

MasterTrace Heat Tracing Systems are designed to be the very best in electrical heat trace control and monitoring for industrial applications.

Custom engineered control panels designed to your specific requirements incorporate the unequalled quality, reliability and monitoring of HTS MasterTrace custom designed control panels.

The best in monitoring, MasterTrace Heat Tracing Systems maximize the performance and reliability of any electrical heat tracing application. Sensing all critical heat trace variables and using the advanced algorithms of its microprocessor. MasterTrace controllers warn you of potential problems before they become critical and maintain your heat trace system 24 hours a day, 365 days of the year.

MasterTrace controllers continuously monitor your heat tracing system and provides you with user-settable alarms for temperature, heater current and ground fault current, all independent of the trip levels.

Your heat tracing system is critical to your plant operations so MasterTrace Systems are designed to perform self-check monitoring on all RTD's and switches.

To further ensure that your heat trace works when you need it, MasterTrace TraceCheck feature periodically energizes and checks for alarm conditions on all dormant lines and latches onto alarm functions.



CONFIGURATIONS BUILT TO INDIVIDUAL CUSTOMER NEEDS

- Stand Alone Control or Multi-Point Control Panels
- Custom Configured Software Interface for Local, Remote, or Centralized Control and Monitoring

ADVANTAGES

- Custom Engineered Control Panels
- Easy to Read Interface
2x16-character Alphanumeric Display, Field Mounted or Remote Mounted
- RS 485 Serial Port Connections
- TraceCheck Early Warning System
- Power Limiting
- Load Shedding
- Solid State or Mechanical Switching Units
- Plant Wide Windows-Based Monitoring Software
- Links to PLC's or DCS
- Custom Engineered Software Designs



Advanced Control

The advanced features of MasterTrace allows it to handle single-phase to three-phase heat trace applications with switch ratings up to 100A@ 600VAC. Integral user-settable Ground Fault test functions lets you know if Ground Fault monitoring is functioning properly. RTD inputs (dual RTD inputs available) have a user-settable fail-safe strategy. A Master Override input allows for external control for load-shedding or ambient control.

Friendly Interfacing

MasterTrace interfaces make interrogation and programming easy for all MasterTrace controllers:

Two Choices are available:

1. Local interface (ML100)
2. Remote interface (MR100)

ML100 communicates with a single controller of up to 10 circuits and up to five feet away. MR100 communicates with multiple controllers, up to 30 controllers or 300 circuits to a maximum of 4,000 feet without repeaters.

Energy Management

Operators have many reasons to reduce their environmental impact yet may be missing substantial opportunities to become greener without making significant investments. Opportunities for energy savings are in, perhaps, the most obvious of places, the plant. Monitoring energy and energy costs are the starting points and MasterTrace provides you with the tools through the measured values of: Heater Utilization, Power Consumption (MWh), and Operating Costs (\$0 to \$1,000,000).

A system With a Future

MasterTrace is the most complete system of heat tracing controllers. MasterTrace can handle all of your heat trace control requirements and is the only heat trace system that offers Local, Group and Central Computer Interface (See MC100).

MasterTrace combines the power and flexibility you need today with the ability to expand to meet your needs for the future.

MC100 Centralized Monitoring

For plant wide monitoring, MasterTrace's MC100 for windows software package provides programming and monitoring for MasterTrace heat tracing controllers on your PC. Process set points and alarm levels are programmed for each heater through the computer keyboard reducing data entry on large systems. Set point programming and configuration functions are password protected to restrict access. By connecting individual MasterTrace modules or panels together, heat tracing throughout an entire plant can be programmed and monitored from a single location.

FEATURES & BENEFITS

TraceCheck Early Warning

Alerts operators to problems even when the circuit is not in use.

Modbus Protocol

Allows easy interfacing with our MC-100 software or PLC and DCS systems.

Alarm Outputs

Common alarms alerts users to problem.

Centralized Interfacing

No need to move around the plant. All variables are monitored at a single location.

STATISTICS MONITORING

Save energy by monitoring peak demand times.

Staggerstart

Limits initial start up power.

Proportional Control

Provides tight process temperature control.

MASTERTRACE PRODUCT SPECIFICATIONS



Approvals

Mechanical:	CSA Ordinary (General Purpose) area
Solid-State:	CSA Class I, Division 2, Group A, B, C, D CSA Class, Zone II, Group II C
Alarm Output:	No and NC programmable contacts
Alarm Output Rating:	Mechanical: 1.0 A @ 120VAC max. (ordinary areas) 10 mA @ 30VAC max. (hazardous areas) Solid-state: 0.1A @ 30VAC max.
Control Power:	120 VAC
Switch Rating:	Internal: 30A @ 280VAC max. External: 100A @ 600VAC max.
Temperature Input:	One or two 100, platinum, 3-wire RTD per point, 20 max. lead resistance $\pm 0.2A$ accuracy over $-50^{\circ}C$ to $+500^{\circ}C$
Heater Current Input:	One current transformer per point $3\% \pm 0.2A$ accuracy over 0.01 to 3.0A
Operating Range:	$-40^{\circ}C$ to $+60^{\circ}C$ (LCD screen $-20^{\circ}C$ to $+60^{\circ}C$) VFD vacuum fluorescent display $-30^{\circ}C$ to $+60^{\circ}C$
Communication Ports:	(1) Parallel local interface connection (2) Serial network connection

Serial Communications

Type:	RS 485
Protocol:	Modbus RTU
Transmission Rate:	1200-9600 baud
Interconnect:	2-wire, shielded, twister pair
Highway Distance:	4,000 feet without a repeater Module Per
Modules per Highway:	(1) Interface and (30) control modules

Measured Values

Temperature:	$-50^{\circ}C$ to $500^{\circ}C$ ($-58^{\circ}F$ to $932^{\circ}F$)
Minimum Temperature:	$-50^{\circ}C$ to $500^{\circ}C$ ($-58^{\circ}F$ to $932^{\circ}F$)
Maximum Temperature:	$-50^{\circ}C$ to $500^{\circ}C$ ($-58^{\circ}F$ to $932^{\circ}F$)
Heater Current:	1.0A to 100A
Heater Percent Power:	0 to 100%
Peak Heater Current:	1.0A to 100A
Ground Fault Current:	0.01A to 1.0A
Heater Utilization:	0 to 100%
Power Consumption:	0 to 1,000 MWh
Operating Cost:	\$0 to \$1,000,000

Alarm Messages

Temperature:	High temperature alarm Low temperature alarm
Current:	High current alarm Low current alarm High current trip
Ground Fault Current:	Ground fault current alarm Ground fault current trip
TraceCheck:	Switch shorted High current alarm Low current alarm High current trip Ground fault current alarm Ground fault current trip
Hardware:	Self-check failure, switch shorted RTD open, RTD shorted

User-Settable Options

Heater Status:	Enable or disable
Heater Name or Tag:	16-character alphanumeric
Temperature Units:	$^{\circ}C$ or $^{\circ}F$
Control Strategy:	On-off or proportional
Deadband:	$0^{\circ}C$ to $50^{\circ}C$ ($0^{\circ}F$ to $90^{\circ}F$)
Stagger Start:	ON or OFF
Power Limit:	1.0A to 100A
Temperature Setpoint:	$0^{\circ}C$ to $500^{\circ}C$ ($32^{\circ}F$ to $932^{\circ}F$)
High Temperature Alarm:	$0^{\circ}C$ to $500^{\circ}C$ ($32^{\circ}F$ to $932^{\circ}F$)
Low Temperature Alarm:	$-50^{\circ}C$ to $500^{\circ}C$ ($32^{\circ}F$ to $932^{\circ}F$)
High Current Alarm:	1.0A to 100A
Low Current Alarm:	1.0A to 100A
High Current Trip:	1.0A to 100A
Ground Fault Alarm:	0.01A to 1.0A
Ground Fault Trip:	0.01 A to 1.0A
TraceCheck Interval:	1 to 24 hours
RTD Fail-Safe:	Heater on or heater off
Master Override:	ON or OFF
Alarm Contacts:	No or NC for each contact
Alarm Light:	Alarm on, alarm off Flash during alarm then on Flash during alarm then off



Panel

[01p] - Enclosed modular control unit with integrated micro processing and distribution capabilities

Type

[01t] - Freeze protecting application type, ambient temperature sensing capabilities

[02t] - Process maintaining application type, line temperature sensing capabilities

[00t] - Other application type

Enclosure

[01e] - NEMA 4x, stainless, 1 door (48" w, 60" h, 12" d) mounted enclosure

[02e] - NEMA 4x, stainless, 2 doors (36" w, 48" h, 12" d) standing enclosure

[00e] - Other enclosure

Circuits

[10c] - Greater than 00 circuit count, less than 11 circuit count

[20c] - Greater than 10 circuit count, less than 21 circuit count

[30c] - Greater than 20 circuit count, less than 31 circuit count

[40c] - Greater than 30 circuit count, less than 41 circuit count

[00c] - Other circuit count

Amps (Breaker)

[050a] - 50a (120/208v 3p, 120/240v 1p, 277/480v 3p)

[100a] - 100a (120/208v 3p, 120/240v 1p, 277/480v 3p)

[225a] - 225a (120/208v 3p, 120/240v 1p, 277/480v 3p)

[00a] - Other amperage

Volts (Line)

[01v] - 208/120 vac, 3 phase 4 wire

[02v] - 240/120 vac, 1 phase 3 wire

[03v] - 480/277 vac, 3 phase 4 wire

[00v] - Other vac

Job (Number)

[#####j] - Externally generated project code

Unit (Number)

[#####u] - Sequentially determined identifier

Special

[a] - Purge system

Format: **Panel-Type-Enclosure-Circuits-Amps-Volts-Job-Unit-Special**

Format: **[01p]-[01t]-[01e]-[10c]-[050a]-[01v]-[#####j]-[#####u]-[as applicable]**

Example: *01p-01t-01e-10c-050a-01v-1234j-001u-a*

PANEL SERIAL NUMBER (Must include hyphens):