

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 Monitor 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.

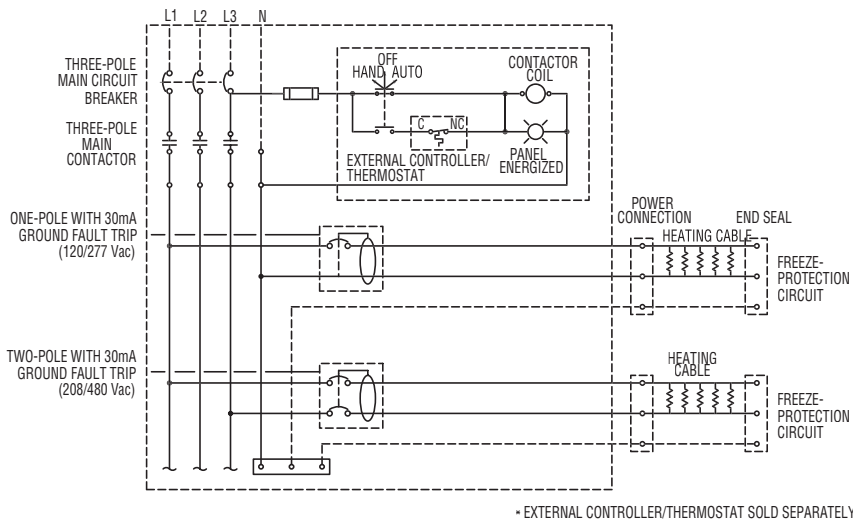
The FPLSM is identical to the FPLS Plug. It features the WeatherTrace Sentinel which continually monitors the supply voltage to each individual heat trace circuit without the need for additional staff. Loss of voltage or a ground fault condition triggers an automatic alarm condition, alerting plant personnel 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.*

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Freeze Protection Heat Trace Panels (cont'd.)

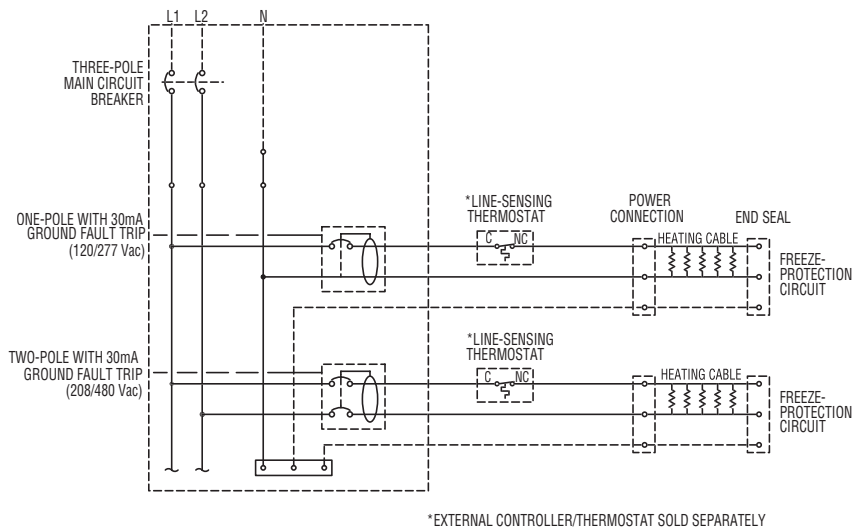
Specifications

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



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

**Line Sensing
Single Phase
240/120**



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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									
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							
	12	12 Positions (100 Amp Main Rating)	(12) 1-pole breakers or (6) 2-pole Breakers							
	20	20 Positions (100 Amp Main Rating)	(20) 1-pole breakers or (10) 2-pole Breakers							
	30	30 Positions (225 Amp Main Rating)	(30) 1-pole breakers or (14) 2-pole Breakers							
	42	42 Positions (225 Amp Main Rating)	(42) 1-pole breakers or (20) 2-pole Breakers							
	Code	Line Voltage	Heater Load				Breaker Poles			
	1	120 Vac	120 Vac				1			
	2	208/120 Vac 3-Phase, 4-Wire	120 Vac				1			
	3	208/120 Vac 3-Phase, 4-Wire	208 Vac (240 Vac Cable)				2			
	4	240-120 Vac 3-Phase	240 Vac				2			
	Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)								
	1	NEMA 4 Single Door, Steel Wall-Mount Enclosure								
	2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)								
	3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)								
	Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)								
	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 Switch Selection								
	0	None								
	1	100 Amp with 65k Fault Protection (Code 12 & 20 Only)								
	2	250 Amp with 65k Fault Protection (Code 30 & 42 Only)								
	Code	Ambient Controller								
	0	None (See Accessories)								
	5	1601E-11030 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 (FPAS-42211(20)2500)	

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)

Remote Mounted Control Accessories	PCN
RTAS Thermostat	389589
RTAS-EP Division 2 Thermostat	389597
B-100 NEMA 4X Thermostat	305365
E-100 NEMA Division 1 Thermostat	305322
LCD-1 Snow Switch	389781

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	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

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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								
FPLS	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 panels have UL and cUL Third Party Approvals.								
	Code	Panelboard	Available Breaker Poles						
	12	12 Positions (100 Amp Main Rating)	(12) 1-pole breakers or (6) 2-pole Breakers						
	20	20 Positions (100 Amp Main Rating)	(20) 1-pole breakers or (10) 2-pole Breakers						
	30	30 Positions (225 Amp Main Rating)	(30) 1-pole breakers or (14) 2-pole Breakers						
	42	42 Positions (225 Amp Main Rating)	(42) 1-pole breakers or (20) 2-pole Breakers						
	Code	Line Voltage	Heater Load			Breaker Poles			
	1	120 Vac	120 Vac			1			
	2	208/120 Vac 3-Phase, 4-Wire	120 Vac			1			
	3	208/120 Vac 3-Phase, 4-Wire	208 Vac (240 Vac Cable)			2			
	4	240-120 Vac 3-Phase	240 Vac			2			
	Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)							
	1	NEMA 4 Single Door, Steel Wall-Mount Enclosure							
	2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)							
	3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)							
	Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)							
	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 Switch Selection							
	0	None							
	1	100 Amp with 65k Fault Protection (Code 12 & 20 Only)							
	2	250 Amp with 65k Fault Protection (Code 30 & 42 Only)							
	Code	Enclosure Heater							
	0	None							
	1	Thermostat Controlled Enclosure Heater							
	Code	Pressurization Control System							
	0	None							
	1	Type Z Class 1, Division 2							
FPLS	20	1	1	1(4)	1	0	0	Typical Model Number (FPLS-20111(4)100)	

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

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Freeze Protection Heat Trace Panels (cont'd.)

Ordering Information

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

Model	FPASM Featuring WeatherTrace Sentinel (120, 208, 240 Vac)									
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 a ground fault condition triggers an 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 panels have UL and cUL Third Party Approvals.									
Code	Panelboard					Available Breaker Poles				
12	12 Positions (100 Amp Main Rating)					(12) 1-pole breakers or (6) 2-pole Breakers				
20	20 Positions (100 Amp Main Rating)					(20) 1-pole breakers or (10) 2-pole Breakers				
30	30 Positions (225 Amp Main Rating)					(30) 1-pole breakers or (14) 2-pole Breakers				
42	42 Positions (225 Amp Main Rating)					(42) 1-pole breakers or (20) 2-pole Breakers				
Code	Line Voltage		Heater Load			Breaker Poles				
1	120 Vac		120 Vac			1				
2	208/120 Vac 3-Phase, 4-Wire		120 Vac			1				
3	208/120 Vac 3-Phase, 4-Wire		208 Vac (240 Vac Cable)			2				
4	240-120 Vac 3-Phase		240 Vac			2				
Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)									
1	NEMA 4 Single Door, Steel Wall-Mount Enclosure									
2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)									
3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)									
Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)									
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 Switch Selection									
0	None									
1	100 Amp with 65k Fault Protection (Code 12 & 20 Only)									
2	250 Amp with 65k Fault Protection (Code 30 & 42 Only)									
Code	Ambient Controller									
0	None (See Accessories)									
5	1601E-11030 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 (FPASM-42215(20)2500)	

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)

Remote Mounted Control Accessories	PCN
RTAS Thermostat	389589
RTAS-EP Division 2 Thermostat	389597
B-100 NEMA 4X Thermostat	305365
E-100 NEMA Division 1 Thermostat	305322
LCD-1 Snow Switch	389781

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	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

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Freeze Protection Heat Trace Panels (cont'd.)

Ordering Information

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

Model	FPLSM featuring WeatherTrace Sentinel (120, 208; 240 Vac)							
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 an 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, Cabinet Heater, and Type Z Pressurization System. The FPLSM series panels have UL and cUL Third Party Approvals.							
Code	Panelboard	Available Breaker Poles						
12	12 Positions (100 Amp Main Rating)	(12) 1-pole breakers or (6) 2-pole Breakers						
20	20 Positions (100 Amp Main Rating)	(20) 1-pole breakers or (10) 2-pole Breakers						
30	30 Positions (225 Amp Main Rating)	(30) 1-pole breakers or (14) 2-pole Breakers						
42	42 Positions (225 Amp Main Rating)	(42) 1-pole breakers or (20) 2-pole Breakers						
Code	Line Voltage	Heater Load			Breaker Poles			
1	120 Vac	120 Vac			1			
2	208/120 Vac 3-Phase, 4-Wire	120 Vac			1			
3	208/120 Vac 3-Phase, 4-Wire	208 Vac (240 Vac Cable)			2			
4	240-120 Vac 3-Phase	240 Vac			2			
Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)							
1	NEMA 4 Single Door, Steel Wall-Mount Enclosure							
2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)							
3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)							
Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)							
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 Switch Selection							
0	None							
1	100 Amp with 65k Fault Protection (Code 12 & 20 Only)							
3	250 Amp with 65k Fault Protection (Code 30 & 42 Only)							
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	0	0	Typical Model Number (FPLSM-30212(30)300)

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)	25	18	15	12	Code 2 (1 Pole CB)	54	42	33	28
Code 3 (2 Pole CB)	14	10	8	7	Code 3 (2 Pole CB)	32	24	19	16
Code 4 (2 Pole CB)	8	6	5	4	Code 4 (2 Pole CB)	18	14	11	9

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Freeze Protection Heat Trace Panels (cont'd.)

Ordering Information

To Order —
Complete the
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Model	FPLA 277 Vac 4-Wire							
FPLS	FPLS Series Line Sensing Heat Trace Panels are designed for use in 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 panels have UL and cUL Third Party Approvals.							
	Code	Panelboard	Available Breaker Poles					
	181	18 Positions (100 Amp Main Rating)	(8) 1-pole breakers					
	301	30 Positions (100 Amp Main Rating)	(14) 1-pole breakers					
	421	42 Positions (100 Amp Main Rating)	(20) 1-pole breakers					
	302	30 Positions (225 Amp Main Rating)	(14) 1-pole breakers					
	422	42 Positions (225 Amp Main Rating)	(20) 1-pole breakers					
	Code	Power Source	Load Voltage					
	1	3 Phase Power, 277/480 Vac 4-Wire	277 Vac (240 Vac Cable)					
	Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)						
	1	NEMA 4 Single-Door, Steel Wall-Mount Enclosure						
	2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)						
	3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)						
	Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)						
	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 Switch Selection						
	0	None						
	1	100 Amp with 25k Fault Protection (Code 181, 301 & 421 Only)						
	2	250 Amp with 35k Fault Protection (Code 302 & 422)						
	Code	Enclosure Heater						
	0	None						
	1	Thermostat Controlled Enclosure Heater						
	Code	Pressurization Control System						
	0	None						
	1	Type Z Class 1, Division 2						
FPLS	181	2	1	1(4)	1	1	0	Typical Model Number (FPLS-181211(4)110)

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

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Freeze Protection Heat Trace Panels

(cont'd.)

**Ordering
Information**

To Order —
Complete the
Model Number
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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		
181	18 Positions (100 Amp Main Rating)						(8) 1-pole breakers		
301	30 Positions (100 Amp Main Rating)						(14) 1-pole breakers		
421	42 Positions (100 Amp Main Rating)						(20) 1-pole breakers		
302	30 Positions (225 Amp Main Rating)						(14) 1-pole breakers		
422	42 Positions (225 Amp Main Rating)						(20) 1-pole breakers		
Code	Power Source						Load Voltage		
1	3 Phase Power, 277/480 Vac 4-Wire						277 Vac (240 Vac Cable)		
Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)								
1	NEMA 4 Single-Door, Steel Wall-Mount Enclosure								
2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)								
3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)								
Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)								
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 Switch Selection								
0	None								
1	100 Amp with 25k Fault Protection (Code 181, 301 & 421 Only)								
2	250 Amp with 35k Fault Protection								
Code	Ambient Controller								
0	None (See Accessories)								
5	1601E-11030 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 (FPAS-302112(10)2510)

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)

	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
E-100 NEMA Division 1 Thermostat	305322
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	FPASM featuring the WeatherTrace Sentinel 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 30 mA Ground Fault Equipment Protection. The FPASM WeatherTrace Sentinel continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage or a ground fault condition triggers an automatic alarm condition to an annunciator panel which identifies the faulted zone and a commom 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 panels have UL and cUL Third Party Approvals.								
Code	Panelboard							Available Breaker Poles	
181	18 Positions (100 Amp Main Rating)							(8) 1-pole breakers	
301	30 Positions (100 Amp Main Rating)							(14) 1-pole breakers	
421	42 Positions (100 Amp Main Rating)							(20) 1-pole breakers	
302	30 Positions (225 Amp Main Rating)							(14) 1-pole breakers	
422	42 Positions (225 Amp Main Rating)							(20) 1-pole breakers	
Code	Power Source						Heater Load		
1	3 Phase Power, 277/480 Vac 4-Wire						277 Vac (240 Vac Cable)		
Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)								
1	NEMA 4 Single-Door, Steel Wall-Mount Enclosure								
2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)								
3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)								
Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)								
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 Switch Selection								
0	None								
1	100 Amp with 25k Fault Protection (Code 181, 301 & 421 Only)								
2	250 Amp with 35k Fault Protection								
Code	Ambient Controller								
0	None (See Accessories)								
5	1601E-11030 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(10)	2	5	0	0	Typical Model Number (FPASM-422111(10)2500)

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)

	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
E-100 NEMA Division 1 Thermostat	305322
LCD-1 Snow Switch	389781

CONTROL SYSTEMS

weatherTRACE™

Freeze Protection Heat Trace Panels

(cont'd.)

**Ordering
Information**

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

Model	FPLSM featuring WeatherTrace Sentinel 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 30 mA Ground Fault Equipment Protection. The FPLSM WeatherTrace Sentinel continually monitors the supply voltage to each individual heat trace circuit. Loss of voltage of a ground fault condition triggers an 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 have UL and cUL Third Party Approvals.							
	Code	Panelboard	Available Breaker Poles					
	181	18 Positions (100 Amp Main Rating)	(8) 1-pole breakers					
	301	30 Positions (100 Amp Main Rating)	(14) 1-pole breakers					
	421	42 Positions (100 Amp Main Rating)	(20) 1-pole breakers					
	302	30 Positions (225 Amp Main Rating)	(14) 1-pole breakers					
	422	42 Positions (225 Amp Main Rating)	(20) 1-pole breakers					
	Code	Power Source	Heater Load					
	1	3 Phase Power, 277/480 Vac 4-Wire	277 Vac (240 Vac Cable)					
	Code	Enclosure 48"H x 36"W x 10"D (Codes 12 & 20), 60"H x 36"W x 10"D (Codes 30 & 42)						
	1	NEMA 4 Single-Door, Steel Wall-Mount Enclosure						
	2	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 12 & 20)						
	3	NEMA 4X Single-Door, Stainless Steel Wall-Mount Enclosure (Codes 30 & 42)						
	Code	Ground Fault Branch Circuit Breaker (see table for maximum number of circuit breakers allowed)						
	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 Switch Selection						
	0	None						
	1	100 Amp with 25k Fault Protection (Code 181, 301 & 421 Only)						
	2	250 Amp with 35k Fault Protection (Code 302 & 422)						
	Code	Enclosure Heater						
	0	None						
	1	Thermostat Controlled Enclosure Heater						
	Code	Pressurization Control System						
	0	None						
	1	Type Z Class 1, Division 2						
FPLS	181	1	1	1(5)	1	0	0	Typical Model Number (FPLS-18111(5)100)

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)

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