

PM040 CE

Universal controller for electric heat tracing and other electrical heating systems

POWERMATCH Micro Power Matching System

- Digital self-regulation of energy and temperature
- Converts constant wattage heating systems to self-regulating systems
- Capable of controlling heating process temperatures between -50°C to $+80^{\circ}\text{C}$
- Digital indication of temperature
- Remote thermosensor distance up to 100m
- Automatic over-temperature and under-temperature alarm
- 115 VAC or 230 VAC (nominal) versions available
- Simple installation and setup procedure
- Suitable for standard DIN rail mounting

PURPOSE

The POWERMATCH MICRO controller is used as part of an electrical heating control system to optimise energy usage by means of digital system self-regulation.

PRINCIPLE OF OPERATION

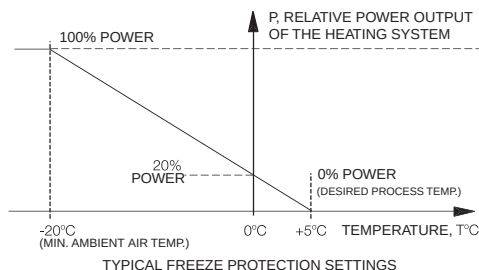
A conventional thermostat applies full power at a given set point temperature and switches OFF the power at some higher set point temperature, without regard to the actual energy required and the heat losses.

POWERMATCH MICRO adjusts the amount of energy supplied by the heater in response to changes in the outside air temperature and hence the heat losses, so as to match the energy supplied with the heat lost.

As a result, the temperature is maintained accurately with the power output to the heater being adjusted automatically to compensate for changes in the ambient temperature.

This can result in considerable energy savings when compared with a conventional thermostat.

Performance characteristics are set by inputting the desired process temperature and the minimum anticipated ambient air temperature, eg: $-20^{\circ}\text{C} = 100\%$ and $+5^{\circ}\text{C} = 0\%$ - as shown in the illustration. The POWERMATCH MICRO then calculates the required temperature/energy requirement profile.



BENEFITS

- Optimises heat tracing by self-regulating the system.
- Major reduction in system operating costs.
- Remote alarm facility in the event of malfunction.
- System settings are password protected.

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 a process temperature sensor.

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

Requires minimal data input. Details of the process temperature and the minimum ambient temperature are entered using the four control keys on the fascia. Digital data indication ensures ease of operation.

ENERGY SAVING

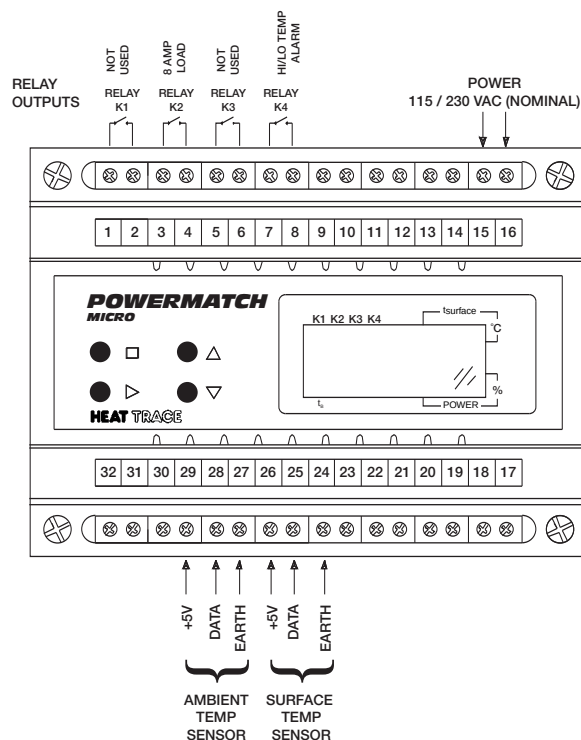
By fully optimising the heating requirements by system self-regulation, between 80-90% energy savings may be achieved on winterisation applications, and up to 40% savings may be possible on temperature maintenance applications.

SPECIFICATION

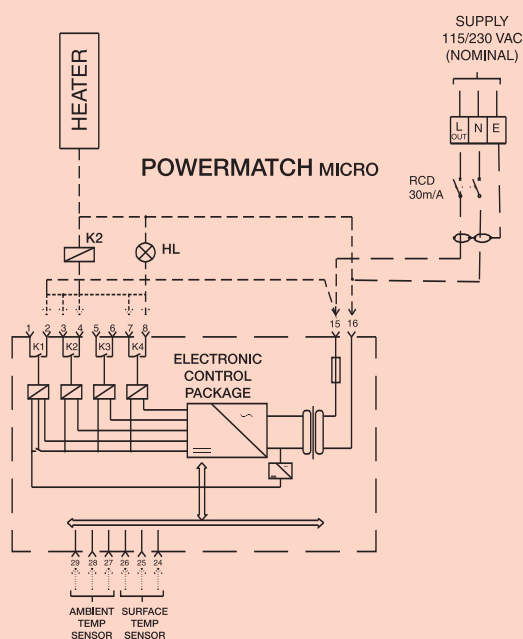
UNIT TEMPERATURE LIMITS	0°C to +50°C
MAXIMUM RELATIVE AIR HUMIDITY	80% (at +35°C)
POWER SUPPLY	PM040/1 - 115 VAC (nominal) PM040/2 - 230 VAC (nominal)
OUTPUT RATING	1 x 8A relay
TEMPERATURE CONTROL RANGE	-50°C to +80°C
SENSOR TYPE	TST01 (2 supplied)
SENSOR CABLE LENGTH	300mm
WEIGHT	450g
DIMENSIONS	105 x 90 x 66mm
CONSTRUCTION	DIN rail mounting. Illuminated (LCD) panel with digital display and four control buttons.
TERMINALS	2.5mm≈

CONTACT OPERATION

(normal condition of contacts with power supply off)

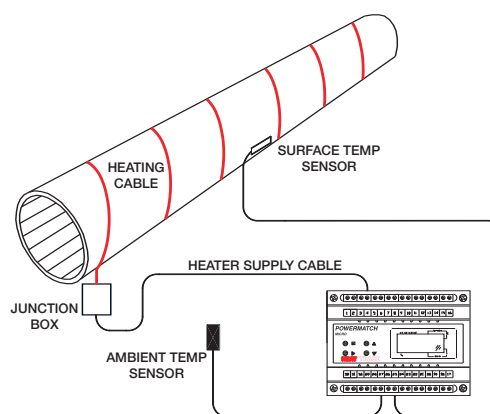


TYPICAL WIRING SCHEMATIC



FEATURES

The operating temperature range of the controller is programmed in by the user.



Typical example of controller when used with a pipeline heating application.

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Mere's Edge, Chester Road, Helsby, Frodsham, Cheshire, WA6 0DJ, UK.
Tel: +44 (0)1928 726 451 Fax: +44 (0)1928 727 846 www.heat-trace.com

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