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 unequaled quality and reliability of Nextron’s MasterTrace control modules.

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, Nextron’s TraceCheck™ feature periodically energizes and checks for alarm conditions on all dormant lines and latches onto alarm functions.
MasterTrace Advantages

**Advanced Control**
The advanced features of MasterTrace allow it to handle single-phase to three-phase heat trace applications with switch ratings up to 100A@600VAC. Integral user-settable ground fault trip protects your heat trace without costly ground fault breakers. The user-settable Ground Fault test function 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.

**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).

**Features and Benefits**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tr>
<td>TraceCheck™ Early Warning</td>
<td>Alerts operators to problems even when the circuit is not in use.</td>
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<tr>
<td>Modbus® Protocol</td>
<td>Allows easy interfacing with our MC-100 software or PLC and DCS systems.</td>
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<td>Alarm Outputs</td>
<td>Common alarm alerts users to problems.</td>
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<td>Centralized Interfacing</td>
<td>No need to move around the plant. All variables are monitored at a single location.</td>
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<td>Statistics Monitoring</td>
<td>Save energy by monitoring peak demand times.</td>
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<td>Staggerstart</td>
<td>Limits initial start up power.</td>
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<tr>
<td>Proportional Control</td>
<td>Provides tight process temperature control.</td>
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**Friendly Interfacing**
MasterTrace interfaces make interrogation and programming easy for all MasterTrace controllers.

Two choices are available:
- Local Interface (ML100)
- 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.

**A System With a Future**
MasterTrace is the most complete system of heat tracing controllers. MasterTrace can handle all your heat trace control requirements and is the only heat trace system that offers Local, Group and Central Computer Interfaces (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, Nextron’s MC100 for windows software package provides programming and monitoring for MasterTrace heat tracing controllers on your PC. Process setpoints and alarm levels are programmed for each heater through the computer keyboard reducing data entry on large systems. Setpoint 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.
MasterTrace Product Specifications

USER-SETTABLE OPTIONS

Heater Status: Enable or disable
Heater Name or Tag: 16-character alphanumeric
Temperature Units: °C or °F
Control Strategy: On-off or proportional*
Deadband: 0º to 50ºC (0ºF to 90ºF)
Stagger Start:* On or off
Power Limit:* 1.0A to 100A
Temperature Setpoint: 0ºC to 500ºC (32ºF to 932ºF)
High Temperature Alarm: 0ºC to 500ºC (32ºF to 932ºF)
Low Temperature Alarm: -50ºC to 500ºC (32ºF to 932ºF)
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: 0.01A 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

* Available on solid-state modules only

APPROVALS

Mechanical: CSA ordinary (general purpose) areas
Solid-State: CSA Class I, Division 2, Group A, B, C, D
CSA Class I, Zone II Group IIC
Alarm Output: NO and NC programmable contacts
Alarm Output Rating: Mechanical: 1.0A @ 120VAC max. (ordinary areas)
10mA @ 30VAC max. (hazardous areas)
Solid-state: 0.1A @ 30VAC max.
Control Power: 120VAC
Switch Rating: Internal: 30A @ 280VAC max.
External: 100A @ 600VAC max.
Temperature Input: One or two 100Ω, platinum, 3-wire
RTD per point, 20Ω max. lead resistance
± 0.2A accuracy over -50ºC to +500ºC
Heater Current Input: One current transformer per point
3% ± 0.2A accuracy over 1.0A to 100A
Ground Fault Input: One current transformer per point
5% ± 2mA accuracy over 0.01 to 3.0A
Operating Range: -40ºC to +60ºC (LCD screen -20ºC to +60ºC)
VFD vacuum fluorescent display
-30ºC to +60ºC
Communication Ports: (1) Parallel local interface connection
(2) Serial network connections

SERIAL COMMUNICATIONS

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

MEASURED VALUES

Temperature: -50ºC to 500ºC (-58ºF to 932ºF)
Minimum Temperature: -50ºC to 500ºC (-58ºF to 932ºF)
Maximum Temperature: -50ºC to 500ºC (-58ºF to 932ºF)
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

* Available on solid-state modules only
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