

Universal controller for electric heat tracing and other electrical heating systems with digital readout

- Proportional control
- Optimises heat tracing system safety
- Capable of controlling heating process temperatures between -50°C to +500°C
- Significant reduction in system operating costs
- Automatic over-temperature and under-temperature alarm with remote facility
- Password protected system settings with minimal date input by 4 fascia control keys
- Suitable for standard DIN rail mounting

**PURPOSE**

The POWERMATCH MICRO + controller is used to optimise safety and energy usage by means of "PowerMatching".

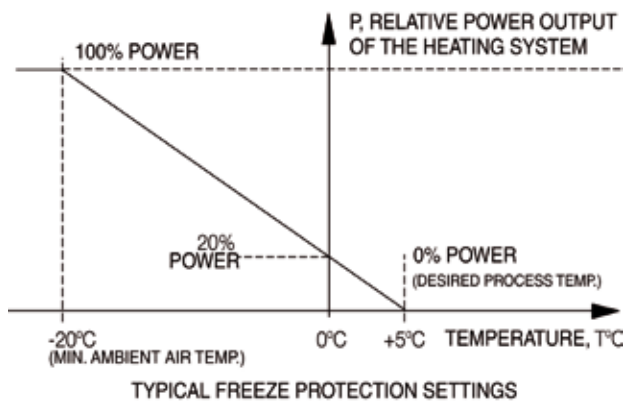
**PRINCIPLE OF OPERATION**

Conventional thermostats apply full power at a given set point temperature and switch OFF the power at a higher set point temperature, with no regard to actual energy required or heat losses.

POWERMATCH MICRO + is an electronic digital controller, having a Pt100 temperature sensor that monitors changes in air temperature (and hence heat losses) and then automatically adjusts the energy delivered to match the losses. POWERMATCH MICRO + is typically used for freeze protection, or temperature maintenance, of pipework and vessels. The unit is also available with an optional second sensor for monitoring pipe surface/process temperature.

Air, rather than pipeline sensing control, is particularly suited to complex piping installations, such as around pumping sets, where flow conditions can vary from one pipework section to another.

**This results in increased safety, significantly fewer controls and heating circuits, as well as considerable energy savings when compared with conventional thermostats.**



Performance characteristics are set by inputting the desired process temperature and the minimum anticipated ambient temperature, eg: -20°C = 100% and +5°C = 0% - as shown in the illustration. POWERMATCH MICRO + calculates the required temperature/energy profile.



**APPLICATIONS**

The POWERMATCH MICRO + controller is suitable for all electric heating systems where energy requirements are determined by the ambient air temperature. It may be used for either freeze protection, or process temperature maintenance applications. Signals are received from an ambient temperature sensor and from an optional second sensor measuring process temperature.

**RELIABILITY**

The preset operating data is retained in the memory indefinitely - even after loss of power supply. Protection from incorrect data input ensures correct system operation.

**EASY TO USE**

Details of the process temperatures (minimum and maximum) together with minimum ambient temperature, are all entered using the four control keys on the fascia.

**ENERGY SAVING**

Optimisation of heating requirements by self-regulation ensures up to 80-90% energy savings are achieved on winterisation applications. 50% savings are also possible on temperature maintenance applications. This operating function is provided by means of a Pt100 ambient temperature sensor.

Optionally, a second Pt100 sensor may be fitted to monitor surface temperature to provide a Low Temp alarm facility that automatically overrides the unit and applies full power to the heaters until the alarm condition abates. Similarly, if the High Temp alarm setting is exceeded, the unit program is over-ridden and power to the heaters removed until the temperature has fallen within safe limits.

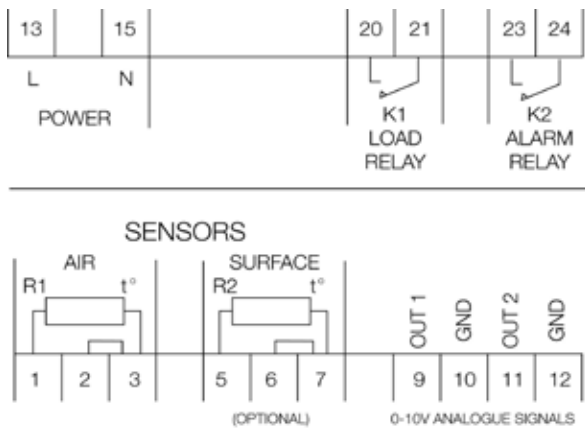
# SPECIFICATION

<b>UNIT TEMPERATURE LIMITS</b>	+5°C to +40°C
<b>MAXIMUM RELATIVE AIR HUMIDITY</b>	80% (at +35°C)
<b>POWER SUPPLY</b>	PMM+/2 - 230 VAC (nominal)
<b>OUTPUT RATING</b>	1 x 16A relay
<b>TEMPERATURE CONTROL RANGE</b>	-50°C to +50°C*
* (Temperatures in excess of 180°C require MI sensors - contact Heat Trace Limited)	
<b>SENSOR TYPE</b>	(2 wire) Pt100 Air Sensing (Optional line sensing)
<b>SENSOR CABLE LENGTH</b>	300mm (100 Ohms)
<b>WEIGHT</b>	272g (without sensors)
<b>DIMENSIONS</b>	68wide x 85high x 57deep
<b>CONSTRUCTION</b>	DIN rail mounting. Illuminated (LCD) panel with digital display and four control buttons.
<b>TERMINALS</b>	2.5mm <sup>2</sup>

## CONTROLLER CONNECTIONS

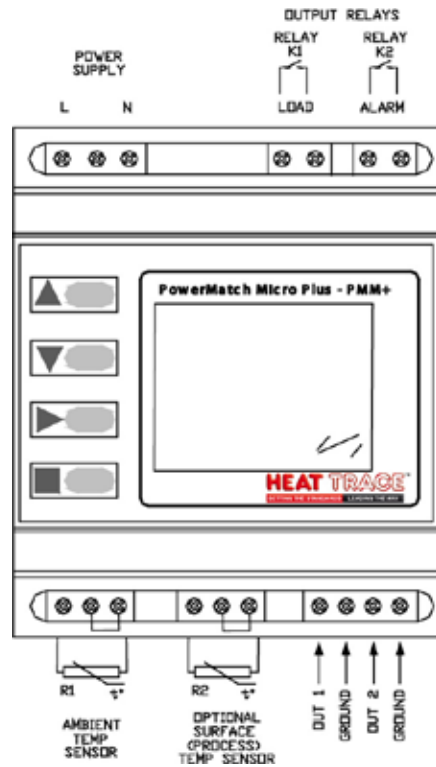
The controller is intended for installation inside an electrical control cabinet, or similar enclosure, DIN rail mounted.

Designation of the controller connection terminals is shown below:



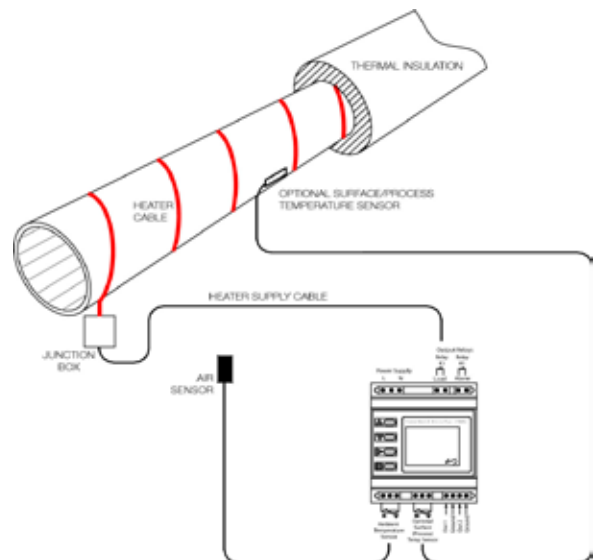
An analogue output signal with a voltage source of 0...10 V is taken from terminals 9-10 and 11-12 in accordance with their marking.

## CONNECTION & CONTACT OPERATION



## FEATURES

The operating temperature range of the controller is programmed by the user. Typical example of controller when used with a pipeline heating application.



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