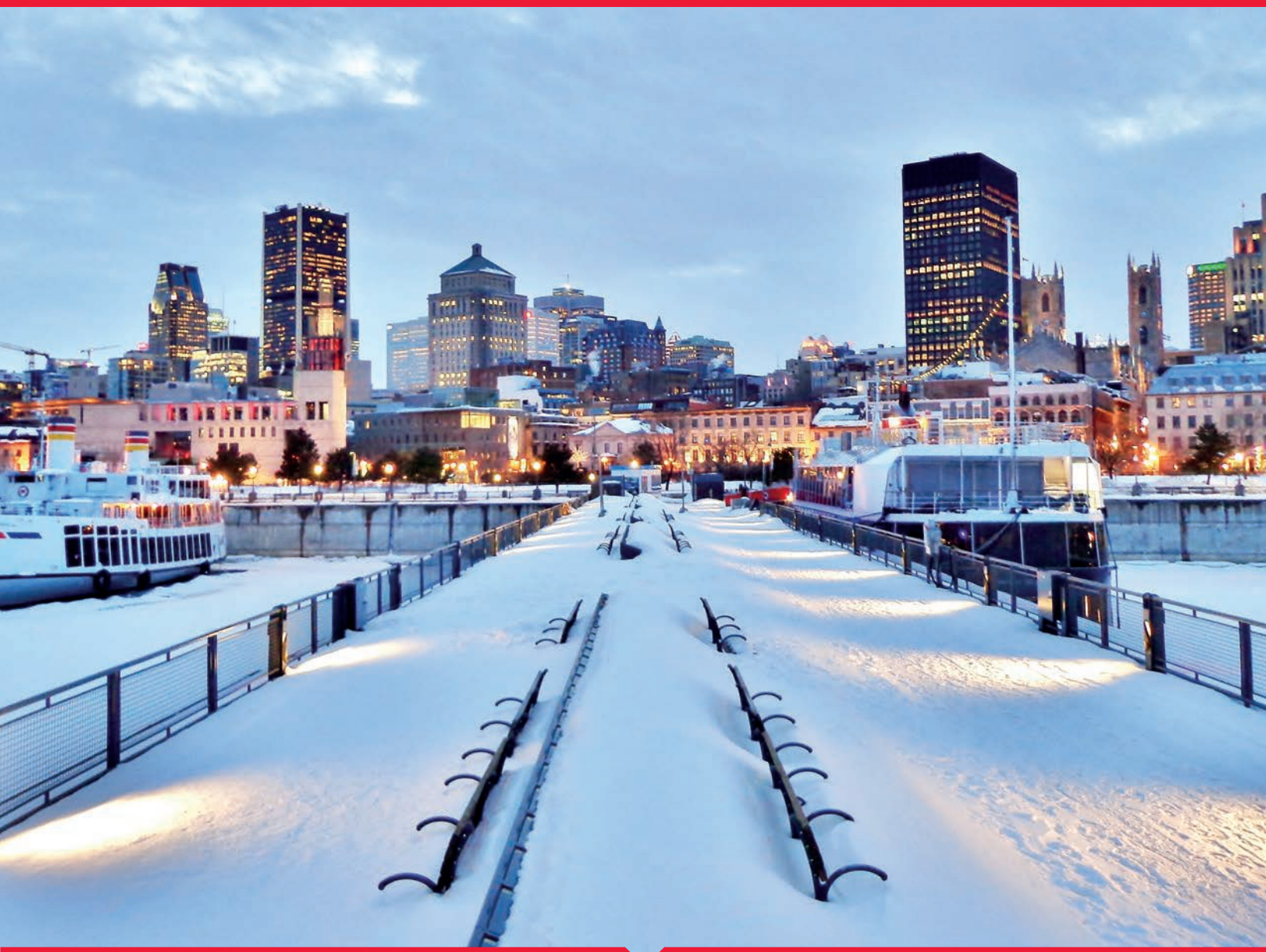
CHROMALOX
Advanced Thermal Technologies



COMMERCIAL HEAT TRACING PRODUCTS

COMMERCIAL HEAT TRACING PRODUCTS

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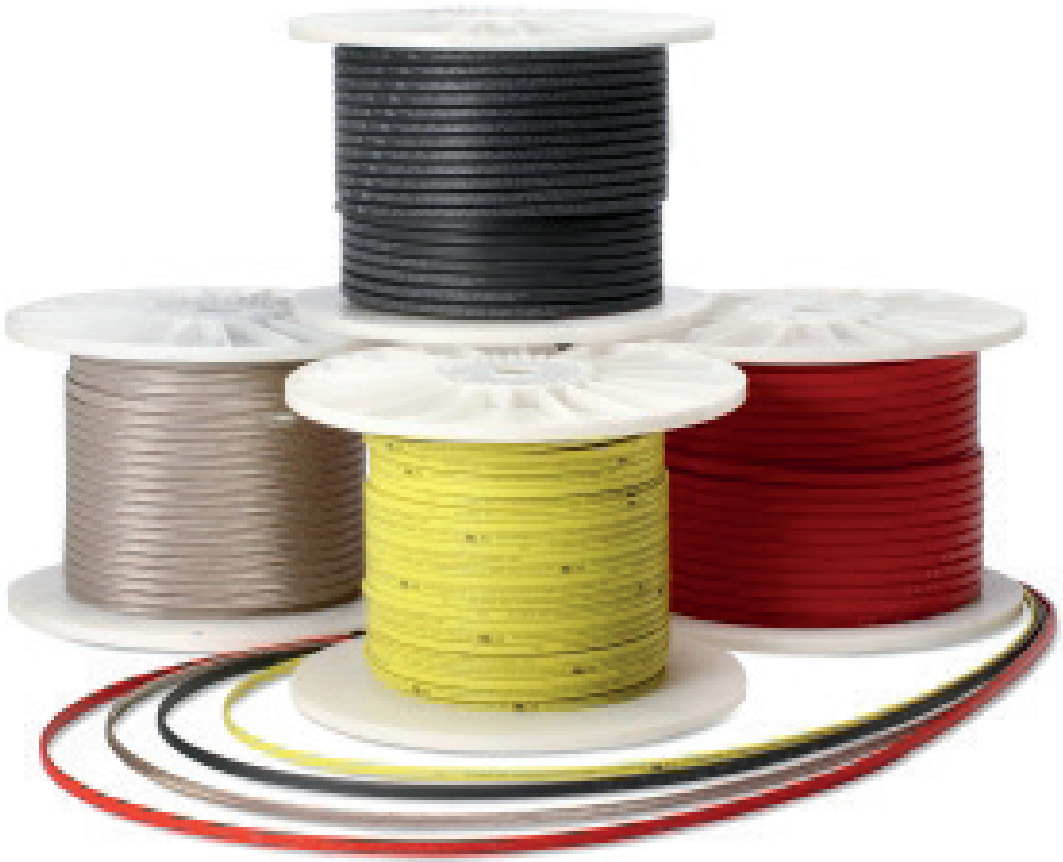
CHROMALOX
Advanced Thermal Technologies



HEATING CABLES

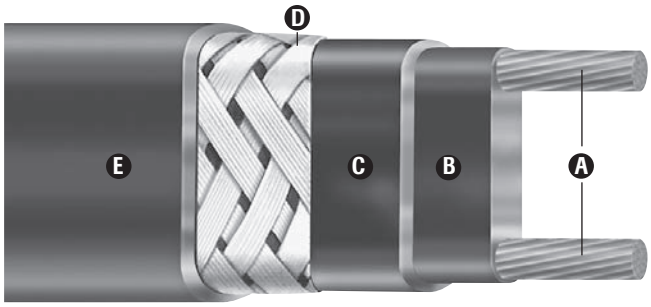
Self-Regulating, Mineral Insulated and Constant Wattage Heating Cables for all of your applications

CPR
Self-Regulating Heat Trace

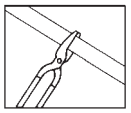
- Self-Regulating, Energy Efficient
- Process Temperature Maintenance to 150˚F (65˚C) (Power On)
- Max. Continuous Exposure Temp. 185°F (65˚C) (Power Off)
- CPR Commercial Applications
- Pipe Freeze Protection
  - Potable & Non-Potable Piping
  - Sanitary & Storm Piping
  - Fire Sprinkler Piping
- Flow Maintenance
  - Greasy Waste Piping
  - Diesel Fuel Piping
- Roof & Gutter De-icing
- Freezer Frost Heave Prevention
- Floor Warming
- TPR or TPE Overjackets
- Circuit Lengths, Up to 660 Ft.
- 3, 5, 8, 10 and 15 W/Ft.
- 120, 208 - 277 Volt From Stock
- Approximate Size 3/8"W x 1/8"H
- Minimum Bend Radius 1-1/8"
- For Use on Metal Pipes, Plastic Pipes, Roofs, and Gutters

Per IEEE 515.1 for Commercial Heating Device installation Type A, B, C or D including on insulated surfaces, outdoor exposed areas, installation with embedded trace heating and installation with trace heater inside conduit or piping.

WARNING — A ground fault protection device is required by NEC to minimize the danger of fire if the heating cable is damaged or improperly installed. A minimum trip level of 30mA is recommended to minimize nuisance tripping.



NEW!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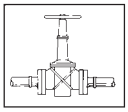
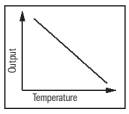

Can be Single Overlapped



Self Regulating Output

Description

Chromalox CPR Cable is a multi-purpose heating cable designed for commercial pipe tracing, roof & gutter deicing, embedded floor warming, and frost heave prevention. Chromalox's CPR Cable is constructed of a self-regulating polymer core that varies its heat output based on sensed temperature along its entire length. It can be easily cut to length, spliced, tee to more easily follow piping networks. In addition to insulated surfaces, Chromalox's CPR Heating Cable can be used on roofs and in gutters to prevent Ice Dams and provide a path for the melt water to excavate the roof surface.

Chromalox's CPR Heating Cable can be placed in conduit and embedded in concrete to prevent frost heave or placed onto concrete slabs for supplemental comfort heat. Chromalox's CPR cable can even be placed inside of conduit for applications making replacement of the heating cable possible. Chromalox's CPR is truly a versatile heating cable solution.

Features

- Energy efficient, self-regulating CPR uses less energy when less heat is required.
- Easy to install, CPR can be cut to any length (up to max. circuit length) in the field.
- Field splices can be performed easily in minutes with no scrap or wasted cold sections.
- CPR can be overlapped without burnout, which simplifies heat tracing of in-line process equipment such as valves, elbows and pumps.
- Because CPR is self-regulating, overtemperature conditions are minimized.
- Chromalox termination, splice, tee and end seal kits reduce installation time.

Construction

A **Twin Nickel Plated 16 AWG Copper Buss Wires —** Provide high electrical current capability.

B **Semiconductive Polymer Core Matrix —** its electrical resistance varies with temperature. As process temperature drops, the core's heat output increases; conversely, as process temperature rises, the heat output decreases.

C **Polyolefin Jacket —** Flame retardant, electrically insulates the matrix and buss wires. Also provides resistance to water and some inorganic chemical solutions.

D **Tinned Copper Braid —** The braid covering the jacket provides additional mechanical protection in any environ- ment and a positive ground path.

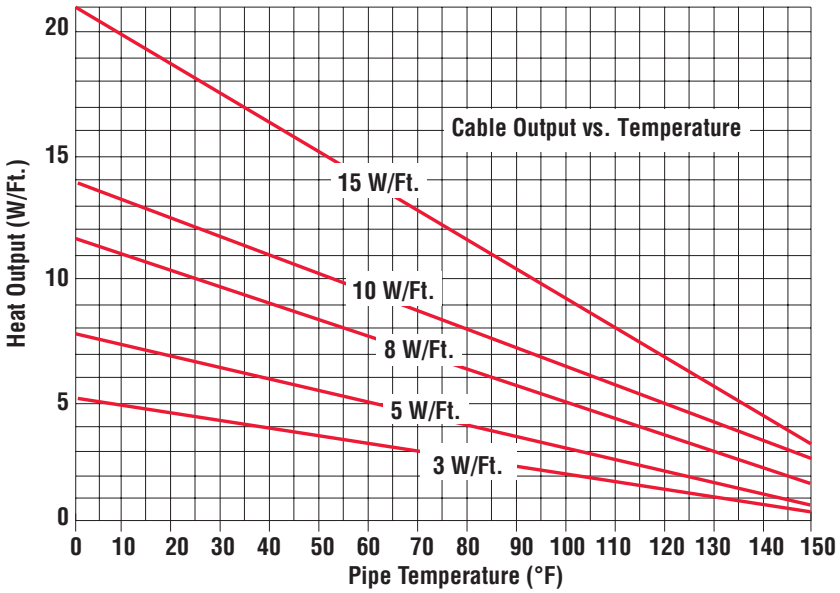
E **High Temperature Fluoropolymer or TPR Overjacket —** Corrosion resistant, flame retardant overjacket is highly effective in many environments. TPR coatings protect against certain inorganic chemical solutions. Fluoropolymer coatings are used for exposure to organic or corrosive solutions. These coatings also protect against abrasion and impact damage.

Approvals

Ordinary areas, roof and gutter, fire supression system piping and grease waste flow maintenance.

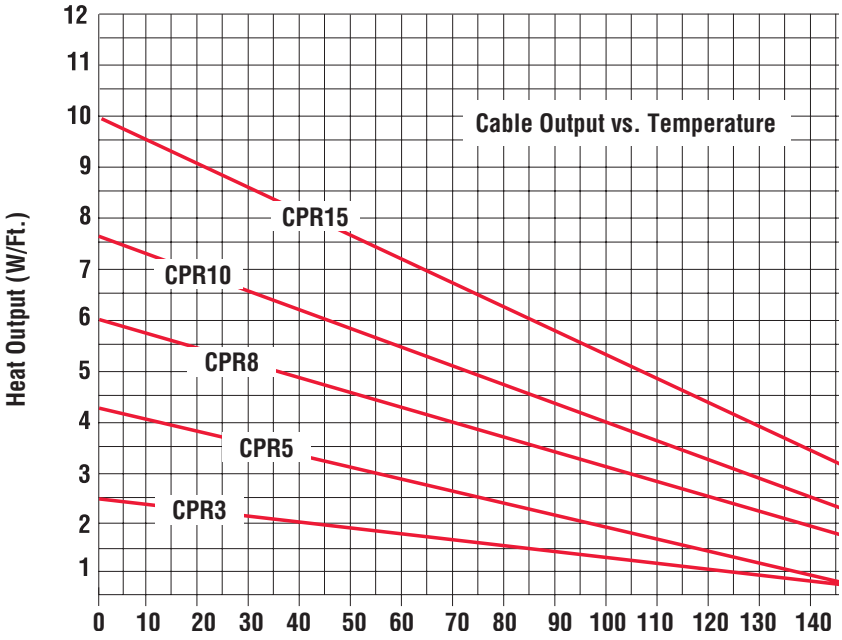
CPR
Self-Regulating Heat Trace *(cont'd.)*

Thermal Output Ratings on Insulated Metal Pipe[1]



Note 1 — Thermal output is determined per IEEE 515-2011 Standard for testing, design installation, and maintenance of electrical resistance heat tracing section 4.1.11 Method C.

Thermal Output Ratings on Plastic Pipe with Aluminum Tape



CPR Heating Cable in Snow - Output W/Ft

Cable Model	Rated @ 50˚F in Air			Rated @ 32˚F in Snow & Ice		
	208V	240V	277V	208V	240V	277V
CPR5-2	4.10	5.00	5.60	7.57	8.80	11.50
CPR8-2	6.88	8.00	8.96	15.65	18.20	21.90
CPR10-2	8.70	10.00	11.10	20.88	24.00	28.00
CPR15-2	13.20	15.00	16.20	28.42	32.30	36.10

Output Wattage at Alternate Voltages (W/Ft.)

Model	208V	% Change In Output	220V	% Change In Output	277V	% Change In Output
CPR 3	2.4	-20	2.6	-13	3.4	+15
CPR 5	4.1	-18	4.5	-10	5.6	+13
CPR 8	6.88	-14	7.28	-9	8.96	+12
CPR 10	8.7	-13	9.2	-8	11.1	+10
CPR 15	13.2	-12	13.95	-7	16.2	+8

CPR

Self-Regulating Heat Trace *(cont'd.)*

Circuit Breaker Selection (Max. Circuit Lengths in Ft.)

Cable Rating	65˚F Start-up (Ft.)				50˚F Start-up (Ft.)			
	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp
CPR3-1	350	440	440	440	305	360	360	360
CPR3-2	680	800	825	825	600	660	660	660
CPR5-1	205	270	300	300	185	250	270	270
CPR5-2	410	550	620	620	375	505	540	540
CPR8-1	165	220	240	240	150	200	215	215
CPR8-2	310	425	480	480	285	375	420	420
CPR10-1	105	140	190	190	95	130	180	180
CPR10-2	210	230	345	420	160	210	315	360
CPR15-1	70	90	145	190	65	85	130	175
CPR15-2	105	150	220	280	100	140	210	265

GREASE FLOW MAINTENANCE

Cable Rating	40˚F Start-up (Ft.)				20˚F Start-up (Ft.)				0˚F Start-up (Ft.)				-40˚F Start-up (Ft.)			
	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp
CPR3-1	265	350	360	360	220	290	360	360	200	270	360	360	160	210	320	340
CPR3-2	525	660	660	660	440	585	660	660	415	555	660	660	320	445	595	625
CPR5-1	170	230	270	270	150	200	270	270	135	180	270	270	105	145	215	225
CPR5-2	340	450	540	540	300	400	540	540	270	360	540	540	215	290	440	510
CPR8-1	135	180	215	215	115	155	215	215	110	145	215	215	85	115	175	195
CPR8-2	270	330	420	420	235	310	420	420	200	265	395	420	175	210	315	400
CPR10-1	90	120	180	180	85	115	170	180	80	90	135	180	65	85	125	170
CPR10-2	150	200	300	360	140	185	280	360	125	170	255	340	110	145	215	300
CPR15-1	60	80	120	165	55	75	110	150	53	70	105	140	45	60	90	120
CPR15-2	95	125	200	250	90	110	180	230	75	100	160	210	65	90	135	175

PIPE FREEZE PROTECTION

Cable Rating	40˚F Start-up (Ft.)				0˚F Start-up (Ft.)				-20˚F Start-up (Ft.)			
	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp
CPR3-1	265	350	360	360	200	270	360	360	180	240	360	360
CPR3-2	525	660	660	660	415	555	660	660	360	480	660	660
CPR5-1	170	230	270	270	135	180	270	270	120	160	240	270
CPR5-2	340	450	540	540	270	360	540	540	225	300	450	540
CPR8-1	135	180	215	215	110	145	215	215	95	130	195	215
CPR8-2	270	330	420	420	200	265	395	420	185	245	365	420
CPR10-1	90	105	160	180	80	90	135	180	70	95	140	180
CPR10-2	185	210	315	360	125	185	275	340	110	150	225	275

ROOF & GUTTER DE-ICING

Cable Rating	0˚F Start-up (Ft.)				-20˚F Start-up (Ft.)			
	15 Amp	20 Amp	30 Amp	40 Amp	15 Amp	20 Amp	30 Amp	40 Amp
CPR3-1	200	270	360	360	180	240	360	360
CPR3-2	415	555	660	660	360	480	660	660
CPR5-1	135	180	270	270	120	160	240	270
CPR5-2	270	360	540	540	225	300	450	540
CPR8-1	110	145	215	215	95	130	195	215
CPR8-2	200	265	395	420	185	245	365	420
CPR10-1	80	90	135	180	70	95	140	180
CPR10-2	125	185	275	340	110	150	225	275

FROST HEAVE PREVENTION

CPR
Self-Regulating Heat Trace *(cont'd.)*

Ordering Information

Output (W/Ft.)	Volts	Model	Stock	PCN	Wt./1000' (Lbs.)
3 @ 50˚F	120	**CPR 3-1CT**	**S**	**512209**	66
		CPR 3-1CR	**S**	**512102**	64
	208-277	**CPR 3-2CT**	**S**	**512217**	66
		CPR 3-2CR	**S**	**512110**	64
5 @ 50˚F	120	**CPR 5-1CT**	**S**	**512225**	66
		CPR 5-1CR	**S**	**512129**	64
	208-277	**CPR 5-2CT**	**S**	**512233**	66
		CPR 5-2CR	**S**	**512137**	64
8 @ 50˚F	120	**CPR 8-1CT**	**S**	**512241**	66
		CPR 8-1CR	**S**	**512145**	64
	208-277	**CPR 8-2CT**	**S**	**512250**	66
		CPR 8-2CR	**S**	**512153**	64
10 @ 50˚F	120	**CPR 10-1CT**	**S**	**512268**	66
		CPR 10-1CR	**S**	**512161**	64
	208-277	**CPR 10-2CT**	**S**	**512276**	66
		CPR 10-2CR	**S**	**512170**	64
15 @ 50˚F	120	**CPR 15-1CT**	**S**	**512284**	66
		CPR 15-1CR	**S**	**512188**	64
	208-277	**CPR 15-2CT**	**S**	**512292**	66
		CPR 15-2CR	**S**	**512196**	64

To Order - Specify length, model, PCN and Installation accessories

Accessories

Accessories		DL	EL
Power Connection	Heat trace to electrical service connection	RTPC	SSK/HSK-PC
Splice & Tee		RTST	RT-RST
End Seal	For terminating cable	RTES	RT-RES
Thermostat	Ambient air sensing thermostat	RTAS	TPR
	Line sensing mechanical thermostat	RTBC	TPR

General Application & Installation Accessories such as tape, pipe straps, warning labels, etc., refer to the Heat Trace Accessories page at the end of this section.

Ordering Information

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

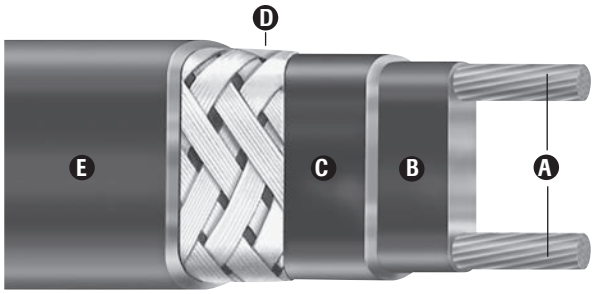
Model	Self-Regulating Freeze Protection			
CPR	Self-Regulating, Commercial Pipe and Roof Heating Cable			
	Code	**Output (Nominal W/Ft.)**		
	3	Three		
	5	Five		
	8	Eight		
	10	Ten		
	15	Fifteen		
		Code	**Voltage**	
		1	120	
		2	208 - 277	
			Code	**Overjacket Options**
			CR	TPR overjacket over braid for protection against certain inorganic chemical solutions
			CT	TPE overjacket over braid for hostile/corrosive environments
CPR	☐ –	☐	☐	**Model Number**

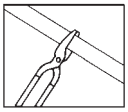
CPM
Self-Regulating Medium Temperature

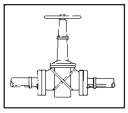
- Self-Regulating, Energy Efficient
- 16 AWG Buss Wire
- Circuit Lengths to 675 Feet
- Process Temperature Maintenance to 302°F (150°C)
- Maximum Continuous Exposure Temperature, Power Off, 420°F (215°C)
- Flow Maintenances
  - Caustic & Soda Piping
  - Diesel Fuel Piping
  - Chemical Feed Piping
- Pipe Freeze Protection
- Steam Cleanable on Process Equipment Up to 300 PSIG
- 5, 8, 10, 15 and 20 W/Ft.
- 120 and 208 - 277 Volt From Stock
- Approximate Size .47"W x .20"H
- Minimum Bend Radius 1-1/8"
- For Use on Metallic Pipes Only

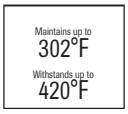
Per IEEE 515.1 for Commercial Heating Device installation Type A, B, C or D including on insulated surfaces, outdoor exposed areas, installation with embedded trace heating and installation with trace heater inside conduit or piping.

WARNING — A ground fault protection device is required by NEC to minimize the danger of fire if the heating cable is damaged or improperly installed. A minimum trip level of 30mA is recommended to minimize nuisance tripping.

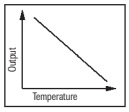



Cut to Length in Field


Can be Overlapped



Exposure



Self Regulating Output

Description

Chromalox CPM is a multi-purpose self regulating heating cable provides safe, reliable heat tracing for caustic, soda, diesel fuel and freeze protection of pipes, valves, and tanks. Chromalox's CPM is constructed of 16 AWG buss wire with metal braid and over-jacketing that varies its heat output based on sensed temperature along its entire length. It can be easily cut to length, spliced, tee to more easily follow piping networks.

CPM ensures operating integrity in most hostile environments. The 420°F (215°C) maximum exposure temperature rating allows steam cleaning of process equipment with up to 300 psig steam.

Chromalox's CPM is truly a versatile heating cable solution.

Features

- Energy efficient, self-regulating CPM uses less energy when less heat is required.
- Easy to install, CPM can be cut to any length (up to max. circuit length) in the field.
- Field splices can be performed easily in minutes with no scrap or wasted cold sections.
- With lower installed cost than steam tracing, CPM features less maintenance expense and downtime.
- CPM can be overlapped without burnout, which simplifies heat tracing of in-line process equipment such as valves, elbows and pumps.
- Because CPM is self-regulating, overtemperature conditions are minimized.
- Chromalox termination, splice, tee and end seal kits reduce installation time.

Construction

A Twin 16 AWG Copper Buss Wires — Provide reliable electrical current capability.

B Semi-Conductive Polymer Core Matrix — "Self-Regulating" component of the cable, its electrical resistance varies with temperature. As process temperature drops, the core's heat output increases; as process temperature rises, the heat output decreases.

C High Temperature Fluoropolymer Jacket Flame retardant, electrically insulates the matrix and provides corrosion resistance.

D Metallic Braid — Provides additional mechanical protection in any environment and a positive ground path.

E High Temperature Fluoropolymer Overjacket — Corrosion resistant, flame retardant overjacket is highly effective in hostile, aqueous and chemically active environments. It also protects against abrasion and impact damage.

Approvals

CSA certified for ordinary areas. and approved for hazardous (classified) areas when used with DL, and EL accessories.

CSA Approved:

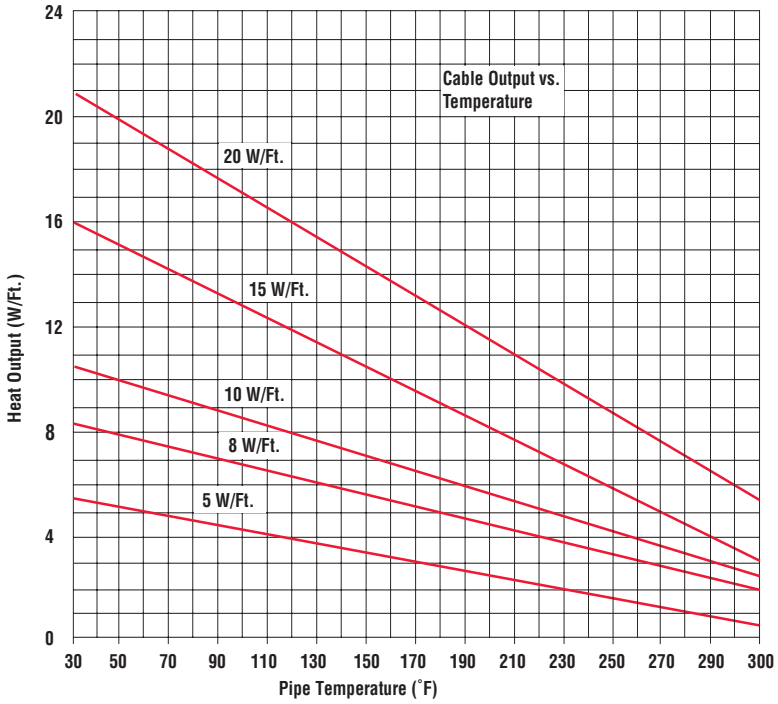
- Class I** , Div. 1 & 2 Groups A*, B, C, D (gases, vapors)
- Class II, Div. 2 Groups E*, F, G (combustible dust)
- Class III, Div. 2 (easily ignitable fibers and fillings)
- 5 and 8 Watt Rated T3 Temperature Class
- 10, 15, and 20 Watt Rated T2D Temperature Class

Note 1 Exception — Cable Surface Temperature shall not exceed 190°C in Class II, Div. 2, Group F; 165°C in Class II, Div. 2 Group G.

CPM

Self-Regulating Medium Temperature *(cont'd.)*

Thermal Output Ratings on Insulated Metal Pipe[1]



Note 1 — Thermal output is determined per IEEE 515-2011 Standard for testing, design installation, and maintenance of electrical resistance heat tracing section 4.1.11 Method C.

Output Wattage at Alternate Voltages (W/Ft.)

Model	208V	% Change In Output	220V	% Change In Output	277V	% Change In Output
CPM-5	3.85	-23	4.25	-15	6.45	+23
CPM-8	6.4	-20	6.88	-14	10.24	+22
CPM-10	8.3	-17	8.80	-12	12.50	+20
CPM-15	12.75	-15	13.50	-10	18.45	+19
CPM-20	17.6	-12	18.40	-8	24.40	+19

Circuit Breaker Selection (Max. Circuit Lengths in Ft.)

Cable Rating	50°F Start-Up (Ft.)				0°F Start-Up (Ft.)				-20°F Start-Up (Ft.)			
	15A	20A	30A	40A	15A	20A	30A	40A	15A	20A	30A	40A
CPM 5-1	162	216	324	338	149	198	297	338	140	189	279	338
CPM 5-2	324	432	648	675	293	387	581	675	279	374	558	675
CPM 8-1	131	171	257	293	122	158	239	293	117	149	225	293
CPM 8-2	257	342	518	585	230	311	468	585	221	302	441	585
CPM 10-1	86	113	171	225	81	99	158	225	77	90	153	221
CPM 10-2	171	230	347	441	149	203	311	441	140	194	297	423
CPM 15-1	63	86	131	171	59	77	113	149	54	72	108	135
CPM 15-2	131	171	261	347	108	158	243	324	104	149	234	306
CPM 20-1	54	68	104	140	45	59	95	126	41	59	90	122
CPM 20-2	104	140	207	275	90	122	180	243	81	117	176	230

NR = Not Required. Maximum circuit length has been reached in a smaller breaker size.
Note — Thermal magnetic circuit breakers are recommended since magnetic circuit breakers could "nuisance trip" at low temperature.

CPM
Self-Regulating Medium Temperature *(cont'd.)*

Ordering Information

Output (W/Ft.)	Volts	Model	Stock	PCN	Wt./1000' (Lbs.)
5 @ 50°F	120	**CPM5-1CT**	**S**	**514298**	100
	208 - 277	**CPM5-2CT**	**S**	**514300**	100
8 @ 50°F	120	**CPM8-1CT**	**S**	**514319**	100
	208 - 277	**CPM8-2CT**	**S**	**514327**	100
10 @ 50°F	120	**CPM10-1CT**	**S**	**514335**	100
	208 - 277	**CPM10-2CT**	**S**	**514343**	100
15 @ 50°F	120	**CPM15-1CT**	**S**	**514351**	100
	208 - 277	**CPM15-2CT**	**S**	**514360**	100
20 @ 50°F	120	**CPM20-1CT**	**S**	**514378**	100
	208 - 277	**CPM20-2CT**	**S**	**514386**	100

To Order — Specify length, model, PCN and installation accessories.

Accessories

Accessories		DL	EL
Power Connection	Heat trace to electrical service connection	RTPC	SSK
Splice & Tee		RTST	RT-TST
End Seal	For terminating cable	RTES	N/A
Lighted End Seal		RTST-SL	N/A
Thermostat	Ambient air sensing thermostat	RTAS	TPR
	Line sensing mechanical thermostat	RTBC	TPR

To Order — General Application & Installation Accessories such as tape, pipe straps, warning labels, etc., refer to the U Series, DL & EL General Application Accessories page at the end of this section.

Ordering Information

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

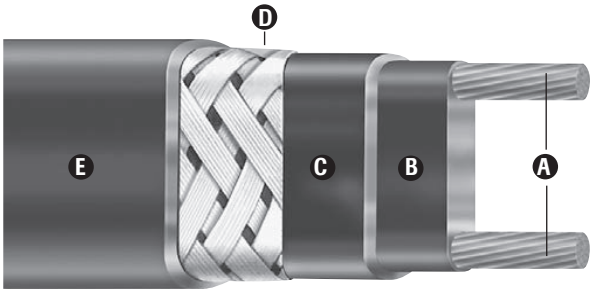
Model	Self-Regulating Medium Temperature		
CPM	Self-Regulating, Medium Temperatue Enhanced Heating Cable		
	Code	**Output (W/Ft.)**	
	5	Five	
	8	Eight	
	10	Ten	
	15	Fifteen	
	20	Twenty	
	Code	**Voltage**	
	1	120	
	2	208 - 277	
	Code	**Overjacket Options**	
	CT	Fluoropolymer corrosion resistant overjacket over braid for hostile/ corrosive environments	
CPM	☐ - ☐	**CT**	**Typical Model Number**

More Information is Available Online on Heat Trace.

Bookmark Your Browser to ***www.chromalox.com*** *and Select* ***Manuals****.*

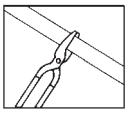
HWM

Hot Water Maintenance Heat Trace Cable

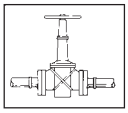


FM APPROVED

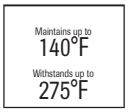
- **Hot Water Maintenance for Temperatures up to 140°F**
- **Heat Output Varies Along Pipe Length to Deliver Heat Where Needed**
- **Circuit Lengths up to 800 ft**
- **16 Awg Buss Wires**
- **Self-Regulating Conductive Core**
- **Fluoropolymer Jacket**
- **Wattages at 5 and 10 w/ft**
- **120 and 208-277 V Cable Available from Stock**



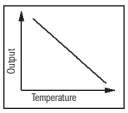
Cut to Length in Field



Can be Overlapped



Medium Temperature



Self Regulating Output

WARNING — A ground fault protection device is required by NEC to minimize the danger of fire if the heating cable is damaged or improperly installed. A minimum trip level of 30mA is recommended to minimize nuisance tripping.

Description

The HWM hot water temperature maintenance system utilizes self-regulating heat trace technology. The system, consisting of the self-regulating cable, connection kits and specialized electronic controls, provides commercial buildings with immediate hot water availability without expensive recirculation systems. It provides a simple, yet energy efficient approach by providing heat at the point where heat loss occurs. Due to the parallel construction of the self-regulating cable, it can be cut to any length, spliced, tee-branched and terminated on site. With this product, energy savings may be derived from multiple sources, such as lower supply line heat loss, eliminated return line heat loss, no pump operating costs and no supply water overheating costs.

Features

- Energy efficient, self-regulating HWM uses less energy when less heat is required.
- Easy to install, HWM can be cut to any length (up to max. circuit length) in the field.
- Field splices can be performed easily in minutes with no scrap or wasted cold sections.
- HWM can be overlapped without burnout, which simplifies heat tracing of in-line equipment such as valves.
- Because HWM is self-regulating, over-temperature conditions are minimized.
- Chromalox termination, splice, tee and end seal kits reduce installation time.

Construction

A **Twin 16 AWG Copper Buss Wires –** Provide reliable electric current capability.

B **Semiconductive Polymer Core Matrix –** "Self-Regulating" component of the cable its electrical resistance varies with temperature. As process temperature drops,the core's heat output increases; as process temperature rises, the heat output decreases.

C **Flame Retardant –** Electrically insulates the matrix and provides corrosion resistance.

D **Metallic Grounding Braid –** Provides additional mechanical protection and a positive ground path.

E **Fluoropolymer Outer Jacket –** Corrosion resistant, flame retardant overjacket is highly effective in many environments. Protects against exposure to organic or corrosive solutions. The overjacket also protects against abrasion and impact damage.

Approvals

FM approved for hot water maintenance applications

HWM
Hot Water Maintenance Heat Trace Cables *(cont'd.)*

Insulation Requirement

Required thickness of fiberglass insulation is determined by nominal pipe size.

Fiberglass Insulation Thickness Selection		
Copper Pipe Size (In.)	IPS Insulation Size (In.)	Insulation Thickness (In.)
1/2	3/4	1/2
3/4	1	1
1	1-1/4	1
1-1/4	1-1/2	1- 1/2
1-1/2	1-1/2	1-1/2
2	2	2
2-1/2	2-1/2	2 1/2
3	3	3

HWM Tracing Selection

To select the proper HWM cable for your applications, use the tables below.

Cable Selection	
120V, 240V or 277V Maintain Temperature (°F) Cable	
105	HWM 5
115	HWM 10
125	HWM 10
140	HWM 10
208V Maintain Temperature (°F) Cable	
105	HWM 5
115	HWM 10
125	HWM 10
140	HWM 10

Maximum Circuit Length (Ft.)

Maximum Circuit Length ft			
	15A	20A	30A
HWM5-1CT	200	270	400
HWM5-2CT	400	540	800
HWM10-1CT	130	155	220
HWM10-2CT	260	310	440

HWM

Hot Water Maintenance Heat Trace Cables *(cont'd.)*

Ordering Information

Model	Volts	Stock	PCN	Wt./1000' (Lbs.)
HWM5-1CT	120	S	387305	66
HWM5-2CT	208-277	S	387348	66
HWM10-1CT	120	S	387250	66
HWM10-2CT	208-277	S	387313	66

To Order – Specify length, model, PCN and installation accessories.

Accessories

Accessories		DL	EL
Power Connection	Heat trace to electrical service connection	RTPC	SSK/HSK-PC
Splice & Tee		RTST	RT-RST
End Seal	For terminating cable	RTES	RT-RES
Thermostat	Ambient air sensing thermostat	RTAS	TPR
	Line sensing mechanical thermostat	RTBC	TPR

General Application & Installation Accessories such as tape, pipe straps, warning labels, etc., refer to the Heat Trace Accessories page at the end of this section.

Ordering Information

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

Model	Hot Water Maintenance Heating Cable
HWM	

Code	Output (W/Ft.)
5	Five
10	Ten

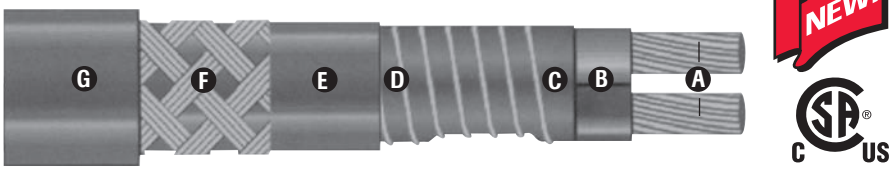
Code	Voltage
1	120
2	208-277

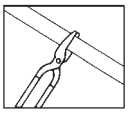
Code	Overcoat
CT	Fluoropolymer corrosion resistant overjacket over braid for hostile/ corrosive environments

HWM	5	–	2	CT	Typical Model Number

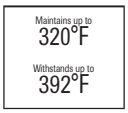
CZH

Constant Wattage Zone Heater

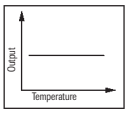




Cut to Length in Field



Medium Temperature



Constant Wattage Output

- **Uniform Thermal Output, Low Energy Cost**
- **No Inrush at Any Ambient**
- **Commercial Construction Applications:**
  - **Pipe Freeze Protection**
    - **Potable & Non-Potable Piping**
    - **Sanitary & Storm Piping**
  - **Flow Maintenance**
    - **Greasy Waste Piping**
    - **Diesel Fuel Piping**
  - **Freezer Frost Heave Prevention**
  - **Floor Warming**
- **Maximum Exposure Temperature, Power Off, 392°F (200°C)**
- **4, 8 and 12 W/Ft.**
- **120 and 208 - 277 Volt From Stock**
- **Approximate Size .30"W x .25"H**
- **Minimum Bend Radius 1-1/4"**
- **For Use on Metallic Pipes**
- **Consult Factory for Use on Plastic Pipes**

WARNING — A ground fault protection device is required by NEC to minimize the danger of fire if the heating cable is damaged or improperly installed. A minimum trip level of 30mA is recommended to minimize nuisance tripping.

Note — Consult maximum maintenance temperature chart for allowable watt densities.

Description

Chromalox CZH Cable is a multi-purpose heating cable designed for commercial pipe tracing, embedded floor warming, and frost heave prevention. Chromalox's CZH Cable is constructed of a parallel heating core that produces uniform thermal output over its entire length. It can be easily cut to length, spliced, tee to more easily follow piping networks.

Chromalox's CZH Heating Cable can be placed in conduit embedded in concrete to prevent frost heave or placed onto concrete slabs for supplemental comfort heat. Chromalox's CZH cable can even be placed inside of conduit for applications making replacement of the heating cable possible. Chromalox's CZH is truly a versatile heating cable solution.

Features

- Durable, non-aging fluoropolymer jacket ensures long service life and can be used in some hostile environments.
- Flexible, easy to install on most equipment and delivers long-term reliable performance.
- Accurate temperature, reliable electric heat that can be consistently controlled and easily monitored.
- Parallel circuitry allows cut-to-length.
- Low profile, uses standard size thermal insulation on piping and process equipment.

Construction

A **Twin 12 AWG Copper Buss Wires —** Provide reliable, consistent electrical current.

B FEP Insulation Jacket — Electrically insulates buss wires.

C Pairing Jacket — Secures two buss wires together and provides wrapping surface for Nichrome wire.

D Nickel Chromium Wire — Heating component of the cable.

E FEP Insulation — Rugged outer sheath protects heating cable, assures longer service life, and provides protection against environmental application hazards.

F Tinned Copper Braid — Plated copper braid increases robust construction, provides ground path and provides additional protection in any location. Suffix "C" in model number.

G FEP Overjacket — Fluoropolymer overjacket, over the braid, provides protection from most aqueous and chemically corrosive solutions. Suffix"T" in model number.

Approvals

CSA Certified for ordinary areas

CZH

Constant Wattage Zone Heater *(cont'd.)*

Specifications

Model	Output (W/Ft.)	Nominal Voltage (Vac)	Circuit Load (Amps/Ft.)	Max. Circuit Length (Ft.)	Length Between Nodes (in.)
CZH 4-1	4	120	0.033	600	36
CZH 8-1	8	120	0.067	290	24
CZH 12-1	12	120	0.100	200	24
CZH 4-2	4	240	0.017	1100	48
CZH 8-2	8	240	0.033	600	36
CZH 12-2	12	240	0.050	400	48

Output Wattage a Various Operating Voltages (per ft.)

Model	120V	208V	220V	240V	277V	480V
CZH 4-1	4	-	-	-	-	-
CZH 8-1	8	-	-	-	-	-
CZH 12-1	12	-	-	-	-	-
CZH 4-2	-	3	3.4	4	5.3	-
CZH 8-2	-	6	6.7	8	10.7	-
CZH 12-2	-	9	10.1	12	16	-

Maximum Allowable Pipe Maintenance Temperature with Power On

Output (W/Ft.)	Temperatures (°F)								
	3	4	6	6.7	8	9	10.1	10.6	12
w/o AT-1 Tape	340	325	293	282	262	246	229	222	200
w/ AT-1 Tape	350	344	332	328	320	314	307	304	296

CZH
Constant Wattage Zone Heater *(cont'd.)*

Ordering Information

Output (W/Ft.)	Nominal Voltage (Vac)	Model	Stock	PCN	Wt./1000' (Lbs.)
4	120	**CZH 4-1CT**	**S**	**390432**	110
	240	**CZH 4-2CT**	**S**	**390440**	110
8	120	**CZH 8-1CT**	**S**	**390459**	110
	240	**CZH 8-2CT**	**S**	**390467**	110
12	120	**CZH 12-1CT**	**S**	**390475**	110
	240	**CZH 12-2CT**	**S**	**390483**	110

Accessories

Accessories		DL	EL
Power Connection	Heat trace to electrical service connection	RTPC	SSK
Splice & Tee		RTST	RT-TST
End Seal	For terminating cable	RTES	N/A
Lighted End Seal		RTST-SL	N/A
Thermostat	Ambient air sensing thermostat	RTAS	TPR
	Line sensing mechanical thermostat	RTBC	TPR

To Order — General Application & Installation Accessories such as tape, pipe straps, warning labels, etc., refer to the U Series, DL & EL General Application Accessories page at the end of this section.

Ordering Information

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

Model	Constant Wattage Zone Heater		
CZH	Constant Wattage Zone Heater		
	Code	**Output (W/Ft.)**	
	4	Four	
	8	Eight	
	12	Twelve	
	Code	**Nominal Voltage (Vac)**	
	1	120	
	2	240	
	Code	**Overjacket Options**	
	CT	Fluoropolymer corrosion resistant overjacket over braid for hostile/ corrosive environments	
CZH	☐ - ☐	**CT**	**Typical Model Number**

More Information is Available Online on Heat Trace.

Bookmark Your Browser to ***www.chromalox.com*** *and Select* ***Manuals****.*

CMi

HDPE Jacketed Mineral Insulated Heat Trace Cable

- **Factory Terminated Heating Sets**
- **Great for Snow Melting or Heat Loss Replacement**
- **Assemblies Rated for Multiple Voltages up to 600V**
- **Corrosion Resistant Copper Jacketed Cables**
- **HDPE Jacketing Protects Against Abrasions and Corrosives**
- **Maximum Exposure Temperature 194°F (90°C)**
- **15' Standard Cold Lead Length**
- **1/2" Cable Gland Size**
- **Heater Voltages up to 600 VAC**
- **8 to 24 W/ft Output Ratings**
- **Lengths from 40 to 846 ft.**

WARNING — A ground fault protection device is required by NEC to minimize the danger of fire if the heating cable is damaged or improperly installed. A minimum trip level of 30mA is recommended to minimize nuisance tripping.

Description

The copper-sheathed, mineral insulated heating cables are covered with an extruded high-density polyethylene (HDPE) jacket and are supplied as complete factory-assembled cables ready to connect to a junction box. The series-type technology, inherent to all mineral insulated heating cables, provides a reliable and consistent heat source that is ideal for embedded snow melting applications. The copper sheath provides an ideal ground path and allows for a rugged yet flexible heating cable that is easy to install.

The MI heating unit consists of the heating cable, the hot-cold joint and the cold lead cables with an appropriate seal and gland. The connecting and sealing of an MI heating unit is critical for safe and reliable operation, please refer to the following pages for standard construction types. The insulation of the inner heating conductor is embedded in magnesium oxide, a non-aging and non-combustible material. A wide range of resistances ensures the termination of a multitude of heating cable lengths with various outputs and nominal voltages. We offer both single core and dual core resistance wires as well as a seamless outer jacket made from Copper + HDPE.

Design B

Single Core Heating Cable with Copper Sheath Bare (right) or HDPE Served (left)

Without earth tail

With earth tail

CMi HDPE Jacketed Mineral Insulated Heat Trace Cable *(cont'd.)*

CMi Order Table

Copper Jacketed, HDPE Skinned, Mineral Insulated Heating Cable											
Copper Jacketed, HDPE Skinned, MI Cable			Cable Type	# of Conduc-tors	Length (Ft.)	Total Watts	Watts/ Ft.	Supply Voltage	Total Amps	Cold Lead Length	Cable Gland
PCN	Part #	Description									
600 Volt Cables											
512305	CMI-600-11000-548-18.3-30	HDPE Jacketed, Copper MI Cable	B	1	548	11,000	20	600	18.33	2@15'	1/ 2"
512313	CMI-600-8000-428-13.3-30	HDPE Jacketed, Copper MI Cable	B	1	428	8,000	19	600	13.33	2@15'	1/ 2"
512321	CMI-600-5800-310-9.67-30	HDPE Jacketed, Copper MI Cable	B	1	323	5,800	18	600	9.67	2@15'	1/2"
512330	CMI-600-4100-225-6.83-14	HDPE Jacketed, Copper MI Cable	B	1	230	4,100	18	600	6.83	2@15'	1/ 2"
480 Volt Cables											
514761	CMI-480-3650-162-7.6-30	HDPE Jacketed, Copper MI cable	B	1	162	3650	22.5	480	7.6	2@15'	1/2"
514790	CMI-480-4200-183-8.8-30	HDPE Jacketed, Copper MI cable	B	1	183	4200	23	480	8.8	2@15'	1/2"
514802	CMI-480-5120-225-10.7-30	HDPE Jacketed, Copper MI cable	B	1	225	5120	22.8	480	10.7	2@15'	1/2"
514810	CMI-480-5910-260-12.3-30	HDPE Jacketed, Copper MI cable	B	1	260	5910	22.7	480	12.3	2@15'	1/2"
514829	CMI-480-7080-310-14.8-30	HDPE Jacketed, Copper MI cable	B	1	310	7080	22.8	480	14.8	2@15'	1/2"
514837	CMI-480-8040-358-16.8-30	HDPE Jacketed, Copper MI cable	B	1	358	8040	22.5	480	16.8	2@15'	1/2"
514845	CMI-480-9370-410-19.5-30	HDPE Jacketed, Copper MI cable	B	1	410	9370	22.9	480	19.5	2@15'	1/2"
514853	CMI-480-11430-504-23.8-30	HDPE Jacketed, Copper MI cable	B	1	504	11430	22.7	480	23.8	2@15'	1/2"
514861	CMI-480-13240-580-27.6-30	HDPE Jacketed, Copper MI cable	B	1	580	13240	22.8	480	27.6	2@15'	1/2"
277 Volt Cables											
514669	CMI-277-1680-75-6.1-30	HDPE Jacketed, Copper MI cable	B	1	75	1680	22.4	277	6.1	2@15'	1/2"
514677	CMI-277-2120-93-7.7-30	HDPE Jacketed, Copper MI cable	B	1	93	2120	22.8	277	7.7	2@15'	1/2"
514685	CMI-277-2410-106-8.7-30	HDPE Jacketed, Copper MI cable	B	1	106	2410	22.7	277	8.7	2@15'	1/2"
514693	CMI-277-2950-130-10.6-30	HDPE Jacketed, Copper MI cable	B	1	130	2950	22.7	277	10.6	2@15'	1/2"
514706	CMI-277-3320-154-12-30	HDPE Jacketed, Copper MI cable	B	1	154	3320	21.6	277	12	2@15'	1/2"
514714	CMI-277-4060-180-14.7-30	HDPE Jacketed, Copper MI cable	B	1	180	4060	22.6	277	14.7	2@15'	1/2"
514722	CMI-277-4680-205-16.9-30	HDPE Jacketed, Copper MI cable	B	1	205	4680	22.8	277	16.9	2@15'	1/2"
514730	CMI-277-5370-238-19.4-30	HDPE Jacketed, Copper MI cable	B	1	238	5370	22.6	277	19.4	2@15'	1/2"
514749	CMI-277-6610-290-23.9-30	HDPE Jacketed, Copper MI cable	B	1	290	6610	22.8	277	23.9	2@15'	1/2"
514757	CMI-277-7680-333-27.7-30	HDPE Jacketed, Copper MI cable	B	1	333	7680	23.1	277	27.7	2@15'	1/2"
514765	CMI-277-9360-410-33.8-30	HDPE Jacketed, Copper MI cable	B	1	410	9360	22.8	277	33.8	2@15'	1/2"
514773	CMI-277-12390-540-44.7-30	HDPE Jacketed, Copper MI cable	B	1	540	12390	22.9	277	44.7	2@15'	1/2"
240 Volt Cables											
512348	CMI-240-17000-717-70.83-30	HDPE Jacketed, Copper MI Cable	B	1	717	17,000	24	240	70.83	2@15'	1/2"
512356	CMI-240-12000-630-50-15	HDPE Jacketed, Copper MI Cable	B	1	640	12,000	19	240	50.00	2@15'	1/2"
512364	CMI-240-9000-550-37.50-30	HDPE Jacketed, Copper MI Cable	B	1	550	9,000	16	240	37.50	2@15'	1/2"
512372	CMI-240-7500-375-31.25-30	HDPE Jacketed, Copper MI Cable	B	1	375	7,500	20	240	31.25	2@15'	1/2"
512380	CMI-240-6000-320-25-30	HDPE Jacketed, Copper MI Cable	B	1	320	6,000	19	240	25.00	2@15'	1/ 2"
512399	CMI-240-5200-280-21.67-30	HDPE Jacketed, Copper MI Cable	B	1	280	5,200	19	240	21.67	2@15'	1/ 2"
512401	CMI-240-4000-215-16.67-30	HDPE Jacketed, Copper MI Cable	B	1	215	4,000	19	240	16.67	2@15'	1/2"
512410	CMI-240-3200-177-13.33-14	HDPE Jacketed, Copper MI Cable	B	1	188	3,200	17	240	13.33	2@15'	1/2"
512428	CMI-240-2000-140-28.80-14	HDPE Jacketed, Copper MI Cable	B	1	150	2,000	13	240	28.80	2@15'	1/ 2"
512436	CMI-240-2100-264-24.69-14	HDPE Jacketed, Copper MI Cable	B	1	264	2,000	8	240	8.75	2@15'	1/2"
208 Volt Cables											
512444	CMI-208-7000-310-33.65-30	HDPE Jacketed, Copper MI Cable	B	1	310	7,000	23	208	33.65	2@15'	1/2"
512452	CMI-208-5500-260-26.44-30	HDPE Jacketed, Copper MI Cable	B	1	262	5,500	21	208	26.44	2@15'	1/2"
512460	CMI-208-3100-132-14.90-30	HDPE Jacketed, Copper MI Cable	B	1	132	3,100	23	208	14.90	2@15'	1/2"
512479	CMI-208-2300-95-11.06-14	HDPE Jacketed, Copper MI Cable	B	1	96	2,300	24	208	11.06	2@15'	1/2"
512487	CMI-208-1600-68-7.69-14	HDPE Jacketed, Copper MI Cable	B	1	71	1,600	23	208	7.69	2@15'	1/2"
120 Volt Cables											
512495	CMI-120-1100-66-9.17-14	HDPE Jacketed, Copper MI Cable	B	1	68	1100	16	120	9.17	2@15'	1/2"
512508	CMI-120-590-40-4.92-14	HDPE Jacketed, Copper MI Cable	B	1	40	590	15	120	4.92	2@15'	1/2"
512516	CMI-120-400-55-3.54-14	HDPE Jacketed, Copper MI Cable	B	1	56	425	8	120	3.54	2@15'	1/2"
512524	CMI-120-220-108-1.83-14	HDPE Jacketed, Copper MI Cable	B	1	107	220	2	120	1.83	2@15'	1/2"

SMC

Snow Melt Series Cables

- **Operating Voltage: 240V & 480V**
- **Output Rating: ± 50 W/ft², Depending on Cable Spacing**
- **Range of Lengths from 84' (25m) up to 500' (152m)**
- **Labor Efficient Dual Conductor Heating Cable**
- **Maximum Exposure Temperature of 464˚F (240˚C)**
- **Cold Lead Length 16.4' (5m)**

Description

Each roll of snow melt series cable has thick heating wire for embedding in concrete, asphalt, or under pavers. The cables come in maximum 500' (152m) length, providing 50 watts per square foot. The cable has a layer of shielding and insulation, suitable for low temperatures, UV resistant and environmentally friendly, making them ideal for outdoor use.

Features

Snow Melt Series Cables

- Easy Installation In Asphalt, Concrete, And Pavers
- Cable Fixed To Easy Roll Out Mat For Quick And Easy Installation

Applications

The cables are ideal for snow melting in the following applications:

- Stairs
- Driveways
- Walkways

Approvals

UL Listed Ordinary Areas
CSA Certified

Applications for Snow Melt Series Cables

Stairs

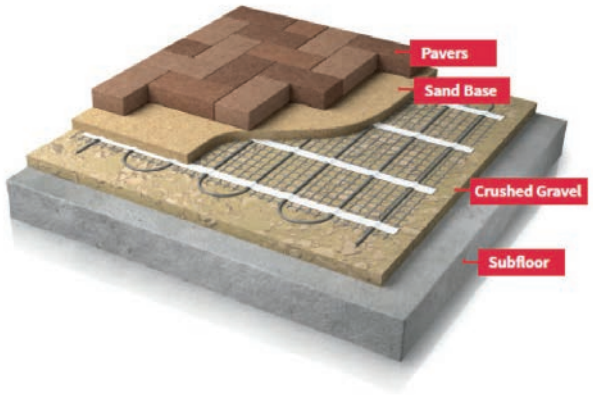
Walkways

Driveways

SMC
Snow Melt Series Cables *(cont'd.)*

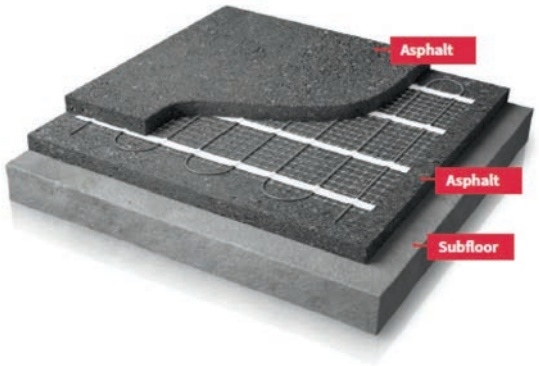
Installation under PAVERS

Cables should be covered with 2" of sand for paver application. Pavers to be maximum 4" thick.



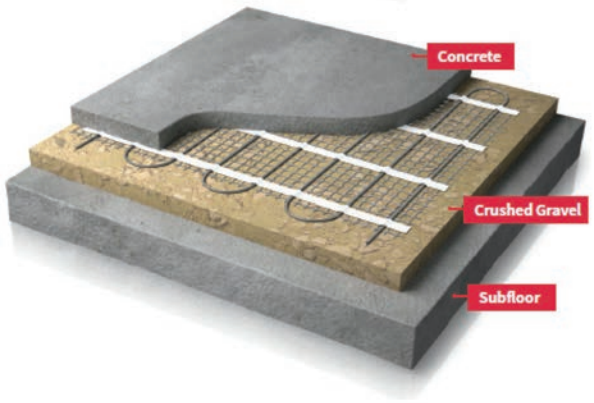
Installation under ASPHALT

Cable will withstand direct asphalt contact for limited time until asphalt cools. For pours hotter than 220˚F, apply a layer of 2" of sand over the cable prior to laying asphalt. Do not use rollers over 2 Ton. Hand-rolling highly recommended.



Installation under CONCRETE

Ensure the pour is 4" maximum over the cable. Use re-mesh or wire mesh to secure the cable in the middle of the pour for deeper pours. Cable/Mats can be zip tied to mesh and mesh can be raised with bricks or pulled during pour.

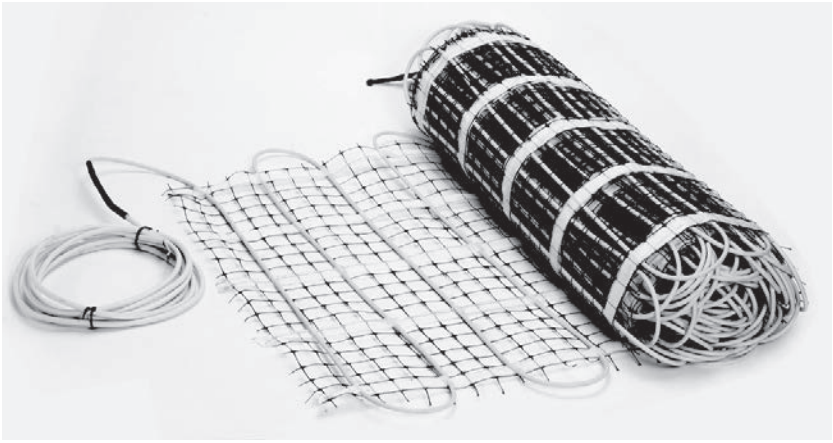


SMC Twin Conductor Series Polymer Snow Melt Cable

Twin Conductor Series Polymer Snow Melt Cable			Sq Foot Coverage When Spaced At			Length Ft	Total Watts	Total Amps	Cold Lead Length	Resistance Ω
PCN	Part#	Description	3"	4"	5"					
480 Volt Cables										
512840	SMC-D-480-1000-84	Twin Conductor Snow Melt Cable, 1/4" Dia.	20	27	34	84	1,000	2.08	16.4	230.77
512858	SMC-D-480-2500-209	Twin Conductor Snow Melt Cable, 1/4" Dia.	51	67	84	209	2,500	5.20	16.4	92.30
512866	SMC-D-480-4000-342	Twin Conductor Snow Melt Cable, 1/4" Dia.	85	110	135	342	4,000	8.33	16.4	57.62
512874	SMC-D-480-6000-500	Twin Conductor Snow Melt Cable, 1/4" Dia.	122	181	200	500	6,000	12.50	16.4	46.15
240 Volt Cables										
512882	SMC-D-240-1000-84	Twin Conductor Snow Melt Cable, 1/4" Dia.	20	27	34	84	1,000	4.20	16.4	57.10
512890	SMC-D-240-2000-168	Twin Conductor Snow Melt Cable, 1/4" Dia.	43	57	72	168	2,000	8.30	16.4	28.90
512903	SMC-D-240-2500-209	Twin Conductor Snow Melt Cable, 1/4" Dia.	51	67	84	209	2,500	10.40	16.4	23.10
512911	SMC-D-240-3000-251	Twin Conductor Snow Melt Cable, 1/4" Dia.	62	84	104	251	3,000	12.50	16.4	19.20
512920	SMC-D-240-4000-330	Twin Conductor Snow Melt Cable, 1/4" Dia.	85	110	135	330	4,000	16.70	16.4	11.50
512938	SMC-D-240-5000-420	Twin Conductor Snow Melt Cable, 1/4" Dia.	100	140	170	420	5,000	20.80	16.4	10.50
512946	SMC-D-240-6000-500	Twin Conductor Snow Melt Cable, 1/4" Dia.	122	181	200	500	6,000	25.00	16.4	9.60

SMM
Snow Melt Mats

- **Operating Voltage: 240V or 480V**
- **Output Rating: ± 50 W/ft²**
- **Mat Width 2' (.61m) or 3' (.91m)**
- **Range of Lengths from 15' (0.9m) up to 120' (36.57m)**
- **Labor Efficient Dual Conductor Heating Cable**
- **Maximum Exposure Temperature of 464˚F (240˚C)**
- **Cold Lead Length 16.4' (.164m)**
- **For Other Voltages, Lengths or Widths, Please Consult Factory**



Description

Each roll of sturdy mesh has a 3" pre-spaced thick heating wire for embedding in concrete, asphalt, or under pavers. The mats come in 2' & 3' widths, providing 50 watts per square foot. The cable has a layer of shielding and insulation, suitable for low temperatures, UV resistant and environmentally friendly, making them ideal for outdoor use.

Applications

The mats are ideal for snow melting in the following applications:

- Stairs
- Driveways
- Walkways

Features

Snow Melt Mats

- Easy Installation in asphalt, concrete and pavers
- Cable fixed to Easy Roll out mat for quick and Easy Installation

Snow Melt Controls

- 2 Zone Control in one unit
- Can be switched to standby or forced on to override timer settings in extreme weather
- Economical Control of ice and snow melting.
- Indoor Mounting

Approvals

UL Listed Ordinary Areas

CSA Certified

Applications for Snow Melt Mats

Stairs

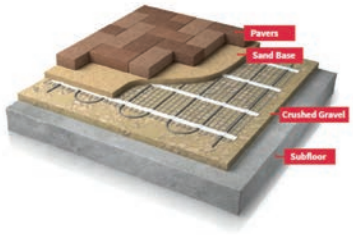
Walkways

Driveways

SMM
Snow Melt Mats *(cont'd.)*

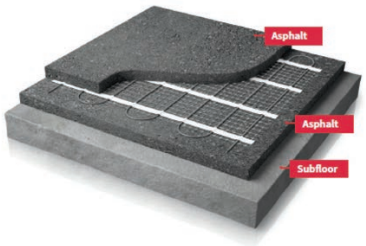
Installation under PAVERS

Cables should be covered with 2" of sand for paver application. Pavers to be maximum 4" thick.



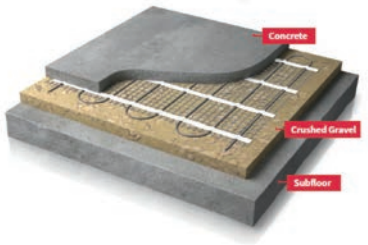
Installation under ASPHALT

Cable will withstand direct asphalt contact for limited time until asphalt cools. For pours hotter than 220˚F, apply a layer of 2" of sand over the cable prior to laying asphalt. Do not use rollers over 2 Ton. Hand-rolling highly recommended.



Installation under CONCRETE

Ensure the pour is 4" maximum over the cable. Use re-mesh or wire mesh to secure the cable in the middle of the pour for deeper pours. Cable/Mats can be zip tied to mesh and mesh can be raised with bricks or pulled during pour.

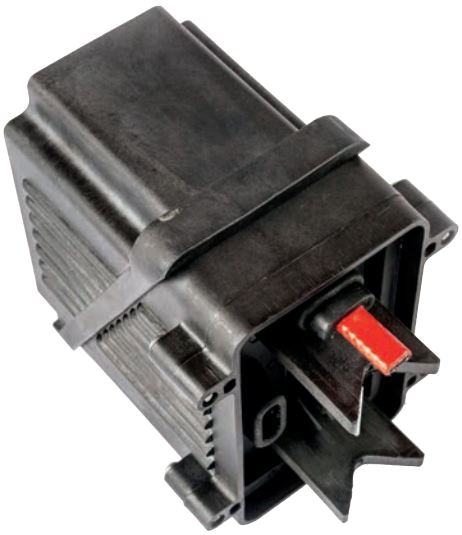


Commercial PVC Jacketed, Constant Wattage Heating Cable with Mesh Mat

Surface Snow Melting							
Dual Conductor Cable - 16' Cold Lead							
PCN	Model Number	SS	Total Watts	Length (Ft.)	Total Amps	Watts/Sq. Ft.	Weight (Lbs.)
2'-0" Wide Mat - Max 240 Volt Cable							
513800	SMM-D-240-300-2X3	ST	300	3'-0"	1.3	50	2
513818	SMM-D-240-500-2X5	ST	500	5'-0"	2.1	50	3
513797	SMM-D-240-1000-2X10	ST	1000	10'-0"	4.2	50	6
513826	SMM-D-240-1500-2X15	ST	1500	15'-0"	6.3	50	9
513789	SMM-D-240-2000-2X20	ST	2000	20'-0"	8.3	50	10
513770	SMM-D-240-2500-2X25	ST	2500	25'-0"	10.4	50	13
513834	SMM-D-240-3000-2X30	ST	3000	30'-0"	12.5	50	14
513842	SMM-D-240-3500-2X35	ST	3500	35'-0"	14.6	50	17
513850	SMM-D-240-4000-2X40	ST	4000	40'-0"	16.7	50	18
513869	SMM-D-240-4500-2X45	ST	4500	45'-0"	18.8	50	20
513762	SMM-D-240-5000-2X50	ST	5000	50'-0"	20.8	50	28
513754	SMM-D-240-6000-2X60	ST	6000	60'-0"	25	50	33
2'-0" Wide Mat - Max 480 Volt Cable							
513877	SMM-D-480-1500-2X15	ST	1500	15'-0"	3.13	50	9
513885	SMM-D-480-2000-2X20	ST	2000	20'-0"	4.17	50	10
513893	SMM-D-480-3000-2X30	ST	3000	30'-0"	6.25	50	14
513906	SMM-D-480-4000-2X40	ST	4000	40'-0"	8.33	50	18
513914	SMM-D-480-6000-2X60	ST	6000	60'-0"	12.5	50	33
3'-0" Wide Mat - Max 240 Volt Cable							
513922	SMM-D-240-1500-3X10	ST	1500	10'-0"	6.3	50	9
513930	SMM-D-240-3000-3X20	ST	3000	20'-0"	12.5	50	14
513949	SMM-D-240-3750-3X25	ST	3750	25'-0"	15.6	50	18
513957	SMM-D-240-4500-3X30	ST	4500	30'-0"	18.8	50	20
513965	SMM-D-240-6000-3X40	ST	6000	40'-0"	25	50	33

*Custom options available. Consult Factory for more information.

CHROMALOX
Advanced Thermal Technologies



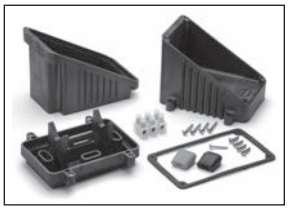
CONNECTION KITS

Power Connection, Tees, Crosses and End Seals

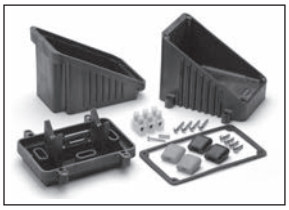
DL
Commercial Connection Accessories

- **Power Connection Box**
  - **NEMA 4X Enclosure**
  - **Cable Entry Up to 3 Cables**
  - **3/4" Conduit Hub Opening**
- **Splice & Tee Box**
  - **NEMA 4X Enclosure**
  - **Cable Entry Up to 3 Cables**
  - **Straight or Tee Connections**
- **End Seal Fitting**
  - **NEMA 4X Enclosure**
  - **Fits All Pipe Sizes**
  - **Mounting Feet for Installing on Flat Surfaces**
- **Stainless Steel Hardware**
- **Corrosion & Weather Resistant Ryton® Construction**

RTPC



RTST



RTES

Description

The DL Series Installation Accessories for Chromalox heat tracing products represents the state of the art in heat tracing. Each model in the series is designed to satisfy the demands of a particular operation. These high-quality models combine a variety of functions in a convenient, easy to use and economical package.

Applications

Connection of all Rapid Trace Heating Cables to Customer Supplied Power Wiring in any of the following applications:

- Hydrocarbon and Chemical Product Piping
- Process Temperature Maintenance
- Fluid Flow and Viscosity Maintenance
- Freeze Protection.

Features

- Molded of Durable Plastic Material (Ryton®, PPS)1
- High Service Temperature
- Corrosion Resistant
- Integrated Connection Accessories and Controls
- Thermal Stability
- Non-Flammable
- High Strength and Rigidity
- Stainless Steel Hardware to Ensure the Integrity of the System
- Liquid Tight Design prevents moisture from reaching the electrical connections. All models are rated NEMA 4X.

Approvals[2]

UL, CSA, FM Approved for most models, consult specific product information.

UL Listed for ordinary areas

CSA Certified for ordinary and:
- Class I, Div. 2, Groups A, B, C, D
- Class II, Div. 2, Groups E, F, G

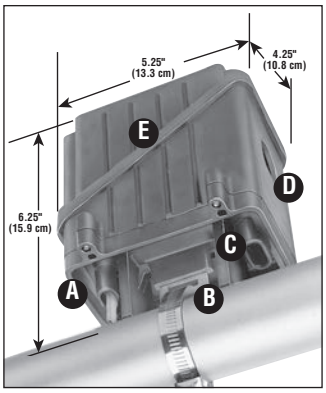
FM Approved for ordinary and:
- Class I, Div. 2, Groups B, C, D
- Class II, Div. 2, Groups E, F
- Class III, Div. 2 Areas.

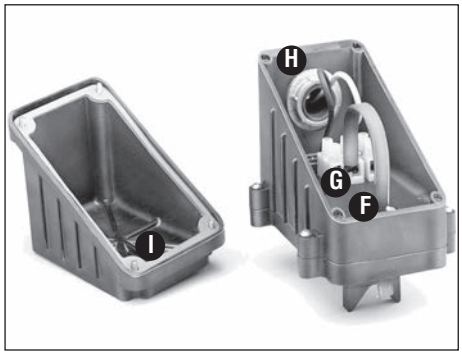
Notes —
1. Ryton®, is a registered trade name of Phillips Chemical Company.
2. Depends on specific model and cable applied.

DL
Commercial Connection Accessories *(cont'd.)*

RTPC — Power Connection Kit

RTPC Power Connection Box is a NEMA 4X rated junction box designed to connect all Chromalox Rapid Trace Heating Cables to customer supplied power wiring. This kit provides waterproof cable entry for up to three cables, enclosure support, terminal block and a waterproof, corrosion resistant wiring enclosure with an opening to accept a 3/4" conduit hub (Chromalox CH-75 or equal). A pipe strap (Chromalox SS or equal) is required to attach this model to a pipe.





RTPC — Power Connection Kit

1 molded junction box consisting of:
- 1 base
- 1 box w/conduit opening
- 1 lid

1 three position terminal block
1 mounting screw for terminal block
1 GRSR self-regulating cable sealing grommet
1 GRCW constant wattage sealing grommet

Ordering Information — RTPC

Model	PCN	Stock	Wt. (Lbs.)
RTPC	513105	S	1
RTPC-SL1	513113	S	2
RTPC-SL2	513121	S	2
RTPC-SL3	513130	S	2

Construction

A Three strategically placed cable entries allow maximum flexibility for insulation (Heating cable cut away for clarity).

B Stainless steel tiedown support provides positive attachment to pipes.1

C Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.

D Opening for 3/4" (20 mm) conduit hub.1

E Oblique sided box and cover allow easy access for wiring.

F Cable grommets provide water-tight seal between base, box and cable. Use GRSR with all self-regulating cable. Use GRCW for constant wattage cables. One of each grommet included in kit. See table below for spare grommets.

G Three position terminal block for easy wiring.

H Power wiring entry. Conduit hub not included.[1]

I Gasket provides water-tight seal between box and lid. It is affixed to the lid and holds the mounting hardware during assembly.

Note 1 — Refer to DL & EL General Application Accessories at the end of this section.

RTPC-SL — Power Connection Kit w/Signal Light (Ordinary Area Only)

1 molded junction box consisting of:
- 1 base
- 1 box w/conduit opening
- 1 lid w/signal light installed (LED style) Specify: SL1(120V), SL2(208-240V), SL3(277V) operation

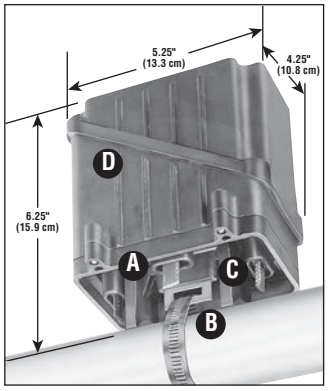
1 three position terminal block
1 mounting screw for terminal block
1 GRSR self-regulating cable sealing grommet
1 GRCW constant wattage sealing grommet

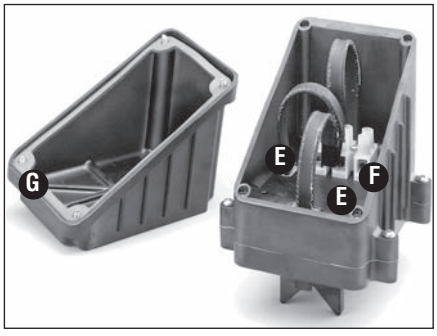
Spare Grommets		PCN
GRS	RTD/Capillary type	**513287**
GR0	Blank	**513295**
GRSR	Self Regulating type	**513308**
GRCW	Constant Wattage type	**513316**

DL
Commercial Connection Accessories *(cont'd.)*

RTST — Splice & Tee Kit

RTST Splice & Tee Box is a NEMA 4X rated junction box designed to make straight or tee splices for all Chromalox Rapid Trace Heating Cables. This model provides waterproof cable entry (for two cables for a splice or three cables for a tee), enclosure support, terminal block and a waterproof, corrosion resistant wiring enclosure. A pipe strap (Chromalox SS or equal) is required to attach this model to a pipe.





RTST — Splice & Tee Kit

1 molded junction box consisting of:
- 1 base
- 1 box
- 1 lid

1 three position terminal block
1 mounting screw for terminal block
3 GRSR Self-regulating cable sealing grommet
3 GRCW Constant wattage sealing grommets

Ordering Information — RTST

Model	PCN	Stock	Wt. (Lbs.)
RTST	**513148**	**S**	1
RTST-SL1	**513156**	**S**	2
RTST-SL2	**513164**	**S**	2
RTST-SL3	**513172**	**S**	2

Construction

A Three strategically placed cable entries allow maximum flexibility for insulation (heating cable cut away for clarity).

B Stainless steel tiedown support provides positive attachment to pipes.[1]

C Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.

D Oblique sided box and cover allow easy access for wiring. Cable grommets provide water-tight seal between base, box and cable. Use GRSR with all self-regulating cable. Use GRCW for constant wattage cables. Three of each grommet included in kit. See table below for spare grommets.

E Three position terminal block for easy wiring.

F Gasket provides water-tight seal between box and lid. It is affixed to the lid and holds the mounting hardware during assembly.

Note 1 — Refer to DL & EL General Application Accessories at the end of this section.

RTST-SL — Splice & Tee Kit w/Signal Light (Ordinary Area Only)

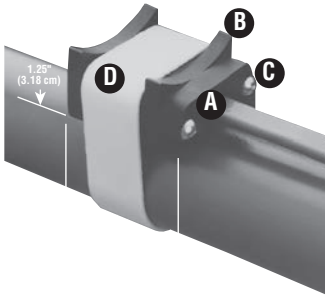
1 molded junction box consisting of:
- 1 base
- 1 box
- 1 lid w/signal light installed (LED style)
  Specify: SL1 for 120 Volt, SL2 for 208-240 Volt, SL3 for 277 Volt operation

1 three position terminal block
1 mounting screw for terminal block
1 GRSR Self-regulating cable sealing grommet
1 GRCW Constant wattage sealing grommet

Spare Grommets

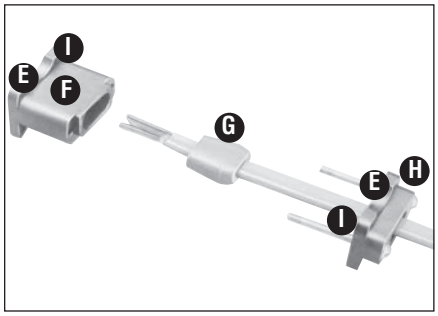
		PCN
GRS	RTD/Capillary type	**513287**
GR0	Blank	**513295**
GRSR	Self Regulating type	**513308**
GRCW	Constant Wattage type	**513316**

DL
Commercial Connection Accessories *(cont'd.)*



RTES — End Seal Kit

RTES End Seal Fitting is a NEMA 4X rated enclosure designed to terminate all Chromalox Rapid Trace Heating Cables. This model provides waterproof cable entry for one cable, enclosure support and a waterproof corrosion resistant enclosure. The fitting has two different curved mounting surfaces. One side has a 1-1/2" radius curved surface that provides stable support on pipes with a diameter of 3" or more. The other side has a 1/2" radius curved surface which permits a better fit on smaller pipes. In addition, this side also has four "feet" for installation on flat surfaces.



Construction

- **A** Cable entry.
- **B** Three inch diameter curved mounting surface.
- **C** Captured stainless steel hardware.
- **D** One inch wide strapping channel for secure mounting.
- **E** One-half inch radius curved mounting surface.
- **F** End cap.
- **G** Cable grommet provides water-tight seal between end cap and pressure plate. Use GRSR with all self-regulating cables. Use GRCW with constant wattage cables. One of each grommet included in kit. See table below for spare grommets.
- **H** Pressure plate.
- **I** Mounting feet for installation on flat surfaces.

RTES — End Seal Kit

1 end cap
1 pressure plate
1 GRSR Self-regulating cable sealing grommet
1 GRCW Constant wattage cable sealing grommet

Ordering Information — RTES

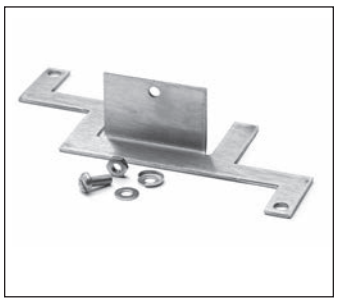
Model	PCN	Stock	Wt. (Lbs.)
RTES	513180	S	1

Spare Grommets

		PCN
GRS	RTD/Capillary type	513287
GR0	Blank	513295
GRSR	Self Regulating type	513308
GRCW	Constant Wattage type	513316

DL Accessory Components

MP-1 (514239)



Mounting Plate Kit Attachments

For installing RTPC and RTST kits on flat surfaces. Kit includes:
1 mounting plate
1 lock washer
1 bolt
1 washer
1 nut

Note — The complete line of DL & EL Mounting Accessories is located at the end of this section.

EL
Standard Connection Accessories

- **Junction Box Connection Kits for CPR and CZH Applications**
- **Splice & Tee Kits for CPR and CZH Applications**
- **End Seal Kits for CPR Applications**

Description

Each model in the EL Series Installation Accessories for Chromalox Rapid Trace Heating Cable products is designed to satisfy the demands of a particular operation. These high-quality models combine a variety of functions in a convenient, easy to use and economical package.

Applications

Connection of selected rapid trace heating cables to customer supplied power wiring in any of the following applications:

- Freeze protection
- Hydrocarbon and chemical product piping
- Process temperature maintenance
- Fluid flow and viscosity maintenance.

Approvals

UL	Listed for ordinary areas
CSA	Certified for ordinary areas
FM*	Approved for ordinary areas

Ordering Information

Model	Used With
Power Connection Kit	
SSK PJB	CPR-CR, CPR-CT, CZH, HWM-CT
HSK-PC †	CPR-CR, CPR-CT
Splice & Tee Kit	
RT-RST RT-TST	CPR-CR, HWM-CT, CPR-CT
End Seal Kit	
RT-RES	CPR-CR, CPR-CT

To Order — Refer to the DL & EL General Application Accessories in this section.

* Does not include PJB

† SSK to have these approvals when a junction box is used that is NEMA 4X rated and certified by appropriate third party agency for use for that application and hazardous location rating (Div. 2)

EL

Standard Connection Accessories *(cont'd.)*

Accessories

Junction Box Connection Kit SSK (514204)

(1) compression fitting
(1) pipe stand off
(1) tube of RTV sealant
(1) O-ring
(1) 1" locknut
(1) self-regulating cable grommet
(1) constant wattage cable grommet
(1) silicone boot
(2) uninsulated barrel connectors
(2) insulated barrel connectors

Rain Tight Junction Box PJB (514191)

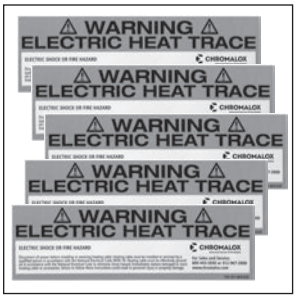
Polycarbonate watertight enclosure for use with SSK

End Seal Kit (for CPR cable) RT-RES (513324)

(5) 1/2" diameter heat shrink caps

Conduit Hub w/Grounding Lug CH-75 (512751)

Corrision resistant hub for 3/4" conduit. Fits opening in PJB, DL and CTS. Includes ground connector.



Caution Labels WL-05 (512743)

(5) electric heat tracing caution labels, weather resistant

Splice & Tee Kit (for CZH Cable) RT-TST (514280)

(5) 7" long large heat shrink tubes
(10) 1-1/2" long small heat shrink tubes
(5) 10" lengths of sealant tape
(15) uninsulated barrel connectors
(1) tube of RTV sealant

Splice & Tee Kit (for CPR cable) RT-RST (514212)

(5) 8" long heat shrink tubes
(5) 1/2" lengths of sealant tape
(10) insulated barrel connectors
(5) uninsulated barrel connectors

Power Connection & End Seal Kit HSK-PC (387495)

Heat shrink power and end termination kit for CPR heat trace cables. CSA approved for grease waste, frost heave and freeze protection applications.

RG
Connection/End Seal Kits

RG-PK-PAK
PCN 386505

Power termination with pipe mounting bracket, one end seal, seven warning labels.

RG-SK-PAK R&G Splice Kit
PCN 386513

Materials to make two splice connection. Special weatherproof sleeving to insure trouble-free operation.

RG-EK-PAK R&G End Seal Kit
PCN 386521

Materials to make three end seals.

RCK-PAK R&G Roof Clips
PCN 386530

Pack of ten (10) Roof clips to attached heating cable to surface.

RDK-PAK R&G Downspout Hanger Kit PCN 386411

Materials to suspend cable down a downspout.

Three downspout per kit.

CHROMALOX
Advanced Thermal Technologies

FREEZE PROTECTION CONTROLS

Digital Controllers for Pipe Freeze and Flow Maintenance Applications with Ground Fault, Alarms and Display Panels for User Feedback

Chroma-FP

Commercial Freeze Protection Controller

- **Automatic Control for Heat Tracing and Freeze Protection**
- **Integrated Electronic Controller with Backlit LCD Display**
- **Adjustable Temperature Set-point**
- **User Friendly Interface**
- **Multiple Sensors Input – Optional**
- **Up to 30A & 120/208/240V outputs to the heaters load**
- **30mA Integrated Ground Fault Sensor**
- **Adjustable Hold-On-OFF Delay**
- **Optional Manual On Override**
- **Technician Test/Commissioning Mode for Easy and Fast System Testing Year Round**
- **ETL Certification (US and Canada)**
- **Includes 30ft Termistor**
- **ROHS**

NEW!

C ETL US LISTED
Intertek

Description

The Chroma-FP series of controls is a "Plug and Play" controller for freeze protection applications. When the temperature drops below the adjustable set-point, it activates the contactor energizing the heating elements.

The Technician mode allows installers or technicians to adjust the parameters for customized installations using the electronic controller installed in the front panel.

The Chroma-FP Built-in Ground Fault interrupter allows manual reset from the front panel. Three LEDs visible through the transparent plastic cover provides information about the status of the system.

Chroma-FP Models

- Chroma-FP1 – Power box with 1 contactor (30A) & 120V output to heaters
- Chroma-FP2 – Power box with 1 contactor (30A) & 240V output to heaters

Specifications

Chroma-FP Controller

Indoor Ambient Operating Temperature ..... –10°F to 122°F (-10° C to 50°C)

Power Switching. .....Mechanical

Number of Circuits 1

Input Voltage.....120, 208 or 240 VAC

Heater Voltage.....120, 208 or 240 VAC

Communications. ..... Modbus (optional)

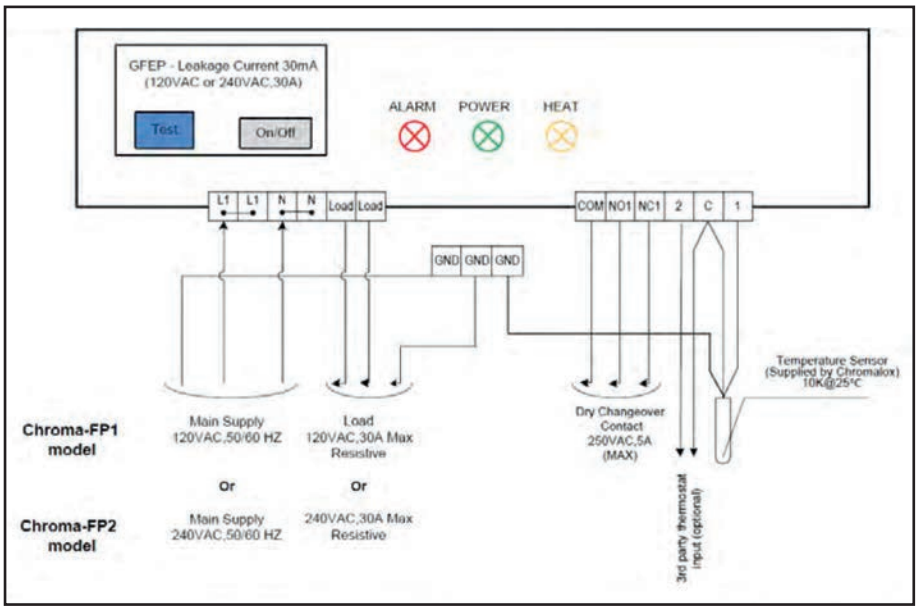
Adjustable Parameters .....Set-Point, Upper and Lower Limit Temperature

Chroma-FP

Commercial Freeze Protection Controller *(cont'd.)*

Dimensions

Model	Units	H	W	D
Chroma-FP1	Inch	12	8	5
	cm	300	200	130
Chroma-FP2	Inch	12	8	5
	cm	300	200	130



Front View

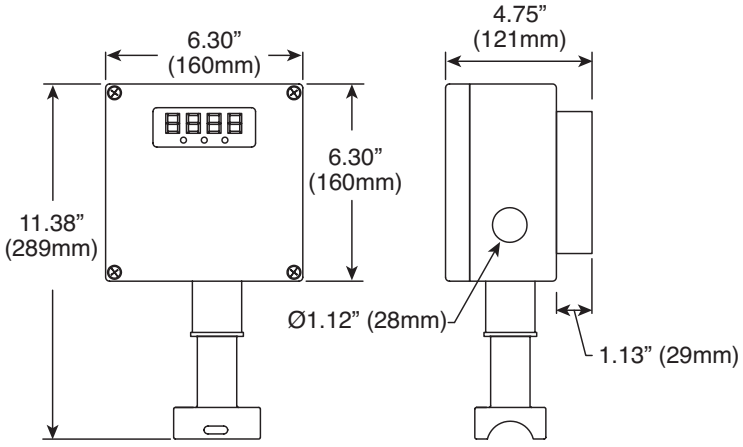
Side View

Ordering Information

Model	Description	Max. Total Amperage	Max. Voltage	PCN
Chroma-FP1	Freeze Protection Controller, 1 Contactor (1-2P @30A), 120V	30A	120V	512065
Chroma-FP2	Freeze Protection Controller, 1 Contactors (1-2P @30A), 208/240V	30A	240V	512081
Chroma-FP1-MB	Freeze Protection Controller, 1 Contactor (1-2P @30A), 120V Modbus Comm.	30A	120V	512073
Chroma-FP2-MB	Freeze Protection Controller, 1 Contactor (1-2P @30A), 208/240V Modbus Comm.	30A	240V	512090

CTS Series

Commercial Heat Trace Electronic Thermostat



- 30 Amp Solid State Relay (SSR) Output
- 120 to 277 Vac Operation
- cULus Ordinary Area and C1D2 Approval
- On/Off Control with 100˚ Deadband Programmable in One Degree Increments
- Selectable Soft-Start Feature
- LED Indication for Power, Alarm and Load
- Large LED Display
- Programmable High & Low Temperature Alarms
- 9V Battery Connector
- Solid State Alarm for Remote Indication of Alarm Status –
  - AC Alarm: CTS
  - DC Alarm: CTS-DC
- NEMA 4X Enclosure
- Integral Pipe Stand or Optional Wall Mount
- 100 Ohm 3ft Platinum RTD - Included
- Enclosure Serves as Heating Cable, A/C Power & Sensor Connection
- Works with CPR, CZH and CMi Cable
- RoHS Compliant
- UL, cUL Listed

Description

The CTS electronic thermostat is a microprocessor based temperature control and power connection kit. It is used for freeze protection or process temperature maintenance of pipes or tanks protected by heat tracing products. This thermostat can be used with CZH, CMi or CPR heating cables in Ordinary area locations.

This unit is designed to provide local temperature control and monitoring for heat traced pipes or tanks across a variety of industries and applications and will switch 30 amperes of current.

The CTS provides easy programming of the temperature set point, high and low temperature alarms, the deadband, the temperature units, the soft start function and the alarm state through the front panel push buttons. A 9V battery connector is supplied to allow programming the controller before heating cable circuit power is provided. LED lights are provided for indication of power to the unit, heater power on (load) and alarm status. A Fail Safe solid state alarm is included for wiring to your building management system to indicate alarm status. This alarm may be set to open or close on all alarm conditions including loss of power, high or low temperature alarm and RTD failure. Choose either the DC or the AC customer supplied voltage alarm variation. The minimum operating ambient temperature is -40°F (-40°C). This unit has programmable high and low temperature alarm set points from -80°F (-62°C) to 1150°F (621°C).

The CTS employs a Soft Start feature that uses a proprietary software algorithm which reduces the inherent self-regulating in-rush current, resulting in less nuisance tripping at cold temperatures. For added flexibility, the user may disable the soft start feature.

A 100 Ohm platinum RTD is provided with a 3 foot (1 M) lead resulting in flexible mounting options for the user.

CTS Series

Commercial Heat Trace Electronic Thermostat *(cont'd.)*

PCN	Model
512049	CTS
512057	CTS-DC

Accessories

PCN	Model
318043	DTS Wall Mount Kit
308144	RTD Extension Wire (50 ft/15m)

Applications

- Freeze Protection of Piping
- Hot Water Temperature Maintenance
- Tank Freeze Protection
- Grease Waste Flow Maintenance

Environments

- Ordinary Areas
- C1, D2

Sensors

- 100 OHM PT RTD
- Probe Length = 4" (10.2 cm)
- Probe Diameter = 1/4" (6.35 mm)
- Leadwire Length = 3ft (1 M)*

* The maximum allowable length of the RTD wire is 50ft (15m) in order to remain UL/cUL compliant.

Current Approvals

- UL, cUL Listed for Ordinary Areas

Features

- User Selectable Soft-Start Program
- Small Enclosure. The 6.25 inch by 6.25 inch enclosure houses the temperature control and monitoring unit along with terminals for connecting instrument power, heating cable and RTD.
- 100 Ohm platinum RTD which can be pipe mounted or can be used to sense ambient air temperature.
- Pipe stand-off mount for direct pipe mounting.
- Integral wiring. The wiring of the heating cable, alarm, AC power line and the RTD sensor are all accomplished within the enclosure. This feature reduces both labor and material costs by eliminating the need for an additional heat trace power connection kit as well as the time for the additional wiring.

Specifications

Operating Voltage	120 to 277 VAC, 50/60 Hz, Single Phase
Operating Temperature - Ordinary Areas	-40°F to 140°F (-40°C to 60°C)
Input	100 Ohm platinum RTD
Output	30 amp solid state relay
Alarms	High temp to 1150°F (621°C) Low temp to -80°F (-62°C) RTD Failure Red LED alarm status indicator on front panel
Solid State Alarm Rating - AC	12-277 VAC, 1.8 Amps RMS - Customer Supplied
Solid State Alarm Rating - DC	0-42 VDC, 1.8 Amps RMS- Customer Supplied

Alarm Function:

Mode	Default	Optional
Normal Operation	Closed	Open
Alarm Condition	Open	Closed
Power Off	Open	Open

Deadband	1°F (or ˚C) to 100°F (or ˚C), programmable
Set Points	-80°F to 1100°F programmable (-62˚C to 593˚C)
Units of Temperature	˚F or ˚C, selectable
Control Mode	On/Off control
Soft Start	User selectable integral soft start, patent pending software algorithm, which eliminates nuisance breaker tripping associated with self-regulating cable in-rush

IntelliTrace CTC

Commercial Heat Trace Controller

- 1 & 2 Circuit Models
- 40 Amps per Circuit
- SSR Control
- 100 – 277 VAC, 50/60 Hz
- cULus Non Hazardous Areas
- Soft Start Feature
- Operating Temperature: -40˚F to 104˚F (-40˚C to 40˚C)
- Modbus RTU/RS485, RS422, TCP/Ethernet, & BACnet
- 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
- One or Two Sensor Inputs / Circuit – Min, Max & Averaging
- 2 Circuit Ambient Control from 1 RTD Sensor
- Full Monitoring & Alarms
- High / Low Temperature & Current, GFEP & Sensor Failure
- Programmable Duty Cycle On Sensor Failure
- AC & DC Alarms
- Password Protected Security Levels

NEW!

c UL us

Description

The Chromalox intelliTRACE CTC is a microprocessor based system with SSR power control that switches 40 Amps per circuit at 120-277 VAC. The CTC is a single or dual point commercial heating cable controller with integrated ground-fault protection. This controller may be used with CZH, CMi or CPR heating cables. The CTC is intended for use in commercial nonhazardous applications.

There are three user-selectable control modes available on the CTC: Manual, Off or Auto. An output of 1% to 100% is available while in Manual Mode and you may choose either PID or ON/OFF control while in the Auto Control Mode.

You may employ one or two RTD sensors per circuit. When using two RTD sensors, the CTC may be set to Low, High or Average. The CTC may also be configured as a 2-circuit ambient sensing controller that uses only one RTD to control both circuits. This provides the owner with much more flexibility and redundancy to help meet their evervarying demands.

The CTC employs a soft start feature that uses a proprietary software algorithm which reduces the inherent self-regulating in-rush current, resulting in less nuisance tripping at cold temperatures. The soft start feature is selectable which allows this controller to be employed in non-heat trace applications as well.

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 CTC controller monitors temperature, current load and ground fault equipment protection leakage current (GFEP). Additionally, the alarms on the CTC consist of high and low temperature, high and low current, high GFEP current and sensor failure.

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

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

IntelliTrace CTC

Commercial Heat Trace Controller *(cont'd.)*

Specifications

Input

Sensor Type	3-wire RTD, 100 Ω PT, 0.00385 Ω/Ω/˚C, 20 Ω balanced lead wire
Number of Sensor Inputs	1 or 2 per Circuit
Sensing Configuration	Range: Single, Low, High, Average, Use RTD1 to control both circuits

Output

Power Switching	SSR
Number of Circuits	1 or 2
Capacity	40 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: -80˚F to +1100˚F (-62˚C to +593˚C)
Low Temperature Alarm	Range: -80˚F to +1050˚F, Off (-62˚C to +566˚C, Off)
High Temperature Alarm	Range: -80˚F to +1150˚F, Off (-62˚C to +621˚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
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	Optional
Normal Operation	Closed	Open
Alarm Condition	Open	Closed
Power Off	Open	Open

Communications

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

Operating & Environmental

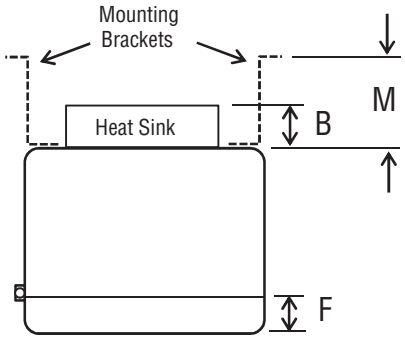
Temperature	-40˚F to 104˚F (-40˚C to 40˚C)
Power Supply	100 to 277V 50/60Hz
Protection	IEC IP66
Enclosure rating	NEMA 4X FG (Optional Stainless Steel)
Approvals	UL/cUL Ordinary Area Locations. (UL File: E84610)

IntelliTrace CTC

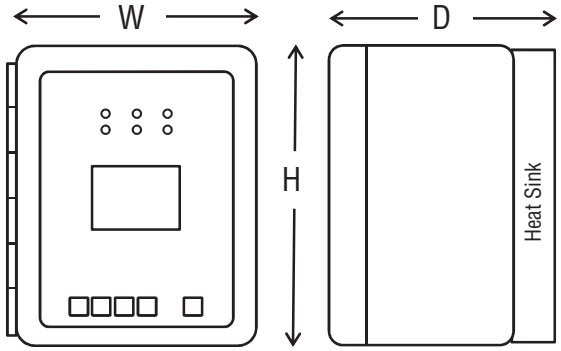
Commercial Heat Trace Controller *(cont'd.)*

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



Top View



Front View Side View

Ordering Information

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

Model Product Description

CTC The Chromalox CTC series IntelliTRACE Controller will control 1 or 2 circuits and is designed for Commercial Heat Trace Line and/or Ambient Sensing applications in Non-Hazardous areas. The CTC is a wall mounted device that operates at 100-277 VAC and rated at 40A 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 CTC accepts up to 2 RTD sensors per circuit for Ambient and/or Line Sensing applications. With multiple sensors, output behavior is based on min, max, average temperature or as 2-circuit ambient sensing control from a single RTD. 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 Gauge Stainless Steel wall mounting brackets are included. UL/cUL Approved Optional features include: NEMA 4X 316 SS Enclosure, ModBus TCP/Ethernet, Webserver/Ethernet or BACnet 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/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
0	

CTC ☐ ☐ ☐ ☐ ☐ **Typical Model Number**

Note: The CTC comes complete with one set of 16 gauge stainless steel wall mounting brackets.
** Only Single Circuit CTC Controllers can have BACnet inside of controller.
Two Circuit CTC Controllers must use external BACnet Converter - see MBC data sheet for more information.

Model	Description	PCN
CTC1-000	ITC 1 Loop, FG ENC, RS485	512655
CTC2-000	ITC 2 Loop, FG ENC, RS485	512663
CTC1-100	ITC 1 Loop, FG ENC, BACnet	512671

IntelliTrace ITC-FS

Digital Heat Trace Controller 1 & 2 Circuit

- 1 & 2 Circuit Models
- 22 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 389699). 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.

ITC-FS

Digital Heat Trace Controller 1 & 2 Circuit *(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 Ω PT, 0.00385 Ω/Ω/˚C, 20 Ω 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 / Controller Failure / Open

Communications

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

Operating & Environmental

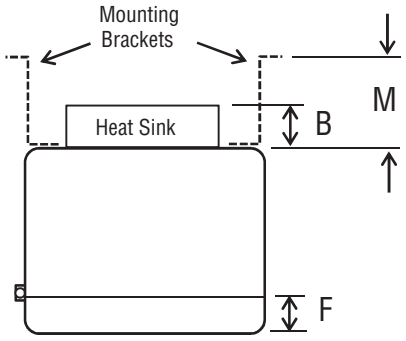
Temperature	-40˚F to 104˚F (-40˚C to 40˚C)
Power Supply	100 to 277V 50/60Hz
Protection	IEC IP66
Enclosure rating	NEMA 4X FG (Optional Stainless Steel)
Approvals	UL/cUL Freeze Protection of Fire Sprinkler Systems. (UL File: EX27939 VGNJ)

ITC-FS

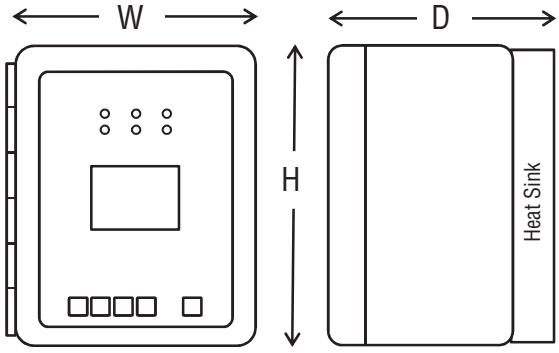
Digital Heat Trace Controller 1 & 2 Circuit *(cont'd.)*

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



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 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/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.

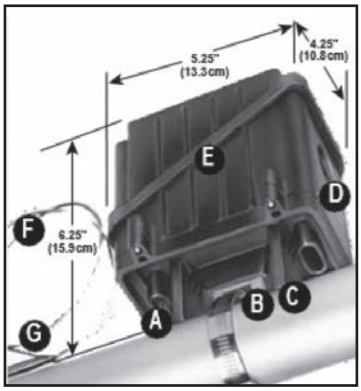
* One single circuit ITC-FS can have BACnet inside of controller. Two circuit ITC-FS controllers must use external BACnet converter- see MBC data sheet for more information.

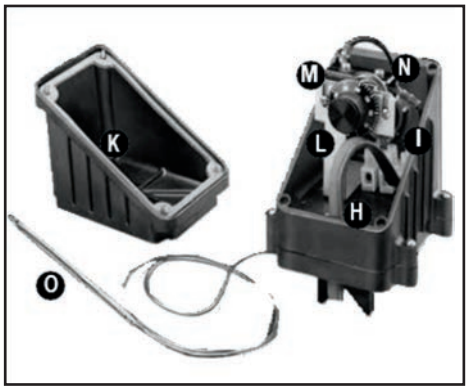
Model	Description	PCN
ITC-FS1-001	ITC-FS 1 Loop, FG ENC, RS485	390248
ITC-FS2-001	ITC-FS 2 Loop, FG ENC, RS485	390256

RTBC-FS

Fire Sprinkler Connection Kit

- Line Sensing Thermostat for Fire Sprinkler
- 30A ElectroMechanical Control
- Rugged, Corrosion Resistant Construction
- NEMA 4X Enclosure
- Bulb & Capillary
  - 120 - 277 Vac
  - 0 - 400°F Setpoint Range
  - 1/4" OD x 7-1/4" SS Bulb and 3 In. Capillary
  - UL Approval for Fire Sprinkler Branch Lines





Description

RTBC-FS is a power connection kit with a integral line-sensing thermostat which is used to monitor the temperature of the fire sprinkler branch lines for compliance with IEEE 515.1.

The NEMA 4X power connection enclosure is constructed of corrosion resistant Ryton®, that features an oblique-sided box to allow easy access to terminal block and thermostat settings. The enclosure includes a 3/4" opening on the side for customer provided conduit hub. The RTBC-FS base features a waterproof cableway for the heating cable and capillary to enter the enclosure from underneath to protect the cables and thermostat from damage. The base includes a stainless steel tie down to mounting tab to strap the kit to the fire sprinkler piping with a stainless steel pipe strap (PS). Inside the enclosure is a three position terminal block for connecting the line voltage and heating cable together and the line-sensing thermostat that includes a dial temperature control knob. The RTPC-FS lid is sealed with a gasket and screws on each corner.

Construction

- **A** Strategically placed cable entries allow maximum flexibility for insulation (Heating cable cut away for clarity).
- **B** Stainless steel tiedown support provides positive attachment to pipes.[1]
- **C** Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.
- **D** Opening for 3/4" (20 mm) conduit hub.[1]
- **E** Stainless steel sheath temperature sensor.
- **F** Cable grommets provide water-tight seal between base, box and cable. Use GRSR with all self-regulating cables. Use GRCW with constant wattage cables. One of each grommet included in kit. See table below for spare grommets.
- **G** Three position terminal block for easy wiring.
- **H** Power wiring entry. Conduit hub not included.
- **I** Gasket provides water-tight seal between box and lid. It is affixed to the lid and holds the mounting hardware during assembly.
- **J** Thermostat switch.
- **K** Setpoint adjustment knob.
- **L** Setpoint indicator.

Spare Grommets

		PCN
GRS	RTD/Capillary type	**513287**
GR0	Blank	**513295**
GRSR	Self Regulating type	**513308**

Approvals[1]

UL Listed for ordinary areas

Notes —

1. Ryton®, is a registered trade name of Phillips Chemical Company.

Ordering Information

Model	PCN	Switch Rating (Amps/Volts)	Max. Continuous Exposure Temp.		Max. Intermittent Exposure Temp.		Wt. (Lbs.)
			°F	°C	°F	°C	
RTBC-FS	514394	30A @ 120 - 480	400	200	500	260	2

Stock Status: **S** = stock NS = non-stock
To Order—Specify model, PCN and quantity.

CHROMALOX
Advanced Thermal Technologies

CONTROL AND POWER DISTRIBUTION PANELS

Lowering the Cost of Large Heat Tracing Piping Applications by Centralizing Control & Power into One Enclosure

IntelliTrace

Ambient Sensing

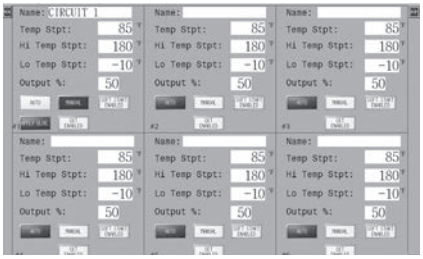
CIP Base Panel

CIP-EXT Extension Panel

Commercial Heat Tracing Control Panel for Ordinary Areas

NEW!

- 10” or 7” Touch Screen HMI
- 40 Amps/Circuit @ 100 to 600 VAC
- 2 Circuits to 72 Circuits
- NEMA 4 or NEMA 4X Enclosure
- SCR Control
- Optional Wireless Temperature Sensing
- Integral Circuit Panel with Circuit Breakers
- Optional Main Breaker
- Soft Start Feature
- Full Communications
- Full Alarm and Monitoring Capabilities on GFEP, Temperature, Sensor, Current Load & Communications
- Customizable Sensor Mapping
- Optional Enclosure Heater
- UL, cUL
- Optional CE



The 10” or 7” Touch Screen Computer provides real time display of process variable, set point, load current, load demand (%), operation mode type, alarm status and alarm type for any 2 or 6 circuits at time as well as alarm status for all other circuits.

The Quick Launch buttons take you to any other 2 or 6-circuit real time display screen as well as the Setup, Fault, Log or Communication Screen. All set point, alarm, security, time, circuit identification, sensor mapping, tuning, communications and control type mode settings are easily accomplished through the intuitive & familiar Windows based menu screens. All of these functions are achievable locally or remotely via wired or wireless communications.

Description

The intelliTRACE CIP Series is a microprocessor based Control/Monitoring and Power Management system for Ambient Sensing, Line Sensing or a combination of Line and Ambient Sensing Heat Trace Applications and is suitable for use in ordinary areas.

The base panels will handle 2 - 48 circuits and may be increased up to 72 circuits with the Extension Panels. A 2 to 4 circuit extension panel may be added to a 6-48 circuit panel but not vice versa. Each circuit has a 40 Amperage capacity and accepts 100 to 600 VAC service. The SCR Control may be set to Automatic, which includes PID or On/Off control or to Manual, which spans a 0% to 100% control output.

The HMI is a 10” (25 cm) or 7” (17cm) user friendly touch screen computer. It displays the process variable, temperature setpoint, alarm status, current load, control mode, sensor failure manual override output for any 2 or 6 circuits at a time as well as the alarm status for all other circuits.

The standard enclosure is rated for NEMA 4 environments and an optional NEMA 4X 304 SS enclosure is available.

The CIP Control Panel Series provide alarms for high and low temperatures, current load, communications, sensor faults and ground fault leakage. There are several output/control behavior scenarios for the ground fault (GFEP) alarm condition. Choices include Trip and/or Latch options in which both, either or none may be enabled. Trip sets the output to zero %, while Latch requires a manual reset. Alarm events are automatically logged and stored for easy access.

Advanced standard features include a proprietary soft start function, off duty Auto Cycle maintenance program and either Modbus RTU/RS485 or Ethernet communications. Optional features include an industry leading Sensor Mapping** function, remote monitoring and wireless communications.

IntelliTrace

Ambient Sensing

CIP Base Panel

CIP-EXT Extension Panel

Commercial Heat Tracing Control Panel for Ordinary Areas

Advanced Features

Soft Start Feature
Certain heating cables exhibit inherent current inrush in colder temperatures. This inrush can cause nuisance breaker tripping. To limit inrush current on the overall system, a proprietary Soft Start algorithm is applied during system start-up. This will ONLY occur while the operation mode is set to AUTO. After the Soft Start program completes its cycle, the Control Mode of the system will either be PID or ON/OFF Control Mode, depending what was selected by the user. The default setting of the Soft Start Feature for each circuit is “enabled”. However, the Soft Start Feature may be disabled if so desired by the owner. The owner has the option to independently manage the Soft Start Feature on each circuit.

Auto Cycle Feature
During prolonged down time periods, typically during the summer months, it advisable to intermittently exercise the system circuits. This exercising of the circuits is accomplished via the Autocycle feature. On a sequential circuit basis, the Autocycle feature periodically monitors system performance between 1-999 hours. This provides a certain level of predictive maintenance of the system as Faults (Alarms) will present themselves accordingly. Problem areas may be addressed during nonessential operating periods. The owner has the option to engage or disengage the Autocycle feature at any time.

Sensor Mapping**
The CIP Control Panels provide the owner with customizable Sensor Mapping. This becomes a very power-ful and desirable feature when the owner needs added flexibility in controlling the circuit outputs beyond the standard single sensor input.

Sensor Mapping is the assignment of one or more Sensor Inputs to one or more output circuits.

More on Sensor Mapping

Ambient or Line Sensing - Single Sensor:
A single sensor (RTD) may be mapped (or linked) to multiple Output Circuits. This allows several circuits to be controlled by a single sensor.

Minimum, Maximum, Averaging
Several sensors may be mapped to a single output circuit. This allows a single circuit to be controlled by the Minimum or the Maximum or the Average temperature of all of the sensors mapped to that output circuit. This may be desirable on long runs or zones which realize varying temperatures or weather conditions at different times of the day.

Multiple Sensor Mapping
A single sensor may be used independently or combined with other sensors to control more than one circuit.

Combining Sensing Types
The owner may need to have multiple Line and/or Ambient Sensing control scenarios occurring simultaneously.

Touch Screen Computer:

- 2 or 6 Circuit displayed / screen
- Quick launch to any 2 or 6 circuit group, Setup Menu or System Screens
- Full User Setting Capabilities - Specific Circuit Naming/Identification, Baud rate, set points, units, alarms, etc.
- Remote Desktop Monitoring

Optional Features:

- NEMA 4X 304 SS Enclosure
- Fully Customizable Sensor Mapping
- Enclosure Heater

IntelliTrace

Ambient Sensing
CIP Base Panel
CIP-EXT Extension Panel
Commercial Heat Tracing Control Panel for Ordinary Areas

Technical Specifications

Panel Specifications

Supply Voltage: .....100 - 600 VAC, 3 phase

Operating Environment: .....-40 to +104°F (-40 to +40°C)* Enclosure heater required for Ambient Temperatures below 32˚F (0˚C)

Enclosure: .....NEMA 4 or Optional NEMA 4X 304 SS

Enclosure Size: .....See Model Description Tables

Communications: .....Modbus RTU/RS-485, Ethernet

Alarms: .....Hi/Lo Temp, GFEP – 20 mA to 150 mA, Hi/Lo Current – 0.1 to 50A or off

Input: .....100 Platinum 3-wire RTD

Output: .....SCR, Zero cross fired

Current Maximum: .....40 Amps/Circuit at 104°F (40°C)

Auto-Cycle: .....1-999 hours/off

Failed Sensor Output Setting: .....0 – 100%

Control Mode: .....Auto, Manual (Hand), Off
Auto: PID or ON/OFF with adjustable dead band
Manual: 0% - 100% output, 1% increment

Load Management: .....DOT (Demand On Transfer) timing, with Soft Start

Approvals: .....UL, cUL Listed. Optional CE Certification

Area Classifications: .....Ordinary Areas

Temperature Rating .....T4A (UL) (Derate to T3 & Groups B, C, D when using enclosure heater)

IntelliTrace
Ambient Sensing
CIP Base Panel
Commercial Heat Tracing Control Panel for Ordinary Areas

Technical Notes:
1. Refer to PK497 for Installation and Operation details
2. Our standard SCCR is 5 kA. Consult sales if a different SCCR is needed.
3. See CIP-EXT to increase circuits up to 8 circuits for 2-4 Circuit Panels & up to 72 Circuits for 6-48 Circuit Panels.
4. 6-48 Circuit Extension Panels can not be added to 2-4 Circuit Panels but 2-4 circuit extension panels can be added to 6-8 Circuit Panels (up to 72 circuits)

Ordering Information

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

Model **Product Description**

CIP IntelliTRACE Line/Ambient Sensing Heat Trace Panels are Designed for Industrial applications in Non-Hazardous Areas. CIP series offers the following standard features: NEMA 4 enclosure, Industrial 10" (7" for 2 and 4 Loop Models) Digital CE Computer Touchscreen Controller Rated at 40A Per Circuit at 104°F (40°C) (Expandable to Seventy-Two Circuits*), Common Alarm Output, Operator Interface, PID SCR Power, Hand/Off/Auto Operation Breaker for Instrument Power Included, Current Monitoring, 30 mA Ground Fault Equipment Protection, ModBus RTU/RS485 or TCP/Ethernet Communications, Lockout Capable Breakers, UL & cUL Third Party Compliance. Options Include: NEMA 4XSS Enclosure, Copper Ground Bar (Standard is Aluminum), Remote Monitoring Capability, Thermostat Controlled Enclosure Heater, Heater Power and RTD Terminal Blocks, Wireless Ethernet Communications, CE Third Party Compliance.

Code **Circuits**

02	2 Circuits	**24**	24 Circuits
04	4 Circuits	**30**	30 Circuits
06	6 Circuits	**36**	36 Circuits
12	12 Circuits	**42**	42 Circuits
18	18 Circuits	**48**	48 Circuits

Code	Line Voltage	Cable Voltage
1	208/120 VAC, 3 Phase 4 Wire	120 V- 1 Pole or 208 V - 2 Pole
2	240/120 VAC, Single Phase 3 Wire	120 V- 1 Pole or 240 V - 2 Pole
3	480/277 VAC, 3 Phase 4 Wire	277 V- 1 Pole or 480 V - 2 Pole

Code **Cable Load Circuit Breaker Rating (Select Breaker Amperage and *1P/2P to Select Breaker Voltage 1(1P)=15A, 120V Breakers)**

0(*)	None	**3(*)**	30A Thermal Magnetic
1(*)	15A Thermal Magnetic	**4(*)**	40A Thermal Magnetic
2(*)	20A Thermal Magnetic	**5(*)**	50A Thermal Magnetic

Code	Main Disconnect / Circuit Breaker	Applicable Voltage
0	None	None
1	50A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
2	100A Thermal Magnetic	120/208V 3P, 120/240V 1P
3	150A Thermal Magnetic	120/208V 3P
4	200A Thermal Magnetic	120/240V 1P, 277/480V 3P
5	250A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
X	Other (If Main Disconnect is needed Contact Factory for Assistance)	

Code **Enclosure Heater (Anti-Condensation Heater Recommended at a Minimum)**

0	No Enclosure Heater
1	Thermostat Controlled Enclosure Heater (Anti-Condensation Heater)
2	Thermostat Controlled Enclosure Heater (Needed for 0°F, -18°C Minimum Ambient Temperature)
3	Thermostat Controlled Enclosure Heater (Needed for -40°F/°C Minimum Ambient Temperature)

Code **Panel Options**

1	HMI Sunshield (Req'd. if Panel is to be outdoors)	**7**	Copper Ground Bar
2	Panel Weathersheild	**A**	Floor Stands for 10" Deep Panel
3	Heater Power and RTD Terminal Blocks	**B**	Floor Stands for 12" Deep Panel
4	Z-purge system	**C**	Floor Stands for 16" Deep Panel
5	Panel Light (on separate breaker)	**X**	Other (If multiple options needed contact factory)
6	Powered Recepticle (on separate breaker)		

Code **Number of 100 Ohm RTD Sensor Inputs (must be multiple of 6, up to 48 inputs, MAXIMUM 3 RTD's per heater circuit)**

1	6 (Select if Ambient Sensing panel)	**6**	36
2	12	**7**	42
3	18	**8**	48
4	24	**9**	Other (Call Factory for Assitance)
5	30		

Code **Communications**

1	Standard: ModBus RTU/RS485 or Modbus TCP/Ethernet
2	ModBus TCP/Wireless
3	BacNet
9	Other

Code **Temperature Sensing Solutions**

1	Standard Wired Sensing
2	Wireless Sensing
3	Dry Contact Closure for Ambient Sensing Thermostat
4	Remote Snow Sensor Input (i.e. SIT, GIT & CIT type sensors)

Code **Enclosure (Size determined by Table 1)**

1	NEMA 4 Single-Door Wall-Mount Steel Enclosure 24 X 20 X 10
2	NEMA 4 Single-Door Wall-Mount Steel Enclosure 30 X 30 X 10
3	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 12
4	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 16
5	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 12
6	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 16
7	NEMA 4X Stainless Steel Wall-Mount Enclosure 24 X 20 X 10
8	NEMA 4X Stainless Steel Wall-Mount Enclosure 30 X 30 X 10
A	NEMA 4X Stainless Steel Wall-Mount Enclosure 42 X 36 X 12
B	NEMA 4X Stainless Steel Wall-Mount Enclosure 42 X 36 X 16
C	NEMA 4X Stainless Steel Wall-Mount Enclosure 60 X 36 X 12
D	NEMA 4X Stainless Steel Wall-Mount Enclosure 60 X 36 X 16

CIP ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ **Typical Model Number**

IntelliTrace

Ambient Sensing

CIP-EXT Extension Panel

Commercial Heat Tracing Control Panel for Ordinary Areas

Ordering Information

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

Model **Product Description**

CIP-EXT CIP-EXT series Intelligent Line/Ambient Sensing Heat Trace Extension Panel. Designed for Industrial applications in Non-Hazardous Areas. Intended To Be Used with CIP Heat Trace Ambient/Line Ambient Sensing Panel to increase circuit service. CIP-EXT series offers the following standard features: NEMA 4 enclosure, PID SCR Power Controller Rated at 40A Per Circuit at 104°F (40°C) Ambient, Two to Forty-Eight Circuits, Common Alarm Output, Hand/Off/Auto Operation, Current Monitoring, 30 mA Ground Fault Equipment protection, ModBus RTU/RS485 or TCP/Ethernet Communications, UL & cUL Third Party Compliance. Options Include: NEMA 4XSS Enclosure, Copper Ground Bar (Standard is Aluminum), Remote Monitoring Capability, Thermostat Controlled Enclosure Heater, Heater Power and RTD Terminal Blocks, Wireless Ethernet Communications, CE Third Party Compliance.

Code **Circuits**

02	2 Circuits	**24**	24 Circuits
04	4 Circuits	**30**	30 Circuits
06	6 Circuits	**36**	36 Circuits
12	12 Circuits	**42**	42 Circuits
18	18 Circuits	**48**	48 Circuits

Code	Line Voltage	Cable Voltage
1	208/120 VAC, 3 Phase 4 Wire	120 V- 1 Pole or 208 V - 2 Pole
2	240/120 VAC, Single Phase 3 Wire	120 V- 1 Pole or 240 V - 2 Pole
3	480/277 VAC, 3 Phase 4 Wire	277 V- 1 Pole or 480 V - 2 Pole

Code **Cable Load Circuit Breaker Rating (Select Breaker Amperage and *1P/2P to Select Breaker Voltage 1(1P)=15A, 120V Breakers)**

0(*)	None	**3(*)**	30A Thermal Magnetic
1(*)	15A Thermal Magnetic	**4(*)**	40A Thermal Magnetic
2(*)	20A Thermal Magnetic	**5(*)**	50A Thermal Magnetic

*Designed to be paired with an ITAS Panel

Code	Main Disconnect / Circuit Breaker	Applicable Votlage
0	None	None
1	50A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
2	100A Thermal Magnetic	120/208V 3P, 120/240V 1P
3	150A Thermal Magnetic	120/208V 3P
4	200A Thermal Magnetic	120/240V 1P, 277/480V 3P
5	250A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
X	Other (If Main Disconnect is needed Contact Factory for Assistance)	

Code **Enclosure Heater (Anti-Condensation Heater Recommended at a Minimum)**

0	No Enclosure Heater
1	Thermostat Controlled Enclosure Heater (Anti-Condensation Heater)
2	Thermostat Controlled Enclosure Heater (Needed for 0°F, -18°C Minimum Ambient Temperature)
3	Thermostat Controlled Enclosure Heater (Needed for -40°F/°C Minimum Ambient Temperature)

Code **Panel Options**

2	Panel Weathersheild	**8**	Loss of Power Relay
3	Heater Power and RTD Terminal Blocks	**A**	Floor Stands for 10" Deep Panel
4	Z-purge system	**B**	Floor Stands for 12" Deep Panel
5	Panel Light (on separate breaker)	**C**	Floor Stands for 16" Deep Panel
6	Powered Receptacle (on separate breaker)	**X**	Other (If multiple options needed contact factory)
7	Copper Ground Bar		

Code **Number of 100 Ohm RTD Sensor Inputs (must be multiple of 6, up to 48 inputs, MAX. 3 RTD's/heater ckt.)**

1	6 (Select if Ambient Sensing panel)	**6**	36
2	12	**7**	42
3	18	**8**	48
4	24	**9**	Other (Call Factory for Assitance)
5	30		

Code **Communications**

1	Standard: ModBus RTU/RS485 or Modbus TCP/Ethernet
2	ModBus TCP/Wireless
3	BacNet
9	Other

Code **Temperature Sensing Solutions**

1	Standard Wired Sensing
2	Wireless Sensing
3	Dry Contact Closure for Ambient Sensing Thermostat
4	Remote Snow Sensor Input (i.e. SIT, GIT & CIT type sensors)

Code **Enclosure (size determined by table 1)**

1	NEMA 4 Single-Door Wall-Mount Steel Enclosure 24 X 20 X 10
2	NEMA 4 Single-Door Wall-Mount Steel Enclosure 30 X 30 X 10
3	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 12
4	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 16
5	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 12
6	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 16
7	NEMA 4X Stainless Steel Wall-Mount Enclosure 24 X 20 X 10
8	NEMA 4X Stainless Steel Wall-Mount Enclosure 30 X 30 X 10
A	NEMA 4X Stainless Steel Wall-Mount Enclosure 42 X 36 X 12
B	NEMA 4X Stainless Steel Wall-Mount Enclosure 42 X 36 X 16
C	NEMA 4X Stainless Steel Wall-Mount Enclosure 60 X 36 X 12
D	NEMA 4X Stainless Steel Wall-Mount Enclosure 60 X 36 X 16

CIP-EXT- ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ **Typical Model Number**

IntelliTrace

Ambient Sensing

CIP Base Panel

CIP-EXT Extension Panel

Commercial Heat Tracing Control Panel for Ordinary Areas

Model Number Note

-XXXX Indicates that the design has varied from the order table parameters. This could include one or more of the following non-standard considerations: Special Software or Configuration, Private Branding, Remote Monitoring/Touch-Screen Computer, Sunshield or other Protective Covering, Third Party Approval, Floor Stands, Mounting Options, Special Materials (316 SS) or Coatings, Additional Venting or Cooling, Special Indication or Alarms.

Technical Notes

1. Refer to PK497 for Installation and Operation details
2. Our standard SCCR is 5 kA. Consult sales if a different SCCR is needed.
3. See CIP/CIP-EXT to increase circuits up to 8 loops for 2-4 Circuit Panels and up to 72 Circuits for 6-48 Circuit Panels. 6-48 Circuit Extension Panels can not be added to 2-4 Circuit Panels but 2-4 circuit extension panels can be added to 6-8 Circuit Panels (up to 72 circuits)

Table 1: Enclosure Size Selection

Circuits - Poles	Enclosure Size - H x W x D In (cm)	
	2 Inputs / Output	3 Inputs / Output
2 Loop 1P	24x20x10	24x20x10
2 Loop 2P	24x20x10	24x20x10
4 Loop 1P	24x20x10	24x20x10
4 Loop 2P	24x20x10	24x20x10
6 Loop 1P	24x20x12	24x20x12
6 Loop 2P	30x30x10	30x30x10
12 Loop 1P	30x30x10	30x30x10
12 Loop 2P	42x36x12	42x36x12
18 Loop 1P	42x36x12	42x36x12
18 Loop 2P	60x36x12	60x36x12
24 Loop 1P	42x36x12	42x36x12
24 Loop 2P	42x36x16	42x36x16
30 Loop 1P	60x36x12	60x36x12
30 Loop 2P	60x36x16	60x36x16
36 Loop 1P	60x36x12	60x36x12
36 Loop 2P	60x36x16	60x36x16
42 Loop 1P	60x36x16	60x36x16
42 Loop 2P	Consult factory	Consult factory
48 Loop 1P	60x36x16	60x36x16
48 Loop 2P	Consult factory	Consult factory

Spare/Replacement Parts for CIP & CIP-EXT

Part Number	Description
N/A	SSR/GFI Power Control Assy, with Heat Sink
0135-02273	Control Module Board Assembly
0135-02262	RTD Sensor Input Board Assembly
0135-02263	Digital Distribution Comm Board Assembly (-EXT panels only)
0002-60054	SSR, 40 Amp rated
0029-00640	SSR Thermstrate Material
0025-05312	Common Alarm Relay
0025-05309	Common Alarm Relay (CID2 Panels Only)
0081-10063	Power Supply 5VDC 6A 30W DIN Rail Mount
0081-10047	Power Supply 24VDC 2.5A 60W DIN Rail Mount
0108-70509	CIP 10" Display
0108-70507	CIP 7" Display
0017-43753	15A 1P Circuit Breaker (120V or 277V)
0017-43754	20A 1P Circuit Breaker (120V or 277V)
0017-43755	30A 1P Circuit Breaker (120V or 277V)
0017-43756	40A 1P Circuit Breaker (120V)
0017-43757	50A 1P Circuit Breaker (120V)
0017-43758	15A 2P Circuit Breaker (208/240V or 480V)
0017-43759	20A 2P Circuit Breaker (208/240V or 480V)
0017-43760	30A 2P Circuit Breaker (208/240V or 480V)
0017-43761	40A 2P Circuit Breaker (208/240V)
0017-43762	50A 2P Circuit Breaker (208/240V)
0023-15097-0001	6" (15 cm) Ribbon Cable with Connectors
0023-15097-0002	72" (180 cm) Ribbon Cable with Connectors

Accessories for CIP & CIP-EXT

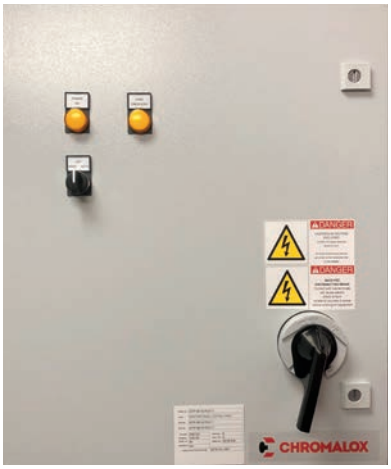
Part Number	Description
PCN 514263	RTD Ext Wire, 3-wire, 16 ga, Cu, shielded, 50 FT
PCN 514255	RTD Ext Wire, 3-wire, 16 ga, Cu, shielded, 200 FT

WeatherTrace

WTP, WTPM

Freeze Protection Heat Trace Panels

- Standard NEMA 4 Enclosures
- NEMA 4X Stainless Steel Enclosure Option
- Hand/Off/Auto Selector Switch
- 15, 20, 30, 40 and 50 Amp Single-pole and Double-pole 30mA Ground Fault Thermal-Magnetic Circuit Breakers
- Voltage Options:
  - 208/120 VAC 3-Phase, 4-Wire
  - 240/120 VAC Single Phase, 3-Wire
  - 480/277 VAC 3-Phase, 4-Wire
- 50 to 250 Amp Main Breaker
- Ambient and Line Sensing Control
- Enclosure Heater Options for Condensation Prevention or Freeze Protection on Outdoor Installations
- UL and cUL Third Party Approvals



WTP

NEW!

WTPM

Description

The Chromalox WTP series freeze protection heat trace panels offer power-distribution, ground-fault protection, individual circuit alarming 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 WTP/WTPM units can be configured with 50 to 250 Amp main breaker ratings in Single and Three-Phase configurations. Branch circuit breakers are available in 15, 20, 30, 40 and 50 amp single-pole and two-pole configurations with 30mA ground-fault equipment protection.

WTP – Freeze Protection Ambient Sensing Series

The WTP panels provide group control of multiple heat trace circuits for pipe freeze protection via an ambient sensing external thermostat or electronic controller. The WTP can also be configured for group control of snow melting or deicing applications using our internal temperature/moisture controller. Chromalox recommended controllers include: ChromaMelt-2R, RTAS, RTBC or the TPR. The WTP may be operated in two modes; automatically with the external controller, or in manual override via the Hand/Off/Auto selector switch.

WTPM – Freeze Protection Ambient Sensing Monitor Series

The WTPM WeatherTrace with the HMI Monitoring, 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 WTPM panels provide group control of multiple heat trace circuits for pipe freeze protection via an ambient sensing thermostat, electronic controller or door mounted HMI. The WTPM can also be configured for group control of snow melting or deicing applications using our internal temperature/moisture controller. Chromalox recommended controllers include: ChromaMelt-2R, RTAS, RTBC, or TPR with HMI.

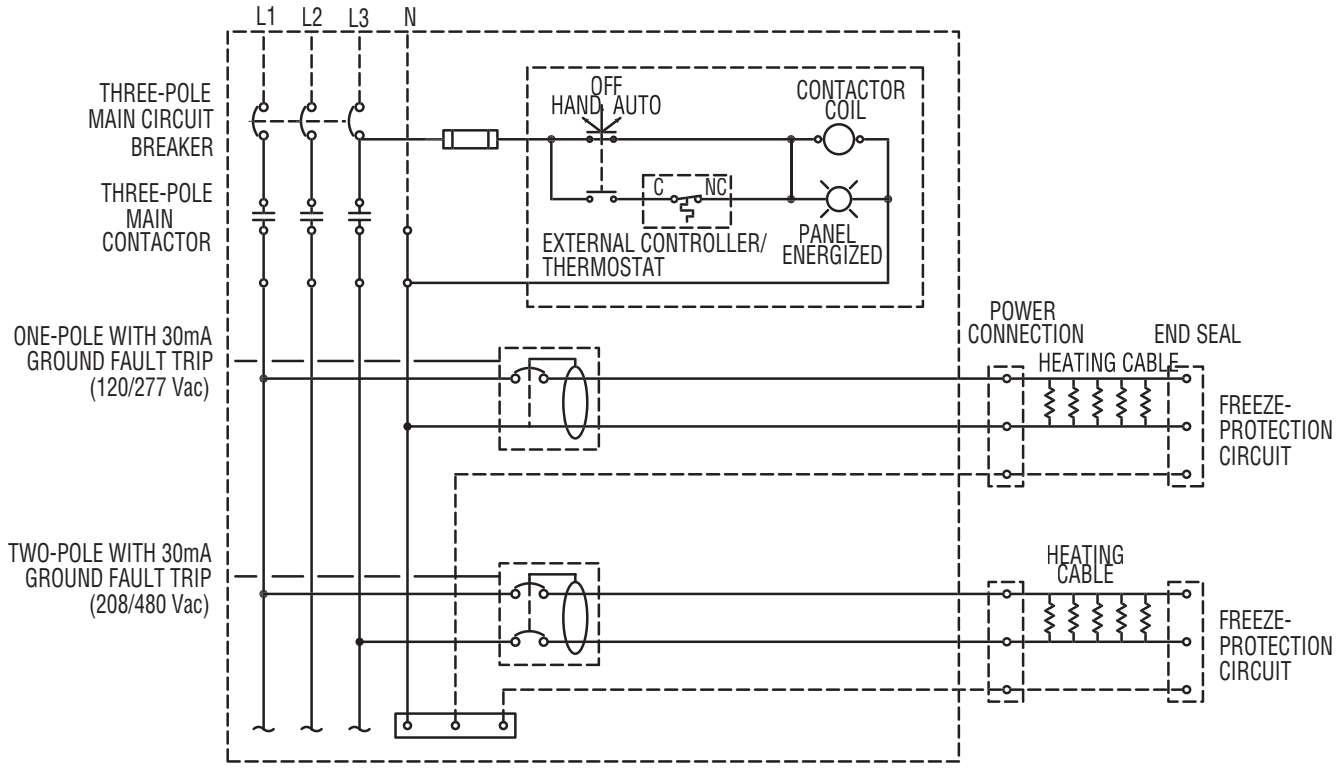
The WTPM may be operated in two modes; automatically with the external controller or in manual override via the Hand/Off/Auto selector switch.

WeatherTrace
WTP, WTPM
Freeze Protection Heat Trace Panels *(cont'd.)*

Specifications

Power Source	208/120 VAC 3-Phase, 4-Wire 240/120 Single Phase, 3-Wire 480/277 VAC 3-Phase, 4-Wire
Ambient Operating Temperature	-40˚F to 104˚F (with Enclosure Heater)
Incoming Wire Size	50 - 100A MCCB, 14 - 3/0 AWG 200 - 250 A MCCB, 3/0 AWG - 350 kcmil
Load Wire Size	18 - 8 AWG (15 - 30 Amp C.B), 18 - 6 AWG (40-50 Amp C.B)
Ground Fault Breaker Type	30mA Ground Fault Equipment Protection
Enclosure	NEMA 4 or NEMA 4X 304 Stainless Steel (option)
Main Breaker Size	50-250 Amp Two-Pole Main Disconnect Switch with through Door Rotary Handle 50-250 Amp Three-Pole Main Disconnect Switch with through Door Rotary Handle
Approvals	UL and cUL

Three Phase
208/120 4-Wire or 480/277 4-Wire



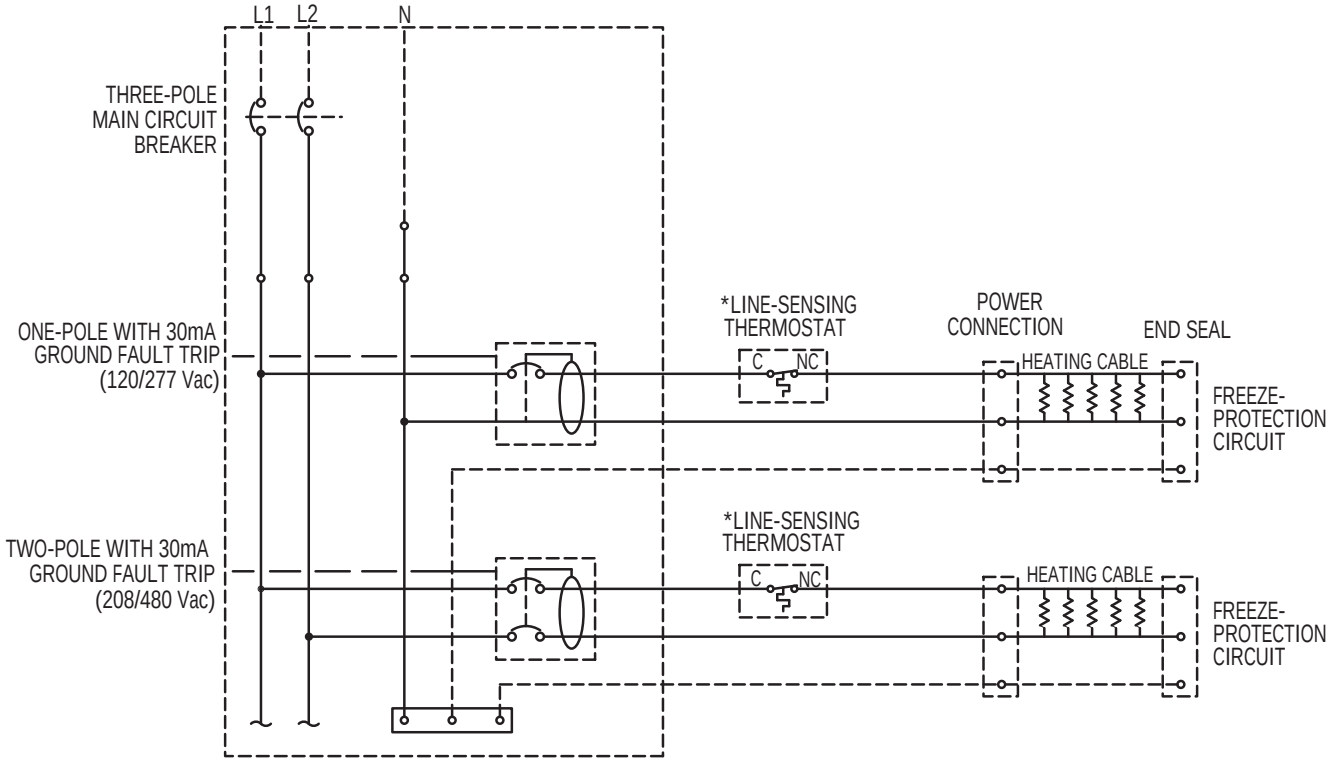
* EXTERNAL CONTROLLER/THERMOSTAT SOLD SEPARATELY

WeatherTrace

WTP, WTPM

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

Line Sensing Single Phase 240/120



*EXTERNAL CONTROLLER/THERMOSTAT SOLD SEPARATELY

WeatherTrace

WTP, WTPM

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

Ordering Information

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

Model	Product Description
WTP	WTP Series Ambient Sensing Heat Trace Panels are designed for group control of heat trace circuits for freeze protection or deicing applications. The Chromalox WTP series offers the following standard features: NEMA 4 enclosure, Hand/Off/Auto Selector Switch, Load Energized Indicator Lamp, Main Power On Lamp,100 or 200A Main Contactor (Sized per Load), and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. Options include: Main Disconnect Switch, Remote or Local Ambient Temperature Controller, and Enclosure Heater. The WTP series panels have UL and cUL Third Party Approvals.

Circuits

Code	Circuits
06	6 Circuits
12	12 Circuits
18	18 Circuits
24	24 Circuits

Line Voltage / Cable Voltage

Code	Line Voltage	Cable Voltage
1	208/120 VAC 3-Phase, 4-Wire	120V 1-Pole or 208V 2-Pole
2	240/120 VAC Single Phase, 3-Wire	120V 1-Pole or 240V 2-Pole
3	480/277 VAC 3-Phase, 4-Wire	277V 1-Pole or 480V 2-Pole

Cable Load Circuit Breaker Rating
(Select Breaker Amperage & *1P/2P to select Breaker Voltage 1(1P)=15A, 120V Breakers)

Code	
0(*)	None
1(*)	15A Thermal Magnetic
2(*)	20A Thermal Magnetic
3(*)	30A Thermal Magnetic
4(*)	40A Thermal Magnetic
5(*)	50A Thermal Magnetic

Main Circuit Breaker

Code	Main Circuit Breaker	Applicable Voltage
0	None	None
1	50A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
2	100A Thermal Magnetic	120/208V 3P, 120/240V 1P
3	150A Thermal Magnetic	120/208V 3P
4	200A Thermal Magnetic	120/240V 1P, 277/480V 3P
5	250A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
X	Other (if Main Disconnect is needed contact factory for assistance)	

Enclosure Heater (Anti-Condensation Heater recommended at a minimum)

Code	
0	No Enclosure Heater
1	Thermostat Controlled Enclosure Heater (Anti-Condensation Heater)
2	Thermostat Controlled Enclosure Heater (Needed for 0˚F (18˚C) Min. Ambient temp.)
3	Thermostat Controlled Enclosure Heater (Needed for -40˚F/˚C) Min. Ambient temp.)

Ambient Controller

Code	
1	None (Requires mechanical T-stat. Use TPR, RTAS or RTBC)
2	Temperature & Moisture controller-requires external sensors for deicing
3	6040-R00000 1/16 DIN Controller (RTD controller-requires external RTD sensor-LN,LA or AS-BM)

Enclosure (Size Determined by Table 1)

Code	
1	NEMA 4 Single-Door Wall-Mount Steel Enclosure 24 X 20 X 10
2	NEMA 4 Single-Door Wall-Mount Steel Enclosure 30 X 30 X 12
3	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 12
4	NEMA 4X Stainless Steel Wall-Mount Enclosure 24 X 20 X 10
5	NEMA 4X Stainless Steel Wall-Mount Enclosure 30 X 20 X 10
6	NEMA 4X Stainless Steel Wall-Mount Enclosure 42 X 36 X 12

WTP- ☐ ☐ ☐ ☐ ☐ ☐ ☐ **Typical Model Number**

WeatherTrace

WTP, WTPM

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

Ordering Information

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

Model	Product Description
WTPM	WTPM series Ambient Sensing Heat Trace Panels are designed for group control of heat trace circuits for freeze protection or deicing applications. The Chromalox WTPM series offers the following standard features: 5" HMI for monitoring ground fault alarms on each circuit, NEMA 4 enclosure, Hand/Off/Auto Selector Switch, Load Energized Indicator Lamp, Main Power On Lamp,100 or 200A Main Contactor (Sized per Load), and Thermal Magnetic Branch Circuit Breakers with 30mA Ground Fault Equipment Protection. Options include: Main Disconnect Switch, Remote or Local Ambient Temperature Controller, and Enclosure Heater. The WTP series panels have UL and cUL Third Party Approvals.

Circuits

Code	Circuits
06	6 Circuits
12	12 Circuits
18	18 Circuits
24	24 Circuits

Code	Line Voltage	Cable Voltage
1	208/120 VAC 3-Phase, 4-Wire	120V 1-Pole or 208V 2-Pole
2	240/120 VAC Single Phase, 3-Wire	120V 1-Pole or 240V 2-Pole
3	480/277 VAC 3-Phase, 4-Wire	277V 1-Pole or 480V 2-Pole

Code	Cable Load Circuit Breaker Rating (Select Breaker Amperage & *1P/2P to select Breaker Voltage 1(1P)=15A, 120V Breakers)
0(*)	None
1(*)	15A Thermal Magnetic
2(*)	20A Thermal Magnetic
3(*)	30A Thermal Magnetic
4(*)	40A Thermal Magnetic
5(*)	50A Thermal Magnetic

Code	Main Circuit Breaker	Applicable Voltage
0	None	None
1	50A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
2	100A Thermal Magnetic	120/208V 3P, 120/240V 1P
3	150A Thermal Magnetic	120/208V 3P
4	200A Thermal Magnetic	120/240V 1P, 277/480V 3P
5	250A Thermal Magnetic	120/208V 3P, 120/240V 1P, 277/480V 3P
X	Other (if Main Disconnect is needed contact factory for assistance)	

Code	Enclosure Heater (Anti-Condensation Heater recommended at a minimum)
0	No Enclosure Heater
1	Thermostat Controlled Enclosure Heater (Anti-Condensation Heater)
2	Thermostat Controlled Enclosure Heater (Needed for 0˚F (18˚C) Min. Ambient temp.)
3	Thermostat Controlled Enclosure Heater (Needed for -40˚F/˚C) Min. Ambient temp.)

Code	Ambient Controller
1	None (Requires mechanical T-stat. Use TPR, RTAS or RTBC)
2	Temperature & Moisture controller-requires external sensors for deicing
3	6040-R00000 1/16 DIN Controller (RTD controller-requires external RTD sensor-LN,LA or AS-BM)

Code	Enclosure (Size Determined by Table 1)
1	NEMA 4 Single-Door Wall-Mount Steel Enclosure 30 X 30 X 10
2	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 12
A	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 30 X 30 X 10
B	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 42 X 36 X 12

WTPM- ☐ ☐ ☐ ☐ ☐ ☐ ☐ **Typical Model Number**

WeatherTrace

WTP, WTPM

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

Spare/Replacement Parts

Part Number	Description
0017-43753	15A 1P Circuit Breaker (120V or 277V)
0017-43754	20A 1P Circuit Breaker (120V or 277V)
0017-43755	30A 1P Circuit Breaker (120V or 277V)
0017-43756	40A 1P Circuit Breaker (120V)
0017-43757	50A 1P Circuit Breaker (120V)
0017-43758	15A 2P Thermal Mag Circuit Breaker (208/240V or 480V)
0017-43759	20A 2P Thermal Mag Circuit Breaker (208/240V or 480V)
0017-43760	30A 2P Thermal Mag Circuit Breaker (208/240V or 480V)
0017-43761	40A 2P Thermal Mag Circuit Breaker (208/240V)
0017-43762	50A 2P Thermal Mag Circuit Breaker (208/240V)

Model Number Note

'-XXXX Indicates that the design has varied from the order table parameters. This could include one or more of the following non-standard considerations: Special Software or Configuration, Private Branding, Remote Monitoring/Touch-Screen Computer, Third Party Approval, Floor Stands, Protective Covering, Heater Power and RTD Terminal Blocks, Cooper Ground Bar, Mounting Options, Special Materials (316 S) or coatings, Additional Venting or Cooling, Special Indication or Alarms.

Table 1: Enclosure Size Selection

Circuits - Poles	NEMA 4 Enclosure Size (H" x W" x D")
6 Loop 1P*	24x20x10*
6 Loop 2P	30x30x12
12 Loop 1P	30x30x12
12 Loop 2P	42x36x12
18 Loop 1P	42x36x12
18 Loop 2P	42x36x12
24 Loop 1P	42x36x12
24 Loop 2P	42x36x12

*Note: Table 1 is a general guideline for Enclosure Size Selection. Adding certain options could cause enclosure size to differ. Adding a Remote Snow Sensor or any main breaker over 100A to the 6 loop panel will cause the enclosure size to go to the next size up. If Panel dimensions are critical Consult Factory for exact selection.

NOTES

CHROMALOX
Advanced Thermal Technologies

SNOW & ICE CONTROLS

Specialized Heat Tracing Contros for Snow & Ice Applications Using Energy Efficient, Temperature and Moisture Sensors

Chroma-RG

Commercial De-Icing Controller

- Automatic Control for Roof and Gutter De-icing
- Integrated Electronic Controller with Backlit LCD Display
- Adjustable Temperature Set-point
- User Friendly Interface
- Multiple Sensors Input – Up to 4 Temperature/Moisture Sensors
- Up to 30A & 120/208/240V Outputs to the Heaters Load
- Integrated Ground Fault Sensor
- Adjustable Hold-On-OFF Delay
- Optional Manual On override
- Technician Test/Commissioning Mode for Easy and Fast System Testing year Round
- Modbus Communications (Optional)
- ETL Certification (US and Canada)
- RoHS

Description

The Chroma-RG series of controls is a "Plug and Play" controller for roof and gutter applications. When the snow sensor senses a temperature below the set-point and moisture is present, it activates the contactor energizing the heating elements.

The Technician mode allows installers or technicians to adjust the parameters for customized installations using the electronic controller installed in the front panel. The adjustable Hold-On timer, keeps the outputs to the heaters active to ensure complete freeze protection.

The Hold-On (Time delay) is adjustable in the from 0 to 99 hours. The Chroma-FP Built-in Ground Fault interrupter allows manual reset from the front panel. Three LEDs visible through the transparent plastic cover provides information about the status of the system.

Chroma-FP Models

- Chroma-RG1 – Power box with 1 contactor (30A) & 120V output to heaters
  *Includes CS-AS Snow Sensor

- Chroma-RG2 – Power box with 1 contactor (30A) & 208/240V output to heaters
  *Includes CS-AS Snow Sensor

Specifications

Chroma-RG Controller

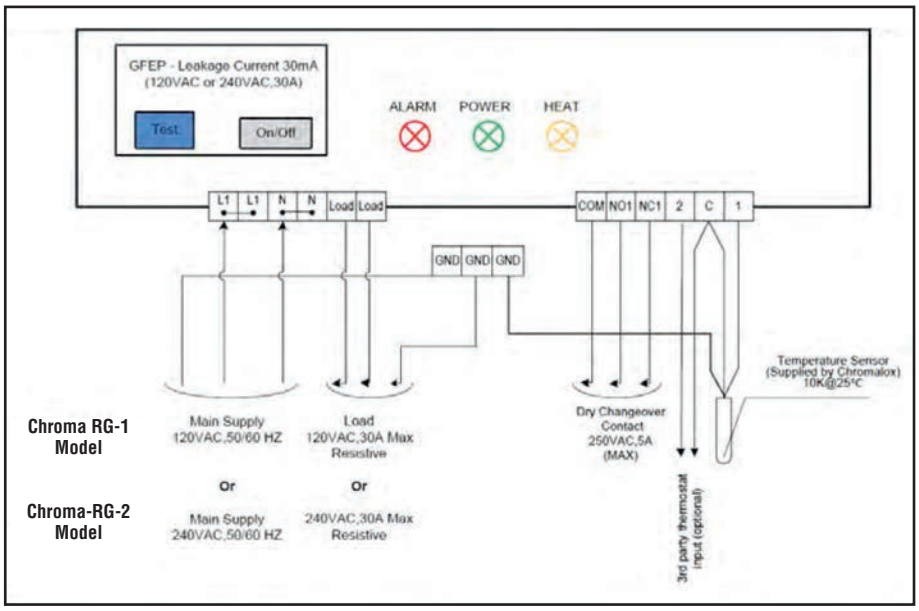
Indoor Ambient Operating Temperature	–10°F to 122°F (-10° C to 50°C)
Power Switching	Mechanical
Number of Circuits	1
Input Voltage	120, 208 or 240 VAC
Heater Voltage	120, 208 or 240 VAC
Communications	Modbus (optional)
Adjustable Parameters	Set-Point, Upper and Lower Limit Temperature, Hold- On/OFF Delay, Manual On time, Commissioning/Test Mode

Chroma-RG

Commercial De-Icing Controller *(cont'd.)*

Dimensions

Model	Units	H	W	D
Chroma-RG1	Inch	12	8	5
	cm	300	200	130
Chroma-RG2	Inch	12	8	5
	cm	300	200	130



Front View

Side View

Order Information

Model	Description	Max. Total Amperage	Max. Voltage	PCN
Chroma-RG1	De-Icing Controller, 1 Contactors (1-2P @30A), 120V, CS-AS	30A	120V	513973
Chroma-RG2	De-Icing Controller, 1 Contactors (1-2P @30A), 208/240V, CS-AS	30A	240V	5144513

ChromaMelt-2R

Snow Sensor and Controller

- Load Switching (2 X 24A Relays)
- Adjustable Temperature Settings (C & F)
- Variable Delay Time (Hold ON and OFF Time)
- User Friendly Programming and Setting
- Adjustment Using Remote Control with Large Lcd Display
- Adjustable Cycle Time between Zones while Staggering
- 2 Zones of Control - Operating Together or Staggering
- Easy and Simple 6 Wire installation
- Logical and Remote Access for Installers During Set-up, Commissioning & Service
- Non Obtrusive Adjustable Snow Sensor Wall Bracket
- Automatic/Manual/Off Mode Selection by Switch or by Remote Control
- 4 Vertical Spikes to Prevent Birds Nesting
- RoHS

NEW!

C ETL US LISTED Intertek

Description

The ChromaMelt-2R is a "Plug and Play" controller/sensor for snow melting applications. When the temperature drops below the adjustable set-point and moisure is present, it energizes the heating elements.

The Technician mode allows installers or technicians to adjust the parameters for customized installations using the electronic controller installed in the front panel. The adjustable Hold-On timer, keeps the outputs to the heaters active to ensure complete freeze protection.

The Hold-On (Time delay) is adjustable in the from 0 to 99 hours. The 4 vertical spikes prevent birds from nesting on top of the ChromaMelt-2R and blocking the sensing grid.

Specifications

ChromaMelt-2R Snow Sensor Controller

Indoor Temperature Sensor	14°F to 50°F (-10° C to 15°C)
Power Switching	Mechanical
Number of Circuits	2
Amp Rating/Circuit	24A
Input Voltage	110 - 240 VAC
Heater Voltage	110 - 240 VAC
Adjustable Parameters	Set-Point, Lower Limit Temperature, Hold-On Delay, Manual On time, Heater Cycle Time, Sequence Operation, Number of Zones, Commissioning/Test Mode

ChromaMelt-2R Accessories

CS-MB - Mounting bracket for ChromaMelt-2R

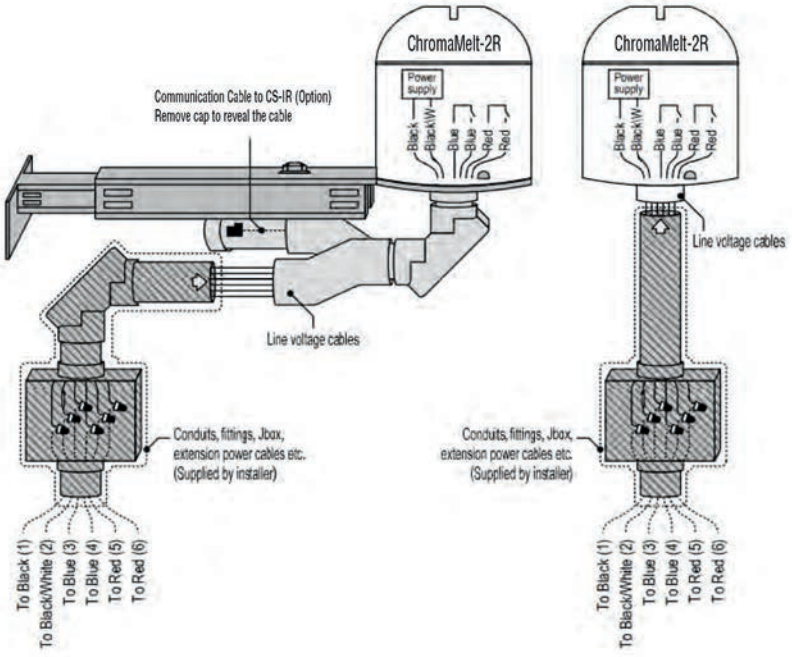
CS-RC - Remote control, operations and technical settings interface

CS-IR - Indoor control interface unit

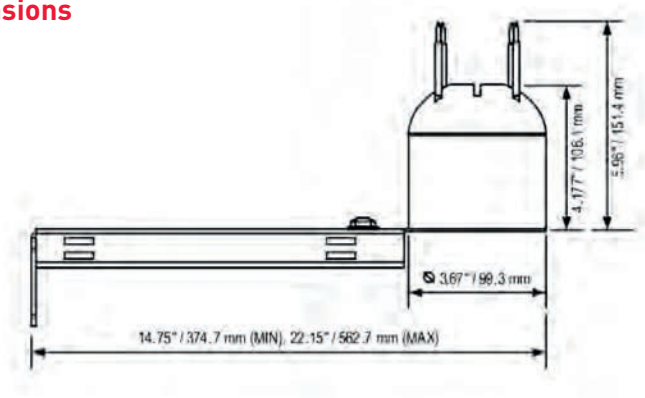
CS-EC - 30' (10m) Extention Cable assembly for CS-IR

ChromaMelt-2R

Snow Sensor and Controller *(cont'd.)*



Dimensions



Ordering Information

Model	Description	PCN
ChromaMelt-2R	Snow sensor/controller for snow and ice melting (2 X 24A)	512532
ChromaMelt-2RK	ChromaMelt-2R, CS-MB, CS-RC, and CS-IR	512540
CS-MB	Wall mounted adjustable bracket for ChromaMelt-2R	512559
CS-RC	Remote control for changing operation and setting	512567
CS-IR	Indoor mounted control interface unit for ChromaMelt-2R	512575
CS-EC	Extension cable for CS-IR connection to the ChromaMelt-2R	512583

ChromaMelt
De-Icing Controller

- **Automatic Control and Power Distribution for Deicing and Snow Melting**
- **User Friendly Interface**
- **Integrated Electronic Controller with Back-lit LCD Display**
- **Multiple Snow Sensor Input**
- **Integrated Adjustable Ground fault**
- **Adjustable Set-points, Upper and Lower Limit Temperature, Hold On/OFF Delay, Manual On and Time Splitting between zones**
- **Sequencing Zones Option – Enables Larger Snow Melting Area with Reduced Power Consumption on Site**
- **Technician Testing / Commissioning Mode for a Quick, Easy System Test, All Year Round (even during summer or at high temperature)**
- **2, 4, and 5 Contactor Designs**
- **ETL Certification (US and Canada)**

Description

The Chromalox ChromaMelt line of controls offer smart and easy control of a Snow & Ice Melting system. Enable CS-AS (ambient snow sensor) or a 3rd party snow sensor. Upon receiving a signal from a snow sensor/s, the ChromaMelt controller activates contactors, energizing heating elements according to a preset DIP switch configuration. The adjustable hold-on timer continues system operation for up to 10 hours after snow stops to ensure complete snow melting. Typical applications include driveways, sidewalks, loading docks, stairs, pavements and gutters.

ChromaMelt Models

- ChromaMelt3 – Power box with 4 contactors (2p, 30A) up to 277V & 120A output to heaters
- ChromaMelt5 – Power box with 4 contactors (3P, 50A) up to 600V & 300A output to heaters + 1 contactor (2p, 30A)
- ChromaMelt3C – Power box with 2 contactors (3P, 50A) up to 600V & 300A output to heaters + 1 contactor (2p, 30A)

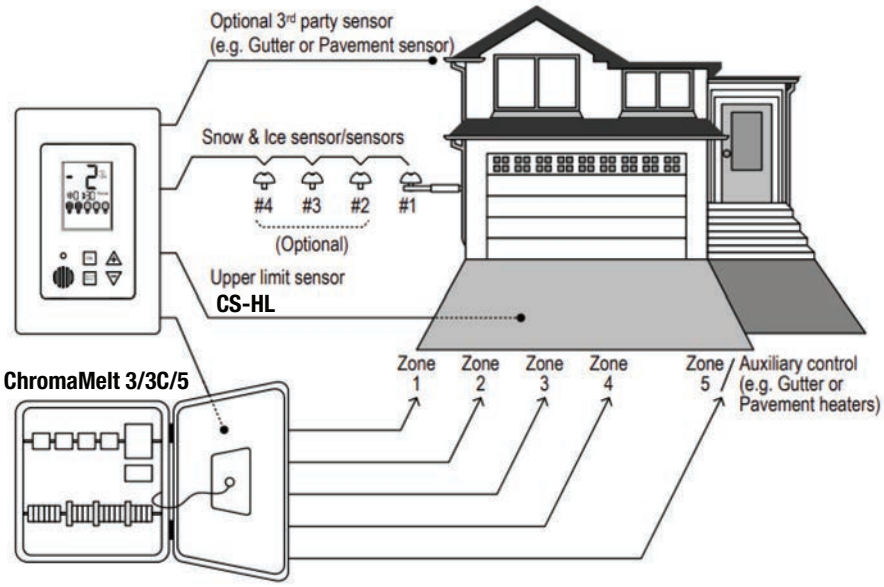
Specifications

ChromaMelt Controller

Indoor Ambient Operating Temperature	–10°F to 122°F (-10° C to 50°C)
Power Switching	Mechanical
Number of Circuits	2 to 12
Capacity	Depends on Wiring (See Wiring Manual)
Input Voltage	120 - 600 VAC
Heater Voltage	120 - 600 VAC
Communications	BACnet (optional)
Adjustable Parameters	Set-Point, Upper and Lower Limit Temperature, Hold-On/OFF Delay, Manual On time, Zones time splitting between zones

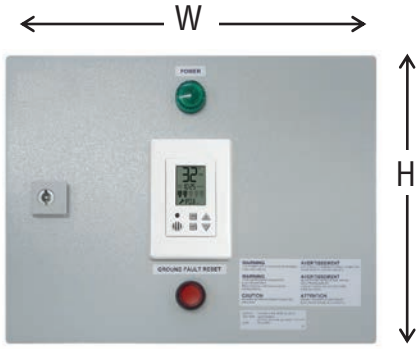
ChromaMelt
Snow Melting Controller *(cont'd.)*

General System Layout with ChromaMelt 3/3C/5

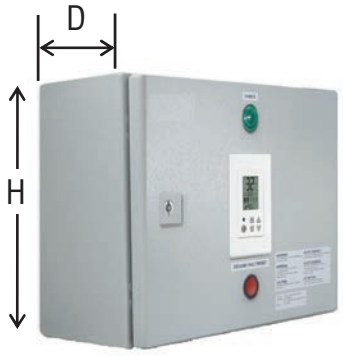


Dimensions

		H	W	D
ChromaMelt 3C	Inch	15	11.8	6.1
	cm	380	300	155
ChromaMelt 3	Inch	15	11.8	6.1
	cm	380	300	155
ChromaMelt 5	Inch	18	18	7.9
	cm	500	500	200



Front View



Side View

Ordering Information

Model	Description	Max. Total Amperage	Max. Voltage	PCN
ChromaMelt 3C	Snow Melting Controller, 2 Contactors (2 -3P@ 50A, 1-2P @30A)	300A	600V	512014
ChromaMelt 3	Snow Melting Controller, 4 Contactors (4 -2P@ 30A)	120A	277V	512022
ChromaMelt 5	Snow Melting Controller, 5 Contactors (4 -3P@ 50A, 1-2P @30A)	600A	600V	512030

IntelliTrace RSP

Remote Sensor Panel

- Consolidates Multiple Temperature Sensor Signals into a Single Enclosure
- Facilitates 1-252 Sensor Inputs
- Fully Integrated Package
- Works Seamlessly with ITAS & ITLS Heat Trace Control Systems
- Ordinary and Hazardous Locations
- Significant Installation Cost Savings
- Ideal for New Installations, Expansions & System Upgrades
- Local or Remote Locations
- Optional Wireless Communication
- Optional Enclosure Heater
- IP 66, NEMA 4 & 4X Enclosures
- UL/cUL, CE

Remote Sensor Panel

Description

The Chromalox RSP - Remote Sensor Panel greatly reduces installation costs as it facilitates the monitoring of 1 - 252 heat trace temperature sensor inputs within a single enclosure.

The RSP is a completely integrated package and it works seamlessly with the Chromalox IntelliTrace ITLS/ITAS heat trace control panels in either ordinary or hazardous areas.

The RSP communicates with the base panel via a single, twisted-pair wire return or via a wirelessly transmitted signal. Multiple RSP modules may be linked together for added convenience.

The RSP comes standard with NEMA 4 Painted Steel, NEMA 4X Fiberglass or NEMA 4X 304 SS wall mounted enclosure for Ordinary or Hazardous (Class I, Division 2) Areas, DIN rail mounted components, wired communication connection to the ITAS/ITLS Heat Trace Control Panel, Power-On lamp.

In addition, enclosure heaters for either ordinary or Class I, Division 2 areas as well as wireless communication between the RSP and base ITAS or ITLS control panels are available options.

Approvals

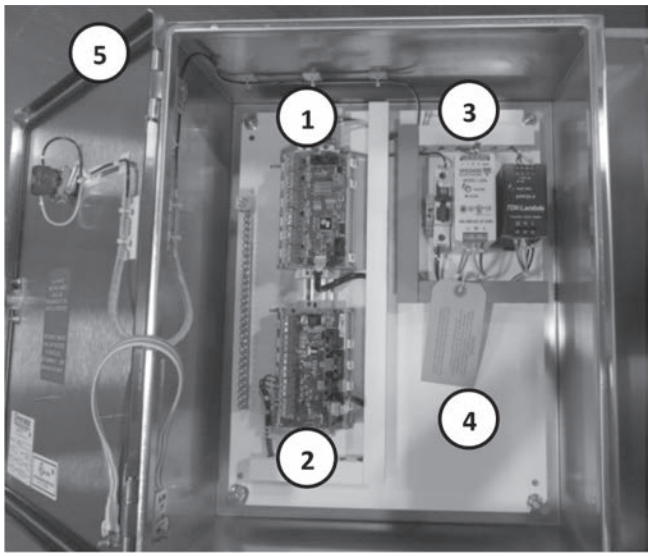
UL, cUL, CE

IntelliTrace RSP

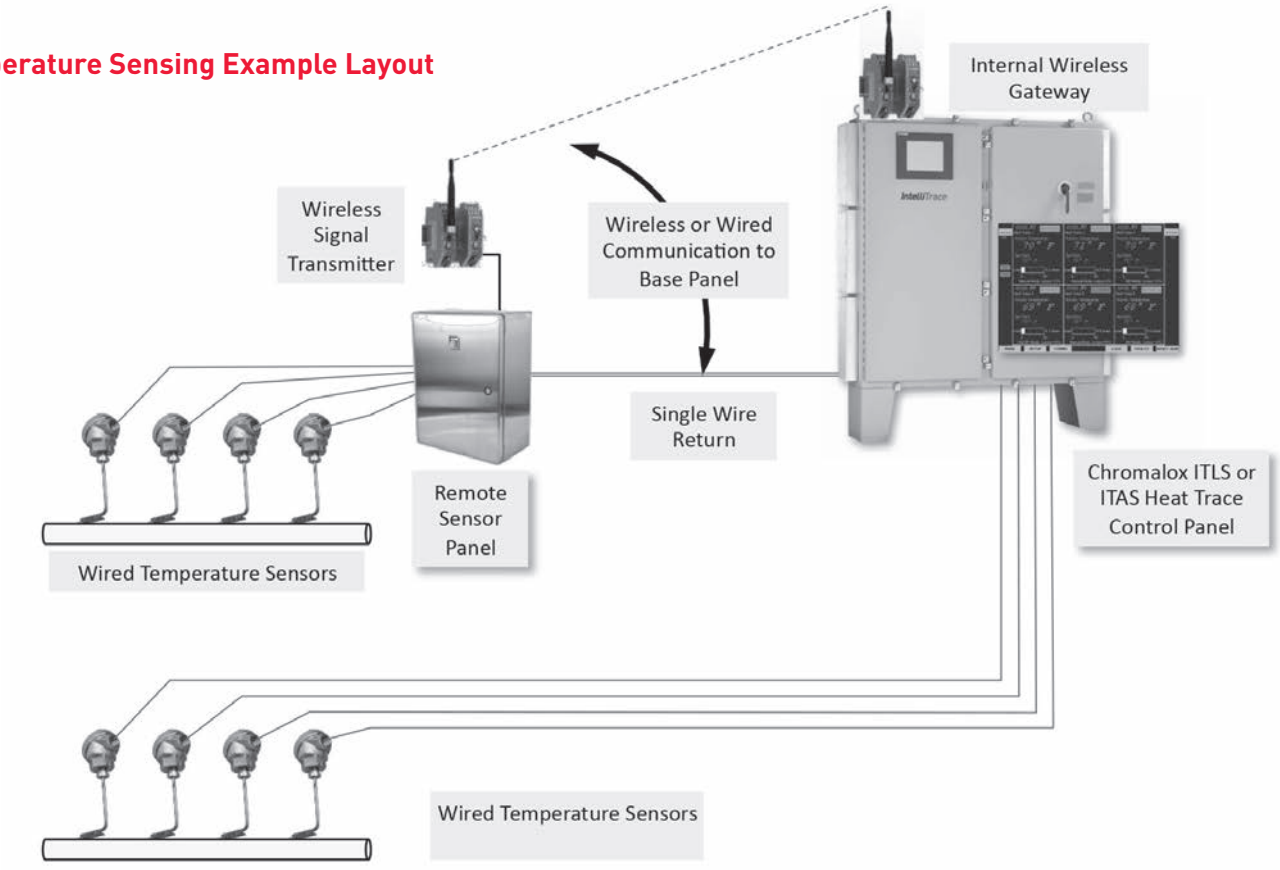
Remote Sensor Panel *(cont'd.)*

Remote Sensor Panel Example

1. **RTD Sensor Board –** facilitates the connection of up to 6 RTD sensor inputs per RTD Sensor board. Multiple boards may be employed in each enclosure.
2. **Communication / Distribution Board –** facilitates the intra-panel connection via Modbus RS485 (twisted pair). Wireless communication is available.
3. **Power Supply –** 100 – 240 VAC IN, 5 VDC out
4. **Enclosure Heater –** (not shown) Both ordinary area and Class I, Div. 2 designs are available
5. **Enclosure –** Fiberglas, Painted Steel or 304 Stainless Steel (316 SS is available as an option)



Temperature Sensing Example Layout



IntelliTrace
RSP
Remote Sensor Panel *(cont'd.)*

Ordering Information

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

Model	Remote Sensor Panel
RSP	Remote Sensor Panel facilitates 1 - 252 heat trace temperature sensor inputs and is designed to work with the Chromalox IntelliTrace ITLS/ITAS heat trace control panels in either ordinary or hazardous areas. Standard Features: NEMA 4 Painted Steel, NEMA 4X Fiberglass or NEMA 4X 304 SS wall mounted enclosure, wired communication to the ITLS/ITAS Control Panel, Power-On lamp. Optional Features: Enclosure Heater, wireless communications. Approvals: UL, cUL, CE

Code	Fiberglass (F), Painted Steel (P) Enclosure Size, In (cm)	Sensor Inputs	Code	304 Stainless Steel (S) Enclosure Size, In (cm)
006F	20 x 16 x 9 (51 x 41 x 22)	1 - 6	**006S**	20 x 16 x 9 (51 x 41 x 22)
012F	20 x 16 x 9 (51 x 41 x 22)	7 - 12	**012S**	20 x 16 x 9 (51 x 41 x 22)
018F	20 x 16 x 9 (51 x 41 x 22)	13 - 18	**018S**	20 x 16 x 9 (51 x 41 x 22)
024P	20 x 16 x 9 (51 x 41 x 22)	19 - 24	**024S**	20 x 16 x 9 (51 x 41 x 22)
030P	24 x 20 x 10 (61 x 51 x 25)	25 - 30	**030S**	24 x 20 x 10 (61 x 51 x 25)
036P	24 x 20 x 10 (61 x 51 x 25)	31 - 36	**036S**	24 x 20 x 10 (61 x 51 x 25)
999P	TBD	37-252	**999S**	TBD

Code	Enclosure Heater (Heater will increase enclosure size)
0	None
1	Ordinary Areas (Codes 006X, 012X)
2	Ordinary Areas (Codes 018X, 024X)
3	Ordinary Areas (Codes 030X, 036X)
4	Hazardous Areas (Codes 006X, 012X) - Class I, Div. 2-Groups ABCD
5	Hazardous Areas (Codes 018X, 024X) - Class I, Div. 2-Groups ABCD
6	Hazardous Areas (Codes 030X, 036X) - Class I, Div. 2-Groups ABCD
9	Code 999P/999S

Code	Communication to ITLS/ITAS Control Panel
0	Wired (RS485)
1	Wireless (Ethernet/Wireless)
9	Other

RSP-	**012S**	**-1**	**1**	**Typical Model Number**

Optional Features:
- Enclosure Heater
- Wireless communications

CS-AS
Outdoor Snow Sensor

- Electronic Snow and Ice Sensor
- Energy Efficient Algorithm
- 24VAC Operated
- Mounts on CS-MB Metal Rustfree Mounting Bracket or Vertical Pole
- 4 Vertical Spikes to Prevent Birds Nesting
- Plastic Cap for Summer Time – Protect from Dust and Dirt
- Up to 4 CS-AS Sensors can be Daisy Chained into One ChromaMelt Controller
- 4 Wires Installation – 30 ft. Cable Supplied with the Sensor
- Simple User Interface for Parameters Set from Controller
- Adjustable RH Sensitivity from Controller
- Technician Testing/ Commissioning Mode for Easy and Fast System Test all Year Long (even during summer or at high temp)
- RoHS

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Description

The CS-AS is a stylish, smart and reliable Snow and Ice sensor. Installed outdoors it measures the temperature and detects snow, sending the information via the controller to the heating system.

The CS-AS is connected to the Snow Melting Controller with a 30 feet (10 m.), 24V 4 wire cable and communicating with the controller, providing the temperature value and the snow detection based on the adjustable parameters.

The plastic "igloo" shape design helps to assure reliable Snow/Ice detection as it prevents from the snow to accumulate around the sensing area. The 4 holes around the sensors were designed to hold the Anti Nesting spikes, keeping birds away from the sensor.

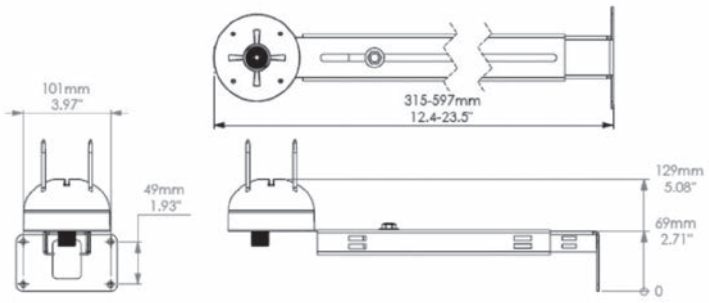
The sensor cap helps to keep the sensing area clean from dust and dirt during summer time and when the snow melting system is not used.

The measured temperature and the snow detection are visible on the controller display.

The ChromaMelt system can work with up to 4 CS-AS Snow Sensors daisy chained one after the other and link the 4 output zones of snow melting to the controller. A special sensor with pre-defined address is needed as an additional sensor besides the CS-AS who is active as #1. CS-AS #2, CS-AS #3 and CSAS #4 are the required sensors when 2, 3 or 4 sensors are needed.

Each snow sensors must have different MAC (Media Access Control) address in order to communicate with the main board.

Optional Wall Mounting Bracket shown in Picture



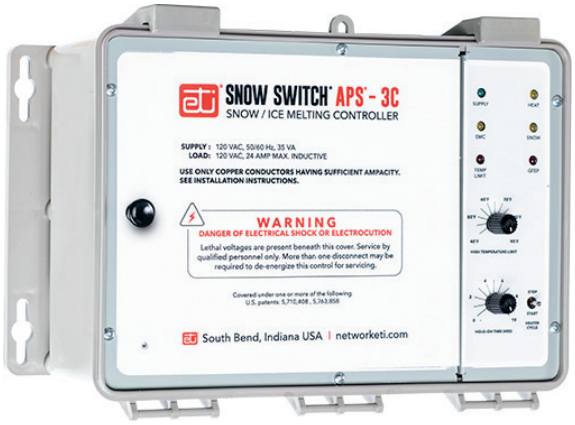
Specifications and Ordering Information

Model Number	PCN	Stock
CS-AS Outdoor Snow Sensor	512591	S
CS-MB Wall Mounted Adjustable Bracket	512559	S

APS-3C

Snow Melting/De-Icing Controller

- Automatic Snow/Ice Melting Control
- Energy Management Computer (EMC) Interface
- Compatible with MI, Constant Wattage and Self-Regulating Heaters
- Multiple Sensor Capability - Up to 6 Temperature/ Moisture Sensors
- Heater Hold-On and Test Capabilities
- C-UL-US
- Simple to Install and Operate
- Low System Costs
- Minimum Energy Costs



Description

The APS–3C Snow Switch when used with compatible sensors automatically controls snow/ice melting heaters, ensuring minimum operating costs. Typical applications include pavement, sidewalk, loading dock, roof, gutter and down spout snow/ice melting. The APS–3C is interchangeable with earlier APS–3 models.

The adjustable hold-on timer continues heater operation for up to 10 hours after snow stops to ensure complete melting. The optional RCU–3 Remote Control Unit can be located where system operation can be conveniently observed. It duplicates many of the controls and indicators on the APS–3C front panel. It is used to clear tracked and drifting snow that may not land on a sensor.

The calibrated 40°F to 90°F (4°C to 32°C) high limit thermostat prevents excessive temperatures when using constant wattage and MI heaters. It also permits safe testing at outdoor temperatures too high for continuous heater operation. The temperature sensor is included.

The APS–3C provides a relay closure interface for use with energy management computers (EMC). This feature can also be used for general purpose remote control and annunciation and other advanced applications.

All sensor and communications wiring is NEC Class 2. This simplifies installation while enhancing fire and shock safety. The APS–3C can interface up to six sensors from the CIT–1 product family. Using more sensors provides superior performance by better matching the controller to site performance requirements.

The APS–3C is an exceptionally capable deicing controller. For complete information describing its application, installation and features, please contact your local Chromalox sales office.

APS-3C

Snow Melting/De-Icing Controller *(cont'd.)*

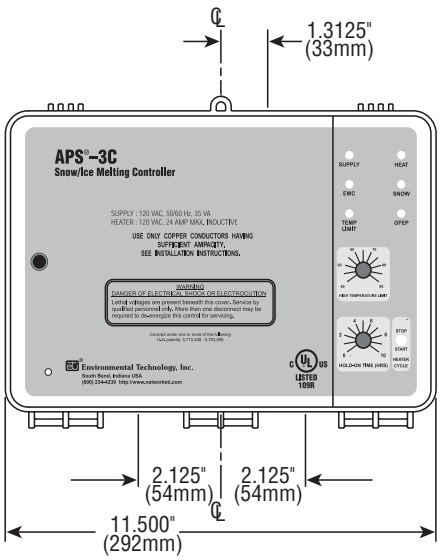
Specifications

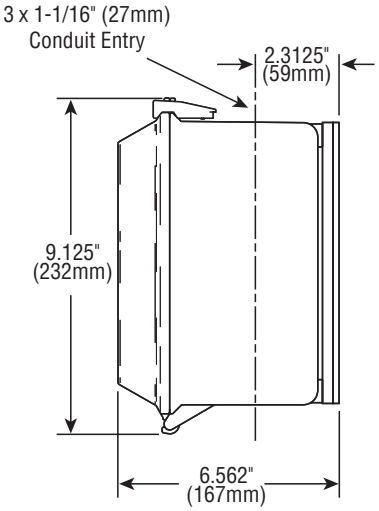
General		
Area of use		Nonhazardous locations
Enclosure		
Protection		NEMA 3R
Cover attachment		Hinged polycarbonate cover, lockable
Entries		3 × 1-1/16" entries
Material		Polycarbonate
Mounting		Wall mounted
Control		
Supply	PCN 389837	120 VAC, 50/60 Hz, 35 VA
	PCN 389829	208-240 VAC, 50/60 Hz, 35 VA
Load	PCN 389837	120 VAC, 24 amp max. inductive
	PCN 389829	240 VAC, 24 amp max. inductive
Contact type		Form C (NO-C-NC)
Maximum Ratings		Voltage: 240 VAC Current: 24 amps
Heater hold-on timer		0 to 10 hours; actuated by snow stopping or toggle switch System test Switch toggles the heater contact on and off. If temperature exceeds high limit, heater cycles to prevent damage.
Snow/Ice Sensors		
Sensor type		Up to 6 sensors from the CIT–1 product family
Circuit type		NEC Class 2
Lead length		Up to 500' (152m) using 18 AWG 3-wire jacketed cable Up to 2,000' (609m) using 12 AWG 3-wire jacketed cable
High Limit Thermostat		
Adjustment range		40°F to 90°F (4°C to 32°C)
Dead band		1°F (0.6°C)
Sensor type		Thermistor network
Circuit type		NEC Class 2
Lead length		Up to 500' (152m) using 18 AWG 2-wire jacketed cable Up to 1,000' (304m) using 12 AWG 2-wire jacketed cable
Energy Management Computer (EMC) Interface		
Inputs		OVERRIDE ON (10 ma dry switch contact) OVERRIDE OFF (10 ma dry switch contact) Outputs SUPPLY (10 ma dry switch contact) SNOW (10 ma dry switch contact) HEAT (10 ma dry switch contact) HIGH TEMP (10 ma dry switch contact) ALARM (10 ma dry switch contact)
Environmental		
Operating temperature		-40°F to 160°F (-40°C to 71°C)
Storage temperature		-50°F to 180°F (-45°C to 82°C)

APS-3C

Snow Melting/De-Icing Controller *(cont'd.)*

Dimensions





Specifications and Ordering Information

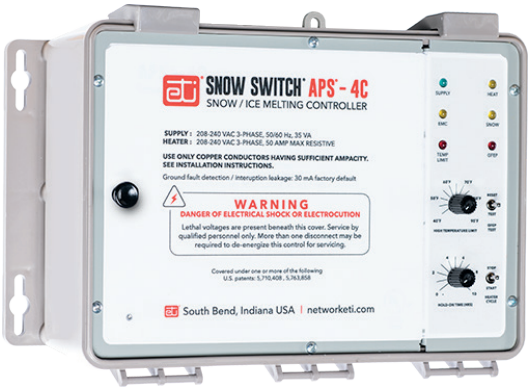
Model Number	PCN	Stock
APS–3C Control Panel, 120 VAC	389837	NS
APS–3C Control Panel, 208-240 VAC	**389829**	**S**

Stock Status: **S** = stock AS = assembly stock NS = non-stock
To Order—Specify model, PCN and quantity.

APS-4C

Snow Melting/De-Icing Controller

- Snow Melting/De-Icing Controller
- Satellite Contactor Interface for Larger Systems
- Energy Management Computer (EMC) Interface
- Accommodates MI, Constant Wattage and Self-Regulating Heaters
- Multiple Sensor Capability
- Advanced Ground Fault Protection
- Heater Hold-On And Test Capabilities
- C-UL-US Listed
- Simple to Install and Operate
- Low System Costs
- Minimum Energy Costs
- 30mA Grount Fault Protection



Description

The APS–4C Snow Switch when used with one, or more, compatible sensors automatically controls snow/ice melting heaters for minimum energy costs. Applications include pavement, sidewalk, loading dock, roof, gutter and down spout snow/ice melting in commercial and industrial environments. The APS–4C is interchangeable with the earlier APS–4.

The adjustable hold-on timer continues heater operation for up to 10 hours after snow stops to ensure complete melting. The optional RCU–4 Remote Control Unit can be located where system operation can be conveniently observed. It duplicates many of the APS–4C front panel functions.

The APS–4C provides advanced patented and patent pending ground fault equipment protection (GFEP) as required by the USA and Canadian National Electric Codes. The GFEP automatically tests itself every time the heater contactors operate and once every 24 hours. The trip current can be set at 60 or 120 mA via an internal switch or retained at the 30 ma default value. As an aid to troubleshooting heater ground faults, the APS–4C provides an output that can indicate the ground current on a service person's portable DVM.

The calibrated 40°F to 90°F (4°C to 32°C) high limit thermostat prevents excessive temperatures when using constant wattage and MI heaters. It also permits safe testing at outdoor temperatures too high for continuous heater operation. The temperature sensor is included.

The APS–4C provides a complete interface for use in environments supervised by an energy management computer (EMC). This feature can also be used for general purpose remote control and annunciation.

All sensor and communications wiring is NEC Class 2. This simplifies installation while enhancing fire and shock safety. The APS–4C can interface up to six sensors from the CIT–1 product family. Using more sensors provides superior performance by better matching the controller to site performance requirements.

The APS–4C is an exceptionally capable deicing controller. For complete information describing its application, installation and features, please contact your local Chromalox Sales Office.

APS-4C

Snow Melting/De-Icing Controller *(cont'd.)*

Specifications

General		
Area of use		Nonhazardous locations
Enclosure		
Protection		NEMA 3R
Cover attachment		Hinged polycarbonate cover, lockable
Entries		1 × 1-1/16" entry (top) for NEC Class 2 connections 2 × 1-11/16" entries (bottom) for supply and load power, except 277 VAC single phase 2 × 1-1/16" entries (bottom) for supply and load power, 277 VAC single phase only
Material		Polycarbonate
Mounting		Wall mount
Dimensions		5-1/2" (L) x 8-1/8" (W) x 4-3/8" (H) 140mm (L) x 207mm (W) x 112mm (H)
Control		
Supply Voltage	PCN 389853	208-240 VAC, 35 VA, three phase 50/60 Hz
	PCN 389895	277 VAC, 45 VA, single phase 50/60 Hz
	PCN 389861	277/480 VAC, 45 VA, three phase 50/60 Hz
	PCN 399525	600 VAC, 50 VA, three phase 50/60 Hz
Load	PCN 389855	208-240 VAC, 50 amp max. resistive
	PCN 389845	277 VAC, 40 amp max. resistive
	PCN 389861	277/480 VAC, 50 amp max. resistive
	PCN 399525	600 VAC, 50 amp max. resistive
Contact Type		3 Form A (NO)
Weight		3 Pounds (not including sensors)
Maximum Ratings		Voltage: 600 VAC Current: 50 Amps
Heater Hold-On timer		0 - 10 hours; actuated by snow stopping or toggle switch
System Test		Switch toggles heater contact on and off. If temperature exceeds high limit, heater cycles prevent damage.
Ground Fault Equipment Protection (GFEP)		
Set point		30 mA (default); 60 mA & 120 mA selectable by DIP switch
Automatic self-test		Mode A: Verifies GFEP function before contactors operate Mode B: Verifies GFEP and heaters every 24 hours
Manual test/reset		Toggle switch provided for this function
Maintenance facility		DC output proportional to ground current provided for troubleshooting the heater system
Snow/Ice Sensors		
Maximum Quantity		Up to 6 sensors from the CIT–1 product family
Circuit Type		NEC Class 2
Lead Length		Up to 500' (152m) using 18 AWG 3-wire jacketed cable Up to 2,000' (609m) using 12 AWG 3-wire jacketed cable
High Limit Thermostat		
Adjustment range		40°F to 90°F (4°C to 32°C)
Dead band		1°F (0.6°C)
Circuit type		Thermistor network
Sensor interface		NEC Class 2
Lead length		Up to 500' (152m) using 18 AWG 2-wire jacketed cable Up to 1,000' (304m) using 12 AWG 2-wire jacketed cable

APS-4C
Snow Melting/De-Icing Controller *(cont'd.)*

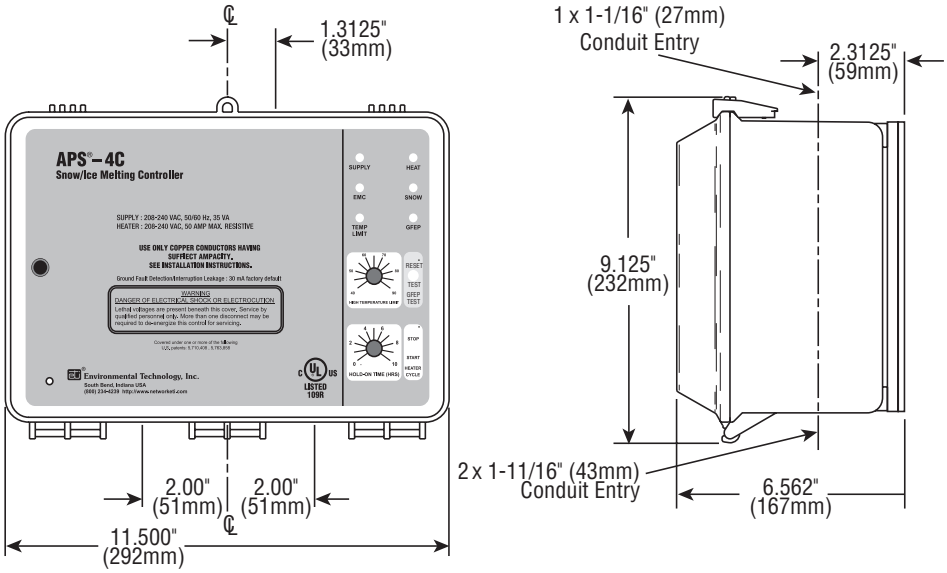
Energy Management Computer (EMC) Interface

Inputs	OVERRIDE ON (10 mA dry switch contact)
	OVERRIDE OFF (10 mA dry switch contact)
Outputs	SUPPLY (10 mA dry switch contact)
	SNOW (10 mA dry switch contact)
	HEAT (10 mA dry switch contact)
	HIGH TEMP (10 mA dry switch contact)
	ALARM (10 mA dry switch contact)

Environmental

Operating temperature	-40°F to 160°F (-40°C to 71°C)
Storage temperature	-50°F to 180°F (-45°C to 82°C)

Dimensions



Specifications and Ordering Information

Model Number	PCN	Stock
APS-4C Control Panel (277 Volt Single Phase)	**389845**	**S**
APS-4C Control Panel (208-240 Volt 3-Phase)	**389853**	**S**
APS-4C Control Panel (277/480 Volt 3-Phase)	**389861**	**S**
APS-4C Control Panel (600 Volt 3-Phase)	399525	NS

Stock Status: **S** = stock AS = assembly stock NS = non-stock
To Order—Specify model, PCN and quantity.

SC-40C
Satellite Contactor

- To be Used in Conjunction with APS-4C Units Only
- Modular Power Control of Automatic Snow Melting Systems
- Staged Heater Operation for High Power Quality
- Energy Management Computer (EMC) Interface
- Compatible with MI, Constant Wattage and Self-Regulating Heaters
- 30mA Ground Fault Protection
- Heater Hold-On and Test Capabilities
- C-UL-US
- Simple To Install And Operate
- Low System Costs
- Minimum Energy Costs

Description

The SC–40C Satellite Contactor answers the need for cost effective modular snow melting heater control. One or more SC–40Cs, when used with an APS–4C Control Panel acting as the master control, allow for modular snow melting system design. There is no limit to the number of SC–40Cs that can be interfaced in a single system. This approach reduces front end design, hardware and installation costs while providing a number of useful features that would be otherwise too expensive and complex to implement.

The SC–40C provides the same advanced patented and patent pending Ground Fault Equipment Protection (GFEP) as required by the USA and Canadian National Electric codes that is found on the APS–4C. Upon sensing a ground fault condition, an SC–40C inhibits operation of its contactor until manually reset. Circuits without a ground fault continue to operate normally thus partitioning defective heaters.

The adjustable hold-on timer can initiate heater operation on each SC–40C for up to 10 hours to ensure complete melting and to compensate for differences between zones. The optional RCU–4 Remote Control Unit can be located where system operation can be conveniently observed. It duplicates many of the controls and indicators on the SC–40C front panel.

Each SC–40C provides a complete energy management computer (EMC) interface. This feature provides remote access for advanced applications requiring remote or zone control along with remote annunciation.

Each SC–40C maintains communications to and from the APS–4C using a 3-wire cable. Thus, the APS–4C alarms ground faults occurring anywhere in the system. The SC–40C also inserts a short time delay between the operation of each contactor thus improving power quality by limiting the inrush current. The RCU–4 Remote Control Unit supplied permits overriding zone control in applications requiring the capability.

The SC–40C is interchangeable with the earlier SC–40. For complete information describing its application, installation and features, please contact your local Chromalox sales office.

SC-40C
Satellite Contactor
(cont'd.)

Specifications

General

Area of use	Nonhazardous locations
Enclosure	
Protection	NEMA 3R
Cover attachment	Hinged polycarbonate cover, lockable
Entries	1 × 1-1/16" entry (top) for NEC Class 2 connections 2 × 1-11/16" entries (bottom) for supply and load power, except 277 VAC single phase 2 × 1-1/16" entries (bottom) for supply and load power, 277 VAC single phase only
Material	Polycarbonate
Mounting	Wall mounted

Communications Bus

Number of cascaded units	Unlimited
Contactor delay	5 second
Bus-wire type	3-wire jacketed cable
Circuit type	NEC Class 2
Lead length	Up to 500' (152m) using 18 AWG 3-wire jacketed cable Up to 1,000' (304m) using 12 AWG 3-wire jacketed cable

Control

Supply	PCN 389888	208-240 VAC, 35 VA, three phase 50/60 Hz
	PCN 389870	277 VAC, 45 VA, single phase 50/60 Hz
	PCN 389896	277/480 VAC, 45 VA, three phase 50/60 Hz
	PCN 399533	600 VAC, 50 VA, three phase 50/60 Hz
LOAD	PCN 389888	208-240 VAC, 50 amp max. resistive
	PCN 389870	277 VAC, 40 amp max. resistive
	PCN 389896	277/480 VAC, 50 amp max. resistive
	PCN 399533	600 VAC, 50 amp max. resistive
Contact type		3 Form A (NO)
Maximum Ratings Voltage		600 VAC
Current		50 amps
Heater hold-on timer		0 to 10 hours; actuated by toggle switch
System test		Switch toggles the heater contact on and off. If temperature exceeds high limit, heater cycles to prevent damage.

Ground Fault Equipment Protection (GFEP)

Set point	30 mA (default); 60 mA & 120 mA selectable by DIP switch
Automatic self-test	Mode A: Verifies GFEP function before contactors operate Mode B: Verifies GFEP and heaters every 24 hours
Manual test/reset	Toggle switch provided for this function
Maintenance facility	DC output proportional to ground current provided for troubleshooting the heater system

Snow/Ice Sensors
Not Applicable

High Limit Thermostat

Adjustment range	40°F to 90°F (4°C to 32°C)
Dead band	1°F (0.6°C)
Sensor type	Thermistor network
Circuit type	NEC Class 2
Lead length	Up to 500' (152m) using 18 AWG 2-wire jacketed cable Up to 1,000' (304m) using 12 AWG 2-wire jacketed cable

SC-40C
Satellite Contactor *(cont'd.)*

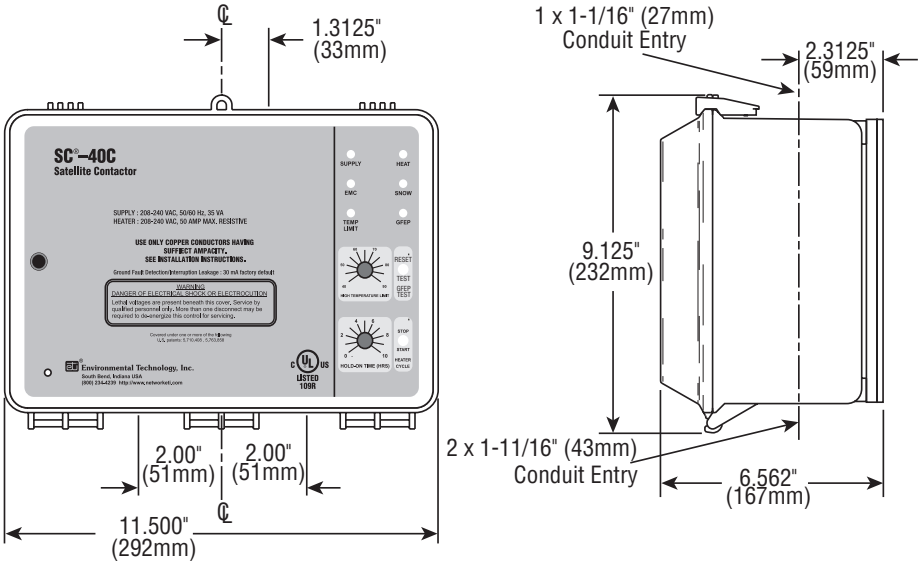
Energy Management Computer (EMC) Interface

Inputs	OVERRIDE ON (10 mA dry switch contact)
	OVERRIDE OFF (10 mA dry switch contact)
Outputs	SUPPLY (10 mA dry switch contact)
	SNOW (10 mA dry switch contact)
	HEAT (10 mA dry switch contact)
	HIGH TEMP (10 mA dry switch contact)
	ALARM (10 mA dry switch contact)

Environmental

Operating temperature	-40°F to 160°F (-40°C to 71°C)
Storage temperature	-50°F to 180°F (-45°C to 82°C)

Dimensions



Specifications and Ordering Information

Model Number	PCN	Stock
SC–40C Satellite Contactor, 208-240 VAC 50/60 Hz Three Phase	**389888**	**S**
SC–40C Satellite Contactor, 277 VAC 50/60 Hz Single Phase	389870	NS
SC–40C Satellite Contactor, 277/480 VAC 50/60 Hz Three Phase	**389896**	**S**
SC–40C Satellite Contactor, 600 VAC 50/60 Hz Three Phase	399533	NS

Stock Status: **S** = stock AS = assembly stock NS = non-stock
To Order—Specify model, PCN and quantity.

PD Pro

Snow Melting/De-Icing Controller

- **Automatic Snow Melting/De-Icing Control Minimizes Operating Costs**
- **Supply Voltage 100-277 V**
- **Loads Up To 30 Amps**
- **Weather-Resistant NEMA 4X Enclosure**
- **C-UL-US Listed for Temperature Regulating Equipment**
- **Adjustable Hold-On Timer Continues Heater Operation After Snow and Ice Discontinue to Ensure Complete Melting**
- **Dual Sensor Capability to Meet Site Performance Requirements**
- **Automatic and Manual-Override Operator Controls for Changing Environmental Conditions**
- **Optional Remote Control Operation for Added Convenience**

Description

The Snow Switch Model PD Pro is an automatic snow and ice melting control system. Utilizing standard Environmental Technology snow and ice sensors (sold separately), applications include snow and ice detection and melting for pavement, sidewalks, loading docks, roofs, gutters and downspouts in commercial and residential environments.

The PD Pro interfaces with up to two standard Environmental Technology sensors to meet site requirements. The CIT-1, GIT-1, and SIT-6E sensors reliably detect snow and ice melting in gutter and pavement applications. The CIT-1 aerial snow sensor detects falling or blowing precipitation before snow or ice begin to form, allowing the control to begin managing the system. The CIT-1 sensor may be roof or mast mounted and can be paired with the GIT-1 sensor for gutter applications or the SIT-6E sensor for pavement applications. All three sensors detect precipitation as snow at temperatures below 38°F (3.3°C). The PD Pro is signaled only if moisture occurs below this temperature, saving energy and ensuring thorough snow and ice melting. Since 1968, these sensors have been the industry's most versatile and cost-effective automatic snow melting control sensors.

The PD Pro features automatic and manual-override operator controls. The adjustable Hold-On timer continues heater operations up to 8 hours after snow or ice conditions end to ensure complete melting. The Heater Cycle control button allows manual initiation or cancelation of a heating cycle. The optional RCU-3 remote control unit can be located for convenient monitoring and control. These flexible control options provide complete snow melting and water evaporation at a low operating cost.

The PD Pro weighs only 3 pounds and measures 5-1/2" (L) x 8-1/8" (W) x 4-3/8" (H). Comprehensive instruction manuals simplify installation and operation. These products are also supported by Environmental Technology technical support.

The PD Pro is a capable snow and ice control for medium-sized applications whose features and power requirements do not require an APS or EUR Series control panel.

PD Pro

Snow Melting/De-Icing Controller *(cont'd.)*

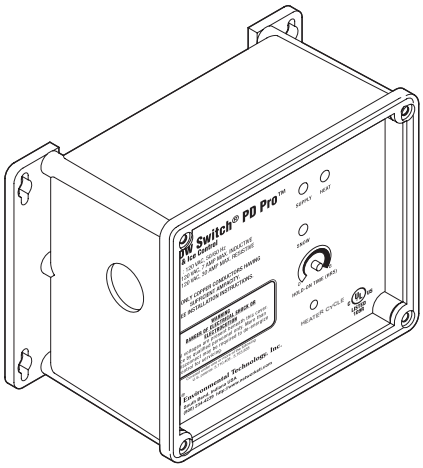
Specifications

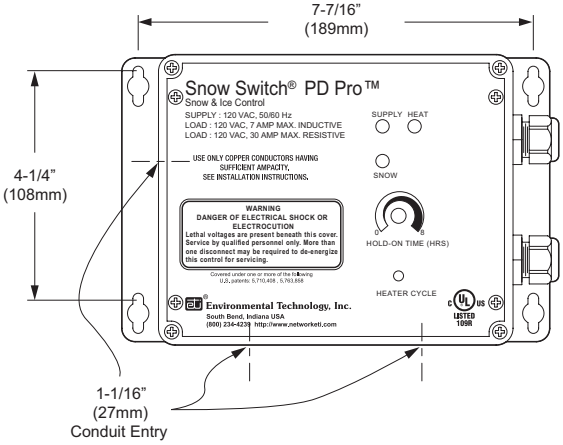
General	
Area of use	Nonhazardous locations
Enclosure	
Protection	NEMA 4X
Cover attachment	Polycarbonate with machine screws
Entries	2 x 3/4" entry (bottom right) for NEC Class 2 connections 3 x 1-1/16" entries (bottom left) for supply & load power
Material	Polycarbonate
Mounting	Wall mount
Dimensions	5-1/2" (L) x 8-1/8" (W) x 4-3/8" (H) 140mm (L) x 207mm (W) x 112mm (H)
Control	
Supply Voltage	100-277 VAC; 50/60 Hz
Load	7 Amp maximum inductive 30 Amp resistive
Contact Type	2 Form A (NO)
Weight	3 Pounds (not including sensors)
Maximum Ratings	Voltage: 277 VAC Current: 30 Amps
Heater Hold-On timer	0 to 8 hours; actuated by snow stopping or toggle switch
System Test	Switch toggles heater contact on and off. If temperature exceeds optional high limit thermistor (45°F), heater shuts off to reduce costs and prevent damage.
Front Panel Interface	
Status Indicator	SUPPLY (green): Power on HEAT (yellow): Heating cycle in progress SNOW (yellow): Sensor(s) detect snow
Snow/Ice Sensors	
Maximum Quantity	2 ETI sensors
Circuit Type	NEC Class 2
Lead Length	Up to 500' (152m) using 18 AWG 3-wire jacketed cable Up to 2,000' (609m) using 12 AWG 3-wire jacketed cable
Wire and Cable Ratings	
Power Cable	Size for heater load (30 Amps maximum)
Sensor Wiring	#18 AWG jacketed, 3-conductor
Heater Cable	Size for maximum heater load
Remote Wiring	#22 AWG jacketed, 2-conductor
Environmental	
Operating temperature	–31°F to 130°F (–35°C to 55°C)
Storage temperature	–67°F to 167°F (–55°C to 75°C)

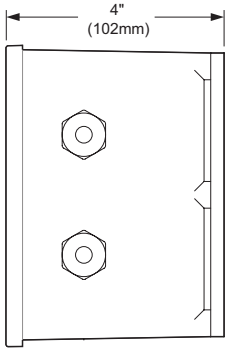
PD Pro

Snow Melting/De-Icing Controller *(cont'd.)*

Dimensions





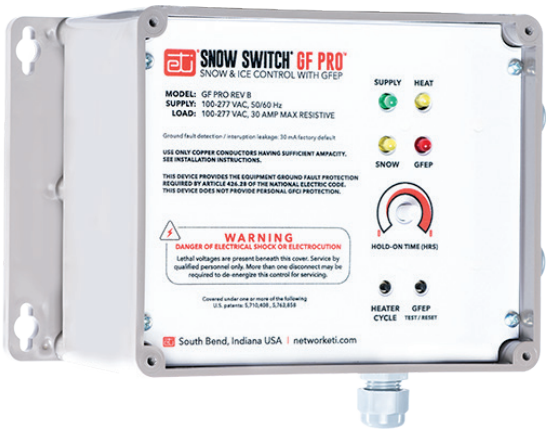


Specifications and Ordering Information

Model Number	PCN
PD Pro	390010
Accessories	
RCU-3 Remote Control (Optional)	389773
Snow/Ice Sensors (Not Included)	
CIT-1 Aerial Snow Sensor	389749
GIT-1 Gutter Ice Sensor	389757
SIT-6E Pavement Mounted Snow and Ice Sensor	389765
To Order—Specify model, PCN and quantity.	

GF Pro

Snow Melting/De-Icing Controller



- **Automatic Snow Melting/De-Icing Control Minimizes Operating Costs**
- **Supply Voltage 100-277 V**
- **Rated for Up to 30 Amp Resistive Loads**
- **Integral 30 mA of Ground Fault Equipment Protection (GFEP)**
- **Weather-Resistant NEMA 4X Enclosure**
- **C-UL-US Listed for Temperature Regulating Equipment**
- **Adjustable Hold-On Timer Continues Heater Operation After Snow and Ice Discontinue to Ensure Complete Melting**
- **Dual Sensor Capability to Meet Site Performance Requirements**
- **Automatic and Manual-Override Operator Controls for Changing Environmental Conditions**
- **Optional Remote Control Operation for Added Convenience**

Description

The Snow Switch Model GF Pro is an automatic snow and ice melting control system. Utilizing standard Environmental Technology snow and ice sensors (sold separately), applications include snow and ice detection and melting for pavement, sidewalks, loading docks, roofs, gutters and downspouts in commercial and residential environments.

The GF Pro interfaces with up to two standard Environmental Technology sensors to meet site requirements. The CIT–1 sensor may be roof or mast mounted and can be paired with the GIT–1 sensor for gutter applications or the SIT–6E sensor for pavement applications. All three sensors detect precipitation as snow at temperatures below 38°F (3.3°C), saving energy and ensuring thorough snow and ice melting. Since 1968, these sensors have been the industry's most versatile and cost-effective automatic snow melting control sensors.

The GF Pro features built-in 30 mA, self-testing Ground Fault Equipment Protection (GFEP), digitally filtered to minimize false tripping. A ground fault condition must be manually reset using the Test/Reset switch before heater operation can continue.

The GF Pro uses both automatic and manual-override operator controls. The adjustable Hold-On timer continues heater operations up to 8 hours after snow or ice conditions end to ensure complete melting. The Heater Cycle control button allows manual initiation or cancellation of a heating cycle. The optional RCU–4 remote control unit can be located for convenient monitoring and control. These flexible control options provide complete snow melting and water evaporation at a low operating cost.

The GF Pro weighs only 3 pounds and measures 5 1/2" (L) x 8 1/8" (W) x 4 3/8" (H). Comprehensive instruction manuals simplify installation and operation. These products are also supported by Environmental Technology technical support.

The GF Pro is a capable snow and ice control for medium-sized applications whose features and power requirements do not require an APS or EUR Series control panel.

GF Pro

Snow Melting/De-Icing Controller *(cont'd.)*

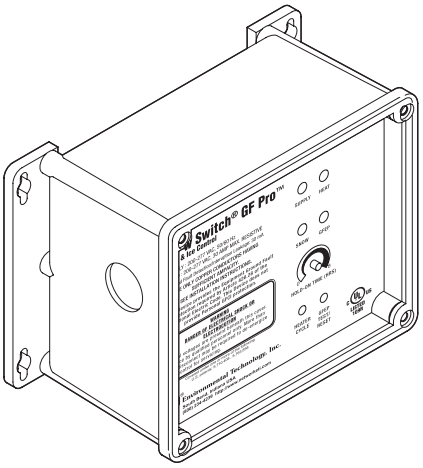
Specifications

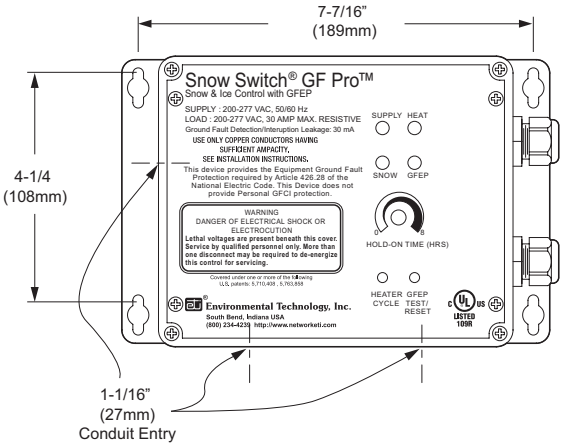
General	
Area of use	Nonhazardous locations
Enclosure	
Protection	IP 66, NEMA 4X
Cover attachment	Polycarbonate with machine screws
Entries	2 x 3/4" entry (bottom right) for NEC Class 2 connections 3 x 1-1/16" entries (bottom left) for supply & load power
Material	Polycarbonate
Mounting	Wall mount
Dimensions	5-1/2" (L) x 8-1/8" (W) x 4-3/8" (H) 140mm (L) x 207mm (W) x 112mm (H)
Control	
Supply Voltage	100 - 277 VAC; 50/60 Hz
Load	30 Amp maximum resistive
Contact Type	2 Form A (NO)
Weight	3 Pounds (not including sensors)
Maximum Ratings	Voltage: 277 VAC Current: 30 Amps
Heater Hold-On timer	0 to 8 hours; actuated by snow stopping or toggle switch
System Test	Switch toggles heater contact on and off. If temperature exceeds optional high-limit thermistor (45°F), heater shuts off to reduce costs and prevent damage.
Front Panel Interface	
Status Indicator	SUPPLY (green): Power on HEAT (yellow): Heating cycle in progress SNOW (yellow): Sensor(s) detect snow GFEP (red): Ground Fault condition GFEP (red, flashing): Failed GFEP (red, rapid flashing): GFEP test in progress
Snow/Ice Sensors	
Maximum Quantity	2 ETI sensors
Circuit Type	NEC Class 2
Lead Length	Up to 500' (152m) using 18 AWG 3-wire jacketed cable Up to 2,000' (609m) using 12 AWG 3-wire jacketed cable
Wire and Cable Ratings	
Power Cable	Size for heater load (30 amps maximum)
Sensor Wiring	#18 AWG jacketed, 3-conductor
Heater Cable	Size for maximum heater load
Remote Wiring	#22 AWG jacketed, 2-conductor
Ground Fault Equipment Protection (GFEP)	
Set Point	30 mA
Automatic Self-Test	GFEP verified before contactors operate; GFEP runs on start-up and every 24 hours
Manual Test/Reset	Test/Reset switch on front panel
Environmental	
Operating temperature	–31°F to 130°F (–35°C to 55°C)
Storage temperature	–67°F to 167°F (–55°C to 75°C)

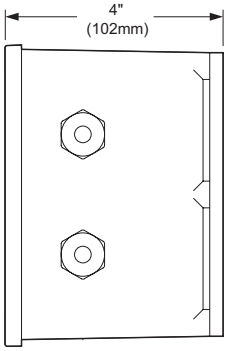
GF Pro

Snow Melting/De-Icing Controller *(cont'd.)*

Dimensions







Specifications and Ordering Information

Model Number	PCN
GF Pro	390029
Accessories	
RCU–4 Remote Control (Optional)	389909
Snow/Ice Sensors (Not Included)	
CIT–1 Aerial Snow Sensor	389749
GIT–1 Gutter Ice Sensor	389757
SIT–6E Pavement Mounted Snow and Ice Sensor	389765

To Order—Specify model, PCN and quantity.

LCD-8

Configurable Aerial Snow Melting Controller

- **Automatic Snow and Ice Melting Controller Minimizes Operating Costs**
- **Automatic Voltage Selection Operates from 120 Vac – 240 Vac**
- **24 Vac Model Available for Hydronic and Building Automation Applications**
- **Adjustable Hold-On Time and Temperature Set Point Provides Flexibility for a Wide Range of Applications**
- **Rated for up to 3 Amp Inductive Loads for Pilot Duty Applications and Resistive Loads up to 16 Amps**
- **Weather-Resistant NEMA 3R Enclosure**
- **Hold-On Timer Continues Heater Operation After Snow Stops to Ensure Complete Melting**
- **Sno-Test™ Automatic Testing and Manual Heater Cycle for System Testing**
- **Simple Four-Wire Installation**
- **C-UL-US Listed for Temperature Regulating Equipment**

Description

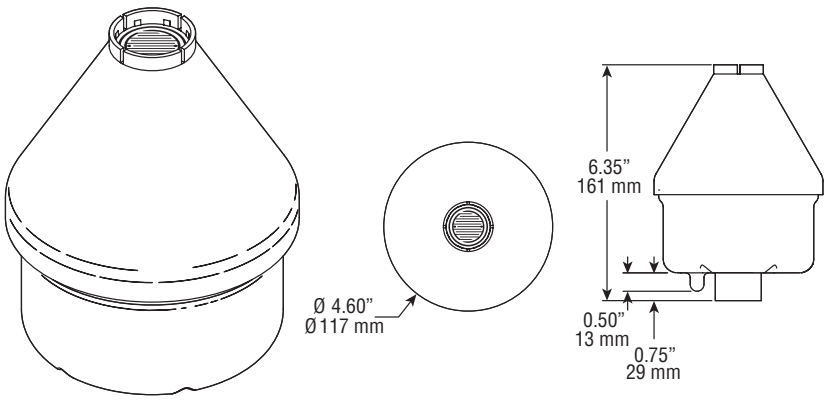
The Snow Switch Model LCD-8 configurable aerial snow melting controller makes automatic snow melting a cost effective alternative in even the smallest applications. Heaters operate at temperatures below the set point, 38°F (3.3°C) default, only when required. The adjustable hold-on period, 3 hours default, continues heater operation after snow stops to ensure complete melting. The LCD-8 controller includes an internal magnetic reed switch used for manual heater cycling, as well as configuring the temperature set point and the hold-on time.

The LCD-8 controller operates from either an automatic selecting 100 VAC - 240 VAC or from 24 VAC. These two voltage options combine with the configurable hold-on time and temperature set point to meet the need of a wide number of applications using just two part numbers.

It controls heater loads up to 16 Amps resistive or 3 Amps inductive. The operating temperature range extends from -40°F to 140°F (-40°C to 60°C). The redesigned, patent pending, rugged polycarbonate enclosure provides excellent protection at temperature extremes, while allowing snow to shed to prevent iglooing over the moisture sensor.

The internal magnetic reed switch allows for both configuration and manual heater operation without the need for external switches, which are susceptible to damage, or the need to open the enclosure.

Verifying system functionality after installation or when troubleshooting used to require spray circuit cooler or ice for controller activation. The Sno-Test™ feature eliminates this need by performing a self-test after power application, and operating heaters in a unique pattern for a few seconds. Reading the test results takes only an AC voltmeter or clamp-on ammeter.



LCD-8

Configurable Aerial Snow Melting Controller *(cont'd.)*

General
- Area of use ..... Nonhazardous locations

Enclosure
- Protection ..... NEMA 3R
- Cover attachment ..... Polycarbonate with machine screws
- Entries ..... 1 x 3/4" entry (bottom)
- Material ..... Polycarbonate
- Mounting ..... Pole mount
- Dimensions ..... 4.6" (W) x 6.1" (H) / 117mm (W) x 155mm (H)

Control
- Supply voltage ..... Chromalox PCN 389781: 100 VAC – 240 VAC; 50/60 Hz
- Load ..... 3 amp maximum inductive
  16 amp maximum resistive
- Heater Hold-On timer ..... 0, 1, 3 (default) or 5 hours; configured by magnetic reed switch
- Set point temperature ..... Off (moisture only), 36°F, 38°F (default), 40°F; configured by magnetic reed switch

Interface
- Status indicators ..... SUPPLY (green): Power on; will flash while in configuration mode
  HEAT (yellow): Heating cycle in progress

Wire and Cable Ratings
- Power cable ..... Size for heater load (16 Amps maximum)
- Heater cable ..... Size for maximum heater load

Environmental
- Operating temperature ..... -40°F to 104°F (-40°C to 40°C)
- Storage temperature ..... -67°F to 167°F (-55°C to 75°C)

Specifications and Ordering Information

Model Number	PCN	Stock
LCD-8 Snow Melt Controller	**389781**	**S**

Stock Status: **S** = stock AS = assembly stock NS = non-stock
To Order—Specify model, PCN and quantity.

RCU
Remote Control Unit

- **Remote System Status Indication**
- **Convenient Manual Control for Melting Problem Areas**
- **Low Cost**
- **Simple Installation**

Description

The RCU Remote Control Unit is a companion accessory to the EUR-5, APS-3C and the APS-4C Snow/Ice Melting Controllers. The RCU provides a convenient and economical means to both monitor and manually control a snow/ice melting system from a remote location. The integral heater cycle push button operates heaters for the hold-on time setting on the host Control Panel, permitting tracked slush or drifted snow to be cleared independent of prevailing meteorological conditions. LEDs provide indication of system power supply and heater operation.

The RCU Remote Control Unit employs an attractive single gang metallic device plate suitable for both flush and surface installations. The RCU interfaces with its host Control Panel via a NEC Class 2 circuit which may have an installed length as great as 2,000'(609.6m) utilizing 2-conductor #18 AWG jacketed cable.

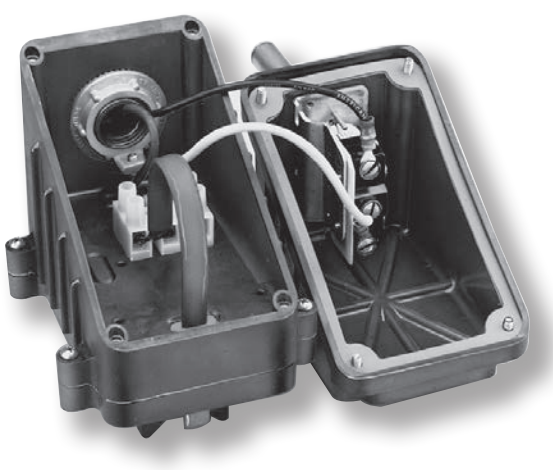
Specifications and Ordering Information

Model Number	PCN	Stock	Used with
RCU-3 Remote Control Unit	389773	NS	PD Pro, APS-3C, EUR-5A
RCU-4 Remote Control Unit	**389909**	**S**	**GF Pro, APS-4C, SC-40C**

Stock Status: **S** = stock AS = assembly stock NS = non-stock
To Order—Specify model, PCN and quantity.

NOTES

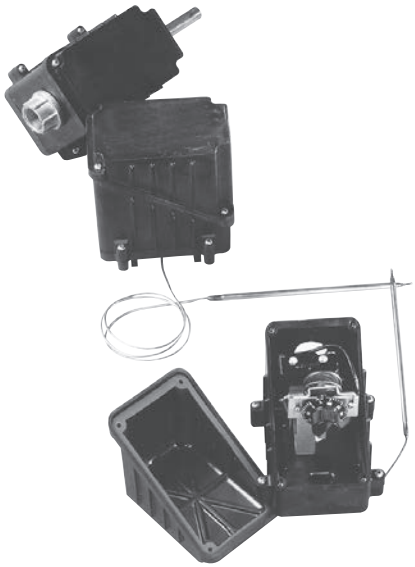
CHROMALOX
Advanced Thermal Technologies



MECHANICAL THERMOSTATS

Low Cost Thermostats for Controlling Heat Trace Circuits

DL
Integrated Temperature Controls



- **Line or Ambient Sensing Thermostats**
- **ElectroMechanical Control**
- **Rugged, Corrosion Resistant Construction**
- **NEMA 4X Design with Corrosion and Weather Resistant Ryton® Construction**
- **Ambient Sensing**
  - **120 - 480 Vac**
  - **0 - 225°F Temp. Rating**
  - **9/16" OD x 4" SS Probe**
  - **Ordinary & Hazardous Area (Div. 2) Approvals**
- **Bulb & Capillary**
  - **120 - 480 Vac**
  - **0 - 400°F Setpoint Range**
  - **1/4" OD x 7-1/4" SS Bulb and 3 Ft. Capillary**
  - **Ordinary & Hazardous Area (Div. 2) Approvals**

Description

The DL Series Single Point On/Off Temperature Controls from Chromalox represent the state of the art in heat tracing and are available in five models to handle a broad range of applications. Models include two ambient sensing thermostats, two line sensing thermostats and a line sensing solid state controller. These high-quality models combine temperature control and power connection in a convenient, easy to use and economical package.

Applications

- Hydrocarbon and Chemical Product Piping
- Process Temperature Maintenance
- Fluid Flow and Viscosity Maintenance
- Freeze Protection

Features

- Integrated Controls and Power Connections reduce installation hardware
- Molded of Durable Plastic Material (Ryton® PPS)1
- High service Temperature
- Corrosion Resistant
- Thermal Stability
- Non-Flammability
- High Strength and Rigidity
- Stainless Steel Sensor Sheath
- Hermetically Sealed Switches on EP models permit control in Div. 2 hazardous areas
- Stainless Steel Hardware to ensure the integrity of the system
- Cable Terminations inside enclosure reduce installation time and cost
- Liquid Tight Design prevents moisture from reaching the electrical connections. All models are rated NEMA 4X.

Approvals[2]

UL, CSA, FM is carried by most models, consult specific product information.

UL Listed for ordinary areas

CSA Certified for ordinary and:
- Class I, Div. 2, Groups A, B, C, D
- Class II, Div. 2, Groups E, F, G

FM Approved for ordinary and:
- Class I, Div. 2, Groups B, C, D
- Class II, Div. 2, Groups E, F
- Class III, Div. 2 Areas.

Notes —

1. Ryton®, is a registered trade name of Phillips Chemical Company.
2. Depends on specific model and cable applied.

DL
Integrated Temperature Controls *(cont'd.)*

RTAS & RTAS-EP Ambient Sensing

RTAS is an ambient-sensing thermostat which is generally used for freeze protection in ordinary (non-hazardous) areas. The thermostat is mounted through the end of the oblique sided enclosure lid. In fact, because there is so much room in this model, multiple heating cables can be terminated. The stainless steel sheathed, inverted bellows probe provides good sensitivity, resulting in more accurate control.

RTAS-EP is a modified version of the RTAS which utilizes a hermetically sealed switch. Since this switch has no arcing contacts, it can be used in Division 2 Hazardous Areas.

Specifications

Temp. Setpoint Range — 0 to 225°F (-18 to 107°C) for RTAS/RTAS-EP

Microswitch® Rating — 22 Amps SPDT for RTAS; 11 Amps, RTAS-EP

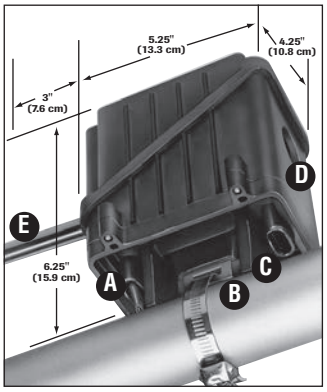
Scale Division — 10°F (5.6°C)

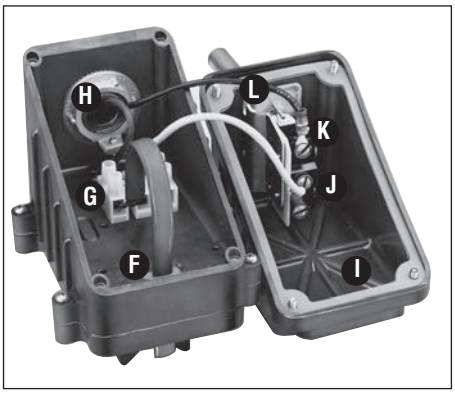
Max. Sensor Exposure Temp. — 250°F (121°C)

Sensor Dimensions — 9/16" Dia. x 3" Long

Operating Ambient Temp. Range — -40°F to 160°F (-40 to 71°C)

Factory Preset and Calibrated — 40°F





Construction

Ⓐ Strategically placed cable entries allow maximum flexibility for insulation (Heating cable cut away for clarity).

Ⓑ Stainless steel tiedown support provides positive attachment to pipes.[1]

Ⓒ Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.

Ⓓ Opening for 3/4" (20 mm) conduit hub.[1]

Ⓔ Stainless steel sheath temperature sensor.

Ⓕ Cable grommets provide water-tight seal between base, box and cable. Use GRSR with all self-regulating cables. Use GRCW with constant wattage cables. One of each grommet included in kit. See table below for spare grommets.

Ⓖ Three position terminal block for easy wiring.

Ⓗ Power wiring entry. Conduit hub not included.

Ⓘ Gasket provides water-tight seal between box and lid. It is affixed to the lid and holds the mounting hardware during assembly.

Ⓙ Thermostat switch.

Ⓚ Setpoint adjustment knob.

Ⓛ Setpoint indicator.

Note 1 — Refer to DL & EL General Application Accessories at the end of this section.

Spare Grommets

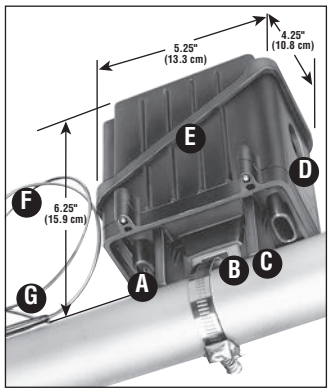
		PCN
GRS	RTD/Capillary type	**513287**
GR0	Blank	**513295**
GRSR	Self Regulating type	**513308**
GRCW	Constant Wattage type	**513316**

Ordering Information

Model	PCN	Switch Rating (Amps/Volts)	Max. Continuous Exposure Temp.		Max. Intermittent Exposure Temp.		Wt. (Lbs.)
			°F	°C	°F	°C	
RTAS	513199	22A @ 120 - 480	400	200	500	260	2
RTAS-EP	513210	11A @ 120 - 250	400	200	500	260	2

Stock Status: **S** = stock NS = non-stock
To Order—Specify model, PCN and quantity.

DL
Integrated Temperature Controls *(cont'd.)*



RTBC & RTBC-EP Bulb & Capillary

RTBC is a line-sensing thermostat which is generally used for process temperature maintenance applications in ordinary (non-hazardous) areas. The thermostat is mounted within the enclosure and the capillary is brought out through one of the openings in the bottom of the box. This design provides extra protection for the capillary, especially when the control is mounted on a pipe, for heat tracing applications. The three foot long stainless steel capillary provides good flexibility in mounting locations.

RTBC-EP is a modified version of the RTBC which utilizes a hermetically sealed switch. Since this switch has no arcing contacts it can be used in Division 2 Hazardous Areas.

Specifications

Temp. Setpoint Range — 0 to 400°F (-18 to 200°C) for RTBC, RTBC-EP

Microswitch® Rating — 22 Amps SPDT for RTBC; 11 Amps, RTBC-EP

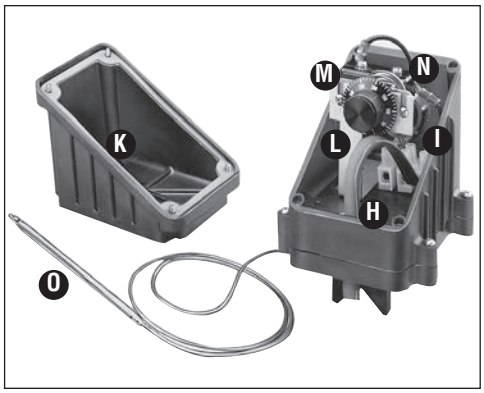
Minor Scale Division — 10°F (5.6°C)

Max. Sensor Exposure Temp. — 450°F (230°C)

Sensor Dimensions — 1/4" (6.4mm) OD x 7-1/4" (18.4cm) L Bulb, 3' (1m) Capillary

Operating Ambient Temp. Range — -40°F to 160°F (-40 to 71°C)

Factory Preset and Calibrated — 200°F (93°C) for RTBC, RTBC-EP



Construction

- **A** Strategically placed cable entries allow maximum flexibility for insulation (Heating cable cut away for clarity).
- **B** Stainless steel tiedown support provides positive attachment to pipes.[1]
- **C** Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.
- **D** Opening for 3/4" (20 mm) conduit hub.[1]
- **E** Oblique sided box and cover allow easy access for wiring.
- **F** Stainless steel capillary (3 ft/1m long).
- **G** Stainless steel sensing bulb. Cable grommets provide water-tight seal between base, box, cable and capillary.
- **H** Use GRSR with all self-regulating cables. Use GRCW with constant wattage cables. One of each grommet included in kit. See table below for spare grommets.
- **I** Three position terminal block for easy wiring.
- **J** Power wiring entry. Conduit hub not included.[1]
- **K** Gasket provides water-tight seal between box and lid. It is affixed to the lid and captures the mounting hardware.
- **L** Thermostat mounting bracket.
- **M** Setpoint adjustment knob.
- **N** Thermostat switch.
- **O** Stainless steel sensing bulb.

Note 1 — Refer to DL & EL General Application Accessories at the end of this section.

Spare Grommets

		PCN
GRS	RTD/Capillary type	**513287**
GR0	Blank	**513295**
GRSR	Self Regulating type	**513308**
GRCW	Constant Wattage type	**513316**

Ordering Information — RTBC

Model	PCN	Switch Rating (Amps/Volts)	Max. Continuous Exposure Temp.		Max. Intermittent Exposure Temp.		Wt. (Lbs.)
			°F	°C	°F	°C	
RTBC	513201	22A @ 120 - 480	400	200	500	260	2
RTBC-EP	513228	11A @ 120 - 250	400	200	500	260	2

Stock Status: **S** = stock NS = non-stock
To Order—Specify model, PCN and quantity.

TPR

Heat Trace Freeze Protection Thermostat

- TPR Direct Mount for Freeze Protection (Ambient)
- Fixed Factory Setpoint 40˚F(4.4˚C)
- 22 Amp Resistive Switch
- Single Pole Double Throw (SPDT) Switch
- High Accuracy
- NEMA 4X & IP 65 Enclosure
- UL, CSA and CE Approved

NEW!

WARNING — HAZARD OF FIRE. These devices function as temperature controls only. Because they do not fail-safe, an approved temperature and/or pressure safety control must be used for safe operation.

Description

The Chromalox TPR thermostat is designed to control heat tracing systems used for freeze protection in nonhazardous locations. The thermostat has a fixed setpoint of 40˚F(5˚C) and can be used for ambient sensing or line sensing. It can be used to control a single heat trace circuit or as a pilot controller of a contactor switching multiple circuits.

Specifications

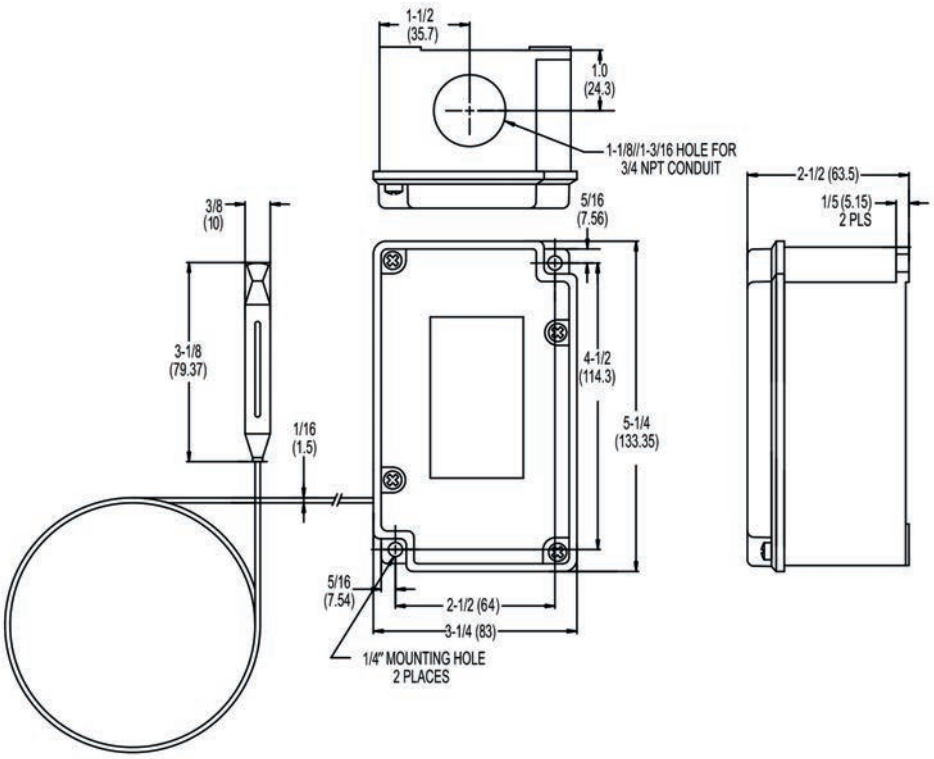
Ambient Temperature Limits	-30˚F to +140˚F (-34˚C to 60˚C)
Media Temperature Limits	-40˚F to +160˚F (-40˚C to 71˚C)
Enclosure	NEMA 4X, IP65
Switch Output	One SPDT
Electrical Rating	22 Amps 125/250/480 VAC resistive
Weight	1.1 lbs. (.5 kg)
Entries	One 3/4" (19mm) through hole
Connection	Two 14 AWG(2 mm^2) pigtails, One ground screw
Temperature Assembly	3 ft. tinned plated copper bulb & capillary
Fill	Silicone oil filled
Temperature	Deadband Typically 3% of range
Bulb Dimensions (TXR & TXL)	Length 3-1/8", OD 1/16"

TPR

Heat Trace Freeze Protection Thermostat *(cont'd.)*

Dimensions In. (mm)

TPR Thermostat



Ordering Information

Thermostat Type	Model	Switch Output	Enclosure NEMA	Stock Status	PCN
Freeze Protection 40°F (4.4°C)	TPR	Single Output	4X	**S**	390221

THR, THL, TXR & TXL

Heat Trace/Freeze Protection Thermostats

- **THL & TXL Direct Mount for Freeze Protection (Ambient)**
- **THR & TXR Remote Mount for Heat Trace (Bulb & Capillary)**
- **22 Amp Resistive Switch**
- **Single and Dual Output Models**
- **± 1% Setpoint Repeatability**
- **Fast Response for Protection of Valves and Piping**
- **NEMA 4X, 7 and 9 Enclosures**

THR & THL NEMA 4X

FM APPROVED (For TXR & TXL Models only)

TXR & TXL NEMA 7

Applications

- THR NEMA 4X Line or Pipe Sensing
- THL NEMA 4X Ambient Air Sensing
- TXR NEMA 7 Line or Pipe Sensing
- TXL NEMA 7 Ambient Air Sensing

WARNING: Hazard of Fire. These devices function as temperature controls only. Because they do not fail-safe, an approved temperature and/or pressure safety control must be used for safe operation.

Description

Maintaining proper viscosity and flow is critical in heat trace or freeze protection applications. The THR remote mount thermostats utilize a stainless steel bulb and capillary design to accurately sense temperature at key points along a pipe. The THL direct mount thermostats feature liquid-filled thermal assemblies and sense air temperatures from 15 to 140˚F. Both models are epoxy coated to seal from moisture and contaminants in compliance with NEMA 4X requirements. NEMA 7 stats TXR and TXL are designed for Class I, Division I and 2, Groups B, C, D, and Class 2, Division I and 2, Group E, F, G.

Specifications

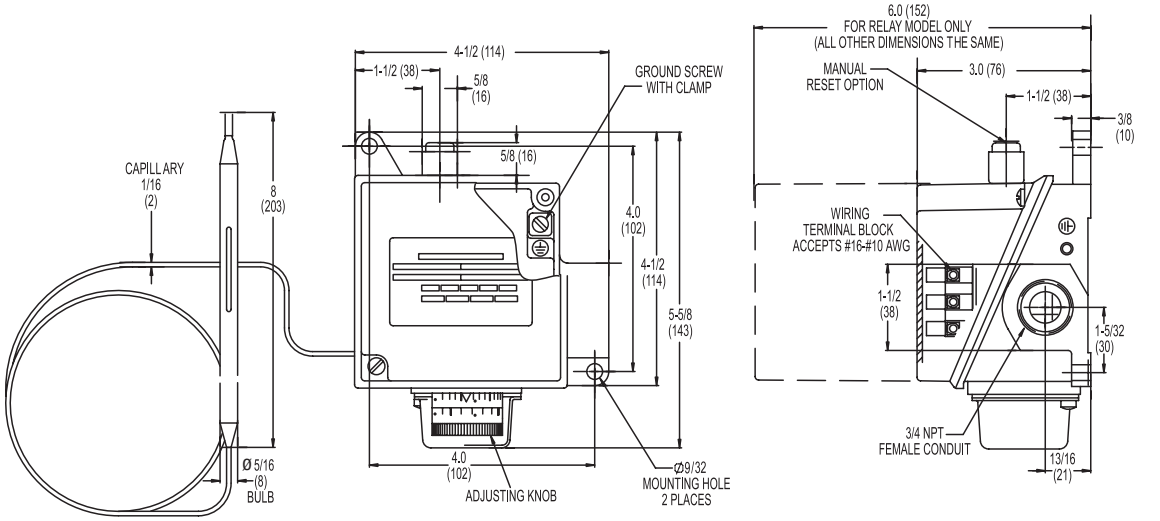
Ambient Temperature Limits	-40˚ to +160˚F (THR, TXR); -58˚F to +160˚F (THL & TXL) (-40 to +71˚C); set point typically shifts
Switch Output	One SPDT (All types); two SPDT
Electrical Rating	22 Amps 125/250/480 Vac resistive
Weight	Types THR, THL: 1.9 lbs., 30.4 oz (.9 kg) Types TXR & TXL: 3.8 lbs., 60.8 oz (1.7 kg.)
Electrical Connection	All Models, 3 Pole Terminal Block
Temperature Assembly	THR, TXR: 10’ Stainless Steel Bulb & Capillary THL, TXL: Direct Mount 8” Stainless Steel Bulb
Fill	Non-toxic oil filled
Temperature Deadband	Typically 2% of range
Bulb Dimensions (TXR & TXL) **(THL & TXL)**	Length 8", OD 5/16" Length 8", OD 5/16”

THR, THL, TXR & TXL

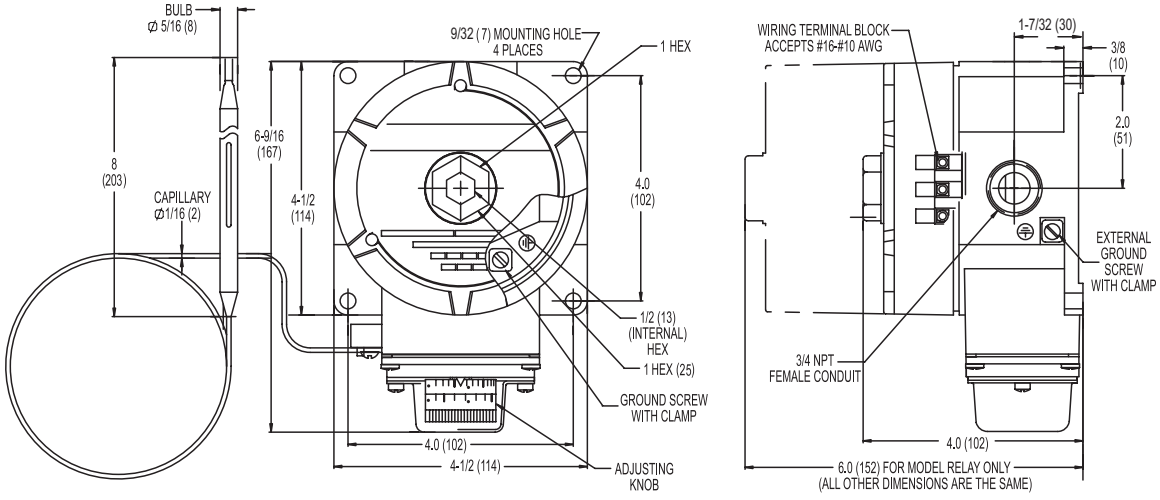
Heat Trace/Freeze Protection Thermostats *(cont'd.)*

Dimensions (In.)

THR & THL Series Thermostats



TXR & TXL Series Thermostats



Ordering Information

Thermostat Type	Model	Switch Output	Enclosure NEMA	Stock Status	PCN
Heat Trace, Remote Bulb and Capillary 25 - 325˚F (-5 to +163˚C)	THR TXR	Single Output Single Output	4X 4X,7,9	**S** **S**	**514423** **514431**
Freeze Protection Direct Mount 15 - 140˚F (-10 to +60˚C)	THL TXL	Single Output Single Output	4X 4X,7,9	**S** **S**	**514440** **514458**

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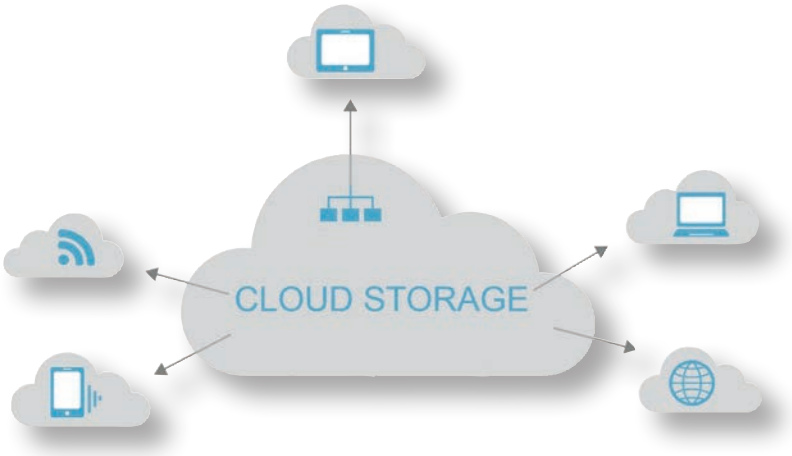


BMS COMMUNICATIONS

Connecting Heat Trace Controllers to the BMS using Modbus, BACnet or the Cloud

ProtoAir

IIoT Product Gateway

C2i™

- IIoT Gateway Compatible with All Chromalox IIoT Enabled Products
- Fully Integrated Cloud Platform
- Remotely Access and Monitor Entire Chromalox Portfolio Anywhere
- Remote Troubleshooting from Chromalox Service Personnel
- LAN or BACnet Connectivity Options Available for Local Storage and Control
- Synchronize with 3rd Party Cloud Platforms with RESTful API
- SMS or Email Event Notification
- Customizable Dashboards
- Asset Mapping for Quick Reference of Location, System Health and Connectivity Status
- Wired, Wireless and Cellular Capabilities

NEW!

CE

UL

RoHS 2011/65/EU

Description

The Chromalox IIoT Gateway can be installed with any Chromalox IIoT enabled product to provide seamless real time connectivity to the cloud platform. Through the cloud platform users can customize their dashboard for quick access of critical system information or analytics. Asset mapping for global tracking of system location, health, and connection status can be referenced from anywhere to alleviate the unknown of remote monitoring.

Remote Troubleshooting

With approved access, Chromalox service technicians can even perform remote troubleshooting to save time and money. Locations that do not permit cloud based services can still benefit from the Chromalox IIoT gateway through its local LAN or BACnet connectivity options, permitting up to 30 days of on site storage along with one year of web storage for trend analysis. Even 3rd party Cloud based services can be used with the Chromalox IIoT gateway through RESTful API.

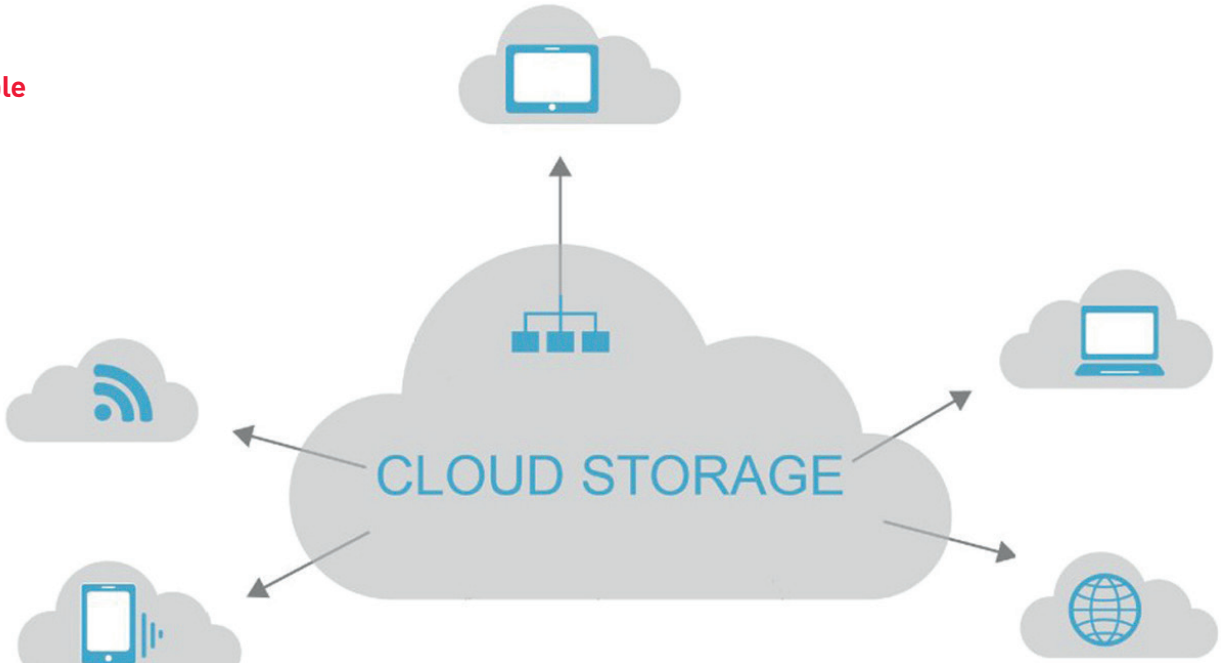
IIoT Enabled Products

Chromalox IIoT enabled products stretch across all of our product segments, and feature any device with Ethernet or Modbus capability which includes heat trace panels and controls, standalone temperature and power controls, and our Direct Connect Technology platform. The Chromalox IIoT Gateway is one common device that can be used across your entire Chromalox product portfolio.

Connectivity

The Chromalox IIoT Gateway has a number of different connectivity options which includes hard wired to local network behind firewall, hard wired with internet access to the cloud, WIFI with internet access to cloud, and Cellular access via separately purchased SIM card. Over 140 communication protocols are supported for connection to any BMS or automation protocol, so no matter what connection option is needed, Chromalox has an IIoT Gateway to fit.

Example

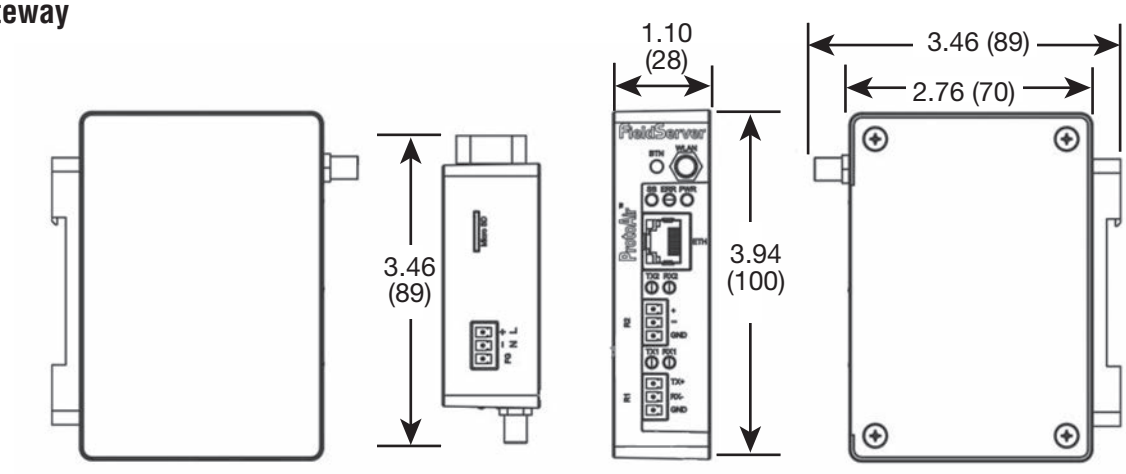


ProtoAir

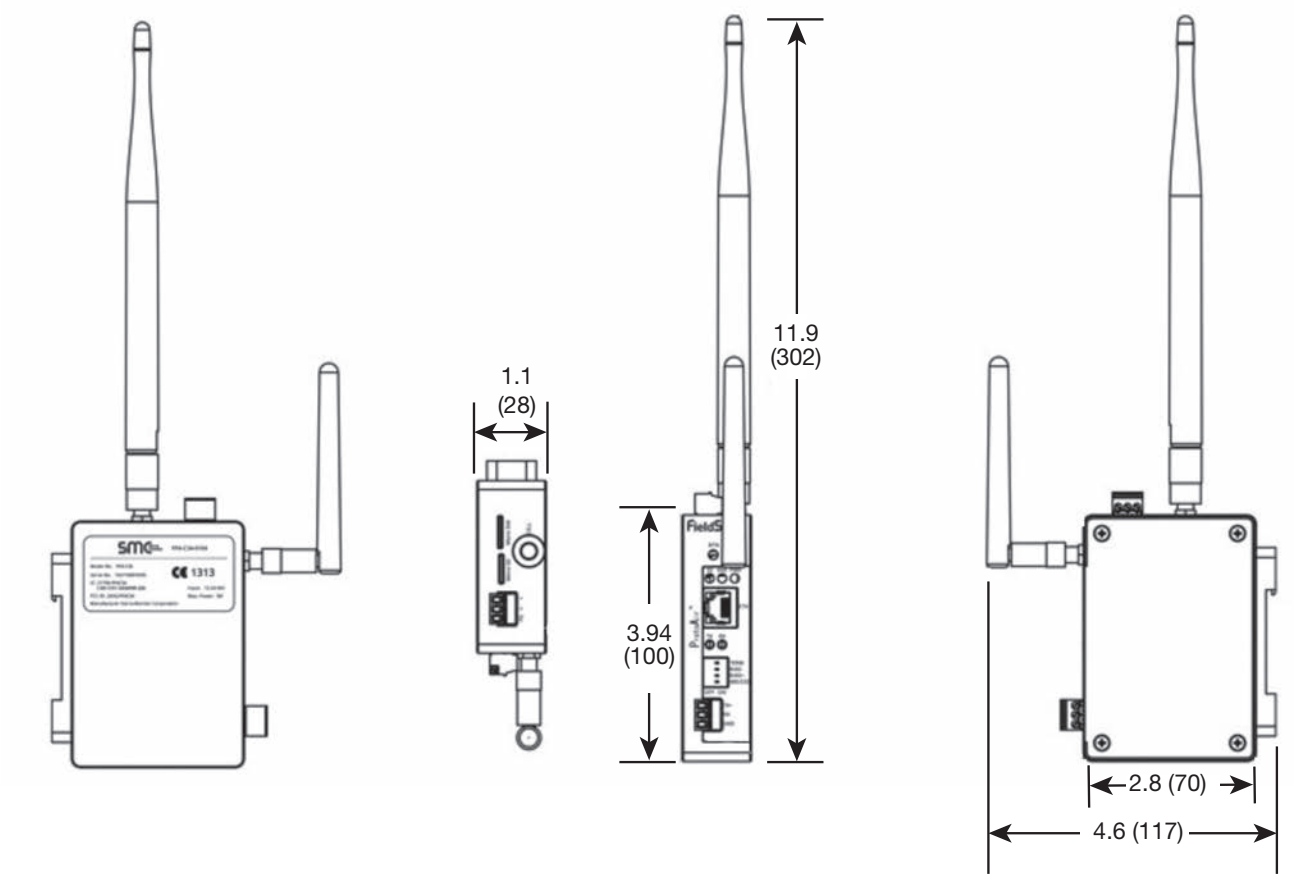
IIoT Product Gateway *(cont'd.)*

Dimensions In. (mm)

Local Network Gateway



Cellular Network Gateway



ProtoAir

IIoT Product Gateway *(cont'd.)*

Specifications

Electrical Specifications	ProtoAir	ProtoAir Cell
Electrical Connections	One 3-pin Phoenix connector with: RS-485 (Tx+ / Rx- / gnd) One 3-pin Phoenix connector with: Power port (+ / - / Frame-gnd) One Ethernet 10/100 BaseT port	One 3-pin Phoenix connector with: RS-485 (Tx+ / Rx- / gnd) One 3-pin Phoenix connector with: Power port (+ / - / Frame-gnd) One Ethernet 10/100 BaseT port
Power Requirements	Input Voltage: 12-24VDC or 24VAC Power Rating: 2.5 Watts W44 Current draw: @ 12V, 240 mA	Input Voltage: 12-24VDC Power Rating: 2.5 Watts C34 Current draw: @ 12V, 670 mA
Approvals	CE and FCC Class B & C Part 15, UL 60950, WEEE Compliant, IC Canada, RoHS Compliant, PTCRB and CTIA	CE and FCC Class B & C Part 15, TUV approved UL 60950, IC Canada, RoHS Compliant, PTCRB and CTIA
Physical Dimensions	4 x 1.1 x 2.7 in (10.16 x 2.8 x 6.8 cm)	4 x 1.1 x 2.7 in (10.16 x 2.8 x 6.8 cm)
Weight	0.4 lbs (0.2 Kg)	0.4 lbs (0.2 Kg)
Operating Temperature	-20°C to 70°C (-4°F to 158°F)	-20°C to 70°C (-4°F to 158°F)
Humidity	10-95% RH non-condensing	10-95% RH non-condensing
Wi-Fi 802.11 b/g/n	Frequency: 2.4 GHz Channels: 1 to 11 (inclusive) Antenna Type: SMA Encryption: TKIP, WPA & AES	Frequency: 2.4 GHz Channels: 1 to 11 (inclusive) Antenna Type: SMA Encryption: TKIP, WPA & AES
Cellular 1F	Not Applicable	Features: 3G & GPS Antenna Type: SMA HSDPA: Up to 21.0 Mbps HSUPA: Up to 5.76 Mbps

Stocked Items

Part Number	PCN	Description
ProtoAir	390416	Local Network Wired/Wireless Gateway
ProtoAir Cell	390424	Cellular Network Wireless Gateway

MBC
Multiple BACnet Converter Module

NEW!

- **Converts Modbus to BACNet MS/TP or BACnet IP**
- **Includes Power Supply, DIN Rail Mounting**
- **No Configuration Files Needed**
- **Plug-and-play Industrial or Building Automation Protocol Package**
- **BTL Marked (BacNet International's Certification)**
- **Supports Multiple Devices in a Daisy Chain Configuration**

Description

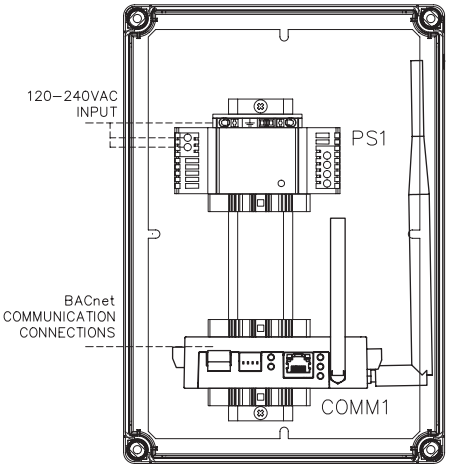
The Chromalox Multiple BACnet Converter module is for customers needing to communicate between their Building Management Systems (BMS) and the ITC or ITLS Heat Trace Controllers. The unit comes pre-programmed with ITC or ITLS profiles for easy integration in a BMS system. The MBC consists of a Nema 4X enclosure with a clear lid for easy visibility of the unit. The unit comes prewired to a power supply to allow for easy connection to power.

Controller Type	No. of Circuits	No. of Controllers per BacNet Device
ITC1	1	144
ITC2	2	72
ITLS/ITAS	2	72
ITLS/ITAS	4	36
ITLS/ITAS	6	24
ITLS/ITAS	12	12
ITLS/ITAS	18	8
ITLS/ITAS	24	6
ITLS/ITAS	30	4
ITLS/ITAS	36	4
ITLS/ITAS	42	3
ITLS/ITAS	48	3
ITLS/ITAS	54	2
ITLS/ITAS	60	2
ITLS/ITAS	66	2
ITLS/ITAS	72	2

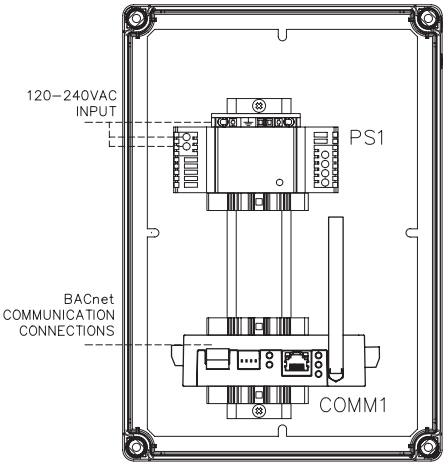
Note: Table above is based off of having a total of 144 circuits for BACnet device. Any combination of the above HT controllers/Panels may be connected to one device as long as the total circuit count is less than or equal to 144 circuits.

Model	PCN
BacNet Converter - Cellular	390230
BacNet Converter- Wired/Wireless	387401

MBC Cellular



MBC Wired/Wireless



Example

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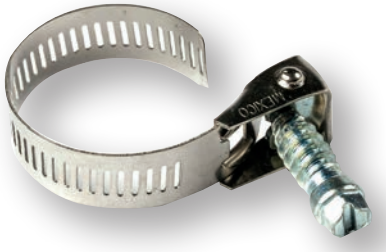
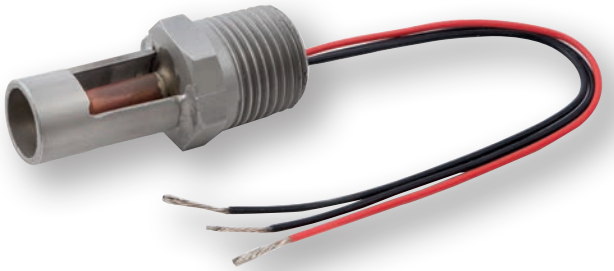




HEAT TRACING ACCESSORIES

Tape, Labels and Pipe Straps to Complete Your Heat Tracing Installation

Accessories

Heat Trace Accessories

FT-66 Fiberglass Tape
PCN 512680

66’ roll glass cloth installation tape with pressure sensitive thermosetting adhesive. 3/8” wide. 310°F (155°C) rating. Strap at one foot intervals. Minimum application temperature 40°F (5°C).

	Rolls Needed per 100' of Pipe								
	Pipe Dia. (In.)								
Tape Type	1/2"	1	2	3	4	6	8	10	12
FT-66	1	2	4	4	6	8	10	12	15

AT-18 Aluminum Tape Cable Attachments
PCN 512698

180’ roll aluminum foil installation tape with pressure sensitive acrylic adhesive. 2-mil thickness with high tensile strength; 2-1/2” wide. 200°F (93°C) rating. Minimum application temperatures 40°F (5°C).

SS-1, SS-3, SS-10, SS-20 Stainless Steel Pipe Straps
PCN 512070, 512719, 512727, 512735

Used for attaching U Series kits to pipe.

SS-1	1/2” to 3/4” pipes (PCN 512070)
SS-3	1” to 3-1/2” pipes (PCN 512719)
SS-10	2-1/2” to 9” pipes (PCN 512727)
SS-20	9" to 19.5" pipes (PCN 512735)
SPA	(PCN 514271)

WL-05 Caution Labels
PCN 512743

(5) electric heat tracing caution labels, weather resistant.

CH-75 Conduit Hub w/Grounding Lug
PCN 512751

Corrision resistant hub for 3/4" conduit. Fits opening in PJB, DL, U Series and DTS. Includes ground connector.

JB-C-100

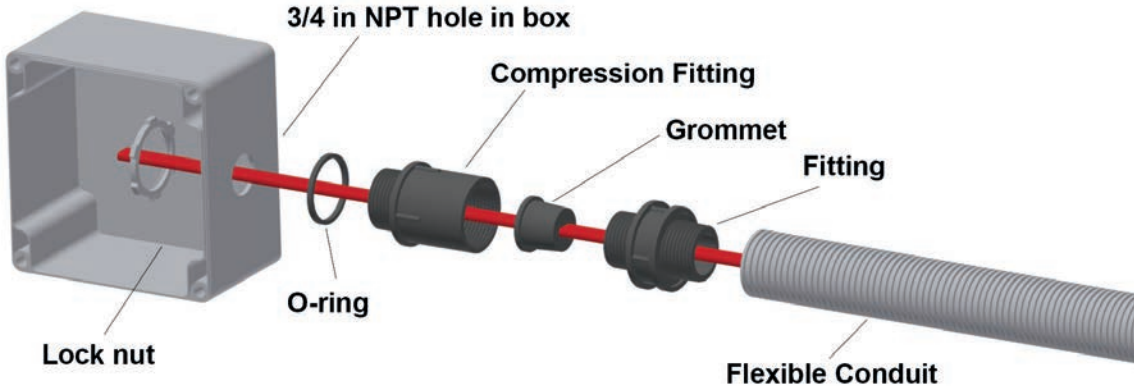
Junction Box to Conduit Connection Kit

- Water –Resistant Cable Entry Into Junction Box
- Easy to Install
- NEMA 4X
- Entry for One Cable into Junction Box
- 1" NPT Junction Box Entry to 1" NPT Conduit

Description

The Chromalox JB-C-100 is a NEMA 4X rated entry kit used to transition heating cable into a junction box. The kit is needed when making connections off of a pipe, tank or roof. This kit can be used for power, splice or tee connections (multiple kits needed when making splice/tee connections). The JB-C-100 can be used with CPR cables for pipe, roof and gutter, grease waste flow maintenance and frost heave applications. Junction box and conduit not included.

Model	PCN
JB-C-100	387516



Note: Agency approved (CSA) NEMA 4X rated junction box with 1" NPT entry or through hole required for CSA ordinary area agency approval.

JB-C-100

Junction Box to Conduit Connection Kit

- Water –Resistant Cable Entry Into Junction Box
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- Entry for One Cable into Junction Box
- 1" NPT Junction Box Entry to 1" NPT Conduit

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Model	PCN
JB-C-100	387516

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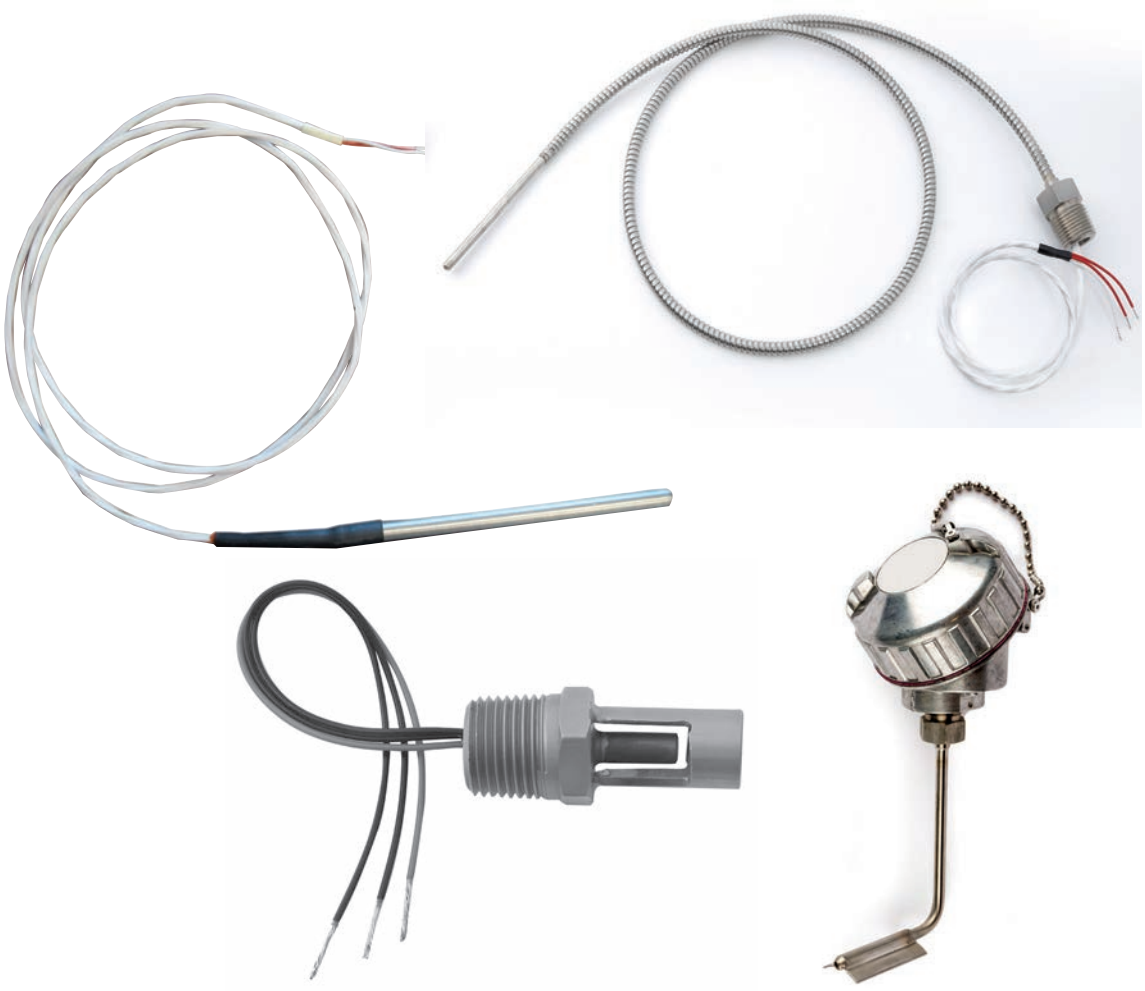
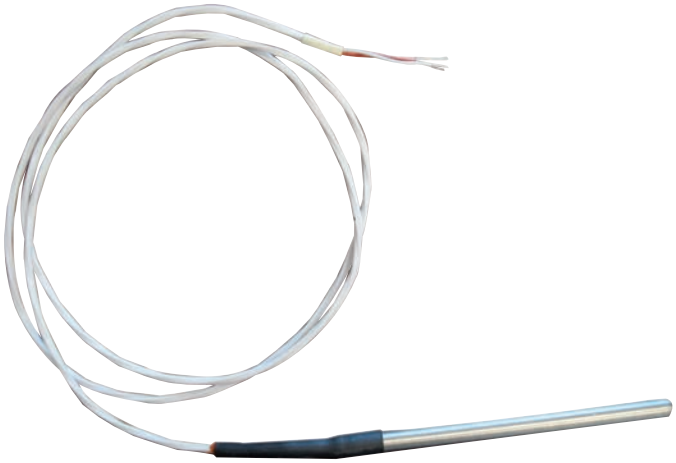


HEAT TRACING SENSORS

Temperature Sensors to Complete Your Heat Tracing Installation

LA-03, 10, 50
Ambient Sensing Heat Trace RTD



- **Ambient Air RTD**
- **FPEP Insulation Overjacket**
- **100 Ohm RTD, = .00385 ohms/˚C**
- **±1˚F (0.5˚C) Accuracy at 32˚F (0˚C)**
- **1/2" (12.7mm) Conduit Fitting (Optional)**
- **Available in 3', 10',50' Lengths**

Description

The Chromalox LA-03, 10, 50 are used for measuring the ambient air temperature. The RTD sensor is made up with a 316 SS Sheath and can be installed directly to a controller or junction box using the optional 1/2" conduit fitting. These RTDs come in standard lengths of 3ft, 10ft and 50ft.

Models offered

Model	Description	PCN
LA-03	3' Long RTD w/FEP Insulation and 2" Leads	512768
LA-10	10' Long RTD w/FEP Insulation and 2" Leads	512778
LA-50	50' Long RTD w/FEP Insulation and 2" Leads	512786

LN-03, 10, 50
Line Sensing Heat Trace RTD

- **Applications:**
  Grease Waste
  Freezer Frost Heave
- **316 Stainless Steel Sheath**
- **100 Ohm RTD, =.00385 ohms/˚C**
- **±1˚F (0.5˚C) Accuracy at 32˚F (0˚C)**
- **Available in 3', 10',50' Lengths**
- **SS Flex Armour Outer Shield (Optional)**
- **3"L x 3/16" D Probe**

Description

The Chromalox LN-03, 10, 50 are used for measuring process temperatures that must be controlled to prevent freezing or to maintain viscosity levels so that the material will flow. The RTD sensor is made up with a 316 SS Sheath and can be installed directly to a controller or junction box using the optional 1/2" conduit fitting. These RTDs come in standard lengths of 3ft, 10ft and 50ft.

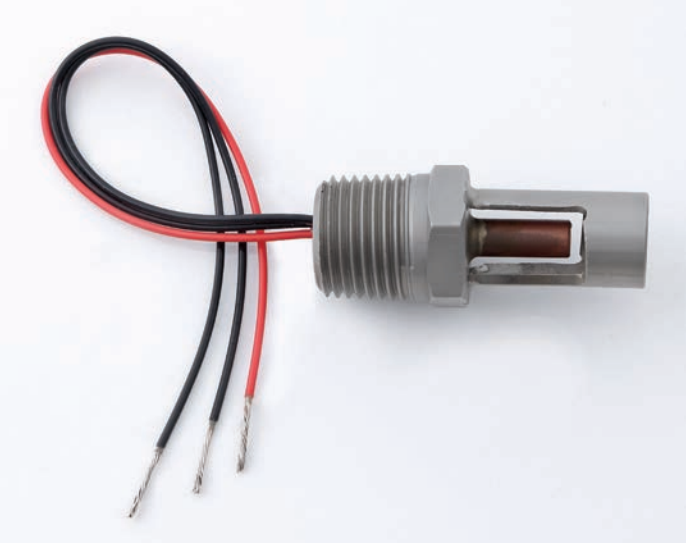
Models offered

Model	Description	PCN
LN-03	3' Long RTD w/FEP Insulation, flex armor, 1/2" fitting and 18" Leads	512794
LN-10	10' Long RTD w/FEP Insulation, flex armor, 1/2" fitting and 18" Leads	512807
LN-50	50' Long RTD w/FEP Insulation, flex armor, 1/2" fitting and 18" Leads	512815

AS-BM

Ambient Heat Trace Sensor

- RTD for Heat Trace Applications
- -76°F (-60°C) to 400°F (204°C) Temperature Range
- Copper Sheath probe protected by vented 304 SS guard
- 100 ohm RTD, = .00385 ohms/°C
- ±1°F (0.5°C) Accuracy at 32°F (0°C)
- 1/2"(12.7mm) NPT fitting
- .5/8"L x 1/4" D Probe

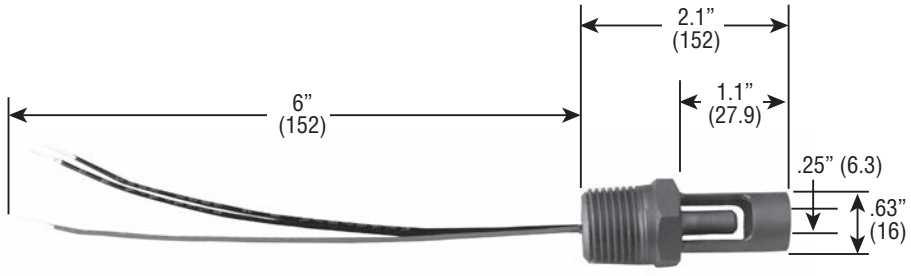


Description

The Chromalox AS-BM sensor is used for measuring the ambient air temperature. The RTD sensor element is made up with a Copper sheath and can be installed directly to a controller or junction box using the 1/2" NPT conduit fitting. The 304 SS guard protects the probe against accidental damage.

Ordering Information

Model	PCN	Stock Status
AS-BM	512823	S



PS-AH

Heat Trace or Pipe Sensor

- Heat Trace or Pipe Sensing Applications
- 316 Stainless Steel Sheath
- Moisture Resistant Heads
- 3/4" or 1/2" NPT Threaded Extension Wire Opening
- 4" to 8" Cold Leg Standard for Varying Insulation Depths
- 100 ohm RTD, ± .12% Accuracy
- Fiberglass Insulated RTD Probe
- RTD or Universal Transmitter Available (Must Specify Temperature Range)

Description

For measuring the surface temperature of process piping that is carrying products whose temperatures must be controlled to prevent freeze-up, or to maintain a viscosity level so that the inner medium will flow. The RTD Sensor Element is made up with a 316SS sheath, and with a stainless steel mounting pad. Cold legs are available in customer specified lengths to accommodate pipe insulation thickness.

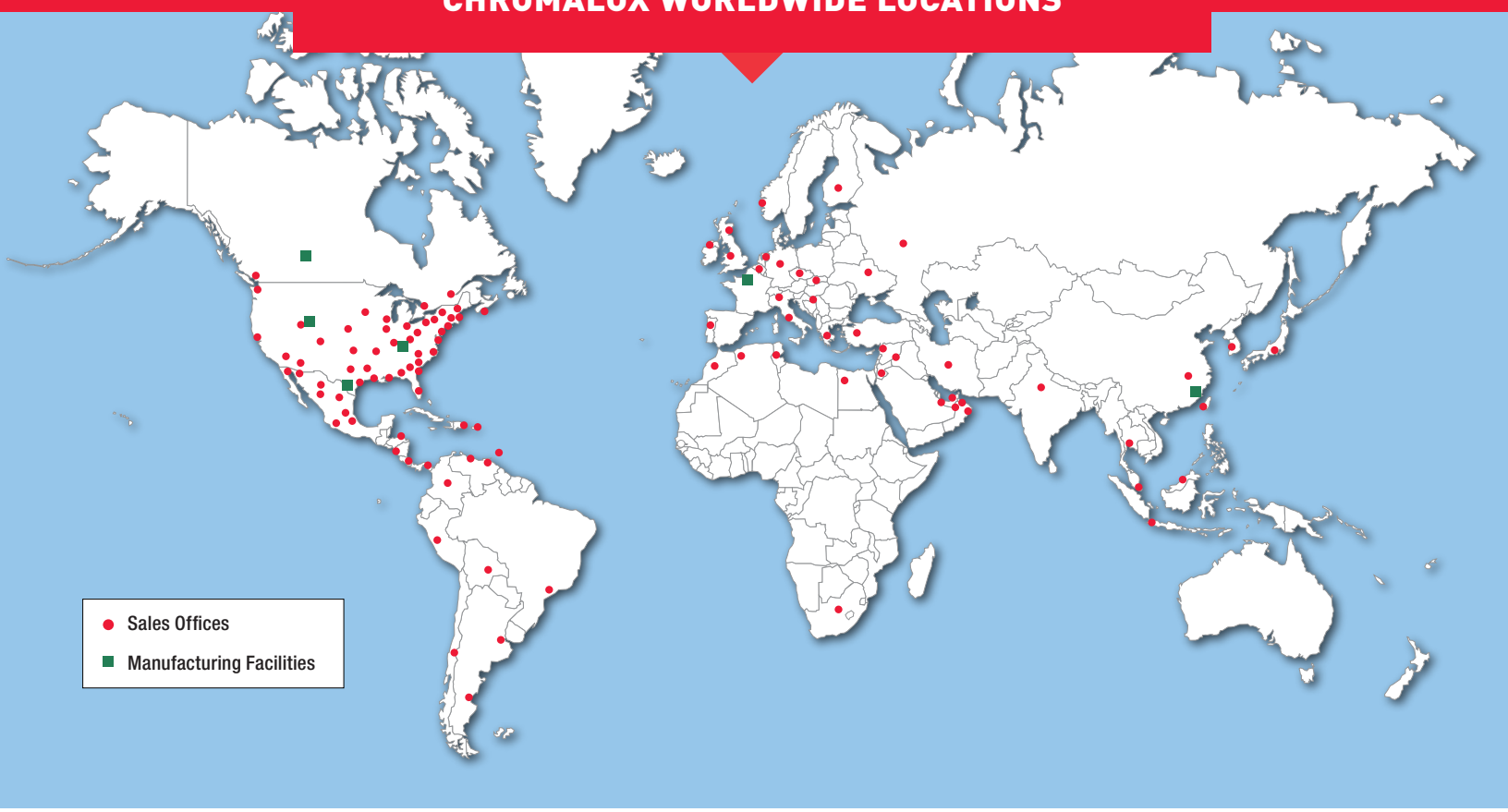
In Stock:

Model	PCN	Stock Status
PS-AH-31SB/C	512831	ST
PS-AH-93SB/C	514896	ST
PS-AH-94SB/C	514909	NS

Approvals Chart

Connection Head	Approval Agency			
	FM	CSA	ATEX	IECEx
31SB/C	N/A	N/A	N/A	N/A
93SB/C	Class I Division 1; Groups A,B,C,D DIP Class II Division 1; Groups E,F,G Class III; Type 4/4X	Class I Division 1; Groups A,B,C,D DIP Class II Division 1; Groups E,F,G Class III; Type 4/4X Class I Zone 1 AEx d IIC Gb; Zone 21 Aex tb IIIC Db; IP66	Ex II 2 GD Ex db IIC Gb; Ex tb IIIC Db; IP66	Ex db IIC Gb; Ex tb IIIC Db; IP66 Ta = -20°C to 100°C
94SB/C	Class I Division 1; Groups A,B,C,D DIP Class II Division 1; Groups E,F,G Class III; Type 4/4X	Class I Division 1; Groups A,B,C,D DIP Class II Division 1; Groups E,F,G Class III; Type 4/4X Class I Zone 1 AEx d IIC Gb; Zone 21 Aex tb IIIC Db; IP66	Ex II 2 GD Ex db IIC Gb; Ex tb IIIC Db; IP66	Ex db IIC Gb; Ex tb IIIC Db; IP66 Ta = -20°C to 100°C

CHROMALOX WORLDWIDE LOCATIONS



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