GRD CE

Computer assisted data aquisition for optimising performance, energy efficiency and system life.

GUARDIAN

Intelligent Heat Tracing Controller

- *Mimics of isometric, P&ID or circuit layout*
- *Trend analysis of temperature, energy, etc.*
- *Performance and Alarm reports*
- *Alarm for circuit damage, temperature current variants*
- *Calculations for optimum performance*
- *Plant DCS/SCADA system compatible*

- *Local/remote calibration for optimum performance*
- *Major energy savings*
- *Reduced maximum demand*
- *Heater life significantly increased*
- *Optimum safety*
- *Constant surveillance of system integrity*

SYSTEM DESCRIPTION

What is it and what is it for?

GUARDIAN is a computer assisted energy management and auditing system for large or critical heat tracing installations where optimum safety, energy efficiency, system integrity or system life may be desirable.

Application examples are nuclear installations (reliability), hazardous areas (safety), or high power installations (efficiency).

What does it comprise?

GUARDIAN is a SCADA package configured specifically for electric heat tracing installations. The system comprises software designed to run on a computer running a Windows operating system. The result is a fast, high power system which can stand alone or be integrated into an existing plant SCADA or DCS system.

What does it do?

GUARDIAN receives RTD temperature and alarm contact status signals from Heat Trace's temperature and energy management controls and circuit health monitoring equipment. Information may then:

- displayed graphically in a variety of formats
- converted into trend and performance reports
- depicted as an alarm or as an alarm report
- disseminated and a forecast produced for re-calibration of control equipment to optimise energy efficiency maximum demand, temperature safety, and heater/system life.

Does computer failure affect system operation?

Computer failure does not comprise system operation or integrity which remains under the control of Heat Trace's modular control and monitoring instrumentation.

Data will not be transmitted/stored during computer failure.

Configuration

The GUARDIAN system may be configured locally using a stand alone programmer/laptop computer, or remotely via P.C.

Optimum Performance

Optimum performance is achieved when:

- the required temperature is maintained precisely without a switch differential
- the heater always delivers precisely the power output to compensate for heat losses, ie. power is turned up or down according to requirements .

When these conditions have been achieved, when used in conjunction with POWERMATCH;

- there is no energy wastage
- the heater always delivers less than its rated output, thereby operating at lower, and hence, safer temperatures
- ON/OFF switching with its attendant expansion/contraction is eliminated. Combined with lower operating temperatures, heater life is radically increased.
- energy consumed is virtually always less than the installed load, therefore maximum demand is optimised...

Producing...

Optimum performance, energy efficiency and system life

SPECIFICATION

ELECTRICAL SPECIFICATION

POWER SUPPLY
230/110VAC @ 15VA

RELAY
Non heat load carrying. 2A rated
(can be used to switch contactors)

DISPLAY
Type SKD9 external LED
4 digit, 4 push button and key
6 way RJ11 socket

**MEASUREMENT
(8 CHANNELS)**
Pt100 3 wire excitation current
Range -50 to +250°C
Resolution 0.1°C
Fixed terminals (+:-: GND)

ANALOGUE SYSTEM
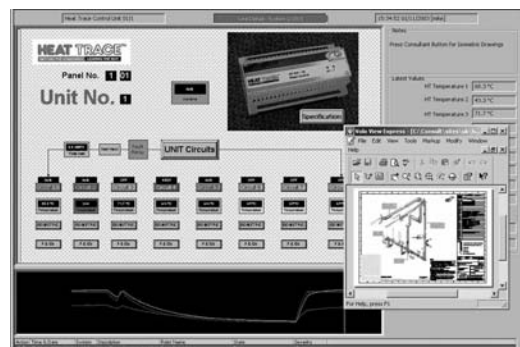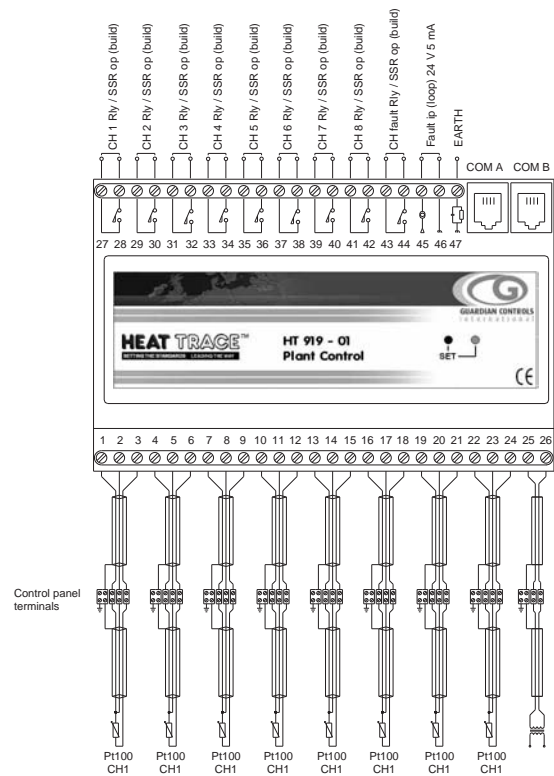8 Channel, 12 bit, 50kHz

APPROVALS
LVD/CE

MECHANICAL SPECIFICATION

ENCLOSURE
DIN rail mounting

COLOUR
Base - Black
Top - Grey

DIMENSIONS
86mm (h) x 156mm (w) x 59mm (d)

TEMPERATURE
0 - 40°C non-condensing

CONTROL SPECIFICATION

CHANNELS
8 Independant

THEORY
Setpoint + PID Loop

PARAMETERS
Setpoint (-50 to + 250°C)
P Gain (0 - 100%)
I Gain (0 - 100%)
D Gain (0 - 100%)
Loop Period (0 - 100%)
Output Period (0 - 100%)
Channel "In Use" (Yes/No)
Current Monitoring - user settable
for time and value (0 - 100%)

ALARM LIMITS
High level (-50 to +250°C)
High level timeout (0 to 250 mins)
Low level (-50 to +250°C)
Low level timeout (0 to 250 mins)
Current value set (0 - 100%)
Alarm "In Use" (Yes/No)

OUTPUTS
Automatic (Normal mode)
Force Output "ON"
Force Output "OFF"

COMMS SPECIFICATION

RS485
Two wire half dupley using
"Modbus" protocol
Normally at 9600 Baud
Ground referenced
3 way plugable terminal block

Facilities to send/receive all measured
values, digital states,
parameters, overrides, etc.

**ETHERNET
(OPTIONAL)**
RJ45 10 Base T
UDP IP SNMP Interface
facilities to send/receive all
measured values, digital states,
parameters, overrides, etc.

Send asynchronous events (traps)
configurable via a DHCP server

CPDS270 07/02