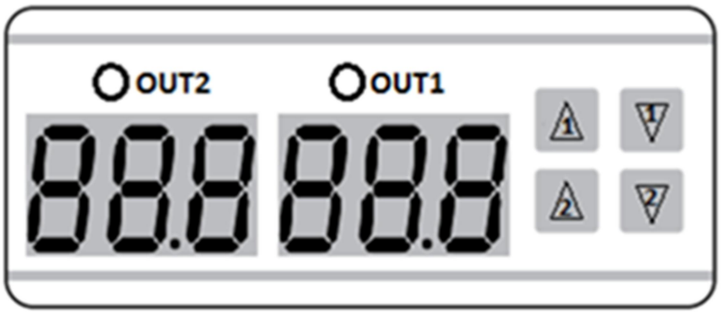
DIN330

Two Zone Temperature Controller Manual



Technical Parameters:

- **Power consumption**: Less than 3W
- **Accuracy**: ±0.1°C
- **Temperature range**: -30°C to 300°C (-22°F to 572°F)
- **Sensors**: Two temperature sensors with 3m wire length
- **Power supply**: DC 12VDC
- **Outputs**: 2 outputs with 10A load capacity

Key Features:

- Temperature control for 2 separate zones and 2 outputs.
- 2 Color Display for 2 zones temperature (red and blue).
- Maximum Temperature Records for each Zone.
- Buzzer and flashing alert for both high-temperature alarms in each zone.
- Delay Output Function for both Out1 and Out2. It is for protecting connected devices.
- Each sensor can be calibrated for accurate readings.
- Celsius/Fahrenheit Selectable display.
- Factory default setting option.

Setting Temperature Range Zones:

- **Press▲¹** for 3 seconds → Set Start Temp Zone 2
- **Press▲²** for 3 seconds → Set Start Temp Zone 1
- **Press▼¹** for 3 seconds → Set Stop Temp Zone 2
- **Press▼²** for 3 seconds → Set Stop Temp Zone 1

The controller automatically recognizes heating or cooling:

- **Heating Mode:** Start temperature < stop temperature
- **Cooling Mode:** Start temperature > stop temperature

Parameter Setting:

For setup the parameters press ▲¹ ▲² for 3 second:
By pressing ▲¹ or▼¹ find the suitable parameter and by pressing ▲² or ▼² change the value of each parameter.

www.thermomart.com

P	Description	Default
P0	Delay protection (start 1)	0
P1	Delay protection (start 2)	0
P2	High-temperature Alarm limit Sensor 1	120
P3	High-temperature Alarm limit Sensor 2	120
P4	Select Fahrenheit or Celsius (F/C)	C
P5	Record maximum temperature T1	
P6	Record maximum temperature T2	

Delay Protection (P0, P1 parameters):
Set the delay to prevent the cooling system from frequent start-ups (default: 0 minutes, adjustable from 0 to 60 m).
High Temperature Alarms (P2, P3 parameters):
You can set high-temperature alarms for sensors 1 and 2. The system will beep and flash an alarm when the temperature exceeds the set limits. The default setting is 120°C.
Fahrenheit/Celsius Selection (P4 parameter):
You can switch between Fahrenheit and Celsius for temperature display.
Record Maximum Temperatures (P5, P6 parameters):
The maximum temperature recorded by controller (T1,T2) and will be saved on P5 and P6. When the unit is turned off and back on, you can record new maximum temperature. It helps you analyze your device like a car engine.

Factory Reset:

All parameter settings remain in the controller's memory even when it is powered off. But you can restore factory default settings if needed. Press ▼¹▼² for 3 seconds to restore back factory default settings.

Calibration:

If the temperature sensors reading is not very accurate, use this function to calibrate temperature readings. Calibration values can range from -10 to +10.
Press ▼¹▲¹ or▼²▲² for 3 seconds to calibrate sensor 1 or 2.

Understanding Out1 and Out2 as Switches (Dry Contacts):

Out1 and **Out2** work like **switches** that don't provide power themselves but instead **control the flow of electricity** to external devices like fan. These outputs are referred to as **dry contacts**, so they are isolated from the power source.

Error Messages and Troubleshooting:

1) If the display shows "---": The Sensor is disconnected, The controller beeps, and shuts off the output for safety.
2) If the display shows "LLL" or "HHH", the measured temperature is outside the controller's temperature range.

Cautions:

- Ensure the heating or cooling system's current load does not exceed the relay's capacity, as this may cause damage or fire.
- Check the wiring diagram before installation. Incorrect wiring may damage the controller or cause fire hazards.
- Do not apply excessive force when tightening terminal screws, as this could break the base.
- For safety, always turn off the power supply before wiring.

DIN330

Mounting the Sensor on an Engine:

1. **Choose the Sensor Location**:
   - Mount the sensor at a spot that accurately reflects the **engine temperature**, preferably close to a heat source.
   - Common mounting points include:
     - **Under a tappet cover bolt** that is away from the exhaust ports.
     - **Thermostat housing bolt** that is close to the engine block.
   - Avoid placing the sensor too close to the **exhaust system** or **ignition components**, as this could interfere with sensor readings and wiring safety.
2. **Reinstall Bolts Correctly**:
   - If removing a bolt to mount the sensor, always tighten it back according to the manufacturer's recommended torque to avoid engine damage or leaks.
3. **Routing the Wiring**:
   - Avoid running sensor wiring near **high heat areas**, such as the exhaust manifold, to prevent insulation damage.
   - Secure the wiring properly using **cable ties** to avoid movement or wear that could damage the wire over time.
4. **Mounting Hole Preparation**:
   - If the sensor requires a custom mounting hole, **carefully file the hole** to the proper size. Avoid using a large drill to prevent an oversized hole.
   - Never clamp the **sensor barrel in a vise**, as this could damage the sensor.

It is acceptable to cut or extend the sensor wire at the display end since it is shielded. Preferably, use **soldering** and **Insulate each wire** separately and then insulate the entire joint. Alternatively, use a **terminal block** if it is kept dry and secure. Double-check connections, as the wires are thin.

Connecting the Power

Using a Cigarette Lighter Socket:

Plug the cigarette lighter plug into the socket of any 12 volt DC system to terminal 1 and 2 of controller. There is no polarity for this watchdog temperature controller for ensuring it is safe from incorrect connections too.

Hard Wiring:

Use suitable car wires and connect one wire to the negative terminal of the battery or to the vehicle chassis and connect the other wire to the positive terminal of the battery through the ignition switch.

Fuse Recommendation:

If required, use a 1-amp fuse for added safety.

www.thermomart.com

Mount the unit inside the vehicle cabin where the driver can easily see it (The mounting size is 71x29 mm). The main unit is **compact** (75mm W x 86mm H x 35mm D) and fits **under the dashboard**. It connects to **12V DC** via wiring. The two orange mounting bracket will tight temperature controller. Route the temperature sensor wire to the engine carefully without pulling on the sensor lug. Avoid placing wiring where it could be cut or crushed when passing through engine bay openings. Start at the sensor and wrap the provided spiral wrap around the cable, securing it.

To set up a **high-temperature alarm**, you can configure alarms for **T1** and **T2** using parameters **P2** and **P3**. This allows you to easily monitor the temperature, and the system will beep and flash an alert if the temperature exceeds the set limits. Set the overheating alarm based on the **engine's normal running temperature**. Observe the highest temperature during normal driving, then set the alarm a few degrees above that. Simply power the controller with **12V DC** and connect the sensors to your two objects (e.g., engine, battery, transmission, or coolant system). If you need to connect **outputs** for a fan or any other device, please refer to the wiring diagram below.

Wiring Diagram For Two Independent Zones:

If you need to monitor or control **two separate zones** independently, such as turning on a fan when the engine temperature rises (Zone 1) and activating another fan or pump for the coolant system (Zone 2), follow the wiring diagram for **independent zone control**. This configuration allows each zone to be monitored and managed separately, ensuring optimal operation and safety. You can install both sensors on the same object, such as an engine, to use the system as a **backup overheating alarm**. This provides added assurance against heat damage by monitoring the same zone with **two independent sensors**.