

## WeatherTrace

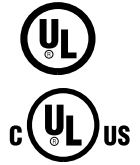
### Freeze Protection Heat Trace Panels

- Standard NEMA 4 Enclosures
- NEMA 4X Stainless Steel Enclosure Option
- Hand/Off/Auto Selector Switch
- 12, 18, 20, 30, and 42 Position Panelboards
- 15, 25, 30, and 40 Amp Single-pole and Double-pole 30 mA Ground Fault Thermal-Magnetic Circuit Breakers
- 100 and 225 Amp Main Bus
- Single-phase 120/240 VAC
- Three-phase 120/208 VAC 4-Wire
- Three-phase 277 VAC 4-Wire
- 100 and 250 Amp Main Disconnect Switch Option
- Ambient and Line Sensing Control
- WeatherTrace Sentinel Monitoring with Common Alarm and Re-Ring Feature\*
- Z-Purge Pressurization System for Class 1, Division 2 Option
- Enclosure Heater Option for Subzero Ambients
- UL and cUL Third Party Approvals

\* The re-ring feature allows the WeatherTrace panel to communicate additional alarm conditions in the system by momentarily clearing and resetting the alarm output contact. The customer's monitoring device such as a PLC or DCS would interpret this condition to alert the operators of an additional alarm occurring.



*FPASM Model Shown*



#### Description

The Chromalox FPAS, FPLS, FPASM, and FPLSM series freeze protection heat trace panels offer power-distribution, ground-fault protection, individual circuit alarming, line and ambient sensing control.

The panels are housed in NEMA 4 enclosures for indoor/outdoor applications. NEMA 4X 304 stainless steel enclosures may be selected as an option for more harsh environments.

The standard models are available in 12, 18, 20, 30, and 42 position panelboards with 100 and 225 amp bus ratings in Single and Three-Phase configurations.

Branch circuit breakers are available in 20, 25, 30, and 40 amp single-pole and two-pole configurations with 30 mA ground-fault equipment protection.

#### FPAS – Freeze Protection Ambient Sensing Series

The FPAS series controls multiple heat trace circuits via an ambient sensing external thermostat, external electronic controller or via an ambient sensing, door mounted 1601E controller. Chromalox recommended controllers include: RTAS, RTAS-EP, B100, E100 or the 1601E microprocessor controller.

The FPAS may be operated in two modes; automatically with the external controller, or in manual override via the Hand/Off/Auto selector switch.

#### FPLS – Freeze Protection Line Sensing Series

The FPLS series controls each heat trace line with individual Chromalox RTBC, RTBC-EP, E-100 or E121 pipe line sensing controls. Each circuit should be controlled by an individual sensor/controller. Depending on the application, controllers can switch more than one circuit.

#### FPASM – Freeze Protection Ambient Sensing Monitor Series

The FPASM WeatherTrace with the Sentinel System, continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage or a ground fault condition will trigger an automatic alarm condition, alerting plant personnel of critical process problems and reducing downtime. An annunciator panel then identifies the faulted zone and a Common Alarm is activated with the re-ring feature.\*

The FPASM series controls multiple heat trace circuits via an ambient sensing external thermostat, external electronic controller or via an ambient sensing, door mounted 1601E controller. Chromalox recommended controllers include: RTAS, RTAS-EP, B100, E100 or the 1601E microprocessor controller.

The FPASM may be operated in two modes; automatically with the external controller or in manual override via the Hand/Off/Auto selector switch.

#### FPLSM – Freeze Protection Line Sensing Monitor Series

The FPLSM series controls heat trace lines with individual Chromalox RTBC, RTBC-EP, E100 or E121 pipe line sensing controls. Each circuit should be controlled by an individual sensor/controller. Depending on the application, controllers can switch more than one circuit.

The FPLSM is identical to the FPLS Plug. It features the WeatherTrace Sentinel which continually monitors the supply voltage to each individual heat trace circuit without the need for additional staff. Loss of voltage or a ground fault condition triggers an automatic alarm condition, alerting plant personnel of critical process problems and reducing downtime. An annunciator panel then identifies the faulted zone and a Common Alarm is activated with the re-ring feature.\*

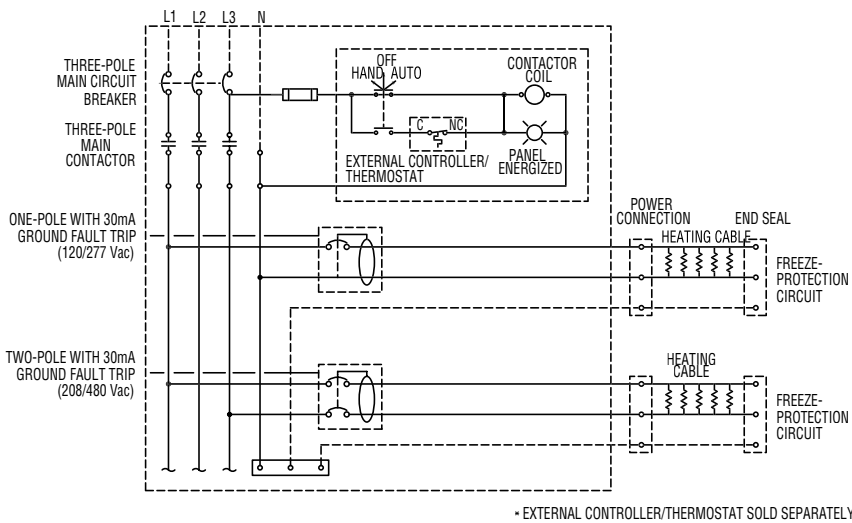
## WeatherTrace

### Freeze Protection Heat Trace Panels

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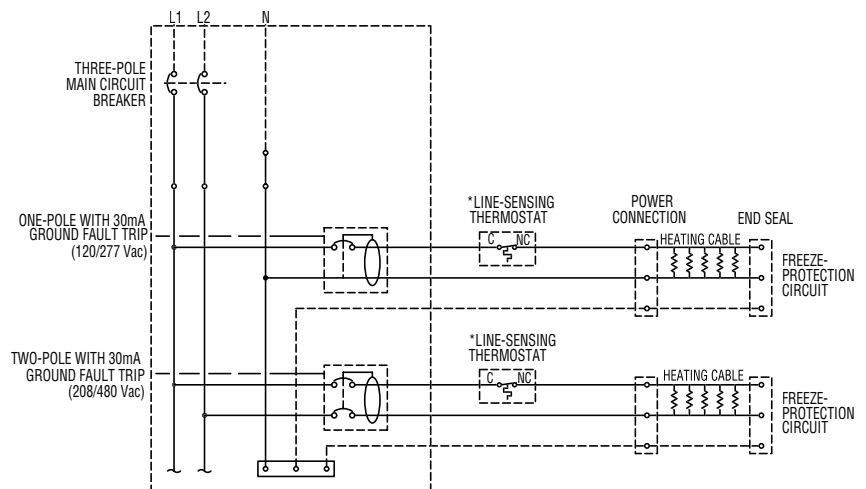
#### Specifications

<b>Power Source</b>	120/240 VAC Single Phase 120/208 VAC Three-Phase 4-Wire 277/480 VAC Three-Phase 4-Wire
<b>Ambient Operating Temperature</b>	-32°F to 122°F (With Enclosure Heater)
<b>Field Wire Size</b>	14 - 18 AWG (15 - 30 Amp C.B.), 8 - 4 AWG (40 Amp C.B)
<b>Ground Fault Breaker Type</b>	30mA Ground Fault Equipment Protection
<b>Enclosure</b>	NEMA 4 or NEMA 4X 304 Stainless Steel (option)
<b>Main Bus Size</b>	100 Amp and 225 Amp
<b>Main Breaker Size</b>	100 Amp Two-Pole Main Disconnect Switch with through Door Rotary Handle 250 Amp Three-Pole Main Disconnect Switch with through Door Rotary Handle
<b>Pressurization System</b>	Type Z Purge Pressurization System for Class 1 Division 2 Area
<b>Approvals</b>	UL and cUL



**Ambient Sensing  
Three Phase  
208/120 4-Wire or 480/277 4-Wire**

**Line Sensing  
Single Phase  
240/120**



## WeatherTrace

### Freeze Protection Heat Trace Panels (cont'd.)

#### Ordering Information

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

Remote Mounted Control Accessories	PCN
RTAS Thermostat	389589
RTAS-EP Division 2 Thermostat	389597
B-100 NEMA 4X Thermostat	305365
B-121 Division 2 Thermostat	384104
THL NEMA 4X Thermostat	387014
TXL Division 2 Thermostat	387022
LCD-1 Snow Switch	389781

#### Model 240/120 VAC Single-Phase, 208/120 VAC Three-Phase 4-Wire

**FPAS** FPAS series Ambient Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPAS series offers the following standard features: NEMA 4 enclosure, Hand/Off/Auto Selector Switch, Load Energized Indicator Lamp, Main Power On Lamp, Main Contactor, and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. Options include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Remote or Local Ambient Temperature Controller, Enclosure Heater, and Type Z Pressurization System. The FPAS series panels have UL and cUL Third Party Approvals.

Code	Panelboard	Available Breaker Poles	Enclosure Size HxWxD In. (cm)
12	12 Positions (100 Amp Main Rating)	(12) 1-pole breakers or (6) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)
20	20 Positions (100 Amp Main Rating)	(20) 1-pole breakers or (10) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)
30	30 Positions (225 Amp Main Rating)	(30) 1-pole breakers or (14) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)
42	42 Positions (225 Amp Main Rating)	(42) 1-pole breakers or (20) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)

Code	Line Voltage	Heater Load
1	240/120 VAC Single Phase, 3-Wire	120 VAC
2	208/120 VAC 3-Phase, 4-Wire	120 VAC
3	208/120 VAC 3-Phase, 4-Wire	208 VAC (240 VAC Cable)
4	240/120 VAC Single Phase, 3-Wire	240 VAC

Code	Enclosure Rating
1	NEMA 4 Single Door, Steel Wall-Mount Enclosure
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)

Code	Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)
1(*)	15 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
2(*)	20 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
3(*)	25 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
4(*)	30 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
5(*)	15 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
6(*)	20 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
7(*)	25 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
8(*)	30 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
9(*)	40 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load

Code	Main Disconnect or Main Circuit Breaker Selection
0	None
<b>Disconnects</b>	
1	100 Amp with 65K Fault Protection (Code 12 & 20 Only)
2	250 Amp with 65K Fault Protection (Code 30 & 42 Only)
<b>Main Circuit Breakers for 240/120V line Voltage</b>	
A	80 Amp, 2 Pole Circuit Breaker
B	175 Amp, 2 Pole Circuit Breaker
C	250 Amp, 2 Pole Circuit Breaker
<b>Main Circuit Breakers for 208/120V line Voltage</b>	
F	50 Amp, 3 Pole Circuit Breaker
G	100 Amp, 3 Pole Circuit Breaker
H	150 Amp, 3 Pole Circuit Breaker
J	225 Amp, 3 Pole Circuit Breaker

Code	Ambient Controller
0	None (See Accessories)
5	6040-R00000 1/16 DIN Controller (Panel Door Mounted)

Code	Enclosure Heater
0	None
1	Thermostat Controlled Enclosure Heater

Code	Pressurization Control System
0	None
1	Type Z Class 1, Division 2

FPAS- 42 2 1 1(20) 2 5 0 0 Typical Model Number

Technical Notes: (\*) Enter number of circuit breakers in parenthesis

Note: Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

100 Amp Panel Board		Breaker Rating					225 Panel Board		Breaker Rating				
Line Voltage		Maximum Number of Breakers					Line Voltage		Maximum Number of Breakers				
		15 Amp	20 Amp	25 Amp	30 Amp	40 Amp			15 Amp	20 Amp	25 Amp	30 Amp	40 Amp
Code 1 (1 Pole CB)		16	12	10	8		Code 1 (1 Pole CB)		37	28	22	18	
Code 2 (1 Pole CB)		20	18	15	12		Code 2 (1 Pole CB)		42	42	33	28	
Code 3 (2 Pole CB)		10	10	8	7	5	Code 3 (2 Pole CB)		20	20	19	16	14
Code 4 (2 Pole CB)		8	6	5	4	3	Code 4 (2 Pole CB)		18	14	11	9	7

## WeatherTrace

### Freeze Protection Heat Trace Panels

(cont'd.)

#### Ordering Information

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

Model 277 VAC 4-Wire

**FPAS** FPAS series Ambient Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPAS series offers the following standard features: NEMA 4 enclosure, Hand/Off/Auto Selector Switch, Load Energized Indicator Lamp, Main Power On Lamp, Main Contactor, and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. Options include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Remote or Local Ambient Temperature Controller, Enclosure Heater, and Type Z Pressurization System. The FPAS series panels have UL and cUL Third Party Approvals.

Code	Panelboard	Available Breaker Poles	Enclosure Size HxWxD In. (cm)
181	18 Positions (100 Amp Main Rating)	(8) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
301	30 Positions (100 Amp Main Rating)	(14) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
421	42 Positions (100 Amp Main Rating)	(20) 1-pole breakers	60 x 36 x 10 (152 x 92 x 25)
302	30 Positions (225 Amp Main Rating)	(14) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
422	42 Positions (225 Amp Main Rating)	(20) 1-pole breakers	60 x 36 x 10 (152 x 92 x 25)

Code	Power Source	Load Voltage
1	3 Phase Power, 277/480 VAC 4-Wire	277 VAC (240 VAC Cable)

Code	Enclosure Rating
1	NEMA 4 Single-Door, Wall-Mount Steel Enclosure
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 181, 301 & 302)
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 421 & 422)

#### Code Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)

- 1(\*) 15 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
- 2(\*) 20 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
- 3(\*) 30 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
- 4(\*) 40 Amp 1-Pole GFI Circuit Breaker for 120 VAC load

Code	Main Disconnect or Main Circuit Breaker Selection
0	None
<b>Disconnects</b>	
1	100 Amp with 65K Fault Protection (Code 12 & 20 Only)
2	250 Amp with 65K Fault Protection (Code 30 & 42 Only)
<b>Main Circuit Breakers</b>	
A	30 Amp, 3 Pole Circuit Breaker
B	50 Amp, 3 Pole Circuit Breaker
C	70 Amp, 3 Pole Circuit Breaker
F	125 Amp, 3 Pole Circuit Breaker
G	175 Amp, 3 Pole Circuit Breaker
J	225 Amp, 3 Pole Circuit Breaker

Code	Ambient Controller
0	None (See Accessories)
5	6040-R00000 1/16 DIN Controller (Panel Door Mounted)

Code	Enclosure Heater
0	None
1	Thermostat Controlled Enclosure Heater

Code	Pressurization Control System
0	None
1	Type Z Class 1, Division 2

FPAS- 302 1 1 2(10) 2 5 1 0 Typical Model Number

Technical Notes: (\*) Enter number of circuit breakers in parenthesis

Note: Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

277 VAC	Breaker Rating			
	Maximum Number of Breakers			
	15 Amp	20 Amp	30 Amp	40 Amp
100 amp Panel Board	20	18	12	9
225 amp Panel Board	20	20	20	20

Remote Mounted Control Accessories	PCN
RTAS Thermostat	389589
RTAS-EP Division 2 Thermostat	389597
B-100 NEMA 4X Thermostat	305365
B-121 Division 2 Thermostat	384104
THL NEMA 4X Thermostat	387014
TXL Division 2 Thermostat	387022
LCD-1 Snow Switch	389781

## WeatherTrace

### Freeze Protection Heat Trace Panels (cont'd.)

#### Ordering Information

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

<b>Model</b>	<b>240/120 VAC Single-Phase, 208/120 VAC Three-Phase 4-Wire</b>							
<b>FPLS</b>	FPLS series Line Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPLS series offers the following standard features: NEMA 4 enclosure, Main Power on Lamp and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. Options include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Enclosure Heater, and Type Z Pressurization System. The FPLS series have UL and cUL Third Party Approvals..							
<b>Code</b>	<b>Panelboard</b>	<b>Available Breaker Poles</b>		<b>Enclosure Size HxWxD In. (cm)</b>				
12	12 Positions (100 Amp Main Rating)	(12)	1-pole breakers or (6) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)				
20	20 Positions (100 Amp Main Rating)	(20)	1-pole breakers or (10) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)				
30	30 Positions (225 Amp Main Rating)	(30)	1-pole breakers or (14) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)				
42	42 Positions (225 Amp Main Rating)	(42)	1-pole breakers or (20) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)				
<b>Code</b>	<b>Line Voltage</b>	<b>Heater Load</b>						
1	240/120 VAC, Single Phase, 3 Wire	120 VAC						
2	208/120 VAC, 3 Phase, 4 Wire	120 VAC						
3	208/120 VAC, 3 Phase, 4 Wire	208 VAC (240 VAC Cable)						
4	240/120 VAC, Single Phase, 3 Wire	240 VAC						
<b>Code</b>	<b>Enclosure Rating</b>							
1	NEMA 4 Single-Door, Wall-Mount Steel Enclosure							
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 12 & 20)							
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 30 & 42)							
<b>Code</b>	<b>Branch Circuit Breaker (DO NOT EXCEED MAIN RATING)</b>							
1(*)	15 Amp 1-Pole GFI Circuit Breaker for 120 VAC load							
2(*)	20 Amp 1-Pole GFI Circuit Breaker for 120 VAC load							
3(*)	25 Amp 1-Pole GFI Circuit Breaker for 120 VAC load							
4(*)	30 Amp 1-Pole GFI Circuit Breaker for 120 VAC load							
5(*)	15 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load							
6(*)	20 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load							
7(*)	25 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load							
8(*)	30 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load							
9(*)	40 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load							
<b>Code</b>	<b>Main Disconnect Switch Selection</b>							
0	None							
<b>Disconnects</b>								
1	100 Amp with 65K Fault Protection (Code 12 & 20 Only)							
2	250 Amp with 65K Fault Protection (Code 30 & 42 Only)							
<b>Main Circuit Breakers for 240/120V line Voltage</b>								
A	80 Amp, 2 Pole Circuit Breaker							
B	175 Amp, 2 Pole Circuit Breaker							
C	250 Amp, 2 Pole Circuit Breaker							
<b>Main Circuit Breakers for 208/120V line Voltage</b>								
F	50 Amp, 3 Pole Circuit Breaker							
G	100 Amp, 3 Pole Circuit Breaker							
H	150 Amp, 3 Pole Circuit Breaker							
J	225 Amp, 3 Pole Circuit Breaker							
<b>Code</b>	<b>Enclosure Heater</b>							
0	None							
1	Thermostat Controlled Enclosure Heater							
<b>Code</b>	<b>Pressurization Control System</b>							
0	None							
1	Type Z Class 1, Division 2							
<b>FPLS-</b>	<b>20</b>	<b>1</b>	<b>1</b>	<b>1(4)</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>Typical Model Number</b>

Technical Notes: (\*) Enter number of circuit breakers in parenthesis

Note: Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

100 Amp Panel Board	Breaker Rating				225 Panel Board	Breaker Rating			
	Maximum Number of Breakers					Maximum Number of Breakers			
Line Voltage	15 Amp	20 Amp	25 Amp	30 Amp	Line Voltage	15 Amp	20 Amp	25 Amp	30 Amp
Code 1 (1 Pole CB)	16	12	10	8	Code 1 (1 Pole CB)	37	28	22	18
Code 2 (1 Pole CB)	20	18	15	12	Code 2 (1 Pole CB)	42	42	33	28
Code 3 (2 Pole CB)	10	10	8	7	Code 3 (2 Pole CB)	20	20	19	16
Code 4 (2 Pole CB)	8	6	5	4	Code 4 (2 Pole CB)	18	14	11	9

## WeatherTrace

### Freeze Protection Heat Trace Panels (cont'd.)

#### Ordering Information

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

Model	277 VAC 4-Wire							
<b>FPLS</b>	FPLS series Line Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPLS series offers the following standard features: NEMA 4 enclosure, Main Power on Lamp and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. Options include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Enclosure Heater, and Type Z Pressurization System. The FPLS series have UL and cUL Third Party Approvals.							
	Code	Panelboard	Available Breaker Poles			Enclosure Size HxWxD In. (cm)		
	181	18 Positions (100 Amp Main Rating)	(8) 1-pole breakers			48 x 36 x 10 (122 x 92 x 25)		
	301	30 Positions (100 Amp Main Rating)	(14) 1-pole breakers			48 x 36 x 10 (122 x 92 x 25)		
	421	42 Positions (100 Amp Main Rating)	(20) 1-pole breakers			60 x 36 x 10 (152 x 92 x 25)		
	302	30 Positions (225 Amp Main Rating)	(14) 1-pole breakers			48 x 36 x 10 (122 x 92 x 25)		
	422	42 Positions (225 Amp Main Rating)	(20) 1-pole breakers			60 x 36 x 10 (152 x 92 x 25)		
	Code	Power Source	Load Voltage					
	1	3 Phase Power, 277/480 VAC 4-Wire	277 VAC (240 VAC Cable)					
	Code	Enclosure Rating						
	1	NEMA 4 Single-Door, Steel Wall-Mount Enclosure						
	2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure (Codes 181, 301 & 302)						
	3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure (Codes 421 & 422)						
	Code	Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)						
	1(*)	15 Amp 1-Pole GFI Circuit Breaker for 120 VAC load						
	2(*)	20 Amp 1-Pole GFI Circuit Breaker for 120 VAC load						
	3(*)	30 Amp 1-Pole GFI Circuit Breaker for 120 VAC load						
	Code	Main Disconnect or Main Circuit Breaker Selection						
	0	None						
	<b>Disconnects</b>							
	1	100 Amp with 25K Fault Protection (Code 181, 301 & 421 Only)						
	2	250 Amp with 35K Fault Protection						
	<b>Main Circuit Breakers</b>							
	A	30 Amp, 3 Pole Circuit Breaker						
	B	50 Amp, 3 Pole Circuit Breaker						
	C	70 Amp, 3 Pole Circuit Breaker						
	F	125 Amp, 3 Pole Circuit Breaker						
	G	175 Amp, 3 Pole Circuit Breaker						
	J	225 Amp, 3 Pole Circuit Breaker						
	Code	Enclosure Heater						
	0	None						
	1	Thermostat Controlled Enclosure Heater						
	Code	Pressurization Control System						
	0	None						
	1	Type Z Class 1, Division 2						
<b>FPLS-</b>	181	2	1	1(4)	1	1	0	<b>Typical Model Number</b>

Technical Notes: (\*) Enter number of circuit breakers in parenthesis

Note: Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

277 VAC	Breaker Rating		
	Maximum Number of Breakers		
	15 Amp	20 Amp	30 Amp
100 amp Panel B	20	18	12
225 amp Panel B	20	20	20



## WeatherTrace Freeze Protection Heat Trace Panels (cont'd.)

### Ordering Information

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

Remote Mounted Control Accessories	PCN
RTAS Thermostat	389589
RTAS-EP Division 2 Thermostat	389597
B-100 NEMA 4X Thermostat	305365
B-121 Division 2 Thermostat	384104
THL NEMA 4X Thermostat	387014
TXL Division 2 Thermostat	387022
LCD-1 Snow Switch	389781

### Model FPASM 240/120 VAC Single-Phase, 208/120 VAC Three-Phase Wire

**FPASM** FPASM series Ambient Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPASM series offers the following standard features: NEMA 4 enclosure, Hand/Off/Auto Selector Switch, Load Energized Indicator Lamp, Main Power On Lamp, Main Contactor, and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. The FPASM weatherTRACE Sentinel continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage or ground fault condition triggers automatic alarm condition to an annunciator panel which identifies the faulted zone and a Common Alarm is activated with the Re-Ring Feature. Options include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Remote or Local Ambient Temperature Controller, Enclosure Heater, and Type Z Pressurization System. The FPASM series have UL and cUL Third Party Approvals.

Code	Panelboard	Available Breaker Poles	Enclosure Size HxWxD In. (cm)
12	12 Positions (100 Amp Main Rating)	(12) 1-pole breakers or (6) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)
20	20 Positions (100 Amp Main Rating)	(20) 1-pole breakers or (10) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)
30	30 Positions (225 Amp Main Rating)	(30) 1-pole breakers or (14) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)
42	42 Positions (225 Amp Main Rating)	(42) 1-pole breakers or (20) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)

Code	Line Voltage	Heater Load
1	240/120 VAC, Single Phase, 3 Wire	120 VAC
2	208/120 VAC, 3 Phase, 4 Wire	120 VAC
3	208/120 VAC, 3 Phase, 4 Wire	208 VAC (240 VAC Cable)
4	240/120 VAC, Single Phase, 3 Wire	240 VAC

Code	Enclosure Rating
1	NEMA 4 Single-Door, Wall-Mount Steel Enclosure
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 12 & 20)
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 30 & 42)

#### Code Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)

1(*)	15 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
2(*)	20 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
3(*)	25 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
4(*)	30 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
5(*)	15 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
6(*)	20 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
7(*)	25 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
8(*)	30 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
9(*)	40 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load

#### Code Main Disconnect or Main Circuit Breaker Selection

0	None
<b>Disconnects</b>	
1	100 Amp with 65K Fault Protection (Code 12 & 20 Only)
2	250 Amp with 65K Fault Protection (Code 30 & 42 Only)
<b>Main Circuit Breakers for 240/120V line Voltage</b>	
A	80 Amp, 2 Pole Circuit Breaker
B	175 Amp, 2 Pole Circuit Breaker
C	250 Amp, 2 Pole Circuit Breaker
<b>Main Circuit Breakers for 208/120V line Voltage</b>	
F	50 Amp, 3 Pole Circuit Breaker
G	100 Amp, 3 Pole Circuit Breaker
H	150 Amp, 3 Pole Circuit Breaker
J	225 Amp, 3 Pole Circuit Breaker

#### Code Ambient Controller

0	None (See Accessories)
5	6040-R00000 1/16 DIN Controller (Panel Door Mounted)

#### Code Enclosure Heater

0	None
1	Thermostat Controlled Enclosure Heater

#### Code Pressurization Control System

0	None
1	Type Z Class 1, Division 2

FPASM- 42 2 1 5(20) 2 5 0 0 Typical Model Number

Technical Notes: (\*) Enter number of circuit breakers in parenthesis

Note: Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

100 Amp Panel Board	Breaker Rating					225 Panel Board	Breaker Rating				
	Maximum Number of Breakers						Maximum Number of Breakers				
	Line Voltage	15 Amp	20 Amp	25 Amp	30 Amp		40 Amp	Line Voltage	15 Amp	20 Amp	25 Amp
Code 1 (1 Pole CB)	16	12	10	8		Code 1 (1 Pole CB)	37	28	22	18	
Code 2 (1 Pole CB)	20	18	15	12		Code 2 (1 Pole CB)	42	42	33	28	
Code 3 (2 Pole CB)	10	10	8	7	5	Code 3 (2 Pole CB)	20	20	19	16	14
Code 4 (2 Pole CB)	8	6	5	4	3	Code 4 (2 Pole CB)	18	14	11	9	7

## WeatherTrace

Freeze Protection

Heat Trace Panels

(cont'd.)

### Ordering Information

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

**Model** 277 VAC 4-Wire; ambient rating 40°C (104°F)

**FPASM** FPASM series Ambient Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPASM series offers the following standard features: NEMA 4 enclosure, Hand/Off/Auto Selector Switch, Load Energized Indicator Lamp, Main Power On Lamp, Main Contactor, and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. The FPASM weatherTRACE Sentinel continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage or ground fault condition triggers automatic alarm condition to an annunciator panel which identifies the faulted zone and a Common Alarm is activated with the Re-Ring Feature. Options include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Remote or Local Ambient Temperature Controller, Enclosure Heater, and Type Z Pressurization System. The FPASM series have UL and cUL Third Party Approvals..

Code	Panelboard	Available Breaker Poles	Enclosure Size HxWxD In, (cm)
181	18 Positions (100 Amp Main Rating)	(8) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
301	30 Positions (100 Amp Main Rating)	(14) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
421	42 Positions (100 Amp Main Rating)	(20) 1-pole breakers	60 x 36 x 10 (152 x 92 x 25)
302	30 Positions (225 Amp Main Rating)	(14) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
422	42 Positions (225 Amp Main Rating)	(20) 1-pole breakers	60 x 36 x 10 (152 x 92 x 25)

Code	Power Source	Heater Load
1	3 Phase Power, 277/480 VAC 4-Wire	277 VAC (240 VAC Cable)

Code	Enclosure Rating
1	NEMA 4 Single-Door, Wall-Mount Steel Enclosure
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 181, 301 & 302)
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 421 & 422)

Code Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)	
1(*)	15 Amp 1-Pole GFI Circuit Breaker for 277 VAC load
2(*)	20 Amp 1-Pole GFI Circuit Breaker for 277 VAC load
3(*)	30 Amp 1-Pole GFI Circuit Breaker for 277 VAC load
4(*)	40 Amp 1-Pole GFI Circuit Breaker for 277 VAC load

Code	Main Disconnect or Main Circuit Breaker Selection
0	None
	Disconnect
1	100 Amp with 25K Fault Protection (Code 181, 301 & 421 Only)
2	250 Amp with 35K Fault Protection
Main Circuit Breakers	
A	30 Amp, 3 Pole Circuit Breaker
B	50 Amp, 3 Pole Circuit Breaker
C	70 Amp, 3 Pole Circuit Breaker
F	125 Amp, 3 Pole Circuit Breaker
G	175 Amp, 3 Pole Circuit Breaker
J	225 Amp, 3 Pole Circuit Breaker

Code	Ambient Controller
0	None (See Accessories)
5	6040-R00000 1/16 DIN Controller (Panel Door Mounted)

Code	Enclosure Heater
0	None
1	Thermostat Controlled Enclosure Heater

Code	Pressurization Control System
0	None
1	Type Z Class 1, Division 2

FPASM- 422 1 1 1(20) 2 5 0 0 Typical Model Number

**Note:** Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

	Breaker Rating			
	Maximum Number of Breakers			
277 VAC	15 Amp	20 Amp	30 Amp	40 Amp
100 amp Panel Board	20	18	12	9
225 amp Panel Board	20	20	20	20

Remote Mounted Control Accessories	PCN
RTAS Thermostat	389589
RTAS-EP Division 2 Thermostat	389597
B-100 NEMA 4X Thermostat	305365
B-121 Division 2 Thermostat	384104
THL NEMA 4X Thermostat	387014
TXL Division 2 Thermostat	387022
LCD-1 Snow Switch	389781



## WeatherTrace Freeze Protection Heat Trace Panels (cont'd.)

### Ordering Information

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

**Model** 240/120 VAC Single-Phase, 208/120 VAC Three-Phase 4-Wire

**FPLSM** FPLSM series Line Sensing Heat Trace Panels are designed for use in industrial Freeze Protection and Snow Melt applications. The Chromalox FPLSM series offers the following standard features: NEMA 4 enclosure, Main Power On Lamp, and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. The FPLSM WeatherTRACE Sentinel continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage or a ground fault condition triggers and automatic alarm to an annunciator panel which identifies the faulted zone and a Common Alarm is activated with the Re-Ring Feature. Options Include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Cabinet Heater, and Type Z Pressurization System. The FPLSM series panels have UL and cUL Third Party Approvals.

Code	Panelboard	Available Breaker Poles	Enclosure Size HxWxD In. (cm)
12	12 Positions (100 Amp Main Rating)	(12) 1-pole breakers or (6) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)
20	20 Positions (100 Amp Main Rating)	(20) 1-pole breakers or (10) 2-pole Breakers	48 x 36 x 10 (122 x 92 x 25)
30	30 Positions (225 Amp Main Rating)	(30) 1-pole breakers or (14) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)
42	42 Positions (225 Amp Main Rating)	(42) 1-pole breakers or (20) 2-pole Breakers	60 x 36 x 10 (152 x 92 x 25)

Code	Line Voltage	Heater Load
1	240/120 VAC, Single Phase, 3 Wire	120 VAC
2	208/120 VAC 3-Phase, 4-Wire	120 VAC
3	208/120 VAC 3-Phase, 4-Wire	208 VAC (240 VAC Cable)
4	240/120 VAC Single Phase, 3 Wire	240 VAC

Code	Enclosure Rating
1	NEMA 4 Single Door, Steel Wall-Mount Enclosure
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)

Code	Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)
1(*)	15 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
2(*)	20 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
3(*)	25 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
4(*)	30 Amp 1-Pole GFI Circuit Breaker for 120 VAC load
5(*)	15 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
6(*)	20 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
7(*)	25 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load
8(*)	30 Amp 2-Pole GFI Circuit Breaker for 208/240 VAC load

Code	Main Disconnect or Main Circuit Breaker Selection
0	None
<b>Disconnects</b>	
1	100 Amp with 65K Fault Protection (Code 12 & 20 Only)
2	250 Amp with 65K Fault Protection (Code 30 & 42 Only)
<b>Main Circuit Breakers for 240/120V Line Voltage</b>	
A	80 Amp, 2 Pole Circuit Breaker
B	175 Amp, 2 Pole Circuit Breaker
C	250 Amp, 2 Pole Circuit Breaker
<b>Main Circuit Breakers for 208/120V Line Voltage</b>	
F	50 Amp, 3 Pole Circuit Breaker
G	100 Amp, 3 Pole Circuit Breaker
H	150 Amp, 3 Pole Circuit Breaker
J	225 Amp, 3 Pole Circuit Breaker

Code	Enclosure Heater
0	None
1	Thermostat Controlled Enclosure Heater

Code	Pressurization Control System
0	None
1	Type Z Class 1, Division 2

FPLSM- 30 2 1 2(30) 3 5 0 Typical Model Number

**Technical Notes:** (\*) Enter number of circuit breakers in parenthesis

**Note:** Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

100 Amp Panel Board					225 Panel Board				
Line Voltage	Breaker Rating				Line Voltage	Breaker Rating			
	Maximum Number of Breakers					Maximum Number of Breakers			
	15 Amp	20 Amp	25 Amp	30 Amp		15 Amp	20 Amp	25 Amp	30 Amp
Code 1 (1 Pole CB)	16	12	10	8	Code 1 (1 Pole CB)	37	28	22	18
Code 2 (1 Pole CB)	20	18	15	12	Code 2 (1 Pole CB)	42	42	33	28
Code 3 (2 Pole CB)	10	10	8	7	Code 3 (2 Pole CB)	20	20	19	16
Code 4 (2 Pole CB)	8	6	5	4	Code 4 (2 Pole CB)	18	14	11	9

## WeatherTrace

Freeze Protection

Heat Trace Panels

(cont'd.)

### Ordering Information

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

**Model 277 VAC 4-Wire; Ambient Rating 40°C (104°F)**

**FPLSM** FPLSM series Line Sensing Heat Trace Panels are designed for use in Freeze Protection and Snow Melt applications. The Chromalox FPLSM series offers the following standard features: NEMA 4 enclosure, Main Power On Lamp, and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. The FPLSM WeatherTRACE Sentinel continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage or a ground fault condition triggers and automatic alarm to an annunciator panel which identifies the faulted zone and a Common Alarm is activated with the Re-Ring Feature. The FPLSM Options Include: NEMA 4X 304 Stainless Steel Enclosures, Main Disconnect Switch, Enclosure Heater, and Type Z Pressurization System. The FPLSM series panels have UL and cUL Third Party Approvals.

Code	Panelboard	Available Breaker Poles	Enclosure Size HxWxD In, (cm)
181	18 Positions (100 Amp Main Rating)	(8) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
301	30 Positions (100 Amp Main Rating)	(14) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
421	42 Positions (100 Amp Main Rating)	(20) 1-pole breakers	60 x 36 x 10 (152 x 92 x 25)
302	30 Positions (225 Amp Main Rating)	(14) 1-pole breakers	48 x 36 x 10 (122 x 92 x 25)
422	42 Positions (225 Amp Main Rating)	(20) 1-pole breakers	60 x 36 x 10 (152 x 92 x 25)

Code	Power Source	Heater Load
1	3 Phase Power, 277/480 VAC 4-Wire	277 VAC (240 VAC Cable)

Code	Enclosure Rating
1	NEMA 4 Single-Door, Wall-Mount Steel Enclosure
2	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 181, 301 & 302)
3	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure; (Code 421 & 422)

Code	Branch Circuit Breaker Selection (DO NOT EXCEED MAIN RATING)
1(*)	15 Amp 1-Pole GFI Circuit Breaker for 277 VAC load
2(*)	20 Amp 1-Pole GFI Circuit Breaker for 277 VAC load
3(*)	30 Amp 1-Pole GFI Circuit Breaker for 277 VAC load

Code	Main Disconnect or Main Circuit Breaker Selection
0	None
<b>Disconnects</b>	
1	100 Amp with 25K Fault Protection (Code 181, 301 & 421 Only)
2	250 Amp with 35K Fault Protection
<b>Main Circuit Breakers</b>	
A	30 Amp, 3 Pole Circuit Breaker
B	50 Amp, 3 Pole Circuit Breaker
C	70 Amp, 3 Pole Circuit Breaker
F	125 Amp, 3 Pole Circuit Breaker
G	175 Amp, 3 Pole Circuit Breaker
J	225 Amp, 3 Pole Circuit Breaker

Code	Enclosure Heater
0	None
1	Thermostat Controlled Enclosure Heater

Code	Pressurization Control System
0	None
1	Type Z Class 1, Division 2

FPLSM- 181 1 1 1(5) 1 0 0 Typical Model Number

**Technical Notes:** (\*) Enter number of circuit breakers in parenthesis

**Note:** Maximum number of circuit breakers is dependent on the panelboard size (see panelboard selection) and the current capacity of the panelboard (see table below)

277 VAC	Breaker Rating		
	Maximum Number of Breakers		
	15 Amp	20 Amp	30 Amp
100 amp Panel Board	20	18	12
225 amp Panel Board	20	20	20