TRACEHEAT CONTROL AND MONITORING

PRODUCT SHEET

ProLine

RADIANT HEAT SOLUTIONS

Self-Regulating Cable for Pipe Trace Systems

ProLine TraceHeat Pipe Tracing Systems

Pipe Trace Control and Monitoring

ProLine TraceHeat 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 ProLine Radiant's TraceHeat control modules.

The Best in Monitoring

ProLine TraceHeat pipe 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, TraceHeat 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.

PL TraceHeat controllers continuously monitor your heat tracing system and provide 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 TraceHeat 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, the self checking feature periodically energizes and checks for alarm conditions on all dormant lines and latches onto alarm functions.

Features and Benefits

Alarm Outputs and Early Warning Alarm – Common alarm alerts users to problems, even when the circuit is not in use.
Modbus® Protocol – Allows easy interfacing with the Master Controller software and links to PLC and DCS systems.
Statistics Monitoring – Plant-wide Windows-based monitoring software allows users to save energy by monitoring peak demand times.
Staggerstart (Power Limiting) – Limits initial startup power.
Proportional Control – Provides tight process temperature control.
Custom Configured Software Interface – Local, remote, or centralized control and monitoring are available, as well as standalone control or multi-point control panels.
Switching Unit Options – Solid state or mechanical switching units
Easy to read Interface – 2x16-character alphanumeric display, field mounted or remote mounted
RS 485 Serial Port Connections
Load Shedding

ProLine TraceHeat Pipe Tracing Systems

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Advanced Control

The advanced features of TraceHeat allow it to handle single-phase to three-phase heat trace applications with switch ratings up to 100A at 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.

Friendly Interfacing

TraceHeat interfaces make interrogation and programming easy for all TraceHeat controllers.

Two choices are available:

- Local Interface
- Remote Interface

The Local Interface communicates with a single controller of up to 10 circuits and up to five feet away. The Remote Interface 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 TraceHeat 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

TraceHeat is the most complete system of heat tracing controllers. TraceHeat can handle all your heat trace control requirements and is the only heat trace system that offers local, group and central computer interfaces. TraceHeat combines the power and flexibility you need today with the ability to expand to meet your needs for the future.

Master Controller Centralized Monitoring

For plant wide monitoring, ProLine's Master Controller for windows software package provides programming and monitoring for TraceHeat 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 unauthorized access. By connecting individual TraceHeat modules or panels together, heat tracing throughout an entire plant can be programmed and monitored from a single location.

ProLine TraceHeat Pipe Tracing Systems
Technical Information and Specs

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

Minimum and Maximum Temperatures	-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 MW/h
Operating Cost	$0 to $1,000,000

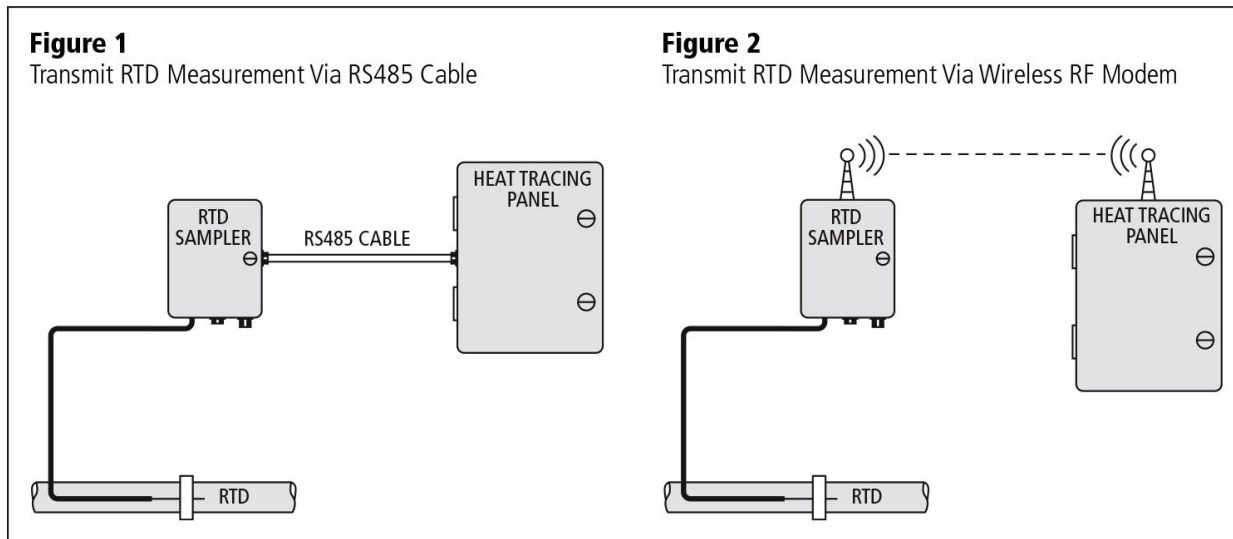### Alarm Messages

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 Options

Heater Status	Enable or disable
Heater Name or Tag	16-character alphanumeric
Temperature Units	ºC or ºF
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	0ºC 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 Failsafe	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.

For more information contact a ProLine sales representative at **866.676.9276**.

Figure 1
Transmit RTD Measurement Via RS485 Cable

Figure 2
Transmit RTD Measurement Via Wireless RF Modem

Wireless RTD Sampler

Communication Media	
RS485 Cable	Transmit RTD measurements via RS485 cable (Figure 1)
Wireless RF Modem	Transmit RTD measurements via Wireless RF modems (Figure 2)
User Interface	
LED	Power on, RTD OK, transmit, receive
RS485 Port	Accessible to laptop, PC
Environment	
Approvals	CSA Class 1, Division 2, Groups A, B, C, D Class 1, Zone 2, Ex nA IIC, AEx nA IIC
Operating Range	-40°C to +50°C
Conformal Coating	Boards conformal coated for hostile environments. Altitude: 0-200m
Enclosure	
Type	NEMA-4 steel
Size	10"H x 8"W x 4"D
Features	Quick release latches to open door. One 0.875 inch conduit knockout for power wiring, two 1.093 inch conduit knocks for RTD wiring. One 0.75 inch conduit knock for RS485 cable or antenna.
Temperature Measurement Range	
Range	-50°C to 500°C, -58°F to 932°F
Absolute Accuracy	±2.5°C, ±4.5°F
Repeatability	±1°C, ±1.8°F
RTD	100-ohm platinum, 3-wire 10 ohms maximum lead resistance
Model	
Configuration	SAM-RTDxx-120V-y xx=10: 10 RTDs xx=20: 20 RTDs y=R: RS485 y=M: Wireless
Control Power	
Power Requirements	SAM-RTDxx-120V-y: 120VAC, 10VA
Line Frequency	50 or 60Hz
Protection	Protected by non-replaceable 2A, time lag, 350 VAC fuse MOV transient protection and RC snubber.

Cost Saving Innovation

In heat trace design, cable and conduit for hard-wired RTD communications represent a large portion of project costs, even on small electrical heat tracing system designs. Wireless data transfer technology is becoming one of the largest areas of growth in industrial plant applications and ProLine is the temperature control systems provider that pairs technical innovation with savings.

ProLine offers a CSA approved Class I, Division 2, Zone 2 microprocessor-based RTD sampler capable of transmitting and receiving data using the concept of direct sequence or frequency mode hopping wireless transmission. Using a wireless system, temperature sensors are wired to RTD samplers located in the pipe racks and temperature information is transmitted to the controller via wireless modem, dramatically reducing field-wiring costs to the end user. These transmitters then send temperature information to a remotely located TraceHeat module.

About Us

ProLine Radiant was created to match wholesale customers to the best radiant heat products, prices and services available. As a leading provider of radiant snow melting, roof deicing, pipe tracing, and floor heating solutions, ProLine constantly searches for and produces the latest radiant heat technology to provide customers with the most reliable, efficient and affordable quality solutions possible.

ProLine is experienced in providing premier radiant heat solutions for large commercial applications as well as custom residential projects. In addition to our proven line of superior products, ProLine Radiant also provides complete system design services, personal installation support, and free installation training. ProLine offers the industry's top solutions and works closely with its customers to recommend radiant heat systems that best meet each project's specific demands.

Our goal at ProLine Radiant is to make the process of installing radiant heat systems as easy as possible for busy construction professionals. Our professional design staff produces detailed AutoCAD layouts that feature all the necessary information such as load calculations, breaker sizes, number of breakers, etc., so you'll know all the technical specs and power requirements prior to any installation taking place. In addition to our system design services, ProLine also includes personal installation support and free training courses.

We're proud to offer the highest quality, proven products at the best prices available – all in a quick and convenient manner. When it comes to radiant heat, you won't find a more knowledgeable, helpful and friendly staff. Call 866.676.9276 today and see why more and more professional builders are turning to ProLine for their radiant heating needs.

Summary of Customer Services:

- Free Installation Training Courses
- System Design – Detailed AutoCAD layouts
- Technical Support throughout the Installation Process
- Large Inventory of Industry Leading Products
- Easy-to-Customize Solutions
- Discounted Wholesale Pricing Maximizes Your Profits
- Fast, Accurate Turnaround

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