



Programmable controller converts constant power into self-regulating heat tracing systems.

POWERMATCH
(PATENTED)

Self-Regulating Power Matching System

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- *Self-regulates heater output to match heat losses*
 - *Major energy savings*
 - *Reduced maximum demand*
 - *Lower operating temperatures - improved safety and heater life*
 - *Ambient and line control*
 - *Automatic power compensation linked to mains voltage fluctuation*
 - *Heat raising facility*
 - *High power capability*
 - *No in-rush currents on cold start-up*
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PRINCIPLE OF OPERATION

Heating loads are sized to cater for worst ambient conditions and therefore, are oversized for most of the time. Management of the excess heat directly affects energy consumption, maximum demand, temperature safety and heater life.

Conventional Control

A thermostat switches the oversized load on and off within a band above and below its set point (differential)

Expansion and contraction of the heater caused by thermal cycling eventually leads to failure.

The switching differential results in energy wastage, particularly during flow conditions, as the energised heater is always operating at maximum power and both the temperature and the load are higher than is really necessary.



POWERMATCH Control

Conversely, POWERMATCH turns the heater up or down as the ambient temperature changes, precisely matching the heater output with heat losses.

Heater life is extended as the heater is not cycling and usually operates below its rated output, also reducing maximum demand.

Operating costs are dramatically reduced - energy wastage is eliminated as there is no switching differential.

System safety is improved due to lower operating temperatures.

FEATURES

Self-Regulating, Programmable

Normally constant power heaters are programmed to deliver an infinitely variable self-regulated output to precisely match heat losses as they vary with ambient temperature.

Energy Savings up to 90%

In an Energy Efficiency Office Demonstration Project at a BP refinery, a POWERMATCH retrofitted to an existing process heating installation having conventional thermostatic control, produced energy savings of almost 70%

For freeze protection duties, snow melting and ice prevention installations, savings in the 80% - 90% range are likely compared with conventional on/off controls.

Improved Safety, Life and Reduced Maximum Demand

When delivering less than maximum rating, the heater operates at lower temperatures without cycling, increasing safety and heater life, and reducing maximum demand by approximately 65%.

Mains Voltage Compensation

Fluctuations in supply voltage up to $\pm 10\%$ are automatically compensated for. Hence, correct power is always delivered.

Stabilised Designs Possible

POWERMATCH drastically reduces maximum potential system temperatures, making possible "Stabilised Designs" which otherwise would not be possible.

Can be Monitored for Correct Operation

Unlike self-regulating heating cables, a POWERMATCH system can be monitored for correct heating function.

Dual Control

POWERMATCH can monitor the air temperature (for self-regulation of power) and the line temperature for fine tuning.

High Power Capability

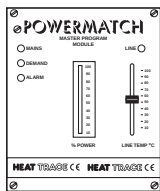
Output drives are solid state relays up to 60A/ph, or thyristor stacks up to 500A/ph at 600VAC. For higher currents/voltages, consult your local Heat Trace Representative.

SPECIFICATION

SUGGESTED SPECIFICATION

The power from the heater shall be automatically regulated to match the heat losses as changes in ambient temperature or voltage occur, by means of a POWERMATCH programmable self-regulating system, which shall ensure safe temperatures in accordance with International Standards.

TYPES	PMA	Used when minimum ambient temperature is 0°C or less.
	PMB	Used when minimum ambient temperature is above 0°C.
POWER SUPPLY	230VAC or 115VAC nominal, 50 - 60 Hz	
POWER CONSUMPTION	6VA	
INSTALLATION TEMPERATURE	Max.	50°C
	Min.	-20°C
OUTPUT SIGNAL	A low voltage d.c. signal for driving up to 6 solid state relays or 6 INTERPULSE interface units (see leaflet CPDS040).	
POWER CONTROL RANGE	0 to 100%	
TEMPERATURE SPAN RANGE	130°C	
NUMBER OF SETTINGS OF % POWER (@ 0°C)	64 (by two sets of switches mounted on PCB)	
POWER COMPENSATION	For voltage fluctuations up to ±10% of nominal.	
CONTACTS (ALARM RELAY)	Single Pole Changeover, volt free.	
ALARM FUNCTIONS	a) 0% or 100% power is demanded for 3 mins (approx) and/or... b) the internal d.c. supply to the POWERMATCH fails. User chooses a) or b) function.	
INDICATION	% power to load (meter) Mains 'ON' LED Load 'ON' LED (condition of line fine tune switch if used). Demand LED Alarm LED Alarm 5A c/o relay (volt free contacts)	
WEIGHT	0.65kg	
DIMENSIONS	Fascia: 128.5 x 106mm wide (For fitting into 19" rack) Rack depth overall: 270mm	



SENSOR CONNECTIONS

- a) Pt100 RTD ambient sensor
POWERMATCH is user programmed to self-regulate according to changes in sensed ambient temperature.
- b) Pt100 RTD line sensor
When required, an on board line sensor can also be connected, to provide on/off fine tune control.

FINE TUNE LINE CONTROL

PROPORTIONAL BAND	2°C
SET POINT ACCURACY	Approx. 1°C

SENSOR SPECIFICATION

DETECTOR
Platinum film to BS1904 & DIN43760

CONTAINMENT TUBE
Safe Areas - Sensors A or D
6mm dia x 50mm long stainless steel

Hazardous Areas - Sensor B
13mm dia x 80mm long stainless steel

LEAD
2 wire ptfe insulated x 1m long

LEAD PROTECTION
6mm OD Stainless Steel flexible conduit as standard.

SENSOR TYPES

- A Glanded Pt100 Sensor for use with a JB9000/RTD junction box
- B As 'A' above but for Hazardous Area use with a JB9000/RTD/EX junction box
- D Probe without flexible conduit, for use with a Conduit box

AVAILABLE OUTPUT DRIVES

- a) Solid state relays (up to 6 max.)
40SSR - 40A
60SSR - 60A
- b) Thyristor stacks (via Heat Trace INTERPULSE units)
(See leaflet CPDS130)

Single Phase		Three Phase	
SS1	65A	TS1	52A/ph
SS2	100A	TS2	100A/ph
SS3	170A	TS3	170A/ph
SS5	240A	TS5	260A/ph
Up to 500A @ 600VAC also available (consult factory). Rated at 40°C panel temperature.			

ORDERING CODE

(Example) PMA 2
POWERMATCH _____
Type A (min ambient ≤ 0°C) _____
220 - 240V Supply Voltage _____



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