Mi-Heat ETR2

Mi-Heat ETR2 DIN Rail Mount Thermostat User Manual

Model: ETR2
Brand: Mi-Heat

1. Introduction and Product Overview

The Mi-Heat ETR2 controller is a sophisticated DIN rail mount thermostat designed for efficient and economical control of ice and snow melting systems. It is particularly suitable for use in gutters and small outdoor areas, ensuring surfaces remain clear and safe during cold weather conditions.

The ETR2 system operates by utilizing signals from external temperature and humidity sensors (such as ETF-744/99, ETOG-55/56, or ETOR-55). This intelligent control mechanism activates the heating system only when both low temperatures and humidity (indicating rain or snow) are detected, thereby optimizing energy consumption.

Key Features:

- Suitable for gutters and small outdoor areas.
- Economical energy consumption through combined temperature and humidity sensor input.
- Automatic activation of the snow melting system upon humidity detection.
- Output Relay: 16 A potential-free, capable of switching up to 3600 W.
- Adjustable Temperature Range: 0-10 °C.
- Adjustable Follow-up Time: 1-5 hours.
- Mounting: Standard DIN rail.
- Protection Type: IP20.

Figure 1: Front view of the Mi-Heat ETR2 DIN Rail Mount Thermostat, showing control dials for temperature and time settings.

2. Safety Instructions

Please read these safety instructions carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or damage to the product.

- Installation must be performed by a qualified electrician in accordance with local electrical codes and regulations.
- Ensure the main power supply is disconnected before performing any installation, wiring, or maintenance work.
- The device is designed for indoor installation within a control cabinet or enclosure with IP20 protection.
- Do not expose the device to moisture, extreme temperatures, or corrosive environments.

- Verify all connections are secure and correctly wired to prevent short circuits or malfunctions.
- The maximum load for the output relay is 3600 W (16 A). Do not exceed this rating.

3. Setup and Installation

The ETR2 thermostat is designed for DIN rail mounting within a suitable electrical enclosure. Ensure adequate space for wiring and ventilation.

3.1 Mounting:

1. Securely attach the ETR2 thermostat to a standard DIN rail inside your control cabinet.
2. Ensure the mounting bracket is firmly engaged.

3.2 Wiring Connections:

Refer to the wiring diagram below for correct sensor and power connections. The ETR2 requires external temperature and humidity sensors for operation.

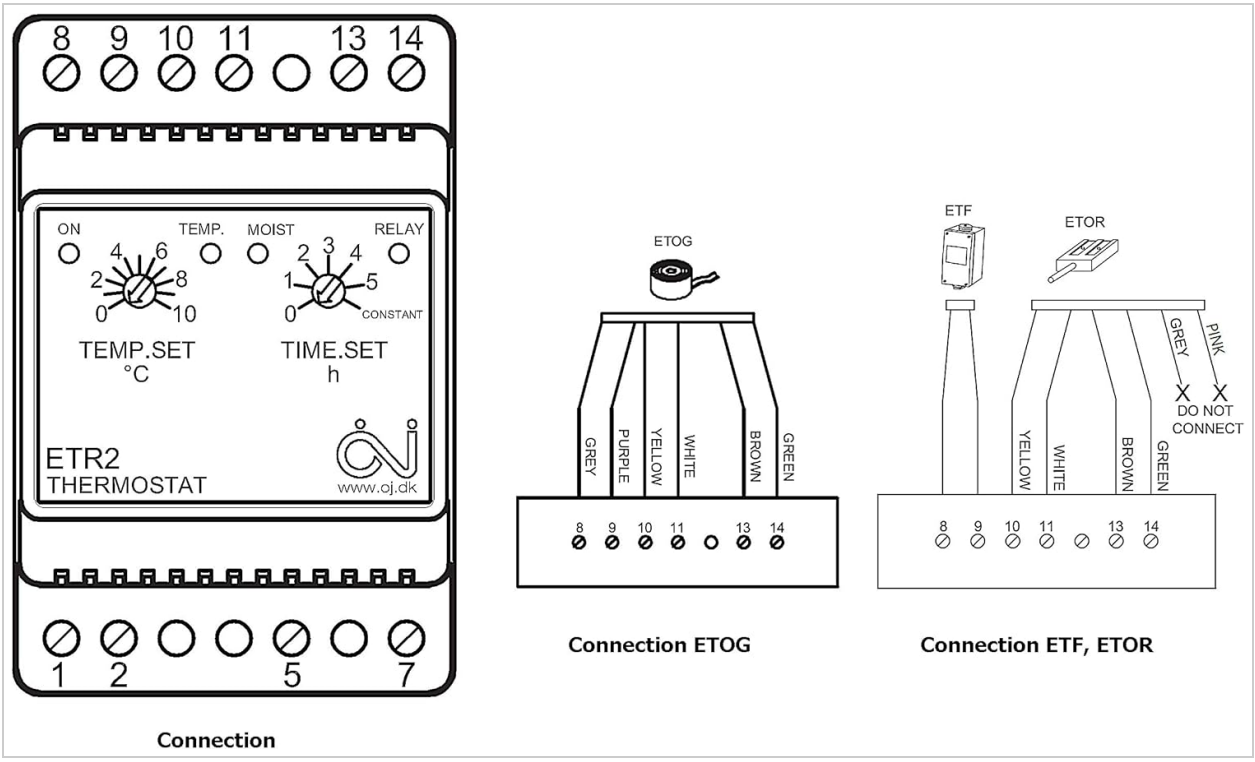

Figure 2: Wiring diagram for the Mi-Heat ETR2 Thermostat, showing connections for ETOG and ETF/ETOR sensors.

- **Power Supply (Terminals 1-2):** Connect the main power supply to these terminals. Ensure the voltage matches the device requirements (typically 230V AC, check product label if unsure).
- **Heating Cable/Mat (Terminals 5-7):** Connect your heating cable or mat to the potential-free relay output. Ensure the total wattage does not exceed 3600 W.
- **ETOG Sensor (Terminals 8-14):** For ground-mounted sensors (e.g., ETOG-55/56), connect the wires according to the color code shown in Figure 2.
- **ETF/ETOR Sensors (Terminals 8-14):** For outdoor temperature sensors (e.g., ETF-744/99) or gutter sensors (e.g., ETOR-55), connect the wires as indicated in Figure 2. Note that some connections might be "Do Not Connect" depending on the sensor type.

After all connections are made, double-check the wiring for correctness and security before restoring power.

4. Operating Instructions

The ETR2 thermostat features two main rotary dials for setting the desired operational parameters.

Figure 3: Close-up of the ETR2 thermostat's control dials.

4.1 Temperature Setting (TEMP.SET °C):

- This dial adjusts the temperature threshold at which the system will operate.
- The range is typically from 0°C to 10°C.
- Set the dial to the desired temperature below which ice or snow melting is required. For example, setting it to 2°C means the system will only activate if the temperature drops below 2°C AND humidity is detected.

4.2 Follow-up Time Setting (TIME.SET h):

- This dial sets the duration (in hours) for which the heating system will continue to operate after the humidity sensor no longer detects moisture.

- The range is typically from 1 to 5 hours.
- This feature ensures that any residual moisture is evaporated, preventing immediate refreezing. Adjust this time based on local climate conditions and the specific application.

4.3 Operation Logic:

The ETR2 thermostat activates the connected heating system when the following two conditions are met simultaneously:

1. The ambient temperature (as measured by the temperature sensor) falls below the set TEMP.SET value.
2. Humidity (rain or snow) is detected by the humidity sensor.

Once activated, the system will run until both conditions are no longer met, plus the duration of the set TIME.SET follow-up period.

5. Maintenance

The Mi-Heat ETR2 thermostat is designed for reliable, long-term operation with minimal maintenance. However, periodic checks can help ensure optimal performance.

- **Visual Inspection:** Periodically inspect the thermostat and its wiring for any signs of damage, loose connections, or corrosion.
- **Sensor Check:** Ensure external temperature and humidity sensors are clean and free from debris that could obstruct their function.
- **Cleaning:** If necessary, gently clean the exterior of the thermostat with a dry, soft cloth. Do not use abrasive cleaners or solvents.
- **Power Disconnection:** Always disconnect power before performing any inspection or cleaning inside the control cabinet.

6. Troubleshooting

If the ETR2 thermostat or your snow melting system is not functioning as expected, consider the following:

- **System Not Activating:**
  - Check if the main power supply to the thermostat is active.
  - Verify that both the temperature is below the set point AND humidity is detected by the sensor.
  - Inspect sensor wiring for loose connections or damage.
  - Ensure sensors are clean and properly installed in their respective locations (e.g., ground, gutter).
- **System Running Continuously:**
  - Check the TIME.SET dial; the system will run for this duration after humidity clears.
  - Inspect the humidity sensor for persistent moisture or debris that might be causing a false reading.
  - Verify the temperature sensor is functioning correctly and not reporting an artificially low temperature.
- **No Power to Heating Elements:**
  - Check the thermostat's output relay status (if visible indicator is present).
  - Verify connections to the heating cable/mat (Terminals 5-7).
  - Ensure the total wattage of the heating elements does not exceed the 3600 W limit.

If problems persist after checking these points, please contact Mi-Heat customer support.

7. Specifications

Model Number:	ETR2

Manufacturer:	infrarot-fussboden-de (Mi-Heat)
Product Code:	1221
Mounting Type:	DIN Rail Mount
Output Relay:	16 A potential-free, max. 3600 W
Temperature Adjustment Range:	0-10 °C
Follow-up Time Adjustment:	1-5 hours
Power Consumption:	3 VA
Ambient Temperature:	0/+50 °C
Protection Type:	IP20
Material:	Metal
Included Components:	Humidity probe, temperature sensor, DIN rail mounting bracket (sensors sold separately or as part of a kit)

7.1 Dimensions:

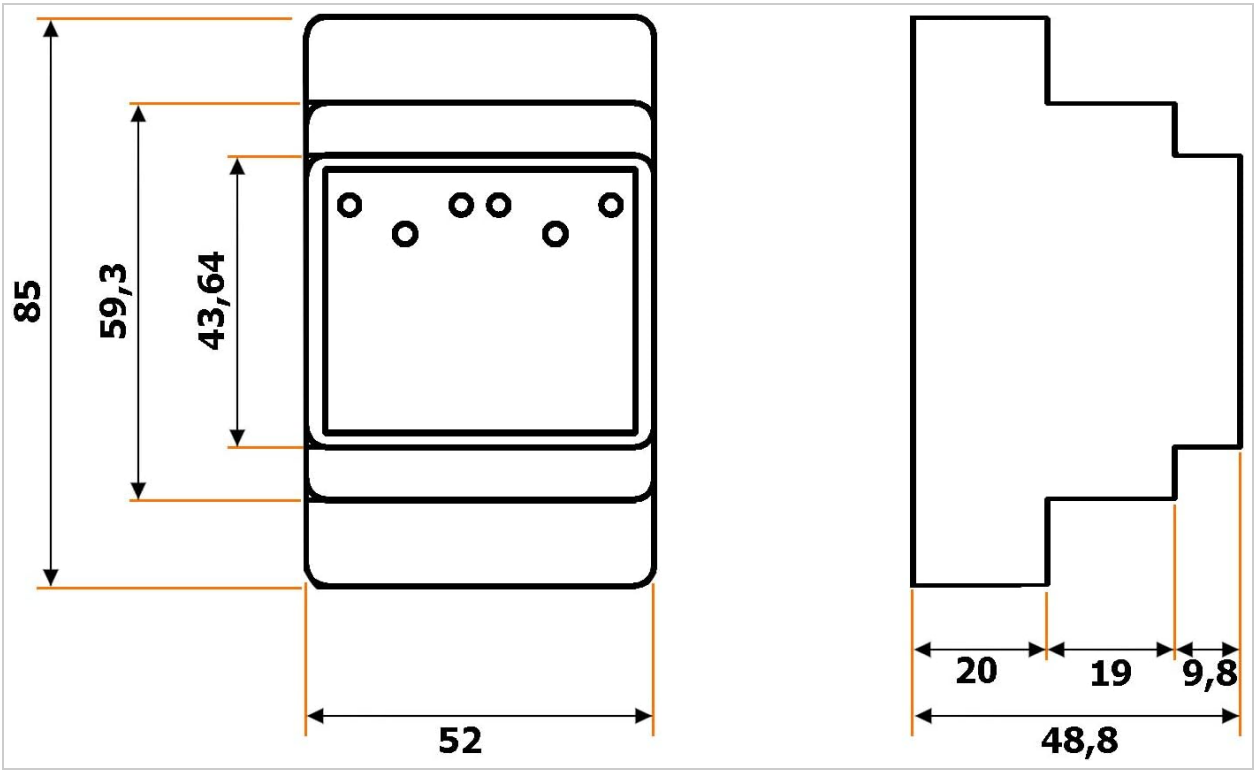

Figure 4: Dimensional drawing of the Mi-Heat ETR2 Thermostat (dimensions in mm).

- Height: 85 mm
- Width: 52 mm
- Depth: 48.8 mm (including DIN rail clip)

8. Warranty Information

For detailed warranty information regarding your Mi-Heat ETR2 thermostat, please refer to the specific warranty documentation provided with your purchase or contact your point of sale. Warranty terms and conditions may vary based on region and retailer.

9. Support and Contact

Should you have any questions regarding the Mi-Heat ETR2 thermostat, its installation, operation, or any other product-related inquiries, please do not hesitate to contact our customer support team.

Our support team is available to assist you:

- **Availability:** Monday to Friday, from 09:00 to 16:00 (German time).
- Please refer to your purchase documentation or the Mi-Heat official website for specific contact details (phone number, email address).

We offer support and shipping directly from Germany to ensure prompt assistance.