

Residential



ADVANCED PROTECTION

for

EXTREME CLIMATES

Commercial

Industrial

Commercial



**RESIDENTIAL CATALOG**

[www.heattracespecialists.com](http://www.heattracespecialists.com)

Heat Trace Specialists / Disco Associates has a strong commitment to a broad customer base that has been built with 35 years of innovative effort. We will continue providing quality solutions to all our customers with that same can do attitude. Our goal is to earn and keep your business by maintaining our reputation for superior service.

At Heat Trace Specialists / Disco Associates, we realize that servicing our customers requires an effective and timely interface with our vendors, suppliers, distributors and employees. We strive to create solid relationships that will lead to customer satisfaction.

Quality people and quality products, coupled with integrity and fairness, will guide our next 35 years of effort.



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Large Inventory  
Shipped from stock



# ONE STOP SHOPPING

<b>Roof and Gutter Data Sheet</b>	<b>3</b>
For roof & gutter heat trace cable installation.	
<b>Snofree™ Panels:</b>	<b>4 - 12</b>
Heated Roof Panels	
<b>Cables:</b>	<b>13 - 18</b>
2800 Series	
Residential roof & gutter snow & ice melt systems, Piping freeze protection and temperature maintenance	
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Freeze protection for piping applications	
Pre-Terminated Cable Assemblies	
Ready to plug in	
MI Cable	
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# Roof & Gutter Data Sheet

Cable Length Calculation: Eave Overhang : \_\_\_\_\_  
(Depth)

Voltage Available: \_\_\_\_\_

Roof:  X  X 1.1111 =   
Roof Length Ft of cable (Table 1)

Valleys:  X  X 2.15 =   
Number of length

Gutters:  X 1.1111 =   
Length

Downspouts:  X  X 2.15 =   
Number of Length

Downspout Hangers use 1 or 2 per gutter, depending on passes of cable. 1 pass = 1 hanger 2 passes = 2 hangers.

Total Cable Length

Roof Clips:  X 1.5 =   
Roof Length Total Clips Needed

Table 1

Eave Overhang	Cable length per foot of roof edge	loop length Metal
1'	2.25	**
2'	3.25	**
3'	4.25	**
4'	5.25	**

240 VAC cable  
Power Factor Adjustment

Part No.	208 Volt	277 Volt
2806-2	0.86	1.16

120 VAC Breaker Size VS Max Circuit length (FT)

Energized	20A	30A	40A
2806-1@40°F	200	250	250
2806-1@0°F	130	190	250
2806-1@-20°F	115	170	225

240 VAC Breaker Size VS Max Circuit length (FT)

Energized	20A	30A	40A
2806-2@40°F	260	450	450
2806-2@0°F	230	340	450
2806-2@-20°F	190	285	385

\* For valleys, measure length X 2.15, cable goes up valley in figure eights.

Clips go on the top and each side of the figure 8

\* 1.1111 or 2.15 Service factor to accommodate drip loops, terminations & measurement variations

\*\* Consult HTS for Details

800

# Industrial Commercial Residential Snofree™ Heated Panel System

## Heat Transfer on the Nose

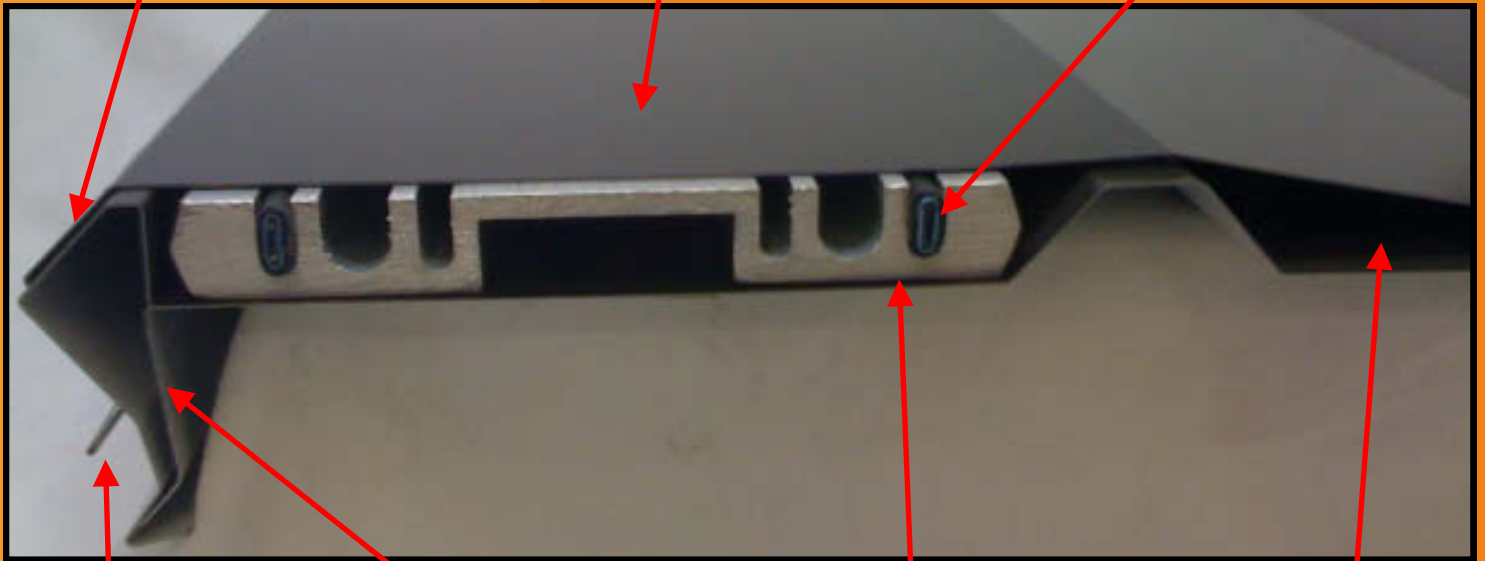
Constant heat transfer throughout the entire nose of the system, effectively eliminating ice dams from your roof edge

## Durable Exterior Finish

Kynar finish on the cover and base, Ensures the system will continue to give your project the professional look you deserve. Also available in Aluminum, Copper, or Cor10 Materials.

## Minimal Passes of Cable

Fewer passes of cable reduces energy consumption while providing efficient ice dam prevention.



## SNAP2LOCK

Our system is simple to access and maintain, with our easy snap in place cover.

## Cleated Installation

Our cleated installation allows for minimal roof penetrations, protecting your investment from water damage.

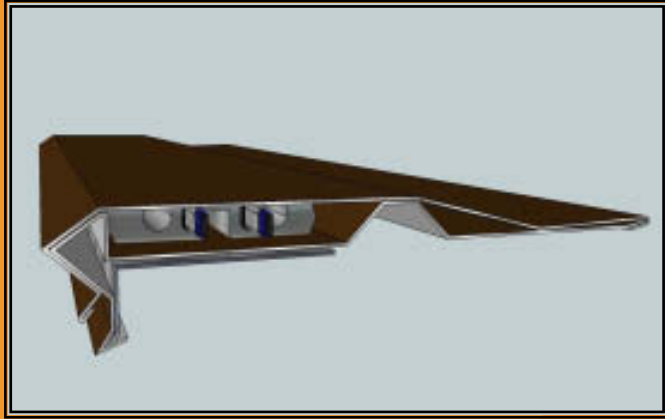
## Solid Mass Core

Our aluminum core efficiently transfers the heat to the metal cover.

## Convective Oven Effect

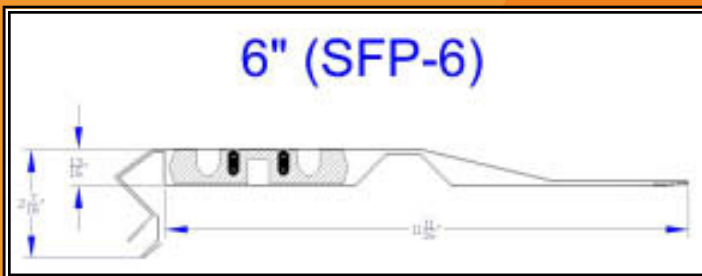
Air channels throughout the system allow for convective oven effect that helps with ice control.

# Our Snofree™ Panel Eaves System



## SFP-6

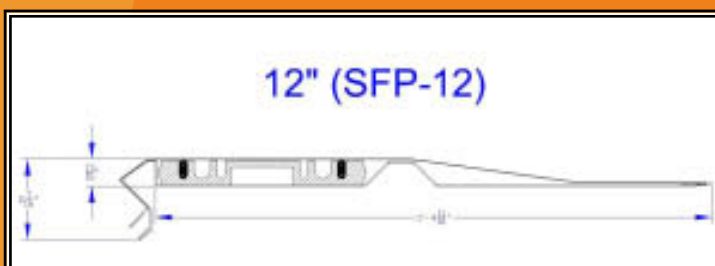
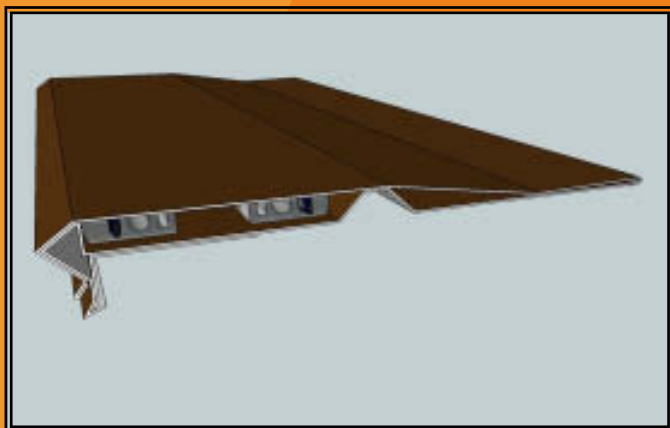
- \* Effectively controls Ice and Snow with 2 Passes of Cable
- \* Heats more than 6" up the roof deck
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical and beautiful option to control ice dams.
- \* System Parts List:
  - 1—4" Aluminum Extrusion
  - 1—SFP 24 ga. Kynar Steel Base
  - 1—SFP Cleat Drip Edge
  - 1—SFP 24 ga. Kynar Steel Cap
  - 1—SFP 24 ga. Kynar Steel Expansion Joint



## SFP-12

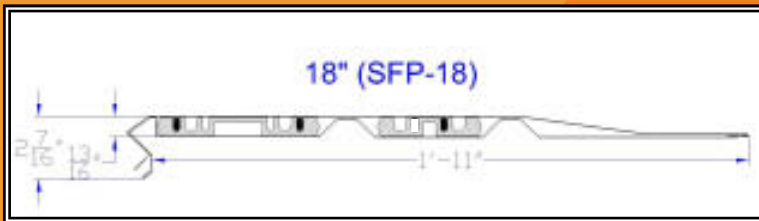
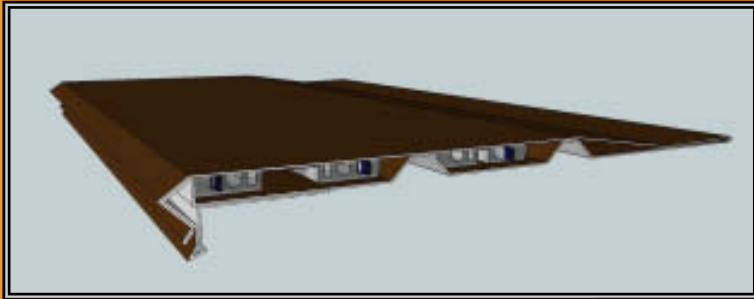
- \* Effectively controls Ice and Snow with 2 Passes of Cable
- \* Heats more than 12" up the roof deck
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical and beautiful option to control ice dams for 12" eave overhangs.
- \* System Parts List:

- 1—6" Aluminum Extrusion
- 1—SFP 24 ga. Kynar Steel Base
- 1—SFP Cleat Drip Edge
- 1—SFP 24 ga. Kynar Steel Cap





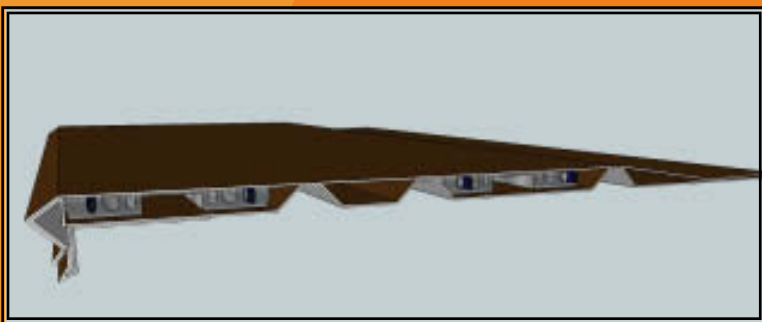
# Our Snofree™ Panel Eaves System



## SFP-18

- \* Effectively controls Ice and Snow with 3 Passes of Cable
- \* Heats more than 18" up the roof deck
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical and beautiful option to control ice dams for 18" eave overhangs.
- \* System Parts List:
  - 1—4" Aluminum Extrusion
  - 1—6" Aluminum Extrusion
  - 1—SFP 24 ga. Kynar Steel Base
  - 1—SFP Cleat Drip Edge
  - 1—SFP 24 ga. Kynar Steel Cap
  - 1—SFP 24 ga. Kynar Steel Expansion Joint

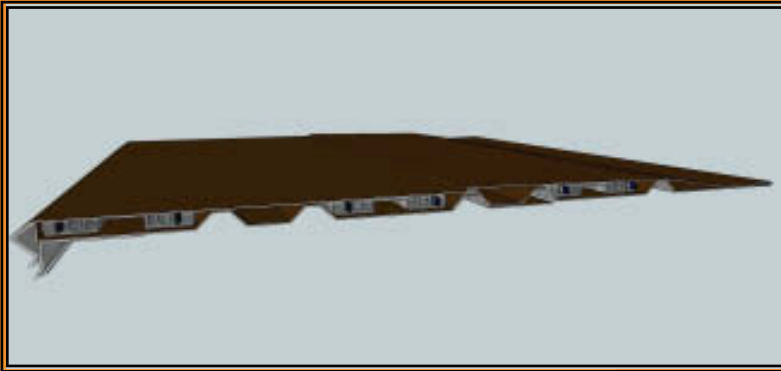
## SFP-24



- \* Effectively controls Ice and Snow with 4 Passes of Cable
- \* Heats more than 24" up the roof deck
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical and beautiful option to control ice dams for 24" eave overhangs.
- \* System Parts List:
  - 2—6" Aluminum Extrusion
  - 1—SFP 24 ga. Kynar Steel Base
  - 1—SFP Cleat Drip Edge
  - 1—SFP 24 ga. Kynar Steel Cap
  - 1—SFP 24 ga. Kynar Steel Expansion Joint

# Our Snofree™ Panel Eaves System

## SFP-36



- \* Effectively controls Ice and Snow with 5 Passes of Cable
- \* Heats more than 36" up the roof deck
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical and beautiful option to control ice dams for 36" eave overhangs.

\* System Parts List:

- 3—6" Aluminum Extrusion
- 1—SFP 24 ga. Kynar Steel Lower Base
- 1—SFP 24 ga. Kynar Steel Upper Base
- 1—SFP Cleat Drip Edge
- 1—SFP 24 ga. Kynar Steel Lower Cap
- 1—SFP 24 ga. Kynar Steel Upper Cap
- 1—SFP 24 ga. Kynar Steel Lower Exp. Joint
- 1—SFP 24 ga. Kynar Steel Upper Exp. Joint

## SFP-48



- \* Effectively controls Ice and Snow with 6 Passes of Cable
- \* Heats more than 48" up the roof deck
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical and beautiful option to control ice dams for 48" eave overhangs.

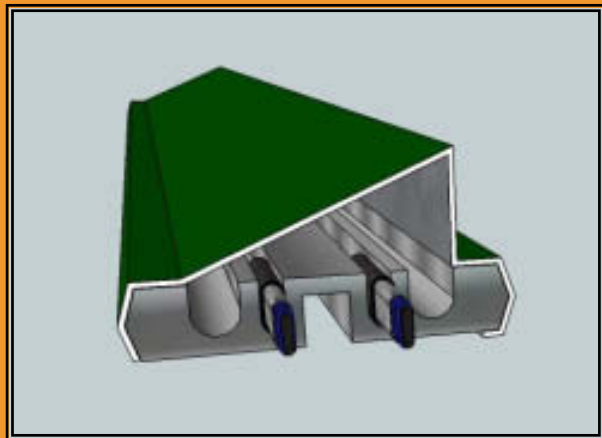
\* System Parts List:

- 4—6" Aluminum Extrusion
- 1—SFP 24 ga. Kynar Steel Lower Base
- 1—SFP 24 ga. Kynar Steel Upper Base
- 1—SFP Cleat Drip Edge
- 1—SFP 24 ga. Kynar Steel Lower Cap
- 1—SFP 24 ga. Kynar Steel Upper Cap
- 1—SFP 24 ga. Kynar Steel Lower Exp. Joint
- 1—SFP 24 ga. Kynar Steel Upper Exp. Joint



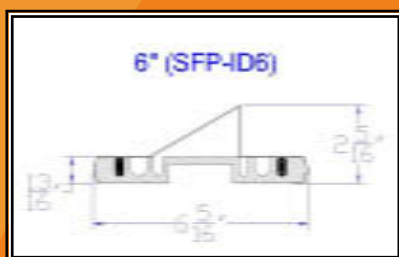
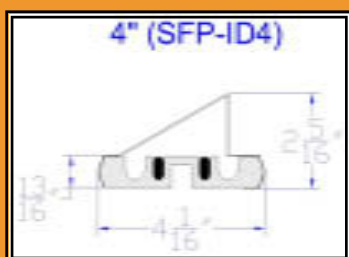
# Our Snofree™ System Accessories

## HEATED SNOW RAILS



### SFP-SR 4 or SFP-SR 6

- \* Effectively reduces ice shelves above heated panels.
- \* Cable requirements as recommended.
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* Recommended installation with TRA-MAGE Standing Seam clips or S-5 Mini Clips for smaller roofs.
- \* System Parts List:
  - 1—Aluminum Extrusions (4" or 6")
  - 1—SFP 24 ga. Kynar Steel Snowguard



Not recommended as a structural snow fence

Install our Eave Panel system over existing shingles  
with these simple accessories

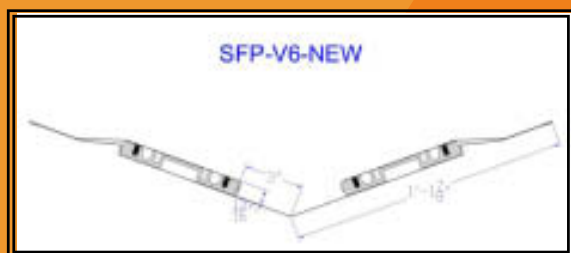
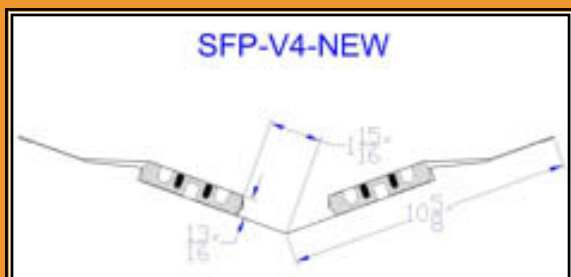


### SFP-TRANSITION and Z METAL

- \* Installs with existing asphalt shingles.
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* Not recommended for wood shake roofs or tile roofs.
- \* 14" wide transition for easy installation and trimming to desired size.
- \* System Parts List:
  - 1—24 ga. Kynar Steel Z Metal flashing
  - 1—24 ga. Kynar Steel Transition



# Our Snofree™ Panel Valley Systems



## SFP-4V or 6V

- \* Effectively controls Ice and Snow with 4 Passes of Cable
- \* Cable requirements as recommended.
- \* Heats more than 10" of each side of the valley.
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* Minimal exposed fasteners for better roof membrane protection.
- \* System Parts List:

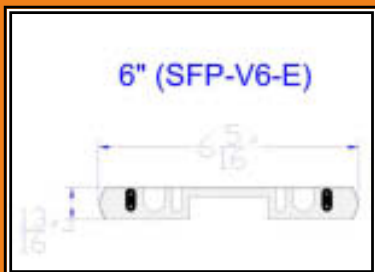
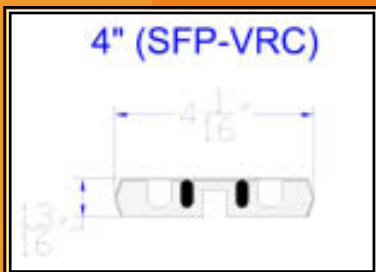
- 2—Aluminum Extrusions (4" or 6")
- 1—SFP 24 ga. Kynar Steel Base
- 1—SFP 24 ga. Kynar Steel Valley Connector
- 2—SFP 24 ga. Kynar Steel Caps
- 2—SFP 24 ga. Kynar Steel Expansion Joint



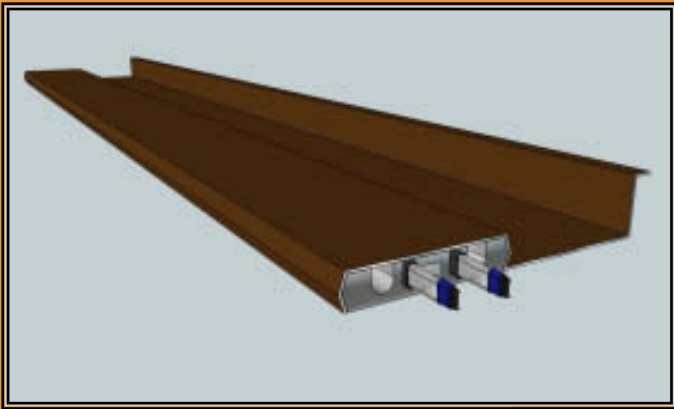
## SFP-4VR or 6VR

- \* Effectively controls Ice and Snow with 2 Passes of Cable
- \* Opens a pathway for water to run to the eave.
- \* Comes with a 30 Year protective Kynar finish.
- \* Sheet metal pieces come in 48" widths for ease of handling.
- \* An economical product to alleviate ice dams in existing valleys, without the need to re-roof.
- \* System Parts List:

- 1—Aluminum Extrusion (4" or 6")
- 1—SFP 24 ga. Kynar Steel Cover
- 1—SFP 24 ga. Kynar Steel Expansion Joint



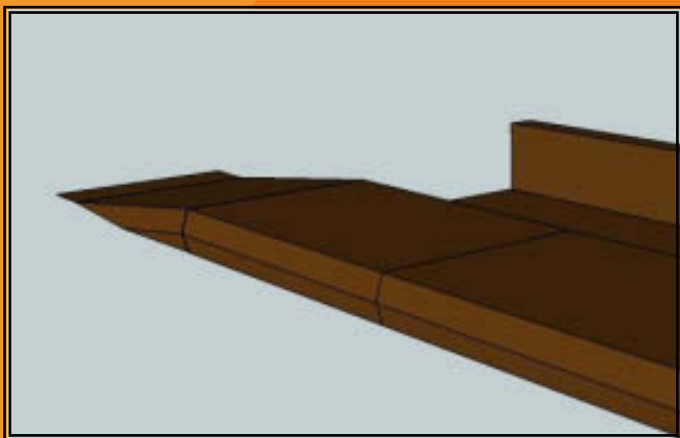
# Our Snofree™ Panel System for Standing Seam Roofs



Also available in 6" Wide &  
Non-penetrating clips available

## SFP-SSP-4

- \* Effectively controls Ice and Snow with 2 Passes of Cable
- \* Heats an effective path up the ribs of standing seam roofs to desired length.
- \* Comes with a 30 Year protective Kynar finish.
- \* An economical and beautiful option to control ice dams for standing seam roofs without penetrations into the metal surface.
- \* Our heated Snow fence is highly recommended to be installed above this system.
- \* System Parts List:
  - 1—4" Aluminum Extrusion
  - 1—SFP 24 ga. Kynar Panel
  - 1—SFP V Expansion Joint

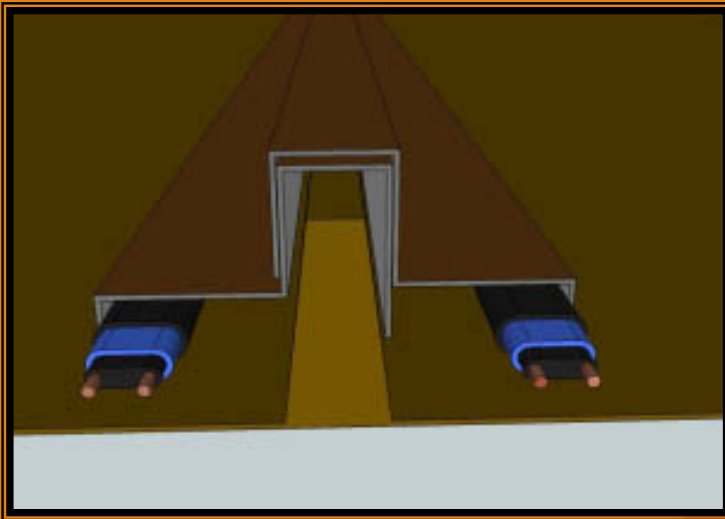


## SFP-SSP-RAMP

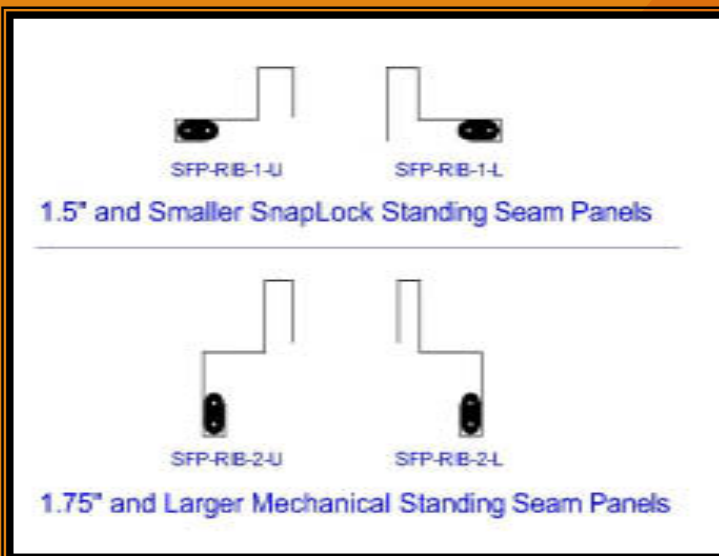
- \* Allows a minimal surface area for ice to slide over the heated extrusion holder.
- \* Easily attaches over the top of the SFP-SSP panel, Recommended to adhere with exterior adhesive for metal surfaces.
- \* Comes with a 30 Year protective Kynar finish
- \* An economical and beautiful option to control standing seam roof ice dams.
- \* Our heated Snow Rail is highly recommended to be installed above this system.
- \* System Parts List:
  - 1—SFP 24 ga. Kynar Ramp
  - 1—SFP 24 ga. Kynar Ramp Clip

# Standing Seam Heated Rib System

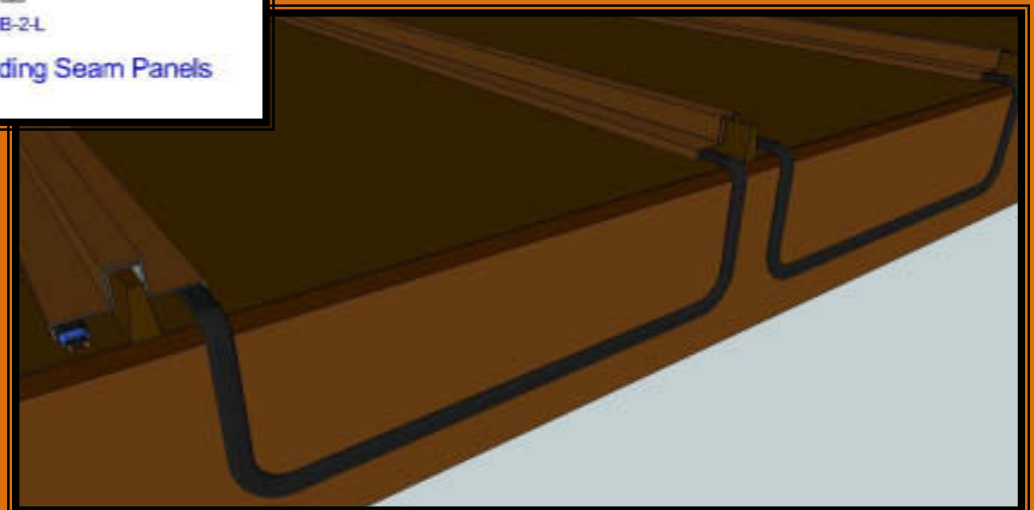
## SFP-RIB



- Beautifully heats your standing seam metal roof eaves.
- Simple to access.
- Attractive and completely hides the wiring along the rib.
- Simple to Install
- Built to match standing seam roof color.
- Available for all types of Standing Seam roofing.
- Available in Steel, Aluminum, Copper, Cor10, etc.

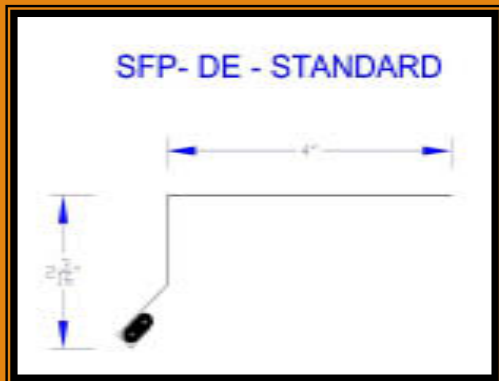
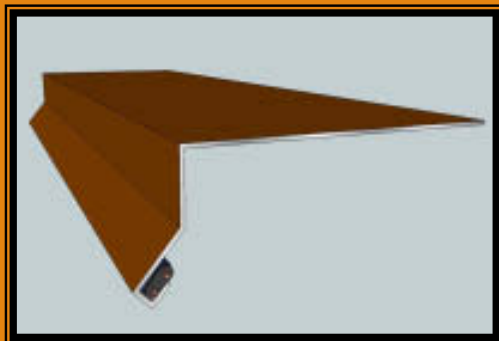


★ This system requires information about the specific manufacturer and model number of the roof material.



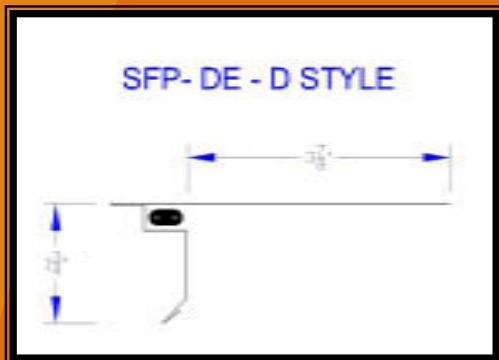
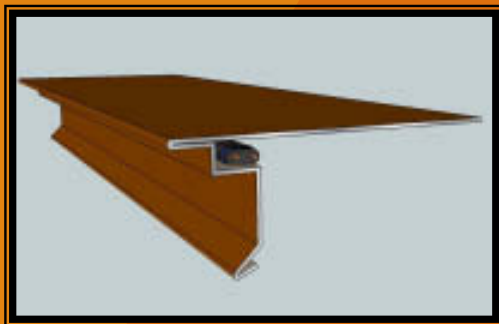
# Heated Drip Edge System

## SFP – DE – Standard



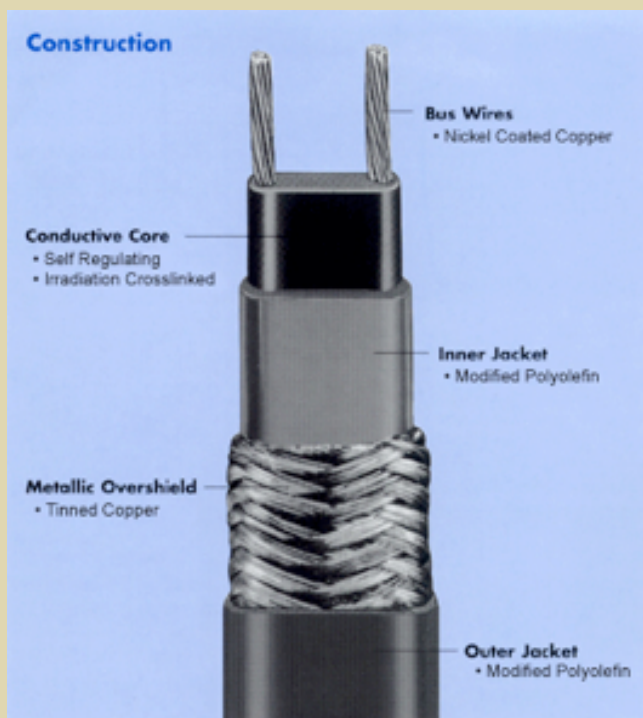
- Works efficiently to reduce icicles on roof edges with no gutters.
- Simple to install
- Attractive and completely hides the wiring along the drip edge.
- Built to match common roofing colors.
- Available in Steel, Aluminum, Copper, Cor10, etc.

## SFP – DE – D Style



- Works efficiently to reduce icicles on roof edges with no gutters.
- Simple to install
- Attractive and completely hides the wiring along the drip edge.
- Built to match common roofing colors.
- Available in Steel, Aluminum, Copper, Cor10, etc.

# 2800 Series Self Regulating Heating Cable



## Performance Ratings

Output wattage:

3, 5, 6 w/ft @ 40° F

Supply voltages:

2803, 2805: 110-120 vac

2806: 120 or 208V - 277 vac

Continuous maintenance temperature

150°F (65°C) max

Intermittent exposure temperature:

185°F (85°C) max

Braid resistance:

Tinned copper 0.003 /ft

## Approvals/Certifications

CSA:

Ordinary locations

Type 2E, 3A, 3B, 3C

UL:

Pipe Heating Cables

Industrial and Commercial

## Description

The 2800 family of self-regulating heater cable is designed for all your commercial freeze protection applications.

Self-Regulating design allows for safety and ease of cut-to-length installation. Heat Trace Products self-regulating heating cables regulate heat output automatically in response to changes in temperature. The highly engineered, conductive core increases its heat output when the temperature falls and decreases its heat output when the temperature rises.

## Application

The commercial grade 2800 cable provides freeze protection for fluid transport and storage systems. The bus wires, jackets and metallic braids can be configured for application in both indoor and outdoor locations.

The 2803 and 2805 heater cables are designed for small diameter pipes and operate on 120 volts. The 2806 heater cable is designed for larger diameter piping systems, roof and gutter applications. It can be configured to operate on 120 and 240 volts.

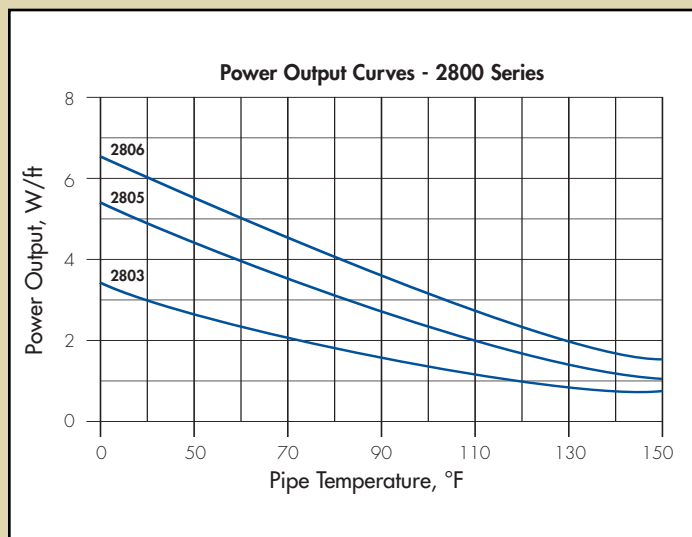
## Accessories

Heat Trace Products carries a full line of approved accessories, including power connection kits, terminations, splices, end seals, and controls.

The material contained in this document is presented in good faith and believed to be reliable and accurate. However, because of testing conditions may vary and material quality or information that may be provided in whole or in part by others may be beyond our control, no warranty expressed or implied, is given and Heat Trace Products can assume no liability for results obtained or damages incurred through the application of the data and tests presented



# 2800 Series Self Regulating Heating Cable



## Product Ordering Information

(Example Shown: 5 watt 120volt, tinned copper braid)

28 05 - 1 0 C 00

Series \_\_\_\_\_  
28 = 2800

Output \_\_\_\_\_  
03 = 3w  
05 = 5w  
06 = 6w

Voltage \_\_\_\_\_  
1 = 120V  
2 = 240V

Class \_\_\_\_\_  
0 = Not Applicable

Braid Option \_\_\_\_\_  
C = Tinned Copper  
R = Tinned Copper w/Modified Polyolefin Jacket

Reserved \_\_\_\_\_

## 120Volt Breaker Sizing vs. Max Circuit Length (FT) (Piping)

	10A	15A	20A	30A	40A
2803-1 if started at 40° F	150	150	-	-	-
0°F	110	150	-	-	-
-20°F	100	150	-	-	-
2805-1 if started at 40° F	125	125	-	-	-
0°F	90	125	-	-	-
-20°F	80	120	-	-	-
2806-1 if started at 40° F	100	150	200	250	250
0°F	65	100	130	190	250
-20°F	55	85	115	170	225

## 240 Volt Breaker Sizing vs. Max Circuit Length (FT) (Piping)

	10A	15A	20A	30A	40A
2806-2 if started at 40° F	175	270	260	450	450
0°F	110	175	230	340	450
-20°F	90	145	190	285	385

## Power Adjustment Factor

Part No.	208 Volts	277 Volts
2806-2	0.86	1.16

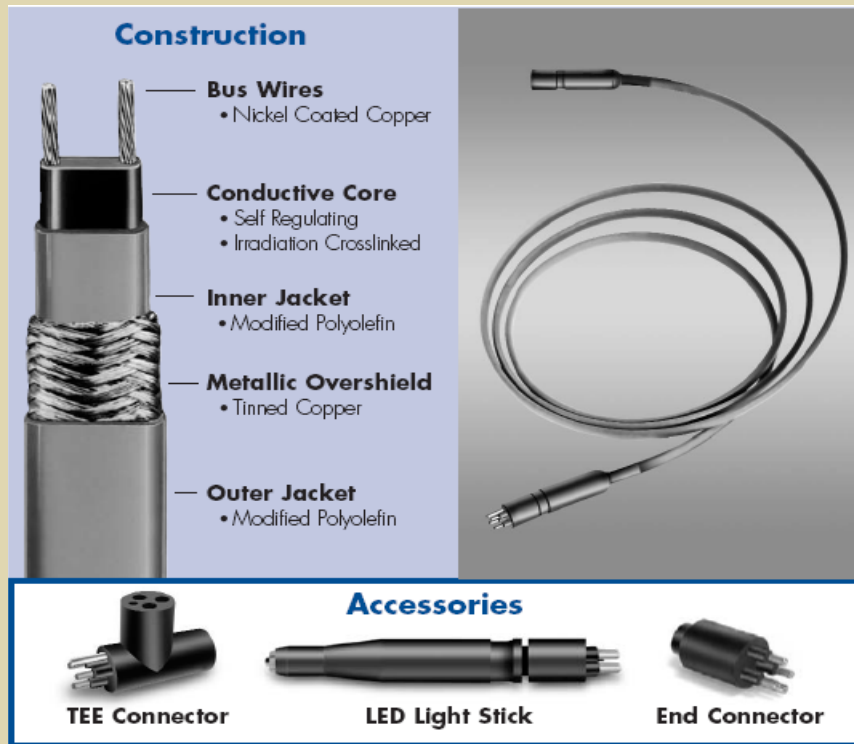
## Max Circuit length (FT) for Roof and Gutter

	Minimum TEMP (DEG F)	20 A	30 A	40 A
2806-1	-20	115	170	225
120 Volt	-10	120	180	230
	-5	125	185	240
	0	130	190	250
	10	145	205	250
	15	165	220	250
	30	195	250	250

## Max Circuit length (FT) for Roof and Gutter

	Minimum TEMP (DEG F)	20 A	30 A	40 A
2806-2	-20	190	285	385
208-277	-10	210	310	405
Volts	-5	220	325	425
	0	230	340	450
	10	260	370	450
	15	290	395	450
	30	350	450	450

# T-Links Pre-Terminated Heat Trace System



## Performance Ratings

Output wattage:

3, 5, 8, 10 W/FT@ 50° F

Supply voltage:

110 -120 or 208V 277 vac

Continuous maintenance temperature:

150°F (65°C)

Maximum exposure temperature:

185°F (85°C)

## Approvals/Certifications



## Heat Trace Products T-Links

120 Volts, 240 Volts

3, 5, 8, 10 Watts/FT @50° C

## Listed:

- Pipe Heating Cable: Industrial and Commercial
- De-Icing and Snowmelting Equipment

## Description

The T-Links series of self-regulating heating cables are designed to supply a specified amount of heat at any point along their length in direct response to local temperature/thermodynamic variations. These cables were developed to simplify the installation of heat tracing systems. T-links cables are pre-terminated for ease of connectivity and installation. All components in the system are waterproof to ensure long life at connection and termination points.

The T-Links cables can maintain temperatures up to 150°F and will not overheat or burnout

## Applications

### Pipe Applications

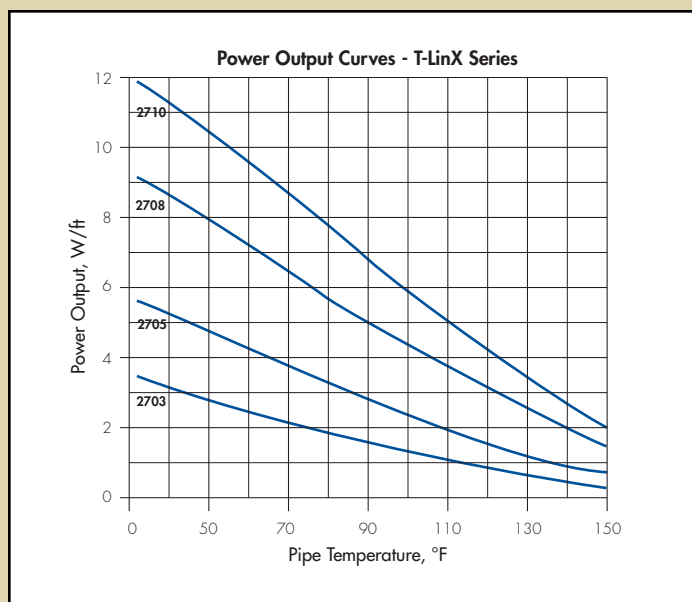
- Freeze protection for piping applications
- Ideal for instrument lines and high maintenance areas
- Available for plastic pipe applications
- Available in 3, 5, 8 and 10 watts/Ft

## Accessories

Heat Trace Products carries a full line of approved accessories, including power connection kits, terminations, splice, end seals and controls

T-Links Heating Cable is available in pre-terminated lengths of 5, 10, 20, 50 and 100 feet. Custom lengths up to 200 feet are also available.

# T-Links Pre-Terminated Heat Trace System



## 120 Volt Breaker Sizing vs. Max Circuit Length (FT)

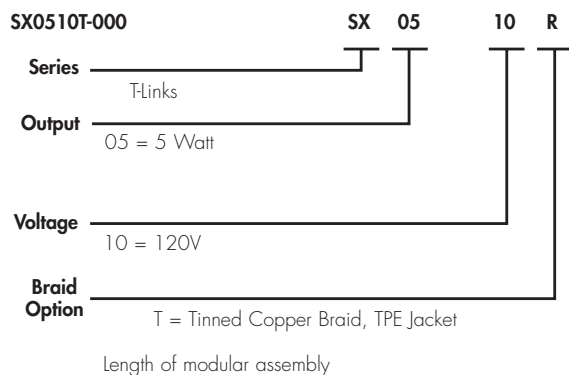
	15A	20A	30A	40A
2703-1 if started at 50° F	300	-	-	-
0° F	200	270	330	-
-20° F	180	230	300	-
2705-1 if started at 50° F	230	270	-	-
0° F	150	200	270	-
-20° F	130	175	260	270
2708-1 if started at 50° F	150	200	210	-
0° F	95	125	190	210
-20° F	85	100	170	210
2710-1 if started at 50° F	115	150	180	-
0° F	70	95	145	180
-20° F	60	85	120	165

## 240 Volt Breaker Sizing vs. Max Circuit Length (FT)

	15A	20A	30A	40A
2703-2 if started at 50° F	600	-	-	-
0° F	410	560	660	-
-20° F	360	480	660	-
2705-2 if started at 50° F	460	540	-	-
0° F	300	400	540	-
-20° F	260	345	520	540
2708-2 if started at 50° F	295	390	420	-
0° F	195	250	375	-
-20° F	170	225	-	-
2710-2 if started at 50° F	230	305	360	-
0° F	150	200	300	360
-20° F	130	175	260	360

### Product Ordering Information

(Example Shown: 5 watt 120volt, tinned copper braid)



## Benefits

- Eliminates the most common failure mode, connections are NOT a weak link.
- Waterproof connectors seal before electrical contact is made.
- Tools, heat guns etc... are not needed.
- Saves labor costs- installs in minutes, not hours.
- Modular heating segments of 5, 10, 20, 0, and 100 ft.
- Easy to transport, handle and install
- Damaged segments easy to replace
- Easy to reroute
- Segments are reusable
- Can easily be disconnected during maintenance on valves, pumps, flanges, etc.
- Increase or reduce wattage within circuit when pipe diameter changes.

# Pre-Terminated Cable Assemblies



- Ready to plug-in
- 30 mA trip breaker DGFI (National Electric Code required)
- End seal professionally assembled
- 10 Year Warranty

Standard Heated lengths are:

50'  
100'  
150'  
200'

Custom sizes available.

Not including the exterior SO cord. The cord is 20'.  
120 Volt DGFI cords are commonly 14 gauged Wire  
240 Volt DGFI cords are commonly 12 gauged Wire

		120 VOLT													
		25'	50'	75'	100'	125'	150'	175'	200'	225'	250'	275'	300'	325'	350'
15 AMP		★	★	★	★	★	★	✗	✗	✗	✗	✗	✗	✗	✗
20 AMP		★	★	★	★	★	★	★	★	✗	✗	✗	✗	✗	✗
		240 VOLT													
		25'	50'	75'	100'	125'	150'	175'	200'	225'	250'	275'	300'	325'	350'
15 AMP		★	★	★	★	★	★	★	★	★	★	✗	✗	✗	✗
20 AMP		★	★	★	★	★	★	★	★	★	★	★	★	★	★

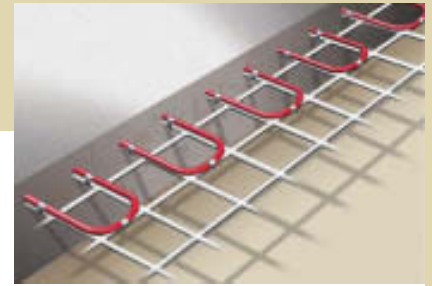
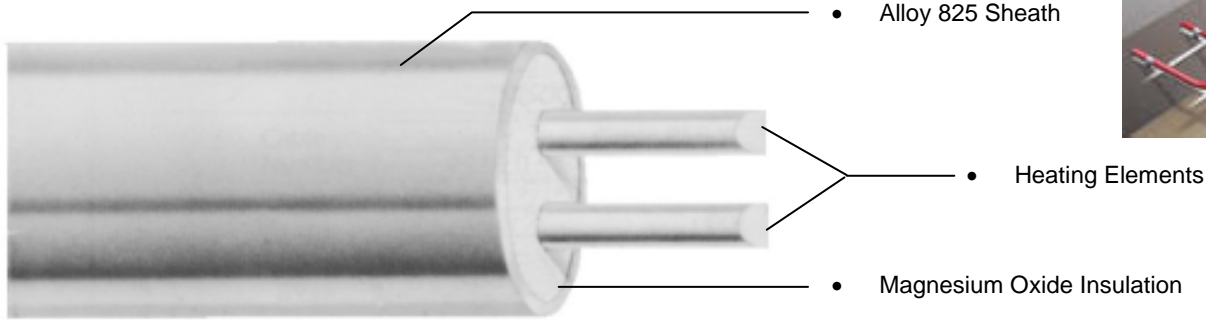
\* Based on 40° Start up Temperature

★ = Acceptable  
✗ = Not Recommended

\* All accessories are available for a complete installation.  
Roof Clips, Gasketed Screws

# Mineral Insulated Cable

## Heated Driveways, Sidewalks & Ramps



### Description:

Mineral Insulated cable is metal sheathed cable that uses a metallic conductor as the heating element. The conductor is electrically insulated from the metal sheath with magnesium (MgO). Mineral insulated cable is a series resistance heater that generates heat by passing current through the electrical conductor. Power output per unit length of the cable therefore varies with the applied voltage and the resistance of the conductor.

Mineral Insulated cables are available with either one or two conductors. The one conductor cable is available in the "E" Form when a cold splice is provided at both cable ends for electrical connection. The two-conductor cable is available in two forms. The "A" Form provides an out-and-back circuit with a single cold splice connection at one end. The "E" Form provides cold splices at both ends of the cable.

Outer sheath construction is Alloy 825, a high temperature corrosion resistant alloy with superior flexibility. Two cable diameters are available. The "K" cable diameter is 0.187" and the "B" cable diameter is 0.312". A unique manufacturing process provides for a thin wall construction which improves flexibility and ease of installation. This process also allows the use of high performance alloy conductors for high temperature applications.

### Principle of Operation:

The series conductor generates heat when voltage is applied as a result of current passing through the conductor. Power output per unit length varies with the applied voltage and circuit resistance. The circuit resistance, in turn, varies with cable length. MI cables are available with a wide selection of conductor resistances. Based on voltage and desired cable length, a specific conductor is selected with a cable resistance that provides the desired power output.

### Application:

Nelson MI Cable is high performance, industrial grade heat tracing cable used for applications requiring:

- High Temperature Exposure
- High Maintain Temperature
- High Power Output
- Rugged Cable Construction
- Constant Power Output Over Entire Heater Length
- Extended Heater Life
- Immunity to Stress Corrosion
- Snow Melt Systems
- Floor Warming Systems
- Undertank Heating (Cryogenic Tanks)

MI Cable is custom designed and fabricated for specific applications.

# TF4X40 Thermostat



## Enclosure

Molded Fiberglass Polyester

## Classifications

NEMA Type 4X IP66

## Temperature Range

Fixed Range

22°C (40°F)

## Capillary

Length

0.9m(3ft.)

Material

copper

Max. Bulb Temp.

60°C (140°F)

## Electrical Data

CSA Rating and UL Rating

22 amp Resistance 250Vac

## Calibration Accuracy

2.2°C (4°F) Environmental

## Switch Type

Single Pole Single Throw

These thermostats are used for controlling heat tracing system in ordinary locations. The capillary bulb should be mounted on the side of the pipe.

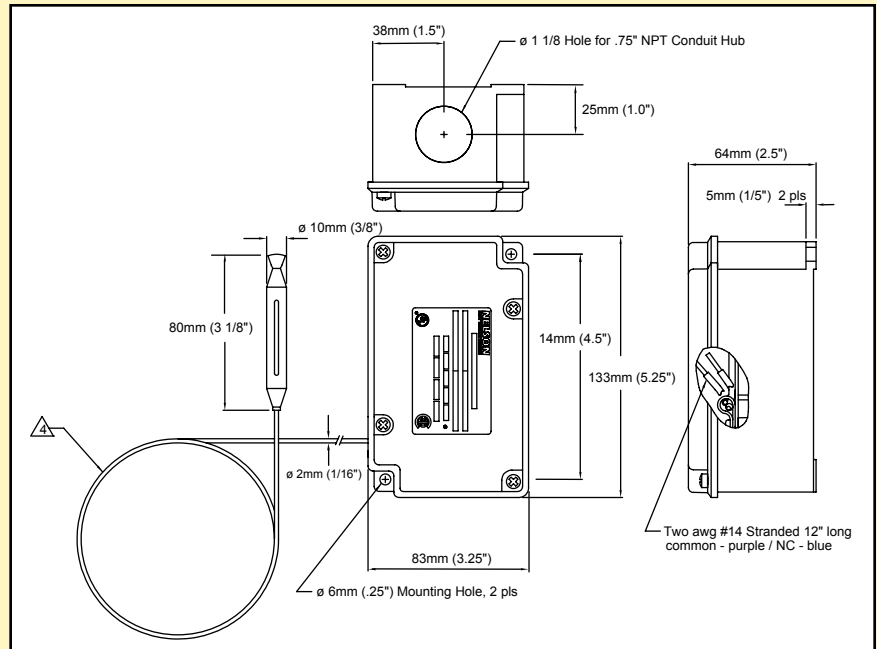
## Annual Maintenance:

1. Remove Cover
2. Spray a coat of lubricant and rust preventative such as CRC stor and Lube, electrical grade, on the thermostat body.
3. Replace Cover

## Approvals:

Federal Locations

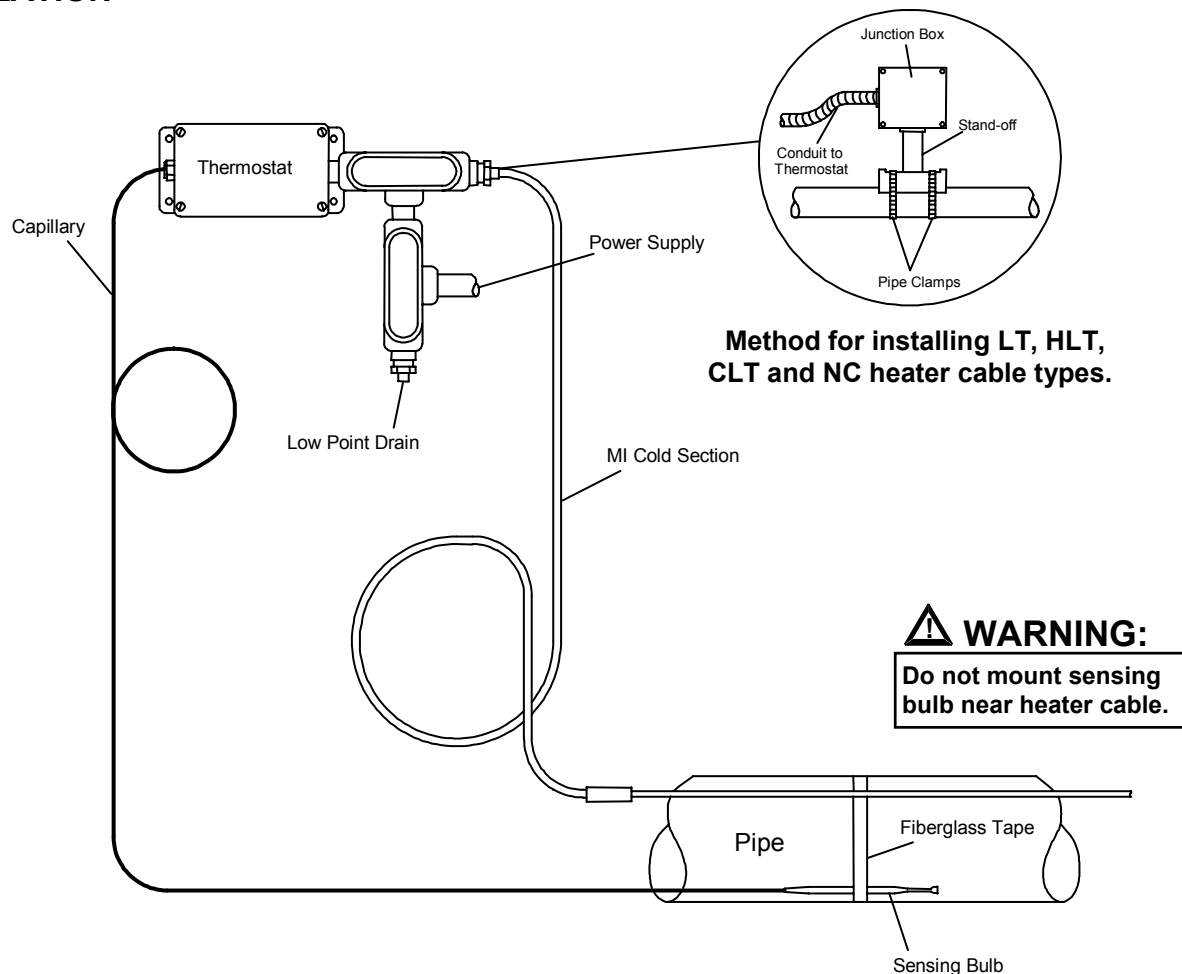
UL-E50023 CAS - LR52088-4 CE



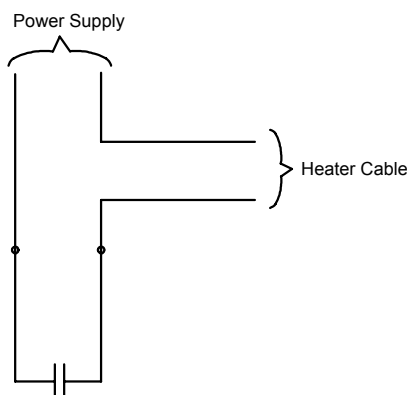


# TF4X40 Thermostat

## INSTALLATION



## WIRING DIAGRAM



# 1660-18911 Ambient Sensing Thermostat



## Description

The 1660-18911 thermostat is a watertight, dust tight and corrosion resistant temperature control in a lightweight die cast enclosure with an internal calibrated reference dial and tamper-proof adjustment for outdoor or indoor locations. The liquid-filled thermal system, with its stainless steel sensor stem, provides a very dependable and accurate control system.

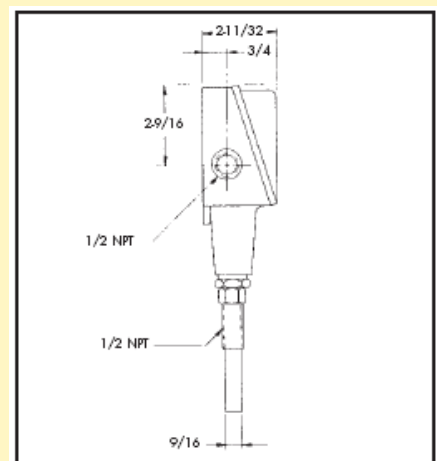
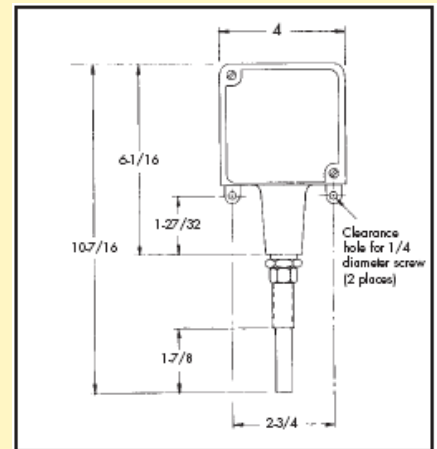
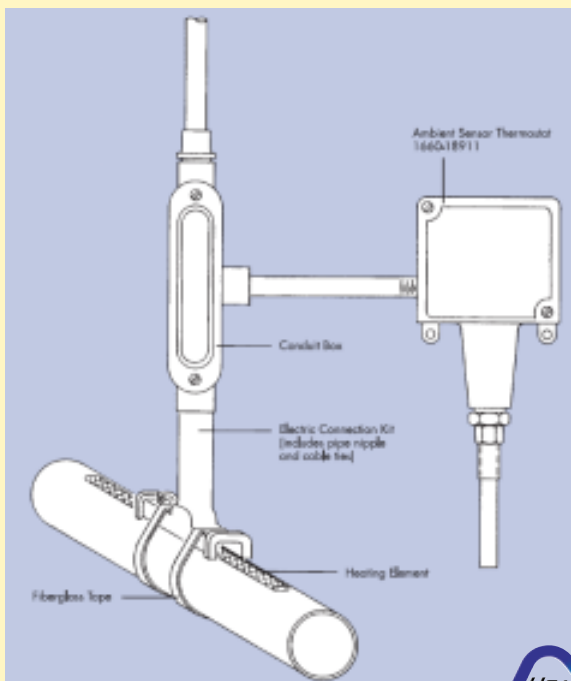
## Wiring

For heater control, low alarm (close on falling temperature) use COM and NC. For high alarm (Close on rising temperature) use COM and NO.

## Specifications

Enclosure	Die cast aluminum with poly epoxy coating, NEMA 4X, weather-proof, dust tight and corrosion resistant
Connection Switch	Screw terminals on block through 1/2-NPT hub SPDT UL listed with internal calibrated reference dial and tamperproof adjustment
Rating	22 amps at 480 vac
Range	15°-140°F
Sensor	304 SS sensor stem
Approval	UL Listed/CSA certified
Accuracy	± 1% of adjustment range

Typical installation for a 1660-18911 ambient sensing controller mounted on a pipe



# 1660-13A11 Ambient Sensing Thermostat



## Description

The 1660-13A11 thermostat is a watertight, dust tight and corrosion resistant temperature control in a lightweight die cast enclosure with an internal calibrated reference dial and tamper-proof adjustment for outdoor or indoor locations. The liquid-filled thermal system, with its stainless steel bulb and capillary, provides a very dependable and accurate control system.

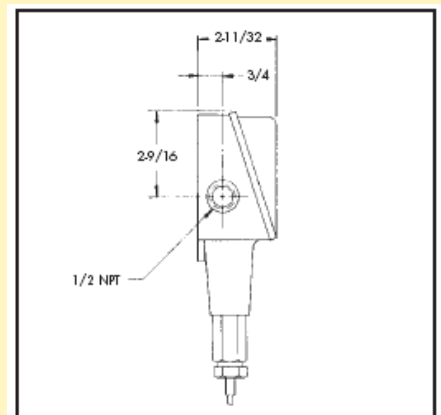
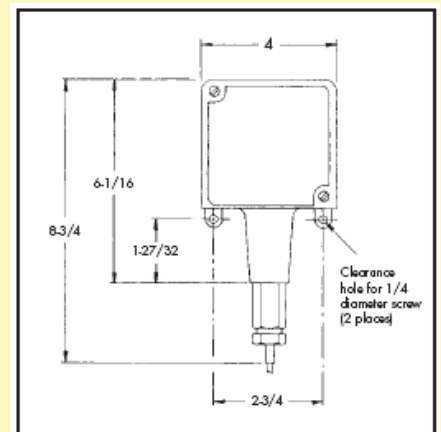
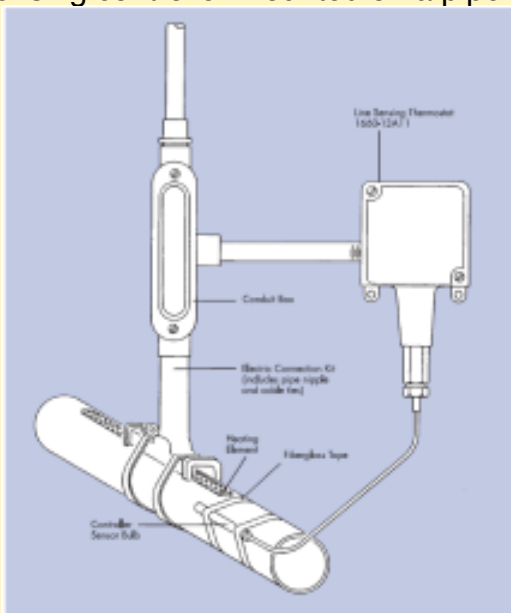
## Wiring

For heater control, low alarm (close on falling temperature) use COM and NC. For high alarm (Close on rising temperature) use COM and NO.

## Specifications

Enclosure	Die cast aluminum with polyamid epoxy coating NEMA 4X, water-tight, dust tight and Corrosion resistant
Connection	Screw terminals on switch through 1/2-NPT hub
Switch	SPDT UL listed with internal calibrated reference dial and tamper-proof adjustment
Rating	22 amps at 480 vac
Range	25°- 325°F
Sensor	10 FT. 304 SS capillary with 1/8" SS bulb
Approval	UL Listed/CSA certified
Accuracy	± 1% of adjustment range

Typical installation for a 1660-13A11 line sensing controller mounted on a pipe



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# 1660-18915 Ambient Sensing Thermostat



## Description

The 1660-18915 thermostat is a watertight, dust tight and corrosion resistant temperature control in a lightweight die cast enclosure with an internal calibrated reference dial and tamperproof adjustment for outdoor or indoor locations. The liquid-filled thermal system, with its stainless steel sensor stem, provides a very dependable and accurate control system.

## Specifications

Enclosure	Die cast aluminum with polyamid epoxy coating NEMA 4X, water-tight, dust tight and Corrosion resistant
Connection	Screw terminals on switch through 1/2-NPT hub
Switch	SPDT UL listed with internal calibrated reference dial and tamperproof adjustment.
Rating	22 amps at 480 VAC
Range	25° - 325°F (-3° to 163°C)
Sensor	10 FT. 304 SS capillary with 1/8" SS bulb
Approval	UL Listed/CSA certified
Accuracy	± 1% of adjustment range

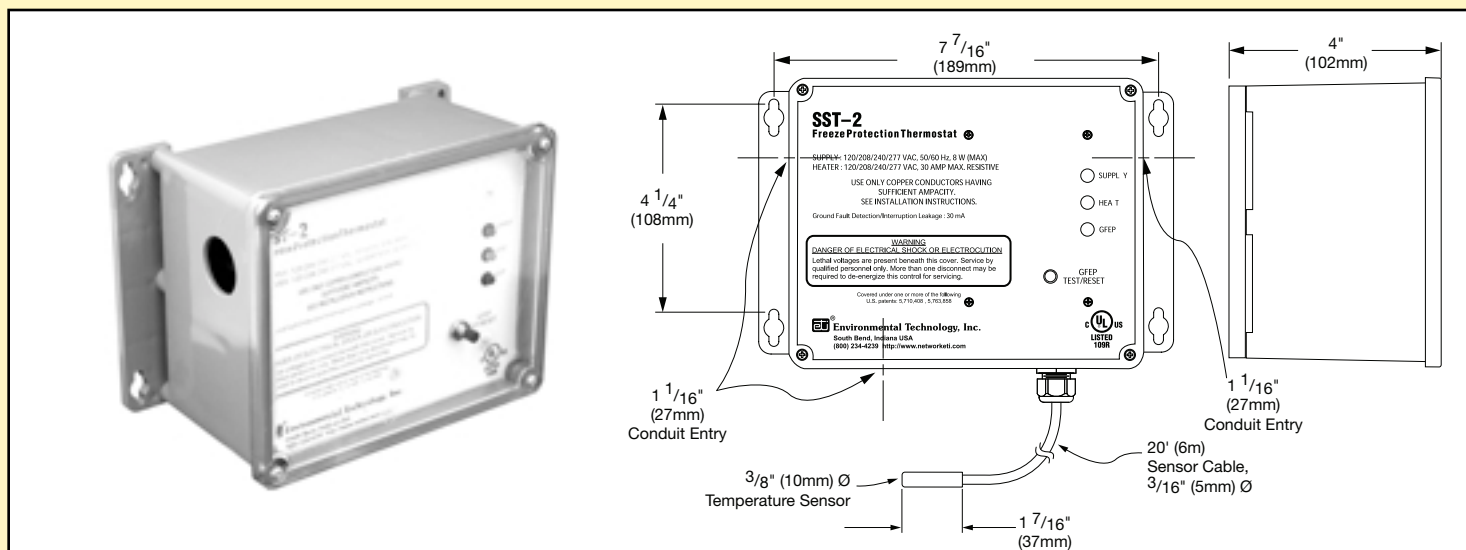
# Low Cost Electronic Thermostat with Ground Fault Equipment Protection

## SST-2 Freeze Protection Thermostat



### Features & Benefits

- Automatic freeze protection
- 40°F (4.4°C) set point
- Automatic supply voltage selection
- Two-pole contactor switches up to 30 AMP heater loads
- Alarm relay with isolated contact
- C-UL-US listed
- Simple to install and operate
- Minimum energy costs



### Description

The C-UL-US listed SST-2 Freeze protection thermostat replace electromechanical thermostats in cost-sensitive applications requiring ground fault equipment protection (GFEP). The SST-2 is listed by Underwriters Laboratories to Standard UL 873 for Temperature-Indicating and Regulating Equipment.

The SST-2 operate heaters at temperatures below 40° F (4.4°C) and turn them off above 42°F (5.5°C). The external temperature sensor (supplied) is a NEC Class 2 device rated for wet locations.

The SST-2 feature a built-in 30 mA GFED that is digitally filtered to minimize false tripping, A ground fault must be manually reset with the TEST/RESET switch before heater operation can be resumed. The GFED function is automatically tested along with the heaters whenever power is applied and once every 24 hours thereafter for additional safety.

The SST-2 includes an alarm relay with an isolated SPDT 1 AMP contact. The alarm relay is reverse acting and is normally closed unless there is a ground fault condition, GFED circuitry fails a test, or when there is a bad temperature sensor.

The SST-2 Freeze Protection thermostats operate from automatically selected operating voltages of 120,208,240,or 277 volts, Single-phase. They control heater loads of up to 30 amps while consuming less than 2 watts when idling. The temperature sensor is an NEC Class 2 device that can be located up to 2,000' (610 m) away from the SST. They operate in non-hazardous environments in a temperature range extending from -40° to 131° F (-40° to 55°C). The rugged non-metallic enclosure is appropriate for installation in indoor or outdoor locations suitable for NEMA 4X applications.

For complete information describing its application, installation and features, please contact Customer Service.

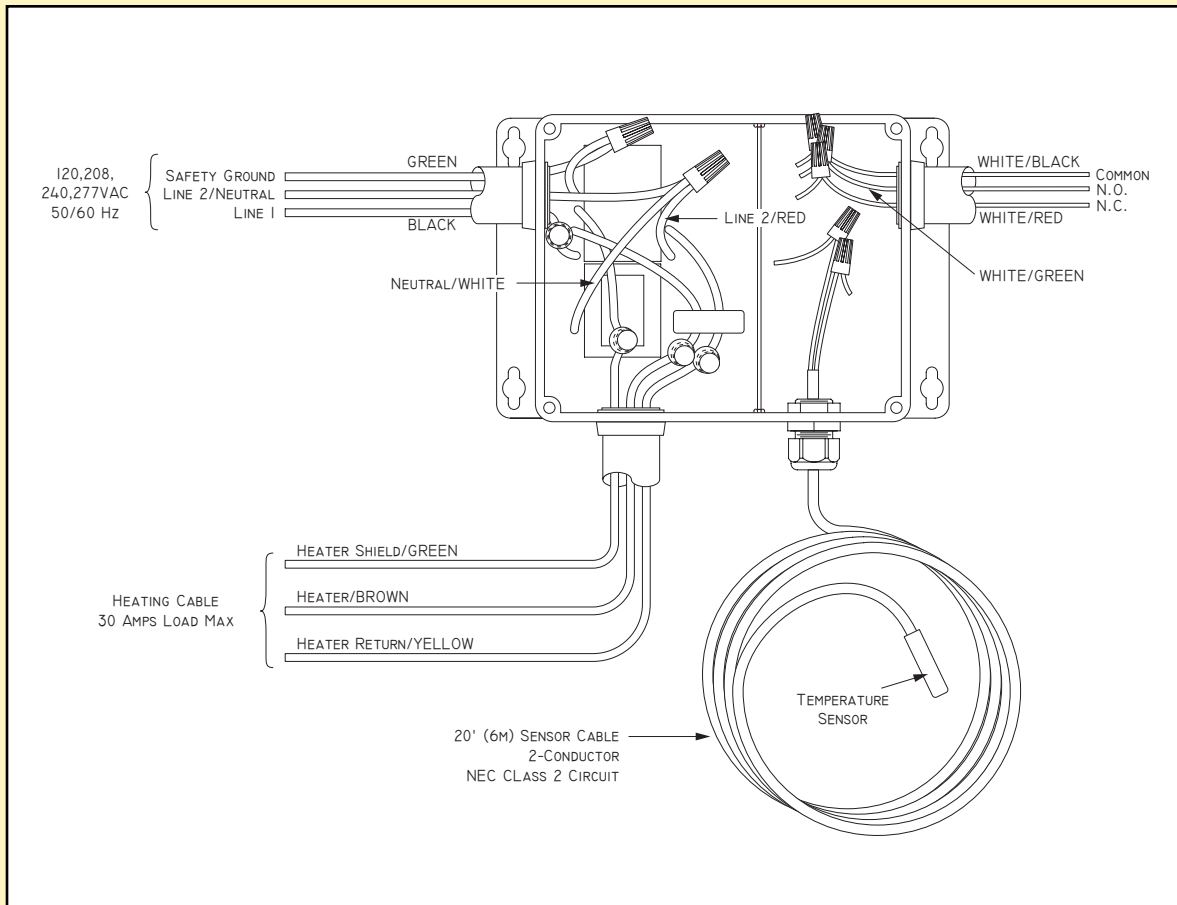


## Specifications

Area of use	Nonhazardous locations
Approval	UL Listed Type 873 Temperature Regulating Equipment
<b>Enclosure</b>	
Protection	NEMA 4
Cover attachment	Polycarbonate cover, machine screws
Entries	1 X 3/4" entries (bottom right) for NEC Class 2 connections 3 X 1-1/16" entries (bottom left and left) for supply and load power
Material	Polycarbonate
Mounting	Wall mounted
<b>Front Panel Interface</b>	
Status indicator	SUPPLY (green) power applied SUPPLY (green, flashing) bad thermistor HEAT (yellow) call for heat GFEP (red) ground fault condition GFEP (red, flashing) failed GFEP (red, flashing, rapid) GFEP test in progress
<b>Remote Interface (SST-2 only)</b>	
Alarm relay	Isolated SPDT 1 AMP Class c contact
Summary alarms	No Power Ground Fault Condition GFEP function test failure Bad or missing thermistor
<b>Control</b>	
Supply voltage	120, 208, 240 or 277 volts, single phase (automatically selected)
Contact type	Two Form A DPST
Maximum ratings	Voltage: 277 VAC Current: 30 amps
<b>High Limit thermostat</b>	
Set point	40°F (4.4°C)
Dead band	2°F (1°C)
Sensor type	Thermistor network
Circuit type	NEC Class 2
Lead length	Up to 2,000' (610m) using 12 AWG 2-wire jacketed cable Up to 500' (152m) using 18 AWG 2-wire jacketed cable
<b>Ground Fault Equipment Protection (GFEP)</b>	
Set point	30 mA
Automatic self-test	Mode A: Verifies GFEP function before contactors operate Mode B: Verifies GFED function every 24 hours
Manual test/reset	TEST/RESET switch of front panel
<b>Environmental</b>	
Operating temperature	-40°F to 130°F (-40°C to 55°C)
Storage temperature	-67°F to 167°F (-55°C to 75°C)



## Typical Installations for the model SST-2 Freeze protection thermostat



### Limited Warranty

Eti's two year limited warranty covering defects in workmanship and materials applies. Contact customer service for complete warranty information.

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# GIT-3A Automatic Gutter Ice Melting Control



## Benefits

- Automatic gutter ice melting control
- Energy efficient

## Features

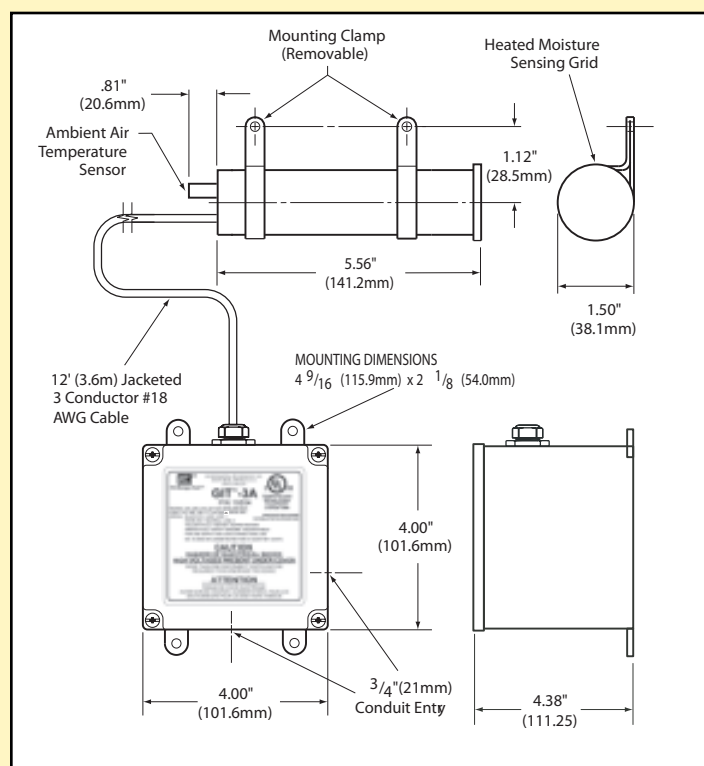
- Minimum operating costs
- Maintains ice melting heater efficiency
- Field proven reliability
- UL and CUL Listed to Standard 873
- Low Cost
- Simple installation

## Description

Snow and ice on a roof cause a variety of expensive problems including gutter and downspout breakage and interior water damage. In addition, falling ice can endanger pedestrians. Using heating cables for ice melting can eliminate these problems, however uncontrolled heating is expensive and not energy efficient.

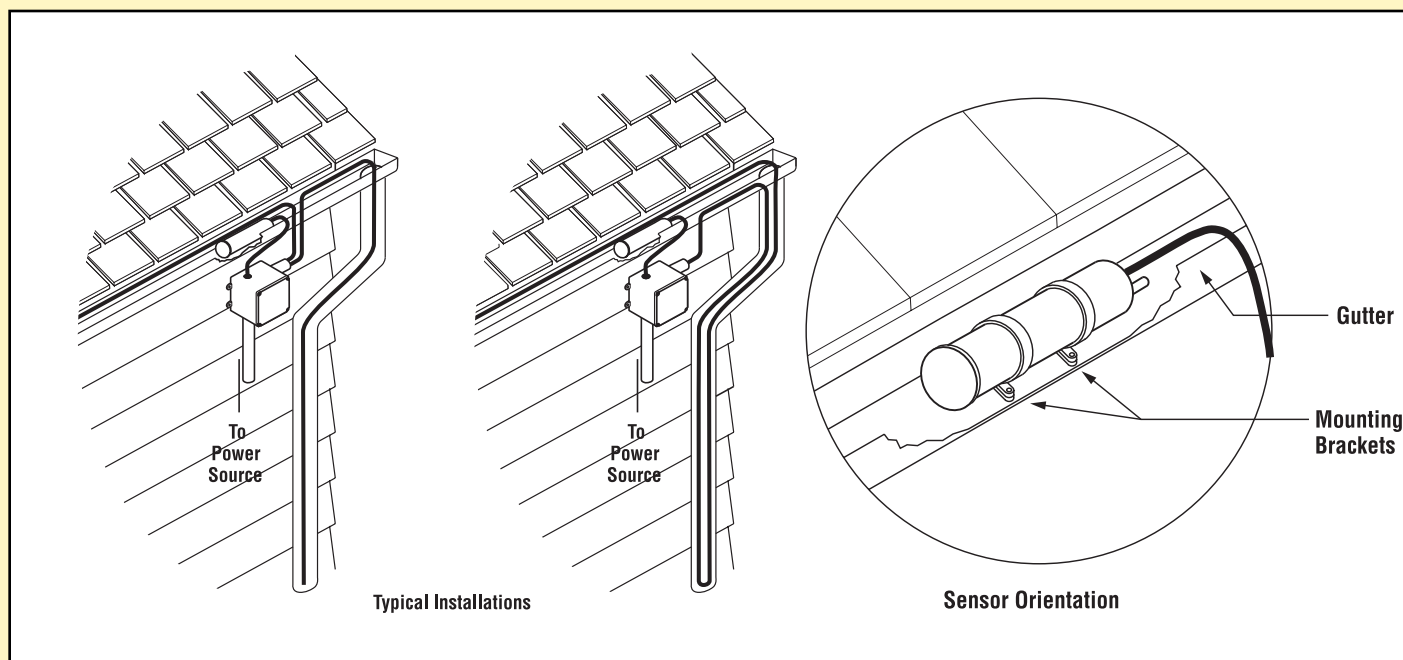
The computerized patent pending GIT-3A automatic Gutter Ice Melting Control operates ice melting heaters only while required thus insuring energy efficiency and low operating costs. A GIT-3A consists of a gutter-mounted sensor and a control enclosure connected by a 12'6" (3.8 meter) cable. If the distance between the sensor and control needs to be changed, please contact customer service.

Line voltage and ice melting heater connections are located in the control enclosure. The GIT-3A operates from single-phase 120, 208/270 or 277 volt supply selected by an internal jumper connection that is set during installation. It controls single-phase ice melting heater loads of up to 26 amps. The GIT-3A meets the new NEC Class 2 low voltage requirement for wet locations. It is both UL and CUL listed. Safety testing was done to UL Standard 873.



## Typical Installations

Simplified drawings of installations using both constant wattage and self-limiting heating cables follow. These show typical heating cable placement along with GIT-3A's sensor and control enclosure locations. Refer to installation data provided by the heating cable manufacturer and the GIT-3A's instruction manual for more detailed information. Installations must meet the requirements of both the local and national electrical codes.



### Limited Warranty

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# Model GIT-4 Automatic Gutter Ice Melting



## Benefits

- Automatic gutter ice melting control
- Energy efficient

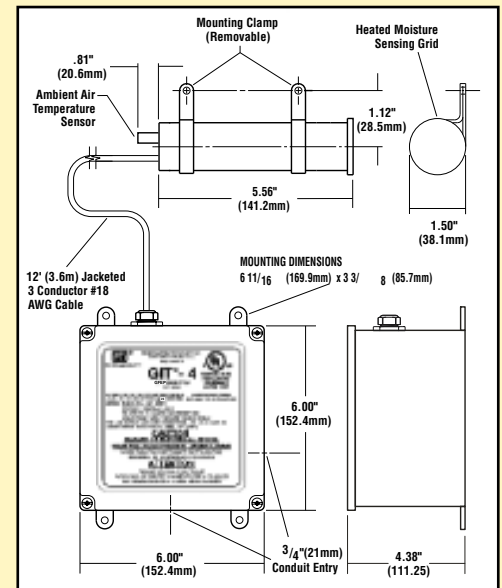
## Features

- Minimum operating costs
- Maintains ice melting heater efficiency
- Built-in ground fault equipment protection (GFEP) for safety
- UL and CUL Listed to Standard 873
- Remote monitor and control included
- Low cost
- Simple installation

## Description

Snow and ice on a roof cause a variety of expensive problems including gutter and down spouts breakage and interior water damage. In addition, falling ice can endanger pedestrians. Using heating cables for ice melting can eliminate these problems, however uncontrolled heating is expensive and not energy efficient.

The computerized patented and patent pending GIT-4 Automatic Gutter Ice Melting Control operates ice melting heaters only while required thus insuring energy efficiency and low operating cost. A GIT-4 consists of a gutter mounted computerized sensor and a control enclosure connected by a 12'6" (3.8 Meter) cable. If the distance between the sensor and control need to be changed, please contact customer service. A GIT-4 includes an RCU-2 Remote Control Unit. It can be located up to 150 feet (45.7 Meters) from the control enclosure. It mounts in a single-gang switch box.



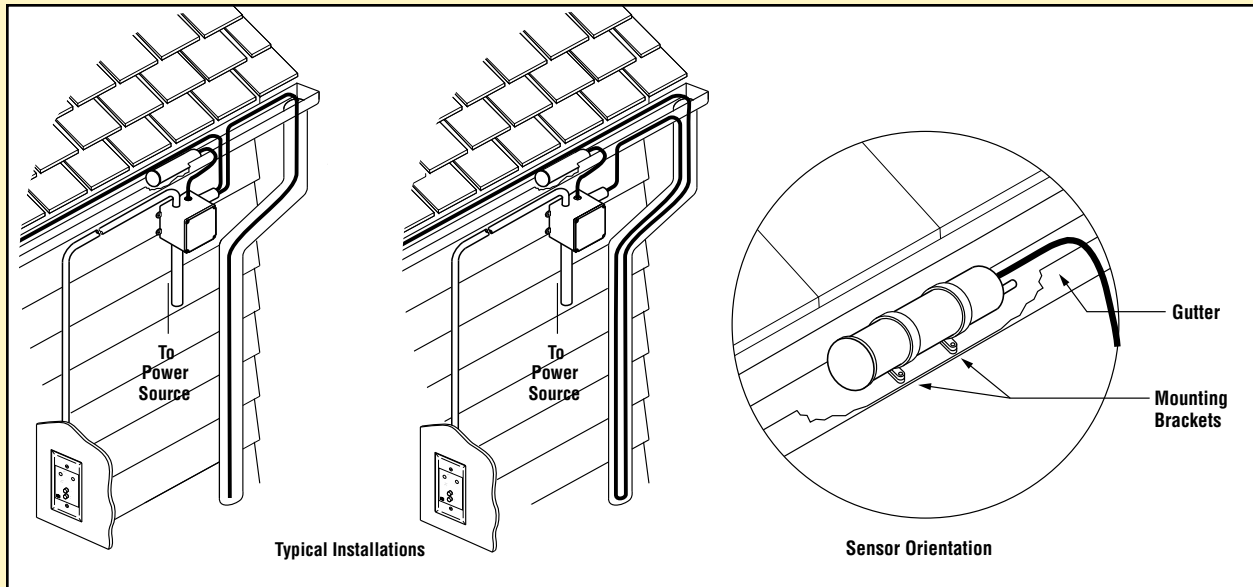
The GIT-4 senses both moisture and temperature conditions in the gutter or down spout thus assuring optimum control. Ice melting heater operate at temperatures below 38°F (33°C) while moisture is present. Operation continues a period of time thereafter to insure complete melting. While operating, the heaters are maintained at a nominal temperature of 38°F (3.3°C).

The RCU-2 provides remote monitoring of the ice melting system operation. It also controls GFEP operation and can override automatic heater operation.

Line voltage and ice melting heater connections are located in the control enclosure. The GIT-4 operates from single-phase 120, 208/240 or 277 volt supply selected by a internal jumper connection that is set during installation. It controls single-phase ice melting heater loads of up to 26 amps. The GIT-4 meets the new NEC class 2 low voltage requirement for wet locations. It is both UL and CUL Listed while the RCU-2 is a NEC Class 2 device. Safety testing was done to UL Standard 873.

## Typical Installations

Simplified drawings of installations using both constant wattage and self-limiting heating cables follow. These show typical heating cable placement along with GIT-4's sensor and control enclosure locations. Refer to installation data provided by the heating cable manufacturer and the GIT-4's instruction manual for more detailed information. Installations must meet the requirements of both the local and national electrical codes.



## Limited Warranty

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## Disclaimer

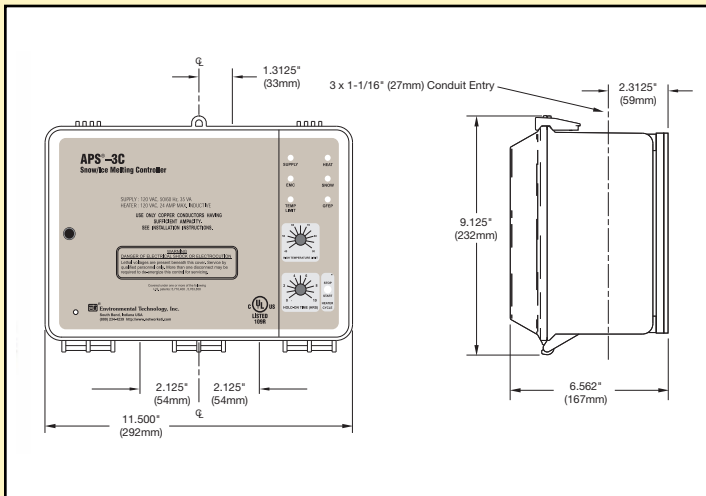
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# APS-3C Snow Switch Automatic Snow/Ice Melting System Control Panel



## Features & Benefits

- Automatic snow/ice melting control
- Operates electrically-and mechanically- held contactors for pilot duty applications
- Energy management computer (EMC) interface
- Accommodates MI, constant wattage and self-limiting heaters
- Multiple sensor capability
- 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 downspout 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. More sensors provides superior performance by better matching the controller to superior performance requirements. The APS-3C is an exceptionally capable deicing controller.



## Specifications

Enclosure	Nonhazardous locations
Approval	UL ListedType 873 Temperature Regulating Equipment
<b>Enclosure</b>	
Protection	NEMA 3R
Cover attachment	Hinged polycarbonate cover, lockable
Entries	3X1-1/6" entries
Material	Polycarbonate
Mounting	Wall mounted
<b>Control</b>	
Supply	120 VAC, 50/60 Hz, 35VA 208-240 VAC, 50/60 Hz, 35 V
Load	120 VAC, 24 amp max, inductive 240 VAC, 24 amp max, inductive
Contact type	Form C
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' (609m) 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)

### Limited Warranty

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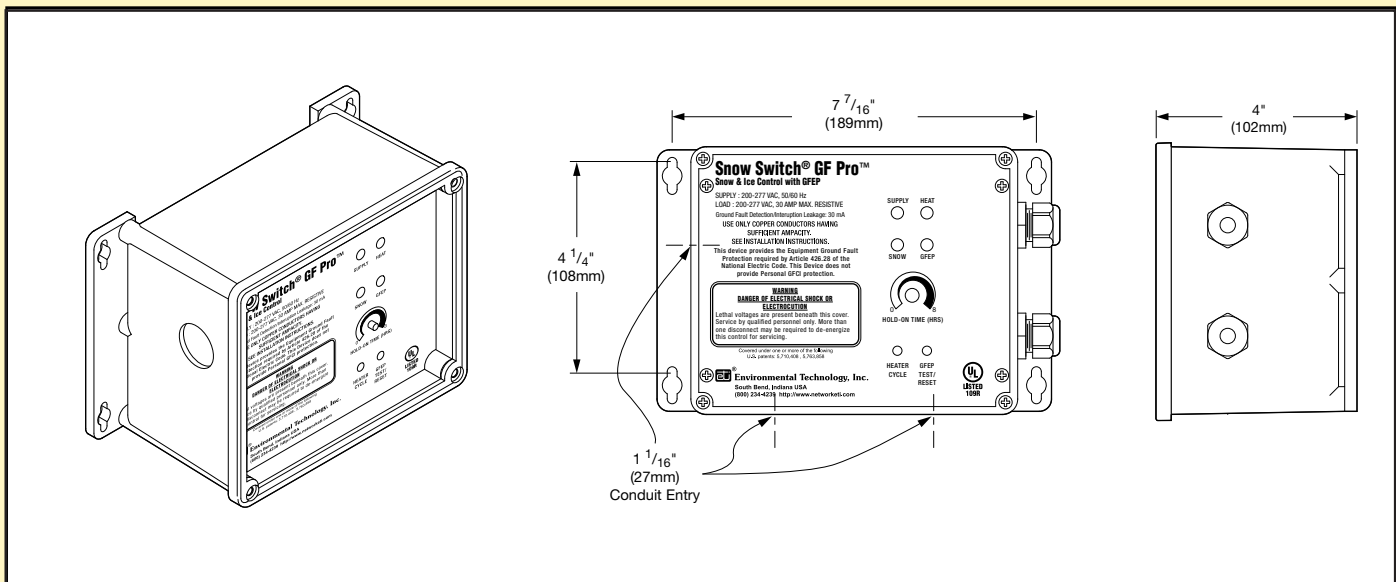
# Snow Switch Model GF PRO

## Automatic Snow/Ice Melting System Control Panel



### Features & Benefits

- Automatic snow/ice melting control minimizes operating costs
- Rated for up to 30 amp resistive loads
- Integral 30mA of Ground Fault Equipment Protection (GEFP)
- Weather-resistant NEMA 4X enclosure
- UL Listed for Temperature Regulating Equipment
- Adjustable Hold-On timer continues heater operation after snow and ice stop to 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 sensors may be roof or mast mounted and can be paired with the GIT-1 sensors 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 30mA, 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 cancelation 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 7/8" (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.

## Specifications

Enclosure	Nonhazardous locations
Approval	UL Listed Type 873 Temperature Regulating Equipment
<b>Enclosure Protection</b>	<b>IP 66, NEMA 4X</b>
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 and load power
Material	Polycarbonate
Mounting	Wall mounted
Dimensions	5 1/2" (L) x 8 1/8" (W) x 4 3/8" (H) x 140mm (L) x 207mm (W) x 112mm (H)
<b>Control</b>	
Supply voltage	200 - 277 VZC: 50/60 Hz
Load	30 amp maximum resistive
Contact type	2 Form A
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 the heater contact on and off, If temperature exceeds optional high limit thermistor (45°F), heater shuts off to reduce costs and prevent damage.
<b>Front Panel Interface</b>	
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
<b>Snow/Ice Sensors</b>	
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
<b>Wire and Cable Ratings</b>	
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 jacket, 2-conductor
<b>Ground Fault Equipment Protection (GFEP)</b>	
Set point	30mA
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
<b>Environmental</b>	
Operating temperature	-31°F to 130°F (-35°C to 55°C)
Storage temperature	-61°F to 167°F (-55°C to 75°C)

### Limited Warranty

Eti's two year limited warranty covering defects in workmanship and materials applies. Contact customer service for complete warranty information.

### Disclaimer

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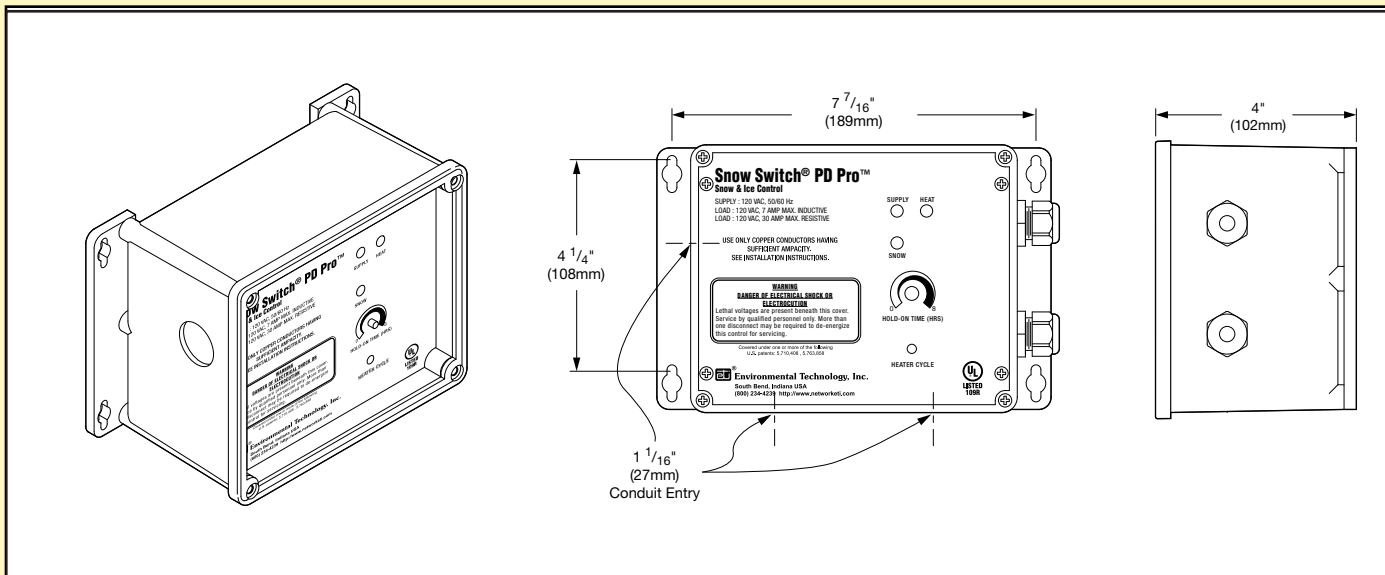
# Snow Switch Model PD PRO

Automatic Snow/Ice Melting System Control Panel



## Features & Benefits

- Automatic snow/ice melting control minimizes operating costs
- Rated for up to 7 amp inductive loads for pilot duty applications and resistive loads up to 30 amps
- Weather-resistant NEMA 4X enclosure
- UL Listed for Temperature Regulating Equipment
- Adjustable Hold-On timer continues heater operation after snow and ice stop to 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-6 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 sensors may be roof or mast mounted and can be paired with the GIT-1 sensors for gutter applications or the SIT-6E sensor for pavement applications. All three sensor detect precipitation as snow at temperature 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 low operating cost.

The PD Pro weighs only 3 pounds and measures 5 1/2" (L) x 8 7/8" (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.

## Specifications

Enclosure	Nonhazardous locations
Approval	UL ListedType 873 Temperature Regulating Equipment
<b>Enclosure</b>	
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 and load power
Material	Polycarbonate
Mounting	Wall mounted
Dimensions	5 1/2" (L) x 8 1/8" (W) x 4 3/8" (H) x 140mm (L) x 207mm (W) x 112mm(H)
<b>Control</b>	
Supply voltage	120 VAC: 50/60Hz
Load	7 amp maximum inductive 30 amp maximum resistive
Contact type	2 Form A
Weight	3 Pounds ( not including sensors)
Maximum ratings	Voltage:120 VAC Current: 30 amps
Heater hold-on timer	0 to 8 hours; actuated by snow stopping or toggle switch
System Test	Switch toggles the heater contact on and off, If temperature exceeds optional high limit thermistor (45°F), heater shuts off to reduce costs and prevent damage.
<b>Front Panel Interface</b>	
Status indicator	Supply (green): Power on HEAT(yellow): Heating cycle in progress SNOW (yellow): Sensor(s) detect snow
<b>Snow/Ice Sensors</b>	
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
<b>Wire and Cable Ratings</b>	
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 jacket, 2-conductor
<b>Environmental</b>	
Operating temperature	-31°F to 130°F (-35°C to 55°C)
Storage temperature	-61°F to 167°F (-55°C to 75°C)

### Limited Warranty

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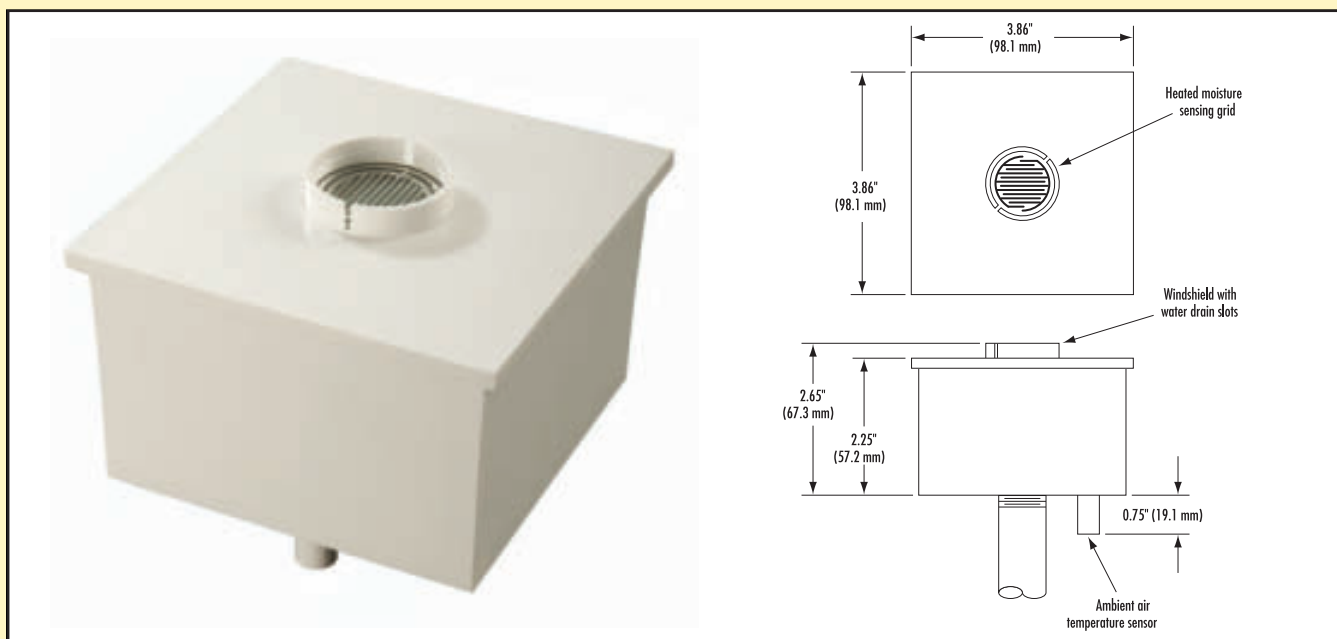
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# LCD-7A Snow Switch

## Features & Benefits

- Simple installation
- Melt-Track™ for improved energy efficiency
- On-Demand™ for longer sensor life
- Sno-Test™ for simple on-site testing
- Extremely low standby power consumption
- Minimum energy cost
- Long trouble-free life
- No annual maintenance
- Reliable snow melting
- C-UL-US



## Description

The patent pending LCD-7A Snow Switch® makes automatic melting a cost effective alternative in even the smallest applications. Heaters operate at temperatures below 30° F (3.3°C) only when required. The energy saving Melt-Track™ feature continues heater operation after snow stops to ensure complete melting. The LCD-7A need only a 3 hour hold-on time to compensate for site differences compared to the up to 10 hours of earlier products.

Severe air pollution combined with continuous moisture sensor operation can reduce product life through corrosion and electrochemical reactions. The On-Demand™ feature counters those problems by powering the moisture sensor only when required thus significantly increasing its life.

Verifying system functionality after installation or when troubleshooting used to require spraying the 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 amp meter.

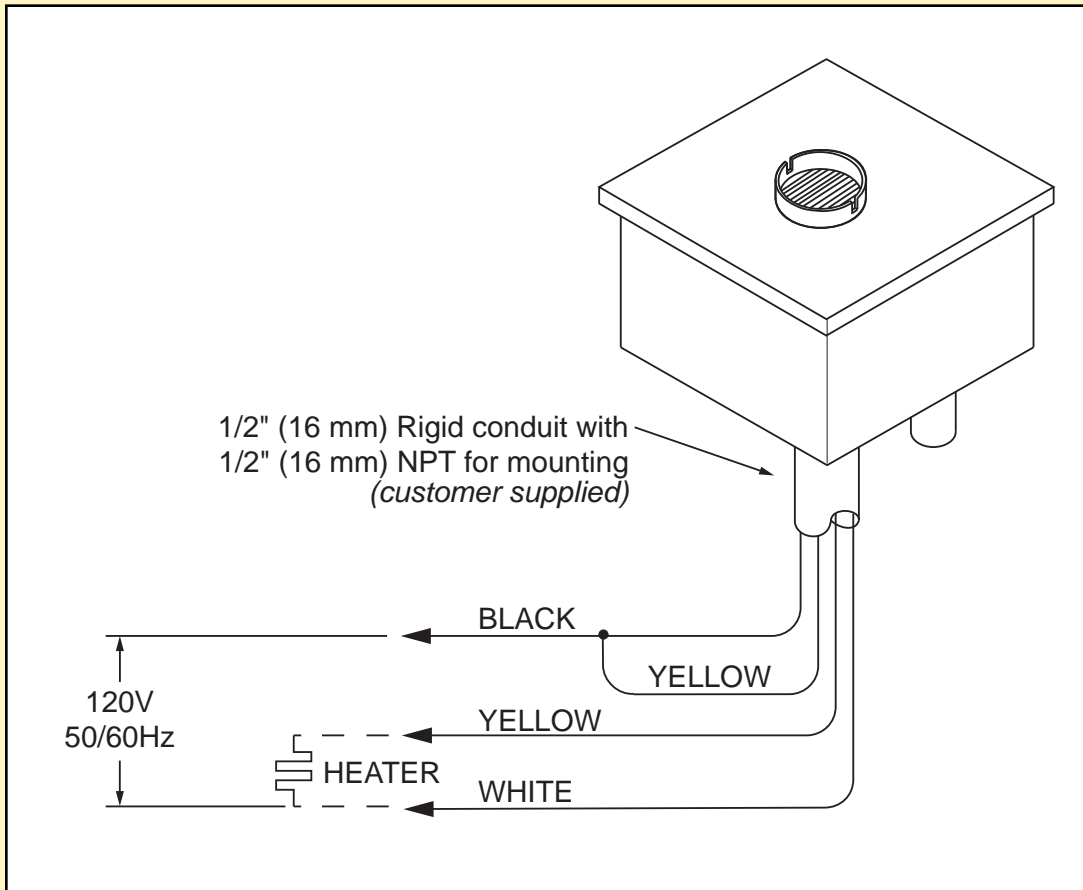
The LCD-7A operates on 120 volts AC while consuming less than 0.6 watts idling. It controls heater loads up to 16 amps at 120 volts. The operating temperature range extends from -40°F to 140°F (-40°C to 60°C). The rugged polycarbonate enclosure provides excellent protection at temperature extremes.



## Installation



The model LCD-7A Snow Switch® housing has one 1/2" (16mm) NPT threaded opening. Choose an unobstructed elevated location exposed to snowfall. Rigidly mount in upright, plumb position as shown.



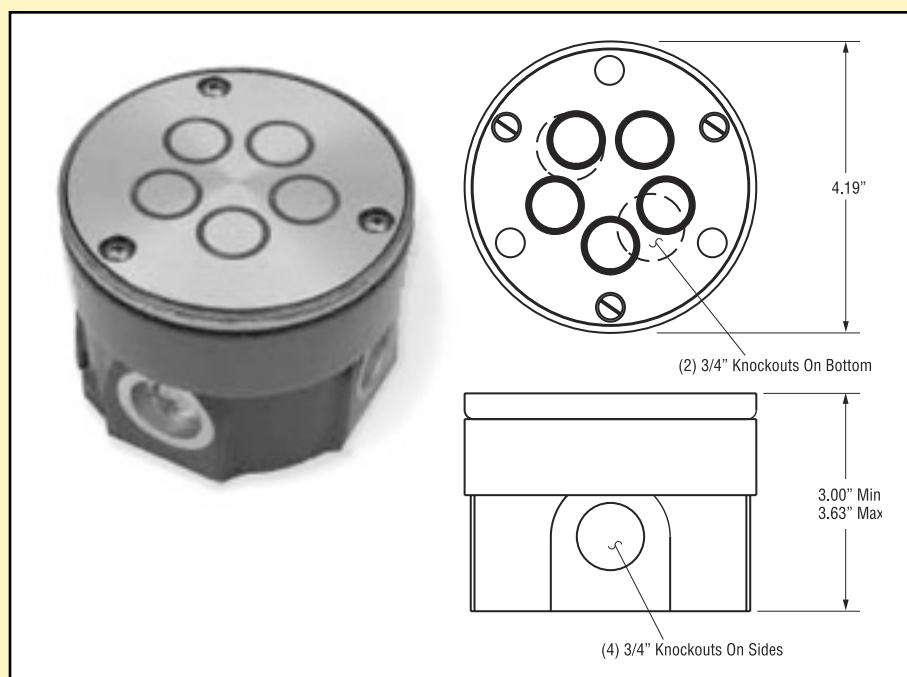
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# SIT-6E Pavement-Mounted Snow & Ice Sensor



## Features & Benefits

- Control based upon pavement conditions
- Rugged construction
- Simple installation
- Low voltage operation
- Reliable snow melting
- Minimum energy cost
- Long trouble-free life

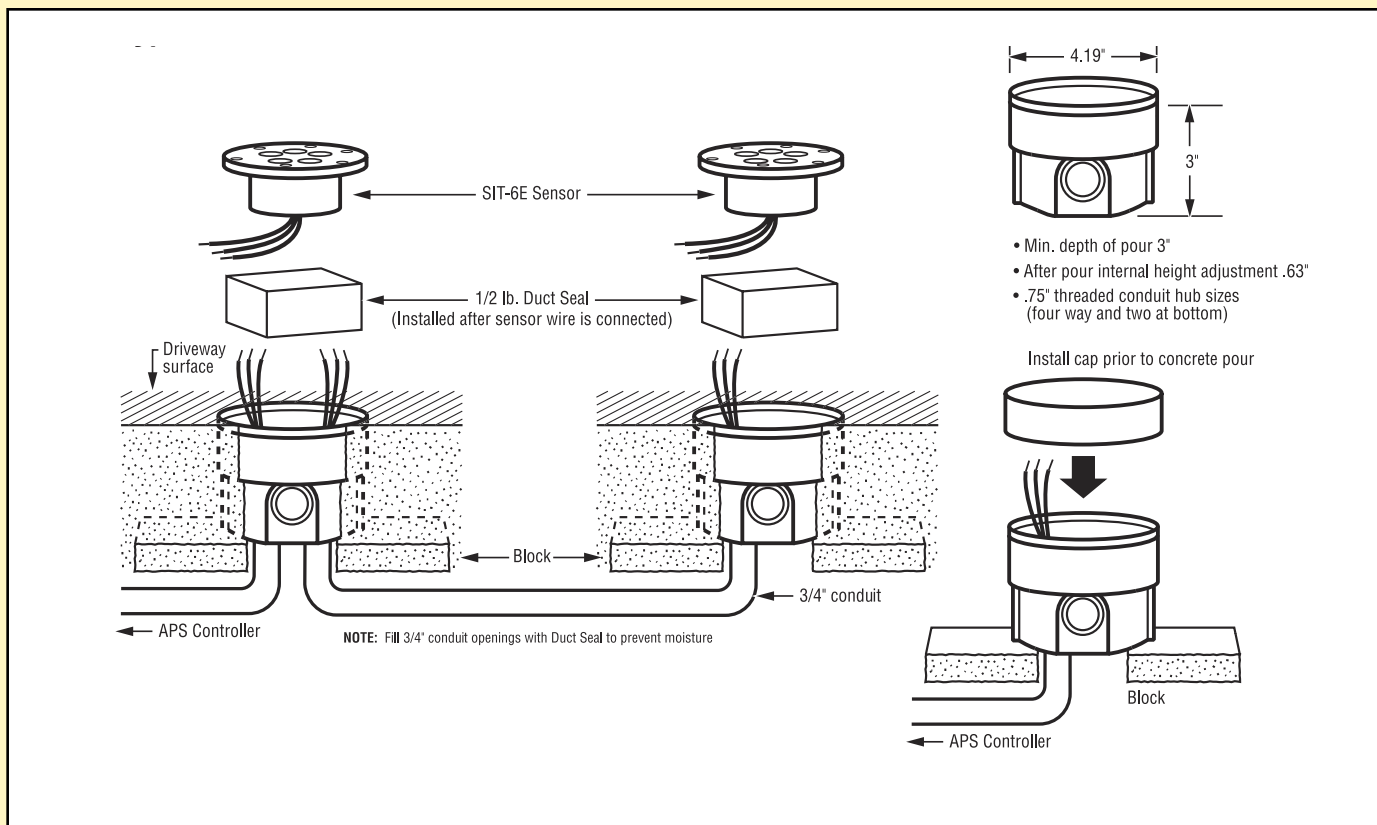
## Description

The SIT-6E, which replace the SIT-5E, reliably detects snow and ice conditions on pavement surfaces when used with any APS series or EUR-5A control panel. This ensures that deicing heaters operate only while needed, which minimizes energy costs without sacrificing snow melting effectiveness. A built-in hold-on timer keeps heaters operating for an hour after snow stops to help ensure complete snow melting.

The SIT-6E accurately measures pavement temperature by compensating for its internal heating. This eliminates the cost and complexity of a separate pavement temperature sensor. For improved efficiency, the SIT-6E mounts closely to the deicing heaters to ensure that pavement and sensor become dry at about the same time.

The new mounting system helps align the SIT-6E with the payment surface. Six available conduit locations add to installation flexibility and simplicity. The sensor subassembly is field replaceable without disturbing the pavement. The SIT-6E is a NEC class 2 low voltage device which simplifies installation.

Only brass, epoxy and stainless steel are exposed to the pavement surface. Precision machining gives these products a handsome appearance that will please the building owner, engineer, and architect.



Note: The output signal of an SIT-6E pavement sensor is not a contact closure- it is a solid state switch compatible only with ETI's APS series and EUR-5A control panel. If a contact closure is desired for an output signal, please select from our HSC series of pavement sensors.

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# GIT-1 Gutter Ice Sensor



## Benefits

- Reduces operating cost
- Reliable Automatic deicing control

## Features

- Senses both moisture and temperature
- Gutter-mounted for accuracy
- Avoids ice bridging
- Rugged housing
- Simple low cost installation
- Field proven reliability

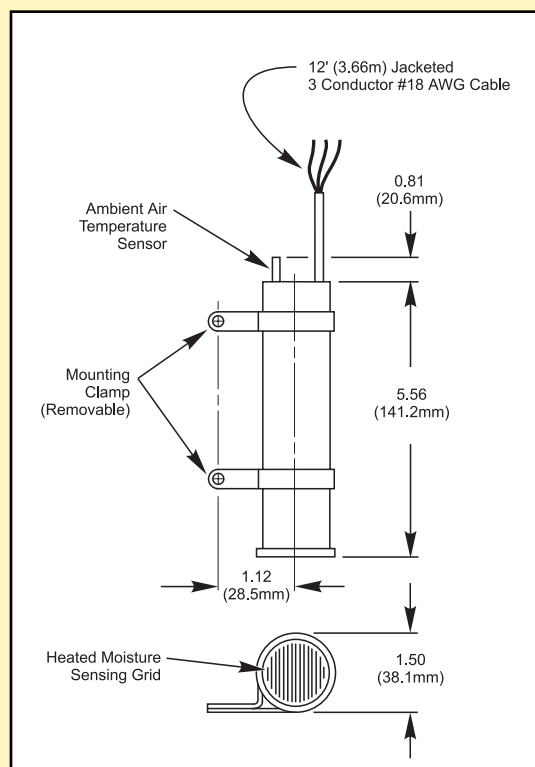
## Description

An automatic control system for gutters and downspouts, interfaces one or more GIT-1 Gutter Ice Sensor with either an APS-3C, APS-4C, GF Pro or PD Pro control panel. Heaters operate only if moisture occurs at temperatures below 38°F (3.3°C), thus saving energy and ensuring reliable ice melting.

Since the GIT-1 mounts in gutters and downspouts it senses actual environmental conditions. This improves sensing accuracy. Solid state moisture and temperature sensors provide the sensitivity required for effective automatic control.

Ice bridging occurs if incomplete melting occurs near the heater or sensor leaving an air space. The air insulates thus preventing effective heater and sensor operation. The GIT-1's unique microcontroller design frees its moisture sensor from ice bridging. Additional features prevent heater operation under conditions favorable to heater ice tunneling.

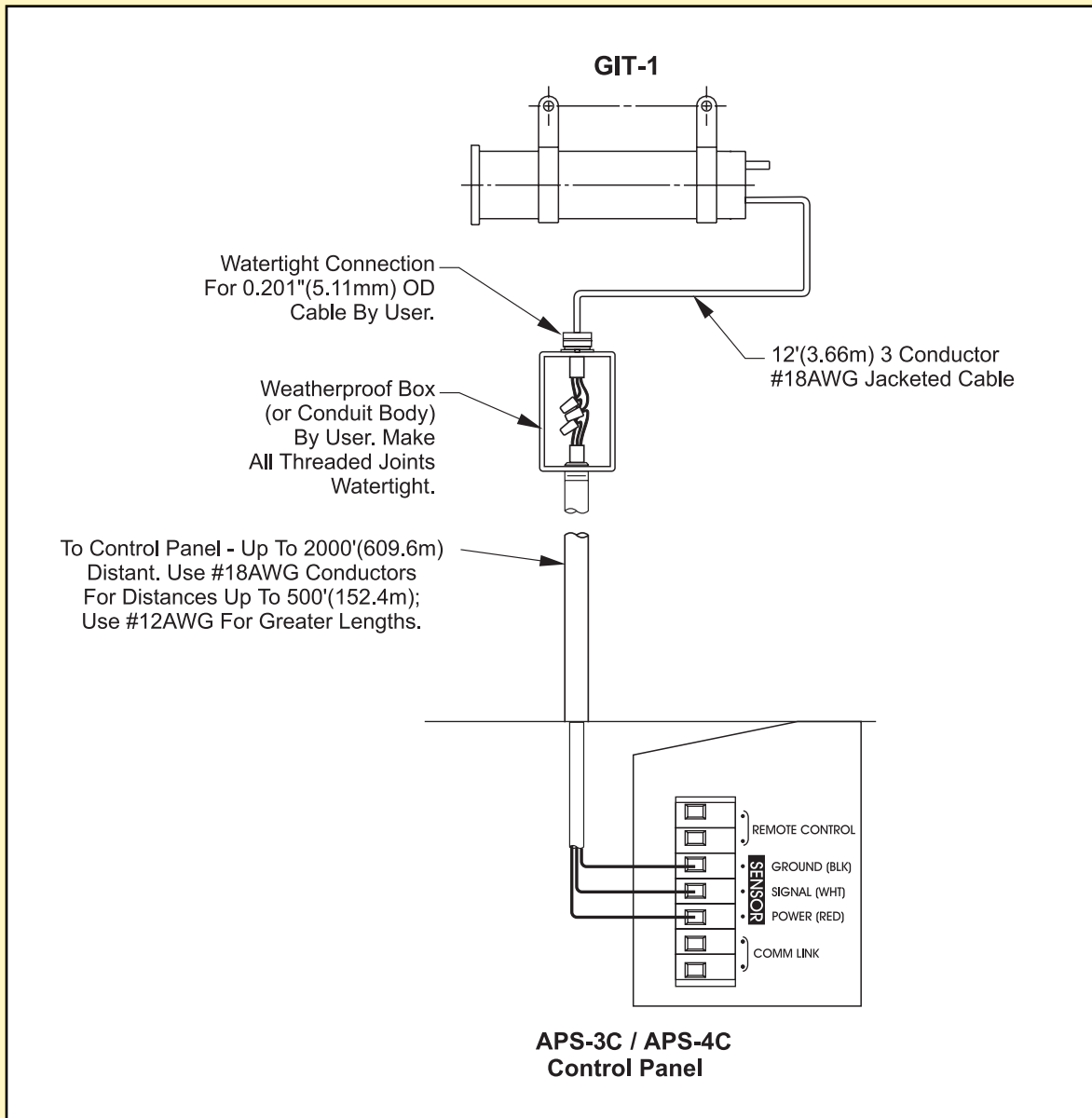
Low voltage operation simplifies installation. Sensors can be located up to 2,000' away from the control panel.



## Installation

**Gutters:** Position sensor within 1/4' (6.4m) of gutter bottom with moisture sensing grid facing downstream (ambient air temperature sensor facing upstream). Sensor may be fastened to the fascia using the mounting clamps and gasketed screws (not furnished).

**Downspouts:** Fold cable back parallel to sensor body and secure with mounting clamps. Suspend sensor in downspout with moisture sensing grid facing up (ambient air temperature sensor facing down).



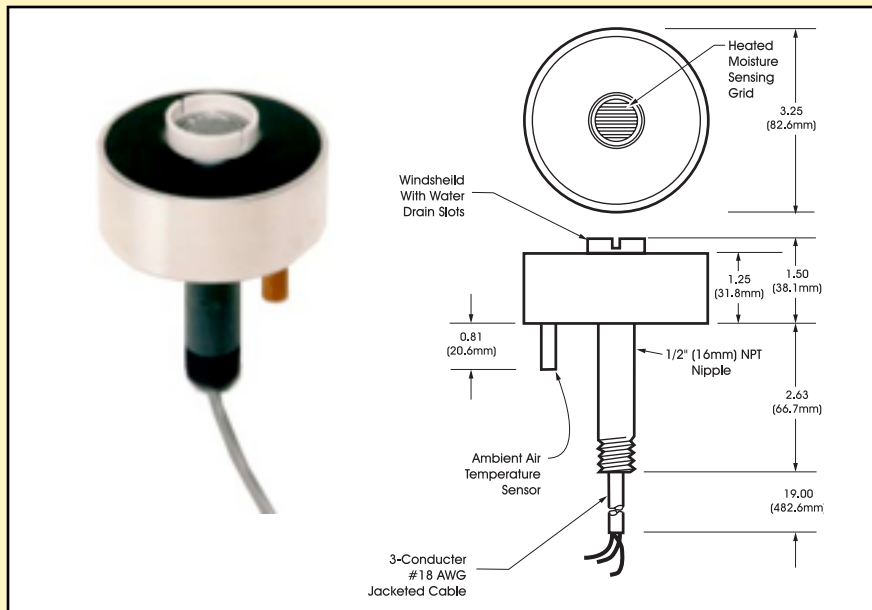
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# CIT-1 Snow Sensor



## Benefits

- Minimum snow melting costs
- No supervision required

## Features

- Reliable snow sensing
- Senses both temperature and precipitation
- Application flexibility
- Simple installation
- Field proven in thousands of installations

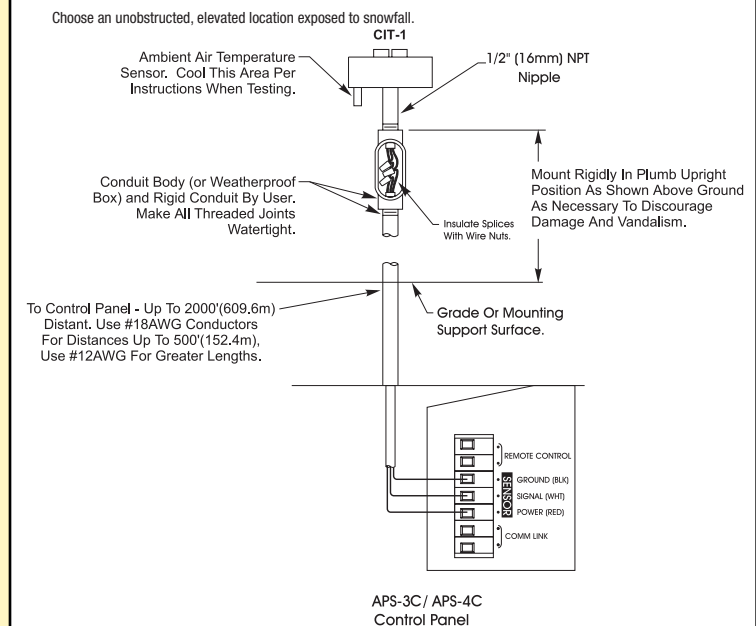
## Description

The CIT-1 Snow Sensor detects falling or blowing precipitation as snow at temperatures below 38°F (33°C). The CIT-1 provides the industry's most versatile and cost effective automatic snow melting control when used with an APS-3A, APS-3B, APS-4 control panel.

Reliability and sensitivity are key CIT-1 features. The solid state design, combined with a rugged aluminum housing and epoxy potting, ensure many years of trouble free service. Precision precipitation and temperature sensors assure snow detection accuracy.

Typical applications include controlling snow melting systems for sidewalks, doorways, stairs, loading docks, ramps, for the physically challenged and parking garages. Easy installation is another key CIT-1 feature. Low voltage operation, up to 2000' (609.6m) separation from the control panel, mast or roof mounting, and noncritical extension wiring are just a few of the features making this possible.

## INSTALLATION



## Limited Warranty

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# AP 3550 - 10" Thermostat Extension Cable



## Benefits

- 15 Amps
- 120Volt Only
- Perfect for plug and play systems
- Built for protected exterior conditions

## Description

This thermostat will automatically turn on when the temperature drops below 35°F. The Thermostat Extension Cable is simple to use. Plug one end directly into any 120v outlet. The Thermostat Extension Cable has an LED indicator that illuminates when the thermostat is activated. It will remain activated until the ambient temperature rises above 50°F.

## Speciality Items:

Standard & Custom Controls

Thermocouples

RTD'S

Immersion Heaters

Impedance Heating

Much More, Ask about our Other Specials

# UL 508A PANEL SHOP

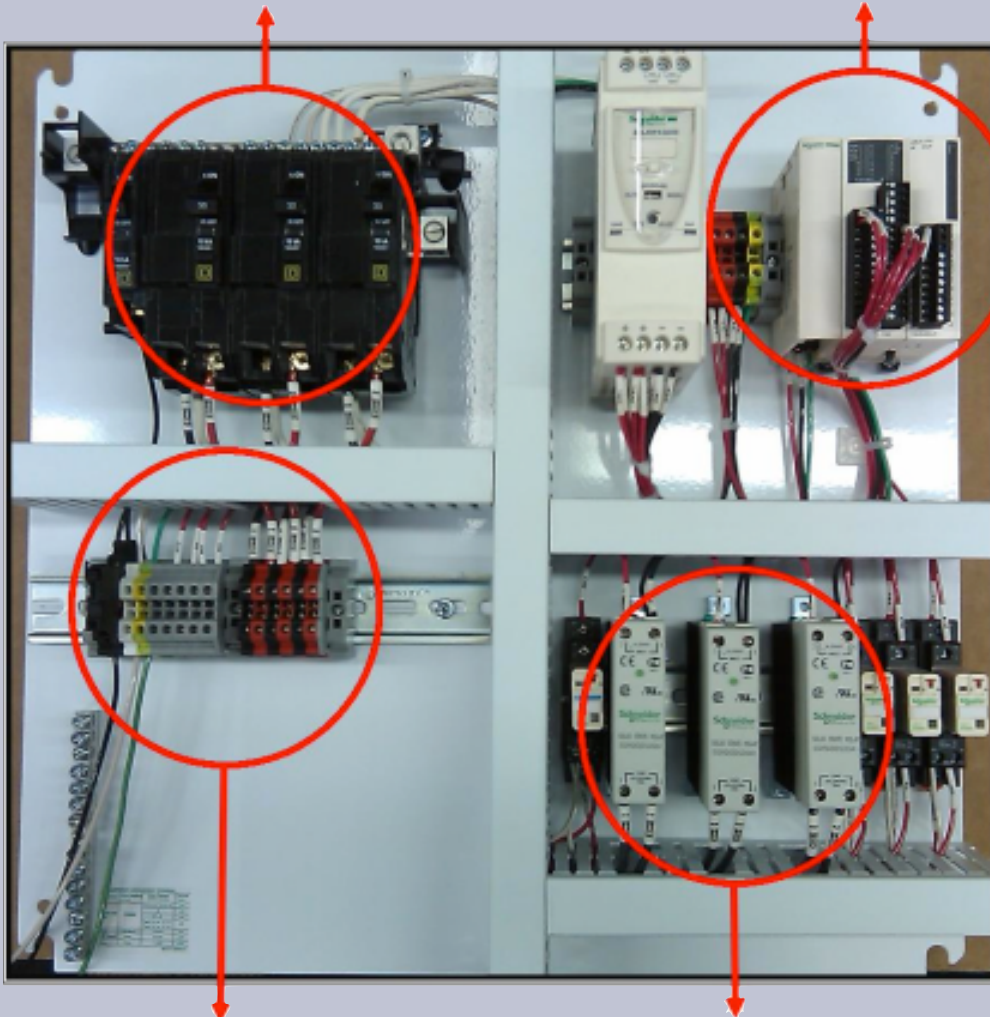


- Hazardous Areas
- Touch Screen Control
- PLC Based
- Wireless Communications
- Heat & Control Panels
- Custom Panels
- Professional
- Competitive



Clean and Organized Load Center  
with 30 Milliamp Breakers

Programmable Logic Control  
system for efficiency and total  
system accountability.

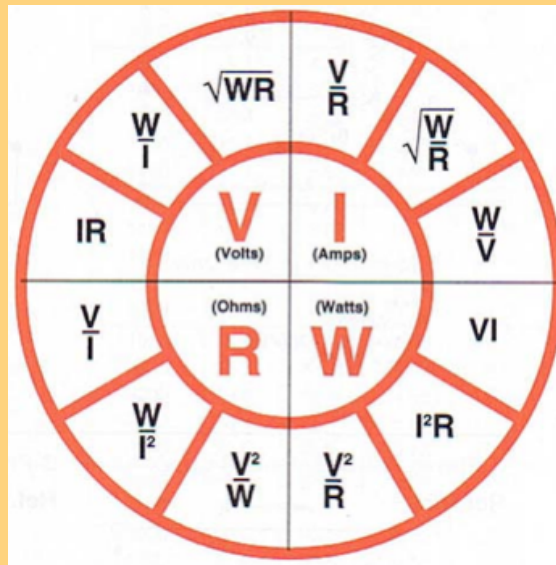


Organized and labeled terminal  
blocks for ease of installation.

30 Amp Solid State Relay Contactors  
for years of heavy use.

# OHM'S LAW

Volts = Watts/Amperes  
 Volts = Amperes X Ohms  
 Amperes = Volts/Ohms  
 Amperes =  $\sqrt{\text{Watts/Ohms}}$   
 Ohms = Volts/Amperes  
 Ohms =  $\text{Volts}^2/\text{Watts}$   
 Ohms =  $\text{Watts}/\text{Amperes}^2$   
 Watts = Volts X Amperes  
 Watts = Amperes<sup>2</sup> X Ohms  
 Watts =  $\text{Volts}^2/\text{Ohms}$



## Temperature Scales

Degrees Fahrenheit to Degrees Celsius -  $T_c = 5/9 (T_f - 32)$   
 Degrees Celsius to Degrees Fahrenheit -  $T_f = 9/5 (T_c + 32)$   
 Degrees Celsius to Kelvin -  $T_k = T_c + 273.15$

## Engineering Constants:

1728 Cu. In. = 1 Cu. Ft. = 7.48 Gal  
 1" = 2.54 Cm  
 3412 Btu = 1 Kwh = 1.34 Hp Hour  
 491 Btu/Ft.<sup>2</sup> = 1 Watt Hour/In.<sup>2</sup> = Heat Density  
 1 Btu/Lb. °F = 1 Gram-Cal./Gram °C = Specific Heat  
 231 Cu. In. = 1 Gal  
 1 BTU = 252 Calories = .293 Watt-Hours  
 1 BTU/Lb. = 1.8 Calories/Gram  
 1 HP = 745.2 Watts  
 1 Gal. Water = 8.3 Lbs.  
 1 Gal. = 231 Cu. In. = 3.785 Liters = 1.227 Cu. Ft  
 1 Cu. Ft. = 1728 Cu. In. = .03704 Cu. Yd. = 7.481 Gal.  
 3 Phase Amps = Total Watts/Volts x 1.73  
 Wattage varies directly as ratio of voltages squared:  
 $W^2 = W^1 \times (E^2/E^1)^2$

## Safety

1. Ensure adherence to all applicable building codes for your area. Heat Trace Specialists recommends complying with the appropriate National Electrical Code rules including the use of a 30 mA trip breaker.
2. Ensure only qualified professionals perform electrical modification, repairs, upgrades or installations.
3. Wear safety glasses and appropriate personal protective equipment when installing any heat trace system or components.
4. Be aware of, and avoid all overhead power and phone lines.
5. When using ladders or any other equipment, ensure it is placed securely on safe and level surfaces.

# Heavy Duty Heated Stair Mats

## Product Specifications

### Surface

Total Thickness	1/2"
Grommet Size (Inner Diameter)	3/8"
Material	Reinforced SBR Rubber

### Heating Element

Voltage	120Vac or 240Vac
Power Density	37 Watts/SF
Snow Melt Rate	2" per hour

### In-line Safety Device/Power Cord

Service Voltage	120Vac or 240Vac
Circuit breaker rating	15A
ELCI trip level	30mA
Cord lead length	6 ft
Cord length between stairs	18"
Cord guage	14/3 SJTW



Each Stair Mat is sold individually but can connect to additional Stair Mats to form a set. See below.

Model	Size	Volt	Watts	Amps	Weight
HRT11-36	11" x 36"	120	67	0.6	6 lbs.
HRT11-36B	11" x 36"	240	67	0.3	6 lbs.
HRT11-48	11" x 48"	120	93	0.8	8 lbs.
HRT11-48B	11" x 48"	240	93	0.4	8 lbs.
HRT11-60	11" x 60"	120	120	1.0	12 lbs.
HRT11-60B	11" x 60"	240	120	0.5	12 lbs.
HRT11-72	11" x 72"	120	147	1.2	13 lbs.
HRT11-72B	11" x 72"	240	147	0.6	13 lbs.
HRT11-84	11" x 84"	120	173	1.4	14 lbs.
HRT11-84B	11" x 84"	240	173	0.7	14 lbs.
HRT11-96	11" x 96"	120	200	1.7	15 lbs.
HRT11-96B	11" x 96"	240	200	0.8	15 lbs.

# Heavy Duty Heated Walkway Mats

## Product Specifications

### Surface

Total Thickness	1/2"
Grommet Size (Inner Diameter)	3/8"
Material	Reinforced SBR Rubber

### Heating Element

Voltage	120Vac or 240Vac
Power Density	38-40 Watts/SF
Snow Melt Rate	2" per hour

### In-line Safety Device/Power Cord

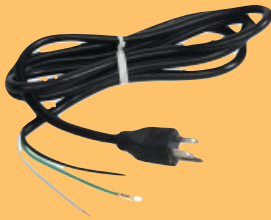
Service Voltage	120Vac or 240Vac
Circuit breaker rating	15A
ELCI trip level	30mA
Cord lead length	6 ft
Cord gauge	14/3 SJTW



Standard cord location - lower right on the length side of the mat

Model	Size	Volt	Watts	Amps	Weight
HTM24-5	24" x 5'	120	300	2.5	20 lbs.
HTM24-5B	24" x 5'	240	300	1.3	20 lbs.
HTM24-10	24" x 10'	120	633	5.3	39 lbs.
HTM24-10B	24" x 10'	240	633	2.6	39 lbs.
HTM24-15	24" x 15'	120	967	8.1	59 lbs.
HTM24-15B	24" x 15'	240	967	4.0	59 lbs.
HTM24-20	24" x 20'	120	1,300	10.8	78 lbs.
HTM24-20B	24" x 20'	240	1,300	5.4	78 lbs.
HTM36-5	36" x 5'	120	480	4.0	33 lbs.
HTM36-5B	36" x 5'	240	480	2.0	33 lbs.
HTM36-10	36" x 10'	120	1,013	8.4	66 lbs.
HTM36-10B	36" x 10'	240	1,013	4.2	66 lbs.
HTM36-15	36" x 15'	120	1,547	12.9	75 lbs.
HTM36-15B	36" x 15'	240	1,547	6.4	75 lbs.
HTM36-20B	36" x 20'	240	2,080	8.7	100 lbs.
HTM48-6	48" x 6'	120	807	6.7	60 lbs.
HTM48-6B	48" x 6'	240	807	3.4	60 lbs.

# HEAT TRACE ACCESSORIES FOR SNOW MELT



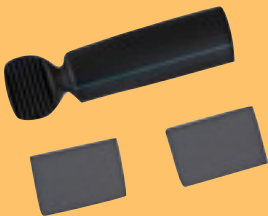
**DC-8 (8 FOOT CORD)**  
8 foot cord for heat trace cable.



**DGFI (120 / 240 VAC GROUND FAULT CIRCUIT BREAKER)**  
Ground fault circuit breaker of self-regulating heater cable. Total length 20 feet



**DSK-1 Splice kit**  
For self-regulating heater cable. This kit is used to splice two heat trace cables together. Heat shrink for a moisture tight seal.



**DES-1 End Seal Kit**  
For self-regulating heater cable. This is used to seal off the end of the cable so that no moisture will get into the cable.



**DPEST 75 Power and End Kits**  
Kit includes power connection and end seal components. Comes with 1/2" or 3/4" entry gland.



# HEAT TRACE ACCESSORIES FOR SNOW MELT



## **DTEK-1 Tee splice and End Termination kit**

For Self-regulating heater cable. This kit is used to tee off and terminate a cable run.



## **RCK-1 Roof Clips**

These can be used as a double clip or easy to break apart for the use as a single clip. Sold in bags of 10 single clips.



## **S-5 Mini Clamp**

Clamp for standing seam metal roofing to hold serpentine cable on rib.



## **Belt Loop Clips**

Rubber coated roof clips. 1/2", 3/8" or 5/8" ID. 100 per bag.



## **RDK-1 Downspout Hanger.**

Effectively supports heater cable in the downspout to avoid damage.



## **Screws**

1 1/2" Self Piercing Screws

Self Tapping Screws with Neoprene washer



## **Silicone**

To seal all penetrations on roof applications.

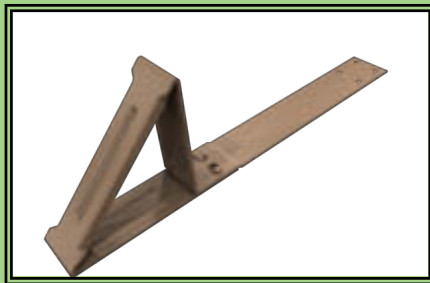
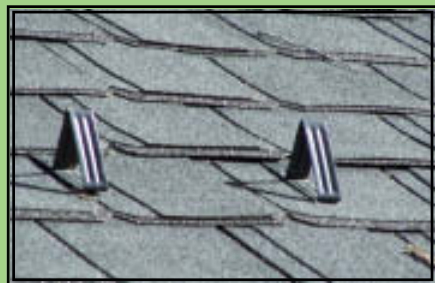
Recommended with primer to be installed above 40° F

# SNOW GUARDS



## For Concrete Tile and Clay Roof

- For concrete roofs and Clay tile roofs
- Designed to lock into the roof system with no penetrations.
- Available in many sizes and options.



## For Asphalt Shingle Roofs

- For asphalt shingle and wood Shake Roofs.
- Designed to attach with protected fasteners underneath the row of shingles.
- Available in many sizes and options.



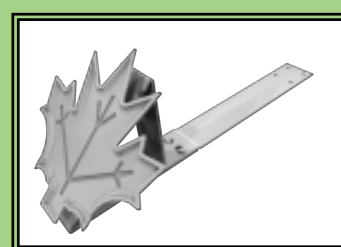
## For Corrugated Metal Roofs

- For corrugated metal roofs.
- Easily mounts between the corrugated ribs of the roof.
- Available in many sizes and options.



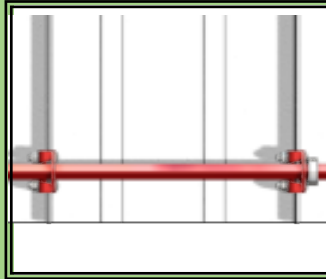
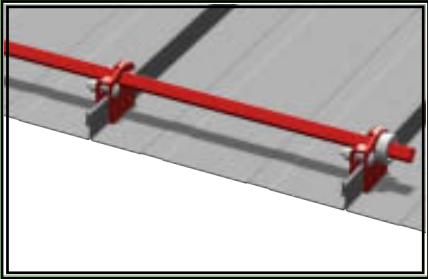
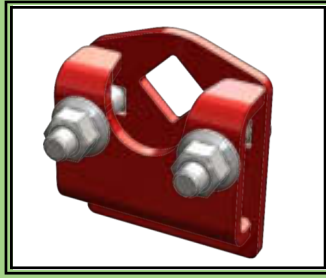
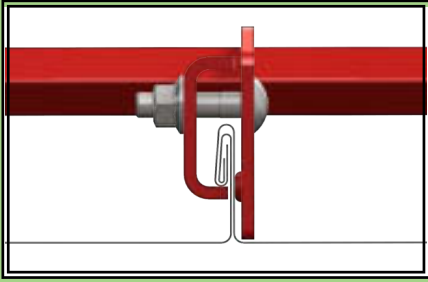
## For Slate and Simulated Tile

- For Slate, Shakes, Standing Seam, and Simulated Slate.
- Designed to lock into the roof system.
- Fastener cover included.



Decorative Cleats also available

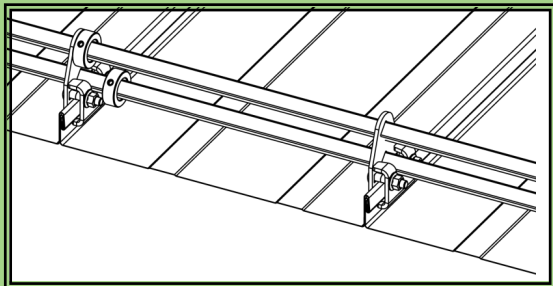
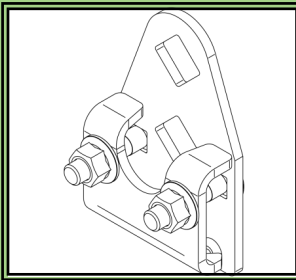
# SNOW FENCES



## Single Rail Snow Fence

### For Mechanically Seamed Metal Roofs

- Engineered to attach with no penetrations into the metal roof.
- Superior Strength for snow retention to reduce sliding ice damage.
- Accepts 1 Pass of Heater Cable to efficiently reduce ice shelves on metal roofs.



## Double Rail Snow Fence

### For Mechanically Seamed Metal Roofs

- Engineered to attach with no penetrations into the metal roof.
- Superior Strength for snow retention to reduce sliding ice damage.
- Accepts 2 Passes of Heater Cable to efficiently reduce ice shelves on metal roofs.





ADVANCED PROTECTION

for

EXTREME CLIMATES

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