*Intelli*Trace
ITC-FS
Digital Heat Trace Controller
1 & 2 Circuit

- 1 & 2 Circuit Models
- **30** Amps per Circuit
- SSR Control
- 100 – 277 VAC, 50/60 Hz
- **UL Approved for Freeze Protection of Fire Sprinkler Mains and Branch Lines (VGNJ)**
- **Soft Start Feature**
- **Operating Temperature: -40˚F to 104˚F (-40˚C to 40˚C)**
- **Modbus RTU/RS485, RS422 & TCP/Ethernet**
- **10" x 8" x 6" (26cm x 21cm x 15cm) NEMA 4X FG Wall Mount Enclosure**
- **High Resolution Color TFT Display**
- **LED Indication for Power, Load & Alarm per Circuit**
- **Front Panel Capacitive Touch Switches**
- **PID, On/Off or Manual Control Modes**
- **2 RTD's per circuit**
  - **1RTD for Ambient Control**
  - **1 RTD for Alarms**
- **Full Monitoring & Alarms**
  - **High / Low Temperature & Current, GFEP & Sensor Failure**
- **Programmable Duty Cycle On Sensor Failure**
- **Audible Alarm Annunciation**
- **AC & DC Alarms**
- **Password Protected Security Levels**
- **UL/cUL**

Description

The Chromalox intelliTRACE ITC-FS is designed for Freeze Protection of Fire Sprinkler Mains and Branch Lines. The ITC-FS is offered in either a single circuit or an independently controlled and monitored dual circuit platform. They provide a unique, industry-leading combination of heating capacity, application flexibility and technology.

You must employ two RTD sensors to control both circuits and alarms, use one RTD to control both circuits and individual RTD's for alarms, or two individual RTD's per circuit to control each circuit independently and alarms independently. This provides the owner with flexibility and redundancy to help meet their ever-varying demands.

The ITC-FS employs a soft start feature that uses a proprietary software algorithm which eliminates the inherent self-regulating in-rush current, resulting in less nuisance tripping at cold temperatures.

All process conditions may be monitored and managed both locally and remotely. All process variable, communication and alarm settings and security codes are user-adjustable via simple page menu navigation.

In terms of system supervision, the ITC-FS controller monitors temperature, current load and ground fault equipment protection leakage current (GFEP). Additionally, the alarms on the ITC-FS consist of high and low temperature, high and low current, high GFEP current and sensor failure. For GFEP see next page for specifics.

Should the ITC-FS unit realize a failed sensor, the controller automatically switches into a user adjustable manual output duty cycle. To eliminate abrupt current spikes, the Chromalox ITC-FS employs bumpless transfer power switching when switching over from either manual or auto mode.

The ITC-FS unit is housed in a compact wall mountable, NEMA 4X FG or optional 316 SS enclosure and it features a high resolution TFT display, LED indication of Load, Power & Alarm status for each circuit and front panel capacitive touch user interface buttons which are mounted on a hinged door.

The ITC-FS enclosure provides electrical connections for the heating cable, the AC Power and the RTD Sensors and it comes complete with stainless steel mounting brackets.

To comply with the UL approval for Fire Sprinklers the power connection between the cable and the ITC-FS must be made with an RTBC (PCN 513201). The bulb of the RTBC must be placed on one of the sprinkler sprig pipes nearest the sprig head. One RTBC per ITC-FS circuit is required. Example: A 2 circuit ITC-FS must have 2 RTBC's and use one for each circuit.

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(cont'd.)

To comply with NEC code one of the following must apply:

1. Customer supplied 2 pole GFEP breaker in branch circuit breaker box upstream of the controller.

2. Requirement shall not apply in industrial establishments where there is alarm indication of ground faults and the following conditions apply:

   a. Conditions of maintenance and supervision ensure that only qualified person(s) service the installed system

   b. Continued circuit operation is necessary for safe operation of equipment or process

Specifications

Input

Sensor Type	3-wire RTD, 100 W PT, 0.00385 W/W/°C, 20 W balanced lead wire
Number of Sensor Inputs	2 per Circuit
Sensing Configuration	Range: Single, RTD 1A to control both circuits, RTD 1A and 2A to control both circuits

Output

Power Switching	SSR
Number of Circuits	1 or 2
Capacity	22 Amps per Circuit

Control Types

PID	Control mode must be set to Auto
Autotune	On or Off
Proportional Band, (°F)	Range: 1 – 100
Integral (sec/repeat)	Range: 0 – 9,999
Rate or Derivative, (seconds)	Range: 0 – 500
On/Off	Control mode must be set to Auto
Dead band, (°F)	Range: 2 – 100
Manual	Range: 0 – 100%
Soft Start, Current Clamping	Enable or Disable

Settings

Temperature (PV)	Range: +35°F to +75°F (+1°C to +23°C)
Low Temperature Alarm	Range: +20°F to +150°F, Off (-6°C to +66°C, Off)
High Temperature Alarm	Range: +20°F to +150°F, Off (-6°C to +66°C, Off)
Low Current Alarm	Range: 0.1 A – 50.0 A, Off
High Current Alarm	Range: 0.1 A – 50.0 A, Off
GFEP	Range: 30 mA – 150 mA Off
GFEP Alarm Condition	Alarm Only, Alarm & Trip, Alarm & Latch, Alarm & Trip & Latch
Output on Sensor Failure	Range: 0–100%, Bumpless Transfer to Manual Mode
Calendar	Year, Month, Day, Date, Hour & Minute
Audible button depress	Range: On, Off
Security	3 Levels of password protected security
Alarm State	Normally Open, Normally Closed

Display, HMI, Indication

Display	3.5" 320 x 240 RGB Full color graphic TFT module
Human Interface	5 Capacitive Touch Input Buttons
LED Indication	Power (Green), Load (Amber), Alarm (Red) – Per Ckt

Alarms

Alarm Types	Low & High Temperature, Low & High Current, High GFEP, Sensor Failure
Alarm Relays	1 x DC Alarm Output, 1.8 Amp, 0 - 50 VDC 1 x AC Alarm Output, 1.8 Amp, 12 - 240 VAC
Alarm Contact State	Mode Default
	Normal Operation Closed
	Alarm Condition Open
	Power Off / Open Controller Failure

Communications

Modbus	RTU/RS-485 (2 or 4 wire)
Modbus	TCP/Ethernet (optional)
Webserver/Ethernet IP	(Optional)

Operating & Environmental

Temperature	-40°F to 104°F (-40°C to 40°C)
Power Supply	100 to 277V 50/60Hz
Protection	IEC IP66
Enclosure rating	NEMA 4X FG (Optional Stainless Steel)
Approvals	UL/cUL Freeze Protection of Fire Sprinkler Systems. (UL File: EX27939 VGNJ)

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1 & 2 Circuit (cont'd.)

Dimensions

		H	W	D	F	B	M
316 SS Enclosure	Inch	11.8	9.9	7.6	0.7	1.8	3.0
	cm	30.2	25.1	19.4	1.7	4.4	7.6
Fiberglass Enclosure	Inch	10.3	8.5	8.0	1.2	1.8	3.0
	cm	26.2	21.3	19.7	3.2	4.4	7.6

Mounting Brackets

Heat Sink

B

M

F

Heat Sink

W

H

D

Top View **Front View** **Side View**
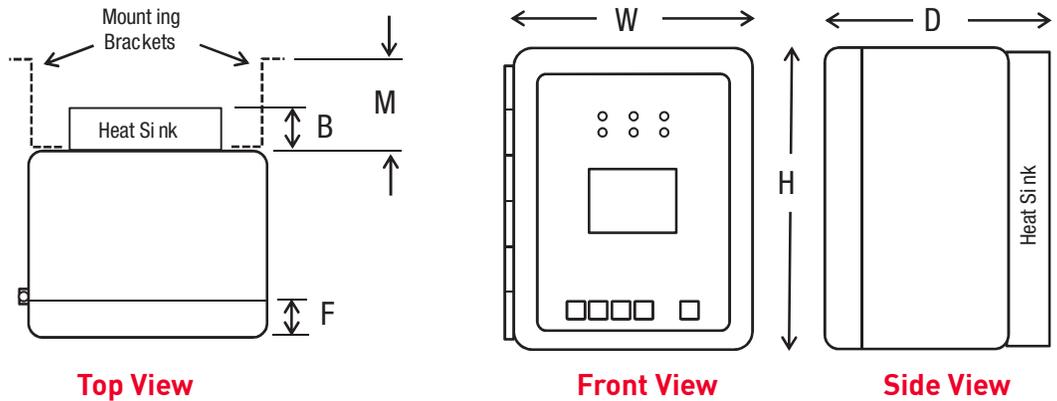
Ordering Information

To Order — Complete the Model Number using the Matrix provided.

Model Product Description

ITC-FS The Chromalox ITC-FS series IntelliTRACE Controller will control 1 or 2 circuits and is designed for Freeze Protection of Fire Sprinkler Mains and Branch lines. The ITC-FS is a wall mounted device that operates at 100-277 VAC and rated at 22A per circuit in a -40˚F to 104˚F (-40˚C to 40˚C) Ambient. Standard features: NEMA 4X FG enclosure, 3.5" High Resolution TFT Display with integral display heater, front panel capacitive touch switches & LED Indication of Power, Load & Alarm. ON/OFF, PID or Manual SSR power control with a selectable Soft Start program. The ITC-FS accepts 2 RTD sensors per circuit using one for Ambient Control and the other for alarms. Other standard features include: 2 x common alarm outputs (1 x AC, 1 x DC), Alarms for Low/High Temperature & Current, GFEP (Ground Fault Equipment Protection) & Sensor Failure, ModBus RTU/RS485 (or /RS422) Communications and user selectable manual output on failed sensor. 16 gage Stainless Steel wall mounting brackets are included. UL/cUL Optional features include: NEMA 4X 316 SS Enclosure, ModBus TCP/Ethernet, Webserver/Ethernet or BACnet IP communications. Standard 1 year warranty.

Code	Number of Circuits
1	1 Circuit
2	2 Circuits

Code	Communications
0	ModBus RTU/RS485 (& RS422)
1	ModBus TCP/Ethernet
2	Webserver/Ethernet
3	BACnet IP/Ethernet
9	Other Communications

Code	Enclosure	Enclosure Size H x W x D, In (cm)
0	NEMA 4X Fiberglas	10 x 8 x 8 (25 x 21 x 20)
1	NEMA 4X 316 SS	12 x 10 x 8 (30 x 25 x 19)

Code	Add to Complete Model Number
1	

ITC-FS ☐ — ☐ ☐ ☐   **Typical Model Number**

Note: The ITC-FS comes complete with one set of 16 gauge stainless steel wall mounting brackets.

Model	Description	PCN
ITC-FS1-001	ITC-FS 1 Loop, FG ENC, RS485	390248
ITC-FS2-001	ITC-FS 2 Loop, FG ENC, RS485	390256

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