

# Electronic Temperature Controller PTM-2000

The electronic temperature controller PTM-2000 is an eight-channel temperature monitoring and four-channel control device. PTM-2000 controller is used as a part of various electric heating cable systems and ensures optimal temperature maintenance for each channel. The algorithms used for heating control, in combination with a wide range of different sensor types, ensure optimum control of the heat tracing system and save energy.

Temperature control will be realized by using processing signals received from temperature, precipitation and water sensors. PTM-2000 can be integrated into computerized process control systems via data transmission interface RS485 or Modbus RTU. Heating control is effected by means of output relay channels. All operating parameters and conditions of the connected heating systems are shown on a display. The PTM-2000 controller is designed to be mounted on a DIN-rail 35 mm in control cabinets.

## Features

- 8 temperature measuring channels
- 4 independent control channels
- Excellent accuracy
- High interference immunity of measurement channels
- Digital matrix display with white backlight
- Simultaneous display of temperatures and heating status for 4 channels
- Temperature setting range from -100 °C to +600 °C
- Easy adjustment of controlled temperatures
- DIN-rail mounting
- Communication interface RS485, Modbus RTU
- The preset parameters are saved in non-volatile device memory

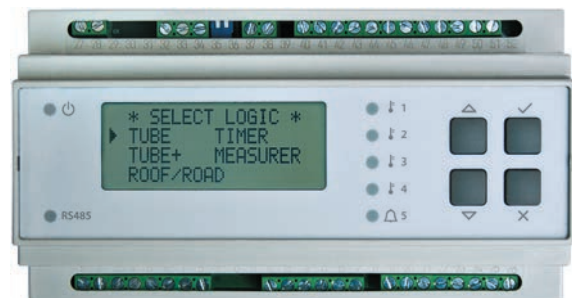
## Application Areas

- Temperature maintenance or freeze protection of pipelines and vessels
- Snow and ice prevention on roof and gutters

## Operation Features

5 control algorithms are provided by the device:

1. **TUBE**: analog control based on ON/OFF temperature settings
2. **TUBE+**: proportional control based on ambient air temperature/surface temperature
3. **ROOF / ROAD**: control of de-icing systems for roofs by 4 channels or open areas by 2 channels
4. **TIMER**: control of power output percentage by setable time period
5. **MEASURER**: Measuring & indication of 8 temperature channels

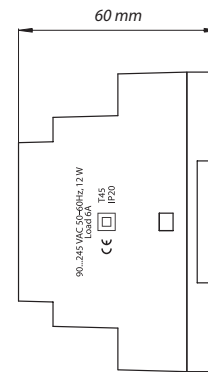
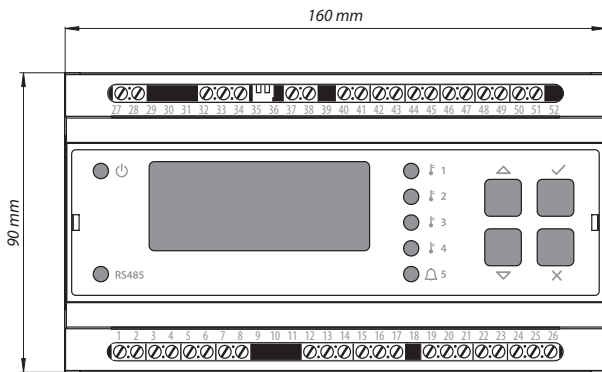


- |                   |               |
|-------------------|---------------|
| ⏻ Power supply    | ⬆ Scroll up   |
| RS485 Modbus RTU  | ⬇ Scroll down |
| 🔌 Heating Circuit | ✓ Enter       |
| 🚨 Alarm           | ✗ Cancel      |

LED color indications

- |   |
|---|
| ⏻ Red indicates the controller is energized |
| RS485 Orange indicates data exchange        |
| 🔌 🚨 Green indicates switched on             |

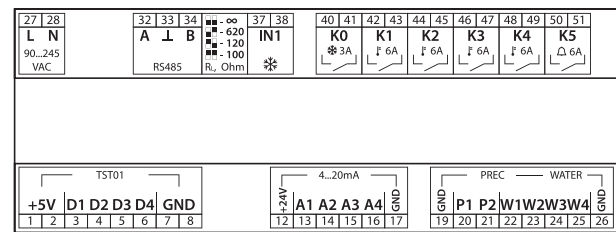
## Construction



## Technical Data

System operation temperature	-100...+600 °C with 4...20 mA -100...+600 °C with PT100 -55...+60 °C with TST01 standard -55...+125 °C with TST01 silicone
Supply voltage	90...245 VAC, 50...60 Hz
Power consumption	12 W
Dimensions (WxHxD)	90×160×60 mm
Weight	450 g
Operating temperature range	+5...+40 °C
Relative humidity (at 30 °C)	90 %
Degree of protection	IP20
Mounting type	DIN-rail, 9 modules
Interface, communication protocol	RS485, Modbus RTU
Type of sensors (not included in delivery kit)	TST01, TSP02, TSP03-D, TSW01, up to 4 pcs. PT100 sensors when using 24V thermal 4...20 mA signal converter(s)
Maximum sensor distance from the controller	1000 m for normalized signal 4...20 mA 100 m for temperature sensor TST01
Number of temperature measurement channels	8 channels: - 4 sensors TST01 (DS18S20) - 4 signals 4...20 mA
Number of precipitation and water measurement channels	6 channels: - 2 precipitation sensors - 4 water sensors
Number of control channels	4 channels (K1...K4) for pipe or roof heating or 3 channels for roof plus one for open area or 2 channels for roof plus 2 channels for open area or 2 channels for area heating 6A / 230 VAC, 50...60 Hz
Number of emergency channels	1 channel (K5) 6A / 230 VAC, 50...60 Hz
Number of indication channels	1 channel (K0) 3A / 230 VAC, 50...60 Hz
Color	Light-grey face enclosure Black enclosure base.

## Terminal Block Layout



## Approvals



## Types

Name	Order code
Electronic temperature controller PTM-2000	2120001000

## Accessories

Name	Order code
Temperature sensor TST01	2121001000
Precipitation sensor for roof and gutter TSP02	2121002000
Precipitation sensor for open areas TSP03-D	2121002001
Water sensor TSW01	2121003000
Power supply unit for precipitation sensors BPDO (required for TSP02 or TSP03-D)	2122001000