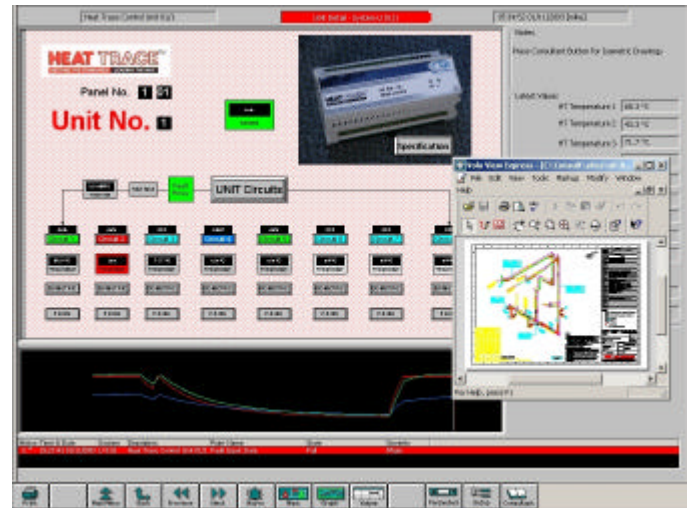


Flexible control system for reliably optimizing performance, operation, energy consumption, system life and safety of heat trace wiring

GUARDIAN Heat Tracing Control

- **Flexibility.** Modular hardware and software architecture to cater for small to very large Heat Tracing systems.
- **Performance** Accurate measurement and controls ensure constant product quality.
- **Operation** Comprehensive yet simple access to all plant information & ISO drawings.
- **Energy.** kWh consumption is continually monitored for panels and individual circuits. Efficient control minimizes energy consumption.
- **Safety** Current and temperature alarm measurements on each circuit detect and prevent unsafe heater conditions
- **Reliability** Comprehensive alarm diagnostics and high quality products facilitate minimal plant downtime.



System Overview

Guardian Heat Tracing Control

systems provide flexible, cost effective, integrated control solutions for plants that require from 4 to 4000 heater circuits.

HT919 Plant Control units monitor pipe temperatures and current, control the heaters and generate alarms for **eight** heat tracing circuits. The HT919 always controls autonomously, but may be network connected so that measured values and alarms may be simultaneously communicated to the *HTPM-8 Panel Monitor* and to a central supervisory '*Consultant*' or other PC based SCADA system.

HTM-8 Panel Monitors communicate with up to **eight** HT919 controllers and are mounted on the electrical panel door containing these controllers. This panel is also fitted with an optional power meter to measure the total kWh used by all the circuits associated with the electrical panel. The HTPM-8 panel monitor allows passcode protected adjustment of all controller settings and may be optionally connected to a local area network using Modbus RTU over TCP / IP protocol.

'**Consultant**' software provides central **Supervisory Control And Data Acquisition (SCADA)** facilities for the overall Heat Tracing plant installation.

Wide area network or direct modem access to the system allows a remote user to view all site information and modify settings and control modes for all controllers, provided the appropriate security password level has been entered.

Guardian Controls International Ltd.
56, Crewe Road, Sandbach, Cheshire, England CW11 4NN.

'Consultant'

Supervisory Control & Alarm Monitoring Software is a flexible management tool, which instantly tells you what you want to know, when you need to know, wherever you are.

It provides operators, managers and engineers with the information necessary to manage and run an efficient plant requiring Heat Tracing circuits.

Simplicity Simple, intuitive, icon button operation provides animated mimics, alarm details, alarm archives, event logs, history graphs, system settings and associated documents and drawings for all heat tracing circuits.

Accuracy Reliably records detailed alarm information, accurate measurements of temperature, current, kWh energy and circuit operation mode for the last year at one minute intervals.

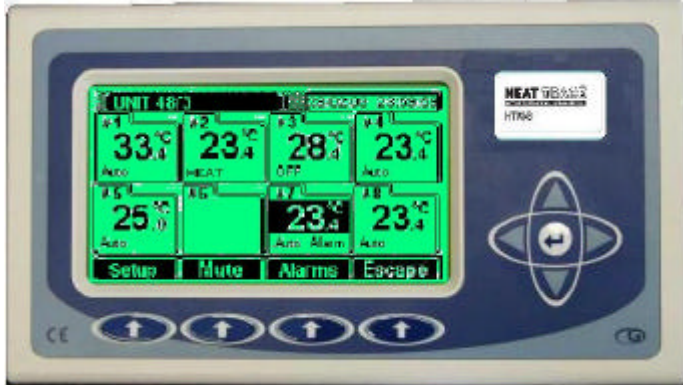
Flexibility Windows XP operating system, networking communications, modular control hardware, scaleable architecture and application structures anticipate future user facility and communication requirements.

Accessibility Local, wide area network or modem access of all management, alarm and graphical information is instantly available.

Integrity For increased system integrity, the supervisory software may be run simultaneously on two PCs. The HT919 controllers are totally autonomous and will continue to perform heating control without any central supervision. Integrity can be further enhanced by installation of Internet Protocol interfaces to the HTPM-8 units in each Electrical panel allowing connection to local area networks.

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Guardian HTM-8 Heat Tracing Monitor



This LCD monitor panel provides the local operator interface for value display, parameter setup and alarm monitoring of up to **sixty-four** Trace Heating control circuits via **eight** HT919 controllers.

Easily read, large character LCD displays of temperature and alarm states immediately highlight any abnormal plant operating conditions.

Optional internet protocol (IP) facilities allow Local Area Network (LAN) connection to the internet for remote TCP/IP monitoring, email alarm messages and web page displays

- Overview & alarm status for eight HT919 units.
- Large LCD displays for circuit temperature values.
- Detail display for each circuit shows temperature, alarm status, heater state, kWh and load current.
- Alarm List with date, time and alarm description of out of limit measured values or fault inputs.
- Simple cursor and menu selection for local setup of individual Circuit Setpoints, Limits & Control Mode.
- RS485 Modbus communications of all settings and values to remote supervisory PC.
- Optional rail mounting Internet Protocol module provides Modbus over TCP / IP and HTTP for Web pages and Email alarm messages.

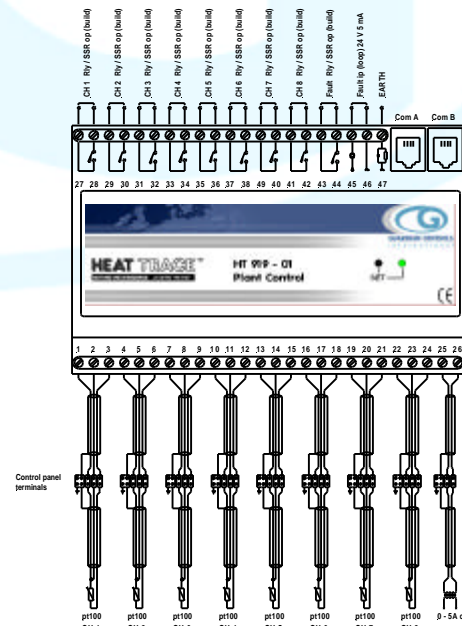
Heat Trace HT919 Plant Control

Provides accurate measurement and energy efficient control for **eight** Heat Trace circuits.

The temperature of each heating circuit, measured by a PT100 probe, is compared against pre-set control setpoint limits and used to switch the heater relay ON and OFF.



Periodically the current consumed by each circuit is sequentially measured and the kWh energy calculated. Fault input, out of limit values of temperature and load current generate the appropriate alarm status and warnings. All values, states, control mode and alarm conditions are communicated to the local HTPM-8 display and / or a remote supervisory PC using RS485 Modbus RTU protocol.



SPECIFICATIONS	HTPM-8 Panel Monitor	HT919 Plant Controller		
Power	24 V dc	24 V dc	Analog Inputs	
Operation	0 to 50 C	0 to 50 C	0-5A	1 current from CT
Dimensions	Height Length Depth	125 mm 210 mm 45 mm	3-wire PT100	8 PT100 temperatures -100.0 C to +250.0 C
Mounting	Door Cutout 115 x200 mm	Rail Mounting	Fault Input	1 Fault Contact closure
Communications Links	COM A, COM B Modbus RS484 @ 19200 baud	COMA, COMB 4-way sockets	Relays 5A 230vac	8 Heater outputs (n/o)
Approvals	CE			1 Alarm relay (n/o)