NEXTRON

MASTERTRACE

HEAT TRACE CONTROLLERS

- Available in One, Two, Five and Ten point modules.
- One easy to read interface for all Heat Tracing circuits.
- 16 character alphanumeric display field mounted or remote mounted.
- Panel Assembly in Nextron's CSA approved facility.
- Custom Panel Configurations Available.
- Modbus® Communications.
- RS 485 Serial Port Connections.
- TraceCheck™ Early Warning System.
- Power Limiting.
- Load Shedding.
- Solid State or Mechanical Switching Units.
- Available Windows based software.
- Links to PLC's or DCS.

A QUALITY COMPANY

ISO 9001 REGISTERED

MASTERTRACE HEAT TRACING SYSTEM

The MasterTrace System provides modular heat tracing control and monitoring for industrial plants, to minimize expensive process shutdowns. When the MasterTrace system is used for control and monitoring of electric heat tracing, reliable operation with timely warnings of faults and fault diagnosis is obtained. Costly problems such as fire hazards due to ground fault or burst pipes can be effectively eliminated. MasterTrace also minimizes the amount of energy required to operate electric heat tracing systems. Available three phase power allows monitoring of the longest lines of heat tracing.

Different configurations available to suit individual customer needs include:

- stand alone controller
- stand alone controller with local display
- stand alone controllers with a central monitor
- multi-point panels with an optional computer interface.

MONITORING AND CONTROL

MasterTrace maximizes the performance and reliability of all types of heat tracing. With switch ratings to 100A @ 600 Vac the MasterTrace System can control the longest lines of heat tracing. Available solid state switching allows for installation in Class 1, Div II, Groups A, B, C, D and Class 1, Zone 2.

MasterTrace provides alarms for all commonly encountered problems in heat tracing. Low and high temperature alarms, low and high current alarms and low and high ground fault alarms. Separate current and ground fault current trips are also part of the MasterTrace package.

The MasterTrace System is designed to flatten the high inrush experienced by the self regulating cable. The TraceCheck energizes dormant circuits and latches onto alarm functions.

Advanced features include available powerlimiting† and load shedding and proportional control features.† For added security the MasterTrace system is self diagnostic.

MR100 / ML100 DISPLAY / INTERFACE

The MR100 / ML100 are display interfaces for MasterTrace controllers. Both displays are designed for mounting on the exterior of an enclosure so that the user can operate the module without opening the panel door.

The MR100 interfaces with up to 30control modules via RS 485 twisted pair serial communication for maxiumum distances of 4,000 feet. It can be used as a local display for multi-point panels or as a remote display in control room monitoring.

The ML100 provides a parallel interface to a single controller as a local display. Both interfaces are NEMA 4x rated for Class 1 Div II groups A, B, C, D and Class 1 Zone 2.

MC100 SOFTWARE PACKAGE

For plant wide monitoring the MC100 for windows software package provides programming and monitoring for MasterTrace heat tracing controllers on a 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.

CUSTOM WORK

MasterTrace's modular design allows for custom systems to be assembled using our 1,2, 5 and 10 point modules. Nextron factory technicians can design and build panels in our CSA approved panel shop.

Note: Dual RTD inputs available

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MASTERTRACE PANEL SELECTION GUIDE

Catalog Number i)	# of circuits	–	-	-	-	–	-	-
Switch Type								
• 1-pole, external solid state		S X H						
• 2-pole, external, solid state		D X H						
• 2-pole, internal mechanical		D I N						
• 2-pole, external mechanical		D X N						
Switch Rating								
• No Switches ii)			0					
• 30A, 280Vac switches iii)			2					
• 50A, 280Vac switches iv)			3					
• 100A, 280Vac switches iv)			4					
• 30A, 600Vac switches ii)			5					
• 50A, 600Vac switches ii)			6					
• 100A, 600Vac switches ii)			7					
Controller Options								
• 2nd RTD				R				
Enclosure Options								
• NEMA 4, Epoxy painted Steel					E 1			
• NEMA 4X F.R.P.					E 2			
• NEMA 4X Stainless Steel					E 3			
Display/Interface Options								
• Local display/interface, no shroud						D 1		
• Local display/interface, with shroud						D 2		
• Group display/interface, no shroud						D 3		
• Group display/interface, with shroud						D 4		
Control Power Voltage								
120VAC							Blank	
208VAC							X1	
240VAC							X2	
277VAC							X3	
480VAC							X4	
600VAC							X5	
Purging								
NON-CLASSIFIED TO CLASS I, DIV I (Mechanical Switch)								XP
CLASS I, DIV II TO DIV I (Solid-State Switch)								YP
NON-CLASSIFIED TO CLASS I, DIV II (Mechanical Switch)								ZP
• Switch rating subject to derate against operating ambient								
• Temperature, Contact factory for derating information								

Notes: i) Shaded fields are mandatory ii) All except DIN models
iii) All exccept DXN models iv) Models SXH and DXH only

MASTERTRACE SPECIFICATIONS

EQUIPMENT

Approvals

Mechanical: CSA Ordinary Areas.

Solid-state: CSA Class 1, Division II, Group A,B,C,D
CSA Class 1, Zone 2 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: 120 Vac.

Switch Rating: Internal: 30A @ 280Vac max.
External: 100A @ 600Vac max.

Temperature Input: One or two 100Ω, Platinum, 3-wire, RTD per point,
20Ω maximum lead resistance.
↑ ±1°C accuracy over -50°C to +350°C.

Heater Current Input: One current transformer per point.
3% ± 0.2A accuracy over 1.0 to 100A.

Ground Fault Input: One current transfer per point.
5% ± 2mA accuracy over 0.01 to 3.0A.

Operating Range: -40°C to +60°C

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 repeater

Modules per Highway: (1) interface and (31) Control Modules.

† Available on solid-state models only.

MEASURED VALUES

Temperature: -50° to 350°C (-58 to 662°F)
Minimum Temperature: -50° to 350°C (-58 to 662°F)
Maximum Temperature: -50° to 350°C (-58 to 662°F)
Heater Current: 1.0 to 100A
Heater Percent Power 0 to 100%
Peak Heater Current: 1.0 to 100A
Ground Fault Current: 0.01 to 1.0A
Heater Utilization: 0 to 100%
Power Consumption: 0 to 1,000 MWh
Operating Cost: 0 to $1,000,000.00

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

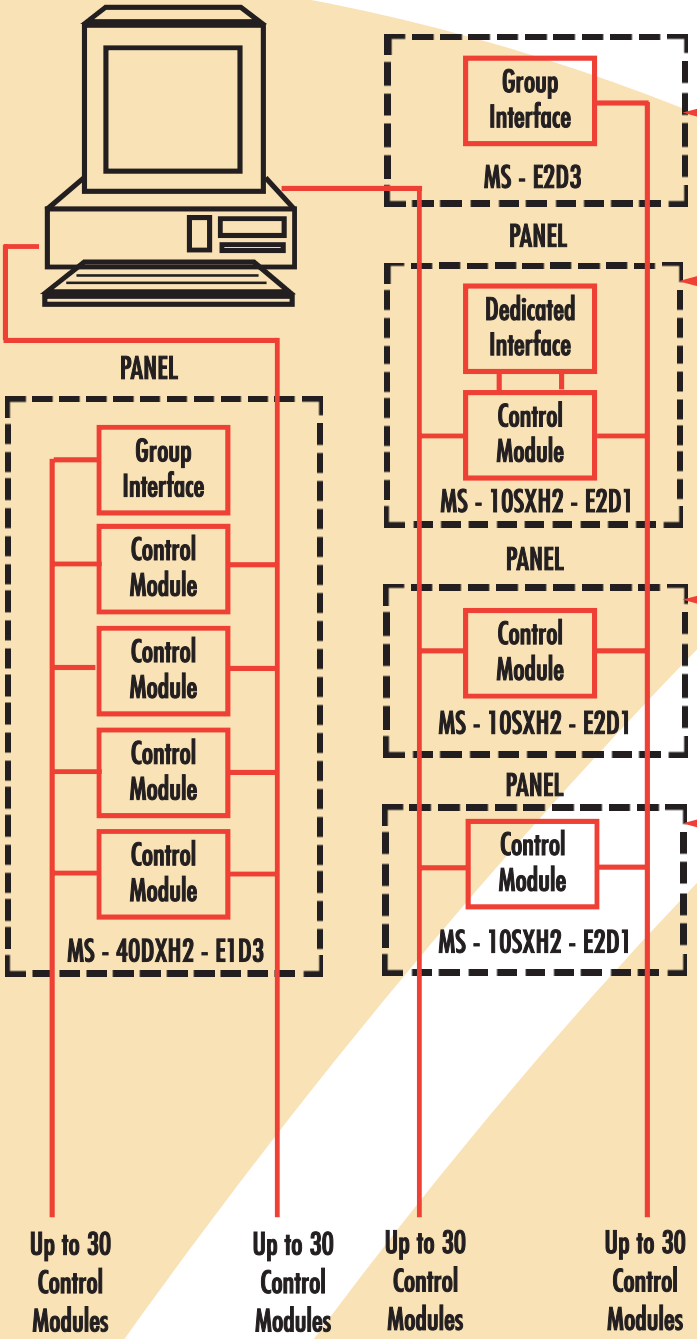
TraceCheck: Switch Shorted
High Current Alarm
Low Current Alarm
High Current Trip
Ground Fault Current Alarm
Ground Fault Current Trip

Hardware: Self-Check Failure, Switch Shorted
RTD Open, RTD Shorted

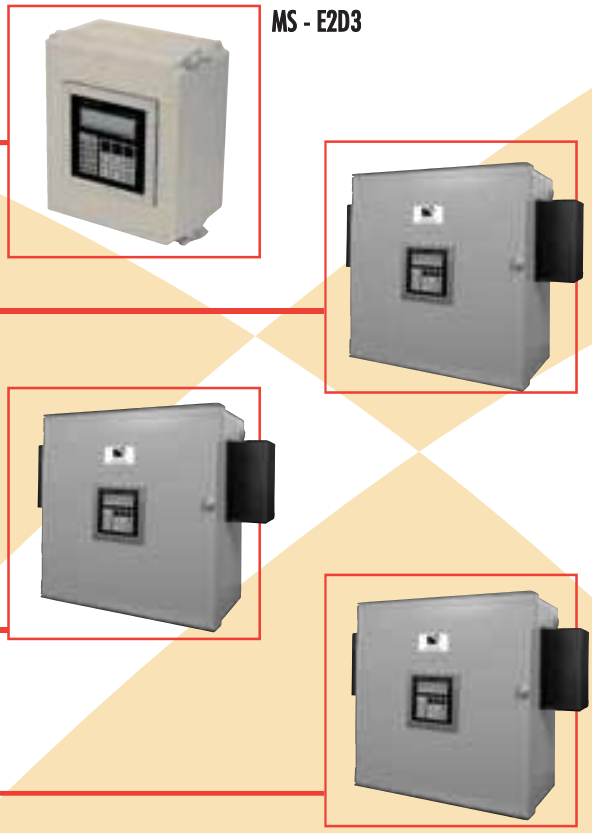
USER-SETTABLE OPTIONS

Heater Status: Enable or Disable
Heater Name or Tag: 16 Character Alphanumeric
Temperature Units: °C or °F
Control Strategy: On-Off or Proportional†
Deadband: 0 to 50C° (0-90F°)
StaggerStart†: On or Off
Powerlimit†: 1 to 100A
Temperature Setpoint: 0 to 300°C (32 to 572°F)
High Temperature Alarm: 0 to 300°C (32 to 572°F)
Low Temperature Alarm: -50 to 300°C (-58 to 572°F)
High Current Alarm: 1 to 100A
Low Current Alarm: 1 to 100A
High Current Trip: 1 to 100A
Ground Fault Alarm: 0.01 to 1.0A
Ground Fault Trip: 0.01 to 1.0A
TraceCheck Interval: 1 to 24 hr.
RTD Fail-safe: Heater On or Heater Off
Master Override Input: 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

MASTERTRACE NETWORK



TYPICAL MASTERTRACE PANELS



FEATURES	BENEFITS
Built in GFI	Eliminates need for expensive ground fault breaker.
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 Alarm alerts users to problems.
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.

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