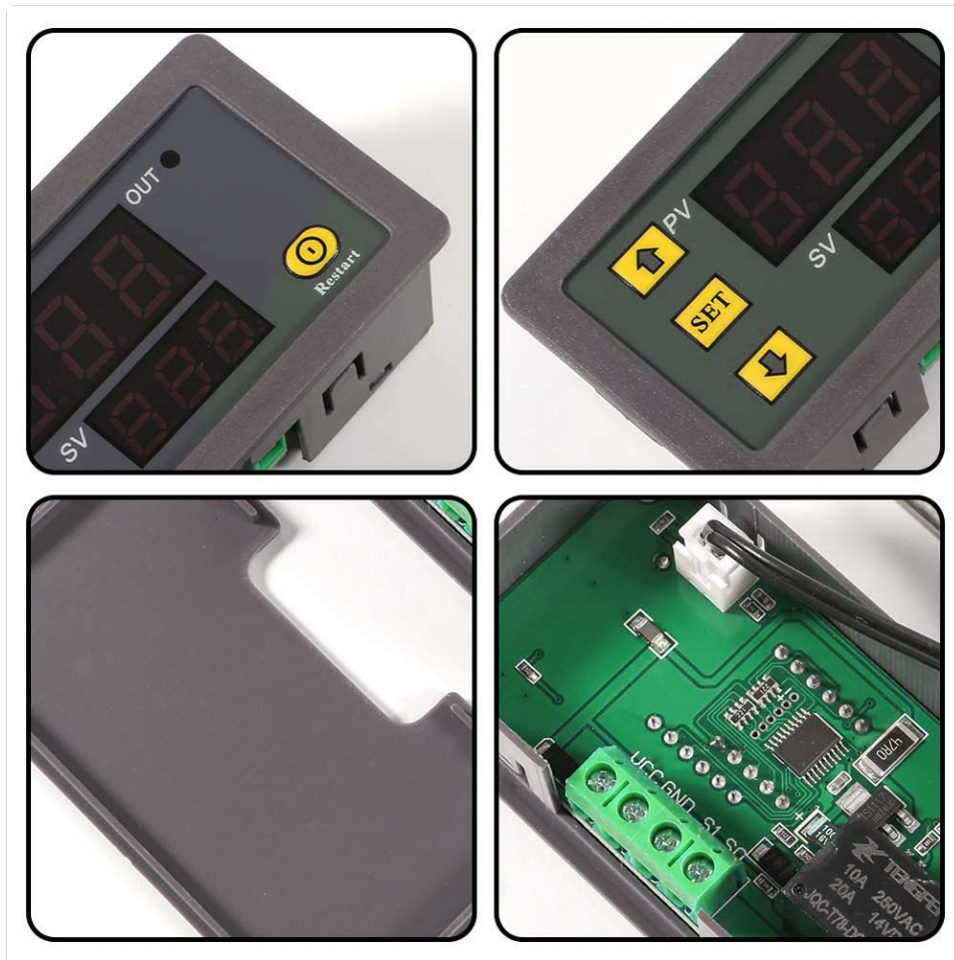


Figure 5: Close-up images detailing the front panel, side view, and internal circuit board of the temperature controller.

APPLICATIONS

The Greluma DC 12V Temperature Controller is suitable for a wide range of applications requiring automatic temperature control, including:

Application



Figure 6: Examples of applications including greenhouses, aquariums, aquaculture, and industrial equipment temperature control.

- Air conditioning systems
- Incubators
- Equipment enclosures
- Aquariums and aquaculture
- Greenhouses and plant cultivation
- Industrial temperature control protection



Figure 7: Additional application examples such as large aquariums, greenhouses, aquaculture ponds, and warehouse temperature monitoring.

WARRANTY AND SUPPORT

For warranty information or technical support, please contact your retailer or the manufacturer directly. Please have your product model number (ZL968LUM) and purchase details ready when contacting support.

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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.

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