

Description of Circuit Management System

This circuit management system (referenced to as “CM-3”) is a microprocessor based control and monitoring system based on standard industrial automation products specifically integrated for use with electric heat tracing systems. This system provides temperature and current monitoring for each heat tracing circuit while communicating additional information to operations personnel such as temperature alarms, circuit faults, sensor failure and communications failures.

Key Benefits

- Compatibility with existing facility automation systems
- Worldwide product support
- Simplification of spare parts inventories
- Utilizes Standard PLC Processors
- Multiple Communication Protocols

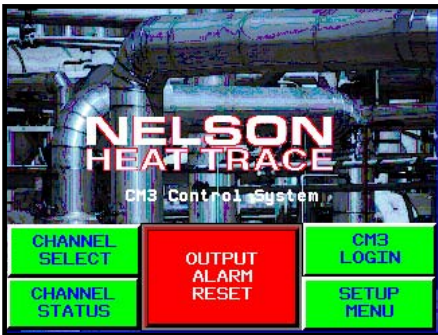
Description of System Components

The circuit management system is mounted in a NEMA 12, 4 or 4X enclosure that can be wall or rack mounted. The system is available in standard configurations of 4, 8, 12 and 16 circuits. Additional configurations can be custom designed in multiple counts of 4. The CM-3 is designed utilizing standard PLC automation platform component modules and specialized current input modules for accurate current readings. Individual CM-3 systems can be connected through several standard communication protocols.

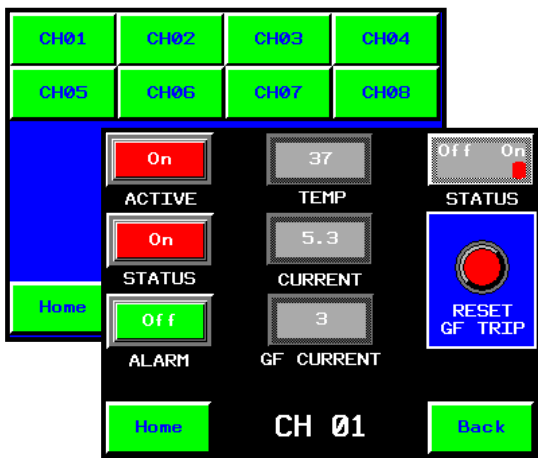
The basic system is supplied with Modbus® communications protocol.

Key Features

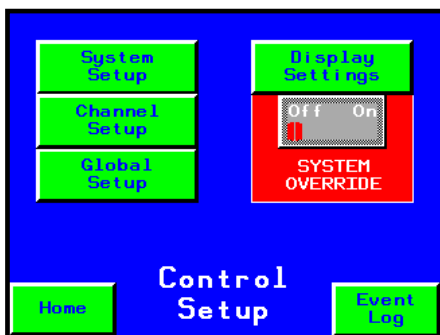
- Color Touchscreen Operator Interface
 - Process Temperature Display
 - Setpoint Display
 - Load Current Display
 - Ground Fault Leakage Display
 - Heater Power Status Display
- Programmable Set Point
- Programmable Deadband
- Programmable Alarm Values
 - High Temperature
 - Low Temperature
 - High Load Current
 - Low Load Current
 - Ground Leakage Level
 - Ground Leakage Trip Level
- Sensor Failure Alarm with Output Selection
- Processor Failure Alarm
- Modbus® Communications Standard
- Global Programming
- Auto Test-Cycle Feature



- Color, Resistive Matrix, Touchscreen Operator Interface
- Password Protected
- Direct Access to Control Channel Status
- Continuous Alarm Status Banner
- Instant Alarm Logging and History



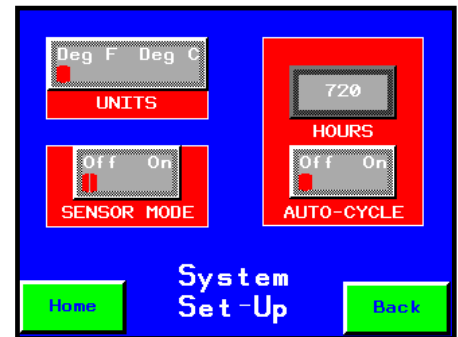
- Direct Channel Selection, Reduces Operator Access Time
- Real-Time Status of Individual Channel Control Status
- Channel Enable/Disable Function
- Ground Fault Trip Reset Function
- Heater Output Status Indication



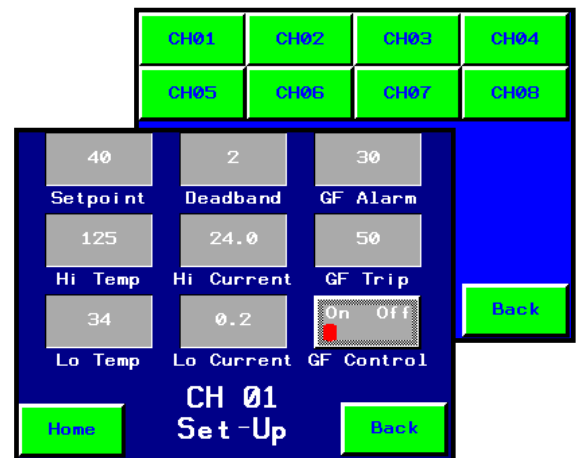
- Selectable Control System Set-Up Options
- Control System Override, Automatic or Manual Function
- Individual Channel or Global Channel Programming
- Password Protected

Type CM-3

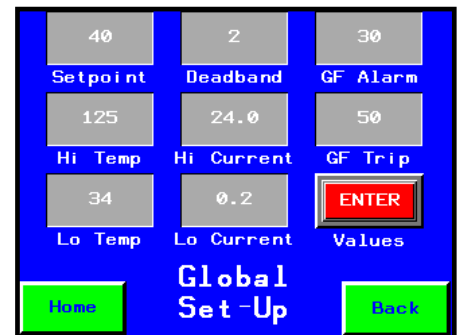
- Selectable Temperature Units, °F or °C
- Selectable Sensor Failure Mode
- Auto Test Cycle Programming with Enable/Disable Feature
- Password Protected



- Direct Channel Set-Up Selection, Reduces Operator Access Time
- Individual Channel Input Values
- Separate Alarm and Trip Input Values
- Heater Output Enable/Disable Feature for Trip Functions
- Password Protected



- Global Programming Option
- Simple Selection for Multiple Channel Input Values
- Reduces Control Channel Set-Up Time
- Password Protected



SPECIFICATIONS

• Supply Voltage	120-240VAC, 50-60Hz	• Channel Enable/Disable	Yes
• Operating Environment	+32F to +140F	• Load Management	Yes
• Relative Humidity	0-85% Non-Condensing	• Hi-Temp Alarm	Adjustable
• Input	RTD, 100 ohm, Platinum, 3-Wire	• Lo-Temp Alarm	Adjustable
• Maximum Current	24 Amps	• Hi-Current Alarm	Adjustable
• Ground Fault Range	1-500mA Adjustable	• Lo-Current Alarm	Adjustable
• Display	Color Touchscreen	• Ground Fault Alarm	Adjustable
• Operator Interface	Resistive Matrix	• Ground Fault Trip	Adjustable
• Programming Options	Channel, Global	• Sensor Failure Alarm	Yes
• Auto-Test Cycle	1-720 Hours	• Alarm Output Type	Separate Common/Ground Fault
• Sensor Failure Output	On/Off	• Alarm Output	User Defined
• Control Mode	On/Off with Adjustable Deadband		

Nelson's CM-3 Circuit Management System is available in multiple configurations of circuit count, enclosure ratings and power ratings. The selection tables below allow for the proper specifying of the standard systems (example: CM3-16-4X-R2). For custom configurations or modifications, consult factory.

CM3

		SPECIFY POWER OUTPUT MODULE	
		R2	24A @ 277 VAC, DPST SWITCHING*
		SPECIFY ENCLOSURE TYPE	
		4	NEMA 4, POLYESTER POWDER COATED STEEL
		4X	NEMA 4X, TYPE 304 STAINLESS STEEL
		12	NEMA 12, POLYESTER POWDER COATED STEEL
16	SELECT MULTIPLES OF 4 CIRCUITS		

*For other Power Handling Options, Please Consult Factory

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