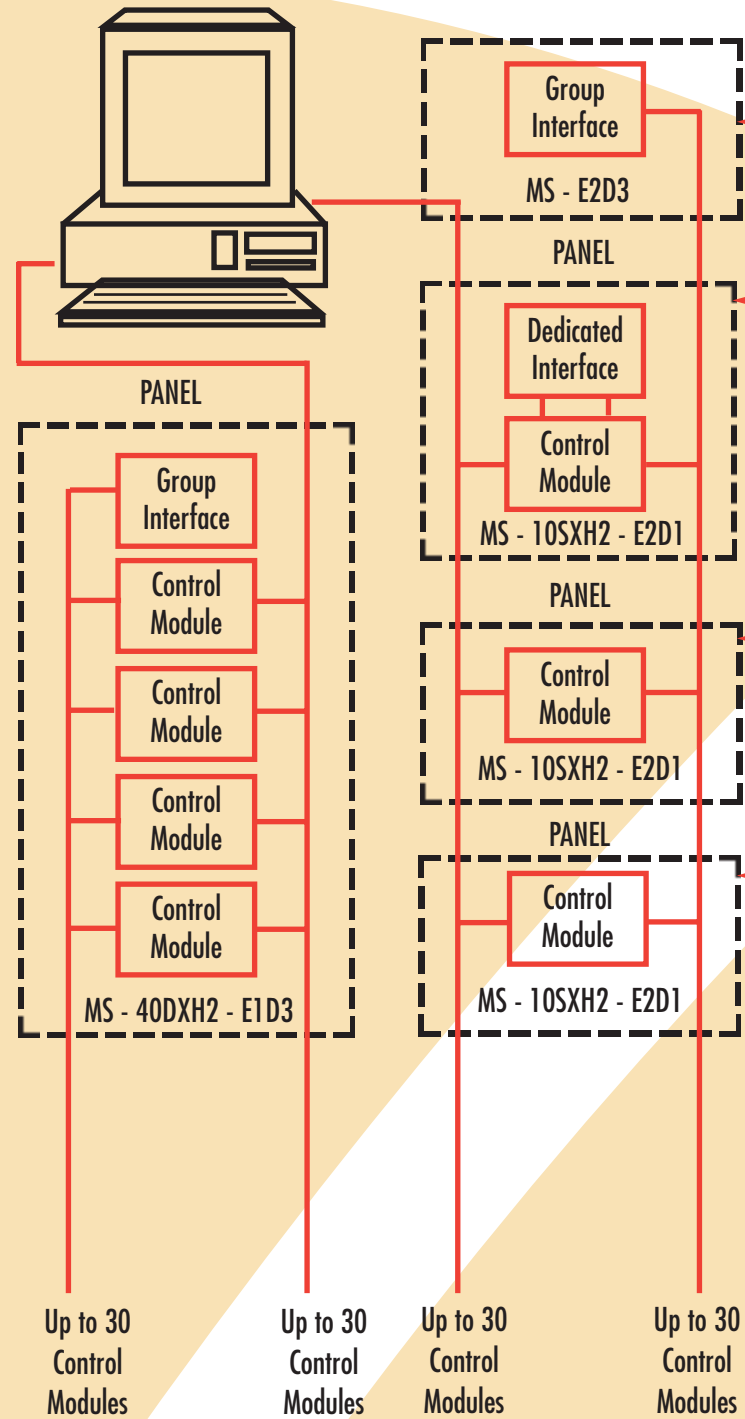
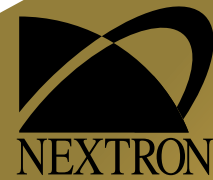
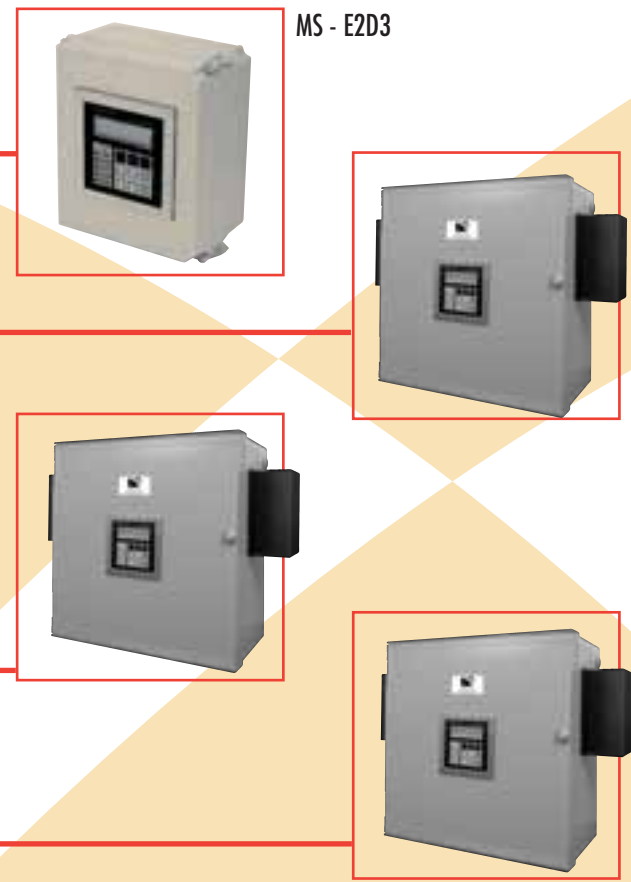


MASTERTRACE NETWORK



TYPICAL MASTERTRACE PANELS



MASTERTRACE

HEAT TRACE CONTROLLERS



| 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. |

- 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.

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File: NXT 512 MasterTrace Brochure 5/8/99 Rev A0



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 30 control modules via RS 485 twisted pair serial communication for



maximum 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



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 1 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 FR.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 except DXN models iv) Models SXH and DXH only | | | | | | | | |

MASTERTRACE SPECIFICATIONS

EQUIPMENT

Approvals

Mechanical:

Solid-state:

Alarm Output:

Alarm Output Rating:

Control Power:

Switch Rating:

Temperature Input:

Heater Current Input:

Ground Fault Input:

Operating Range:

Communication Ports:

SERIAL COMMUNICATIONS

Type:

Protocol:

Transmission Rate:

Interconnect:

Highway Distance:

Modules per Highway:

CSA Ordinary Areas.

CSA Class 1, Division II, Group A,B,C,D

CSA Class 1, Zone 2 Group IIC

NO and NC programmable contacts

Mechanical: 1.0A @ 120Vac max. (Ordinary Areas)

10mA @ 30Vac max. (Hazardous Areas)

Solid-state: 0.1A @ 30Vac max.

120 Vac.

Internal: 30A @ 280Vac max.

External: 100A @ 600Vac max.

One or two 100Ω, Platinum, 3-wire,

RTD per point,

20Ω maximum lead resistance.

↑ ±1°C accuracy over -50°C to +350°C.

One current transformer per point.

3% ± 0.2A accuracy over 1.0 to 100A.

One current transfer per point.

5% ± 2mA accuracy over 0.01 to 3.0A.

-40°C to +60°C

(1) Parallel Local Interface connection.

(2) Serial network connections.

RS 485.

Modbus® RTU.

1200-9600 baud.

2-wire, shielded, twisted pair.

4,000 feet without repeater

(1) interface and (31) Control Modules.

† Available on solid-state models only.

MEASURED VALUES

Temperature:

Minimum Temperature:

Maximum Temperature:

Heater Current:

Heater Percent Power

Peak Heater Current:

Ground Fault Current:

Heater Utilization:

Power Consumption:

Operating Cost:

-50° to 350°C (-58 to 662°F)

-50° to 350°C (-58 to 662°F)

-50° to 350°C (-58 to 662°F)

1.0 to 100A

0 to 100%

1.0 to 100A

0.01 to 1.0A

0 to 100%

0 to 1,000 MWh

0 to \$1,000,000.00

ALARM MESSAGES

Temperature:

Current:

Ground Fault Current:

TraceCheck:

Hardware:

USER-SETTABLE OPTIONS

Heater Status:

Heater Name or Tag:

Temperature Units:

Control Strategy:

Deadband:

StaggerStart†:

Powerlimit†:

Temperature Setpoint:

High Temperature Alarm:

Low Temperature Alarm:

High Current Alarm:

Low Current Alarm:

High Current Trip:

Ground Fault Alarm:

Ground Fault Trip:

TraceCheck Interval:

RTD Fail-safe:

Master Override Input:

Alarm Contacts:

Alarm Light:

High Temperature Alarm

Low Temperature Alarm

High Current Alarm

Low Current Alarm

High Current Trip

Ground Fault Current Alarm

Ground Fault Current Trip

Switch Shorted

High Current Alarm

Low Current Alarm

High Current Trip

Ground Fault Current Alarm

Ground Fault Current Trip

Self-Check Failure, Switch Shorted

RTD Open, RTD Shorted

Enable or Disable

16 Character Alphanumeric

°C or °F

On-Off or Proportional†

0 to 50°C (0-90°F)

On or Off

1 to 100A

0 to 300°C (32 to 572°F)

0 to 300°C (32 to 572°F)

-50 to 300°C (-58 to 572°F)

1 to 100A

1 to 100A

1 to 100A

0.01 to 1.0A

0.01 to 1.0A

1 to 24 hr.

Heater On or Heater Off

On or Off

NO or NC for each contact

Alarm ON, Alarm OFF, Flash during alarm then on, Flash during alarm then off