

intelliTRACE®

HTLS

Heat Tracing Line Sensing Control Panels

- Solid State Relay Output Rated 30 Amps or Two-Pole Contactor Control Output
- Universal Inputs
- NEMA 4/4X Enclosure
- Ground Fault Alarm/Trip Monitor or GFI Circuit Breakers
- Programmable High or Low Temperature Alarms
- Programmable Low Current Alarm
- Optional RS-485 MODBUS® Communications
- 120, 208, 240, and 277 VAC
- Optional Heater for Sub-Zero Ambients



Description

The Chromalox HTLS series panels are microprocessor based temperature control and monitoring units for heat tracing used in freeze protection and process temperature control applications.

This series of panels can be configured for ambient or line sensing control. The HTLS series implement a scaleable design such that they can be configured with or without communications, ground fault monitoring or enclosure heater.

This unique format offers a design that can be tailored both by price and features to meet the most challenging demands in heat trace applications. For example: The HTLS series can be networked together via RS-485 MODBUS and the Chromalox Windows based Chromasoft SpecView software package.

Two options are available for Ground Fault Protection. The Ground Fault Monitoring system has a reset pushbutton on the panel door that illuminates when a ground fault has occurred. As an alternative, ground fault circuit breakers are also available. Both Ground Fault systems are rated for Equipment Protection. In the event of sub-zero temperatures, the optional enclosure heater is available.

The HTLS series have programmable inputs (thermocouple, RTD, mA, VDC), On/Off or PID control, Auto-tune function, High/Low temperature alarms, current alarm, and sensor failure indication. The heat tracing circuit is switched by a 30 Amp solid state relay rated at 40°C ambient or optional 2-pole contactor.

The Chromalox HTLS series panel comes ready to install and includes control and power wiring terminal blocks for field connections.

Applications

- Freeze Protection
- Fuel Gas Preheating and Superheating
- Fuel Oil Preheating
- Hydrocarbon and Chemical Product Piping
- Power Generation Plants

Technical Specifications

Supply Voltage:	120, 208, 240, and 277 Vac
Operating Environment:	32 - 104°F (0 - 40°C) -32 - 104°F (-34 - 40°C) with enclosure heater option
Communications:	RS-485 MODBUS®
Input:	Thermocouple J, K, L, N, R, S, RTD, Current, Voltage Field Programmable for °C or °F
Output:	Solid State Relay rated @ 30 amps @ 40°C or optional 2-pole contactor
Current Alarm (Low):	0 - 30 amps in 1 amp increments
Ground Fault Alarm Trip:	5 - 100mA
Temperature Alarms:	Process, Deviation, Band, High/Low, Latching/ Non-Latching (Manual/Automatic Reset) Programmable.
Control Modes:	Field Selectable On/Off, PID, Auto Tune



HTLS

Single-Loop Heat Tracing Line Sensing Control Panel

(cont'd.)

Model	
HTLS	IntelliTRACE 10000 Series Line Sensing / Ambient Sensing Heat Trace Panel
Panel Configuration	
cUL and UL Listed Single Loop Line Sensing/ Ambient Sensing Temperature/Monitor Heat Trace Panel. Factory pre-wired for quick installation. Includes: Solid State Relay or Contactor Control, Current Transformer, High-Low Temperature Alarms, Low Current Alarm, On/Off or PID Control, Universal Sensor Inputs, Dual Digital Displays, Terminal Blocks for Field Connections, Loop Enable/Disable, NEMA 4/4X rated Enclosure (12.5"H x 10.5"W x 6"D) for Indoor/ Outdoor Applications. Options Include: Ground Fault Monitoring and Selectable Shutdown, GFI Thermal Magnetic Circuit Breakers, Enclosure Heater and RS-485 MODBUS Communications.	
Code	Single Loop of Heat Trace Control
1	Solid State Relay Control Rated 30 Amps @ 40°C Ambient (NEMA 4)
1C	Electromechanical Contactor Control Rated 30Amps @ 40°C Ambient (NEMA4X)
Code	Line Voltage (Single Phase)
0	120 Vac Cable (1-P Breakers)
1	240 Vac Cable (2-P Breakers)
2	277 Vac Cable (1-P Breakers)
3	208 Vac Cable (2-P Breakers)
4	480 Vac Cable (2-P Breakers)
Code	Load Voltage (Single Phase)
0	120 Vac
1	240 Vac
2	277 Vac (240 Vac Cable)
3	208 Vac (240 Vac Cable)
4	480 Vac
Code	Controller Options
0	IntelliTRACE Controller (Code 1 Solid State Relay)
1	IntelliTRACE Controller with Communications (Code 1 Solid State Relay)
2	IntelliTRACE Controller (Code 1C Contactor Control)
3	IntelliTRACE Controller with Communications (Code 1C Contactor Control)
Code	Ground Fault Monitoring Options
0	None
1	Ground Fault Monitor 120Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
2	Ground Fault Monitor 240Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
3	Ground Fault Monitor 277Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
4	Ground Fault Monitor 208Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
5	15 Amp, 120 Vac, 1-Pole GFI Circuit Breaker
6	20 Amp, 120 Vac, 1-Pole GFI Circuit Breaker
7	25 Amp, 120 Vac, 1-Pole GFI Circuit Breaker
8	30 Amp, 120 Vac, 1-Pole GFI Circuit Breaker
A	15 Amp, 277 Vac, 1-Pole GFI Circuit Breaker
B	20 Amp, 277 Vac, 1-Pole GFI Circuit Breaker
C	30 Amp, 277 Vac, 1-Pole GFI Circuit Breaker
E	15 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker
F	20 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker
G	25 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker
H	30 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker
Code	Enclosure Heater
0	None
1	Thermostat Controlled Enclosure Heater
HTLS - 1 1 0 2 1 Typical Model Number	

Stock PCN Chart

Model	PCN
HTLS-10000	329666
HTLS-10010	329631
HTLS-11020	329643
HTLS-12030	329658

HTLS

Two, Three and Four-Loop Heat Tracing Line Sensing Control Panel

- **Solid State Relay Outputs Rated 30 Amps or Two-Pole Contactor Control Outputs**
- **Universal Inputs**
- **NEMA 4/4X Enclosure**
- **Ground Fault Alarm/Trip Monitors or GFI Circuit Breakers**
- **Programmable High/Low Temperature Alarms**
- **Programmable Low Current Alarm**
- **Optional RS-485 MODBUS® Communications**
- **120, 208, 240, and 277 VAC**
- **Optional Heater for Sub-Zero Ambients**

Applications

- Freeze Protection
- Fuel Gas Preheating and Superheating
- Fuel Oil Preheating
- Hydrocarbon and Chemical Product Piping
- Power Generation Plants

Description

The Chromalox HTLS series panels are microprocessor based temperature control and monitoring units for heat tracing used in freeze protection and process temperature control applications.

This series of panels can be configured for ambient or line sensing control. The HTLS series implement a scaleable design such that they can be configured with or without communications, ground fault monitoring or enclosure heater.

This unique format offers a design that can be tailored both by price and features to meet the most challenging demands in heat trace applications. For example: The HTLS series can be networked together via RS-485 MODBUS and the Chromalox Windows based Chromasoft SpecView software package.

Two options are available for Ground Fault Protection. The Ground Fault Monitoring system has a reset pushbutton on the panel door that illuminates when a ground fault has occurred. As an alternative, ground fault circuit breakers are also available. Both Ground Fault systems are rated for Equipment Protection. In the event of sub-zero temperatures, the optional enclosure heater is available.

The HTLS series have programmable inputs (thermocouple, RTD, mA, VDC), On/Off or PID control, Auto-tune function, High/Low temperature alarms, current alarm, and sensor failure indication. The heat tracing circuit is switched by a 30 Amp solid state relays rated at 40°C ambient or optional 2-pole contactors.

The Chromalox HTLS series panel comes ready to install and includes control and power wiring terminal blocks for field connections.

Technical Specifications

Supply Voltage:	120, 208, 240, and 277 Vac
Operating Environment:	32 to 104°F (0 to 40°C) -32 to 104°F (-34 to 40°C) with enclosure heater option
Communications:	RS-485 MODBUS®
Input:	Thermocouple J, K, L, N, R, S, RTD, Current, Voltage Field Programmable for C or F
Output:	Solid State Relay rated @ 30 amps @ 40°C or optional 2-pole contactors
Current Alarm (Low):	0 - 30 amps in 1 amp increments
Ground Fault Alarm Trip:	5 - 100mA
Temperature Alarms:	Process, Deviation, Band, High/Low, Latching/ Non-Latching (Manual/Automatic Reset) Programmable.
Control Modes:	Field Selectable On/Off, PID, Auto Tune



HTLS

Dual-Loop Heat Tracing Line Sensing Control Panel

(cont'd.)

Model
HTLS IntelliTRACE 20000 Series Line Sensing Heat Trace Panel

Panel Configuration

cUL and UL Listed Dual Loop Line Sensing/Ambient Sensing Temperature/Monitor Heat Trace Panel. Factory pre-wired for quick installation. Includes: Solid State Relays or Contactor Control, Current Transformers, High-Low Temperature Alarms, Low Current Alarms, On/Off or PID Control, Universal Sensor Inputs, Dual Digital Displays, Terminal Blocks for Field Connections, Loop Enable/Disable, NEMA 4/4X rated Enclosure (16"H x 14"W x 8"D) for Indoor/Outdoor Applications. Options Include: Ground Fault Monitoring and Selectable Shutdown, GFI Thermal Magnetic Circuit Breakers, Enclosure Heater and RS-485 MODBUS Communications.

Code Dual Loop of Heat Trace Control

- 2** Solid State Relay Control Per Loop Rated 30 Amps @ 40°C Ambient (NEMA 4)
- 2C** Electromechanical Contactor Control Per Loop Rated 30 Amps Per Loop @ 40°C Ambient (NEMA 4X)

Code	Line Voltage (Single Phase)	Load Voltage (Single Phase)
0	120 Vac	120 Vac
1	240 Vac	240 Vac
2	277 Vac	277 Vac (240 Vac Cable)
3	208 Vac	208 Vac (240 Vac Cable)
4	480 Vac	480 Vac

Code Controller Options

- 0** IntelliTRACE Controllers (Code 2 Solid State Relay)
- 1** IntelliTRACE Controllers with Communications (Code 2 Solid State Relay)
- 2** IntelliTRACE Controllers (Code 2C Contactor Control)
- 3** IntelliTRACE Controllers with Communications (Code 2C Contactor Control)

Code Ground Fault Monitoring Options

- 0** None
- 1** Ground Fault Monitor 120 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 2** Ground Fault Monitor 240 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 3** Ground Fault Monitor 277 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 4** Ground Fault Monitor 208 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 5** 15 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 6** 20 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 7** 25 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 8** 30 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- A** 15 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- B** 20 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- C** 30 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- E** 15 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- F** 20 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- G** 25 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- H** 30 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)

Code Enclosure Heater

- 0** None
- 1** Thermostat Controlled Enclosure Heater

HTLS - 2 0 0 0 0 Typical Model Number

Stock PCN Chart

Model	PCN
HTLS-20000	329674



HTLS

Three-Loop Heat Tracing Line Sensing Control Panel

(cont'd.)

Model

HTLS IntelliTRACE 30000 Series Line Sensing Heat Trace Panel

Panel Configuration

cUL and UL Listed Three Loop Line Sensing Temperature/Monitor Heat Trace Panel. Factory pre-wired for quick installation. Includes: Three-Pole Door-Interlocked Disconnect Switch, Solid State Relay or Contactor Control, High or Low Temperature Alarms, Low Current Alarms, On/Off or PID Control, Universal Sensor Inputs, Dual Digital Display, Terminal Blocks for Field Connections, Loop Standby Mode, NEMA 4 Steel Enclosure (20"H x 20"W x 8"D) for Indoor/Outdoor Applications. Options Include: Ground Fault Monitoring and Selectable Shutdown, GFI Thermal Magnetic Circuit Breakers, Enclosure Heater and RS-485 MODBUS Communications.

Code Three Loop Heat Trace Control

- 3** Solid State Relay Control Per Loop Rated 30 Amps @ 40°C Ambient
- 3C** Electromechanical Contactor Control Per Loop Rated 30 Amps Inductive Per Loop @ 40°C Ambient

Code	Line Voltage (Three Phase)	Load Voltage
0	208/120 Vac, 3-Phase, 4 Wire	120 Vac
1	240 Vac, 3-Phase	240 Vac
2	480/277 Vac, 3-Phase, 4 Wire	277 Vac (240 Vac Cable)
3	208/120 Vac, 3-Phase, 4 Wire	208 Vac (240 Vac Cable)

Code Controller Options

- 0** IntelliTRACE Controllers (Code 3 Solid State Relay)
- 1** IntelliTRACE Controllers with Communications (Code 3 Solid State Relay)
- 2** IntelliTRACE Controllers (Code 3C Contactor Control)
- 3** IntelliTRACE Controllers with Communications (Code 3C Contactor Control)

Code Ground Fault Monitoring Options

- 0** None
- 1** Ground Fault Monitor 120 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 2** Ground Fault Monitor 240 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 3** Ground Fault Monitor 277 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 4** Ground Fault Monitor 208 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 5** 15 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 6** 20 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 7** 25 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 8** 30 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- A** 15 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- B** 20 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- C** 30 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- E** 15 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- F** 20 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- G** 25 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- H** 30 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)

Code Enclosure Heater

- 0** None
- 1** Thermostat Controlled Enclosure Heater

HTLS - 3 1 0 2 0 Typical Model Number



HTLS

Four-Loop Heat Tracing Line Sensing Control Panel

(cont'd.)

Model
HTLS IntelliTRACE 40000 Series Line Sensing Heat Trace Panel

Panel Configuration

cUL and UL Listed Four Loop Line Sensing Temperature/Monitor Heat Trace Panel. Factory pre-wired for quick installation. Includes: Three-Pole Door-Interlocked Disconnect Switch, Solid State Relay or Contactor Control, High or Low Temperature Alarms, Low Current Alarms, On/Off or PID Control, Universal Sensor Inputs, Dual Digital Display, Terminal Blocks for Field Connections, Loop Standby Mode, NEMA 4 Steel Enclosure (30"H x 24"W x 8"D) for Indoor/Outdoor Applications. Options Include: Ground Fault Monitoring and Selectable Shutdown, GFI Thermal Magnetic Circuit Breakers, Enclosure Heater and RS-485 MODBUS Communications.

Code Three Loop Heat Trace Control

- 4** Solid State Relay Control Per Loop Rated 30 Amps @ 40°C Ambient
- 4C** Electromechanical Contactor Control Per Loop Rated 30 Amps Inductive Per Loop @ 40°C Ambient

Code	Line Voltage (Three Phase)	Load Voltage
0	208/120 Vac, 3-Phase, 4 Wire	120 Vac
1	240 Vac, 3-Phase	240 Vac
2	480/277 Vac, 3-Phase, 4 Wire	277 Vac (240 Vac Cable)
3	208/120 Vac, 3-Phase, 4 Wire	208 Vac (240 Vac Cable)

Code Controller Options

- 0** IntelliTRACE Controllers (Code 4 Solid State Relay)
- 1** IntelliTRACE Controllers with Communications (Code 4 Solid State Relay)
- 2** IntelliTRACE Controllers (Code 4C Contactor Control)
- 3** IntelliTRACE Controllers with Communications (Code 4C Contactor Control)

Code Ground Fault Monitoring Options

- 0** None
- 1** Ground Fault Monitor 120 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 2** Ground Fault Monitor 240 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 3** Ground Fault Monitor 277 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 4** Ground Fault Monitor 208 Vac w/Shutdown & Contactor door mounted GFI Illuminated Reset Switch
- 5** 15 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 6** 20 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 7** 25 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- 8** 30 Amp, 120 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- A** 15 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- B** 20 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- C** 30 Amp, 277 Vac, 1-Pole GFI Circuit Breaker (1/Loop)
- E** 15 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- F** 20 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- G** 25 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)
- H** 30 Amp, 208/240 Vac, 2-Pole GFI Circuit Breaker (1/Loop)

Code Enclosure Heater

- 0** None
- 1** Thermostat Controlled Enclosure Heater

HTLS - 4 1 0 E 0 **Typical Model Number**