



ADVANCED PROTECTION FOR EXTREME CLIMATES

heattracespecialists.com

Providing Quality Solutions to Our Customers

Heat Trace Specialists, a Valin company, has been providing expertise in heat-trace solutions for commercial and residential customers since 1975. We offer heat trace solutions for roof and gutter, sidewalks, driveways and pipes. We understand cold climates and can help you eliminate all the issues that come with living or doing business in harsh weather. Not only do we use the time tested methods, we also innovate using “energy smart” and more efficient methods to solve winter problems. Our patented and revolutionary SnoFree™ Heated Roof Panels are a perfect example of the innovation that Heat Trace Specialists utilizes to solve everyday issues. The SnoFree™ panel system is an aesthetically pleasing design with a unique snap-to-lock feature to ensure easier installation and greater accessibility for maintenance purposes. The SnoFree™ Heated Roof Panels, coupled with our state of the art controls, will offer better ice dam and icicle prevention along with lower energy costs.

We invite you to put our **40 years of experience** to work on your next ice prevention application. You'll be happy you did!

SnoFree™ Heated Panel System

1 Heat Transfer on the Nose

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

2 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 cold roll steel materials.

3 Minimal Passes of Cable

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

4 SNAP2LOCK

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

5 Cleated Installation

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

6 Solid Mass Core

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

7 Convection Oven Effect

Air channels throughout the system allows convection to occur which further helps with ice control.



Click [HERE](#) to check out our online calculator for shingle roofs!

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
 - 1—SFP 24 ga. Kynar Steel Expansion Joint

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" eve 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

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

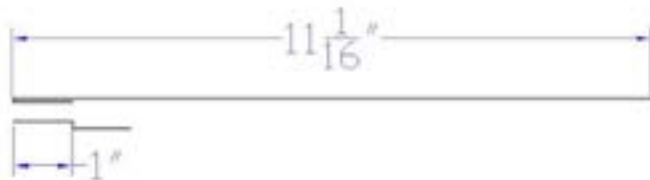
SFP-48



- 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

SnoFree™ System Accessories

Heated Snow Rails

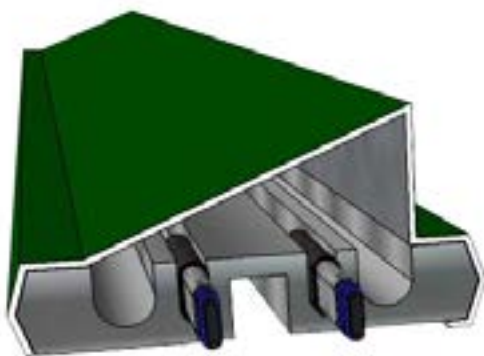


SFP – Transition & Z Metal

Install our eave panel system over existing shingles with these simple accessories

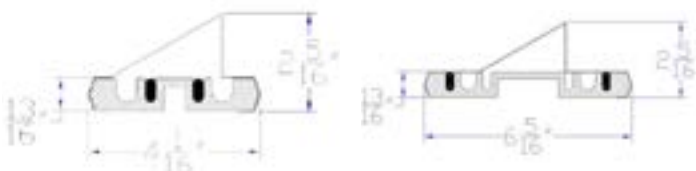
- Installs with existing asphalt shingles.
- Comes with a 30 year protective Kynar finish.
- Sheet metal pieces come in 48" widths for ease of handling.
- Not recommended for wood shake roofs or tile roofs.
- 14" wide transition for easy installation and trimming to desired size.
- Systems Parts List: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

SFP-SR 4 or SFP-SR 6



4" (SFP-ID4)

6" (SFP-ID6)



- 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 Structural brackets appropriate for standing seam roofing or S-5 mini clips for smaller roofs.
- System Parts List:
 - 1 – Aluminum Extrusions (4" or 6")
 - 1 – SFP 24 ga. Kynar Steel Snowguard

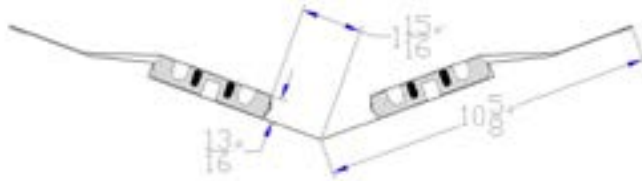
Not recommended as a structural snow fence

SnoFree™ Panel Valley System

SFP-V4-N or V6-N



SFP-V4-NEW



SFP-V6-NEW



- 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-V4-E or V6-E



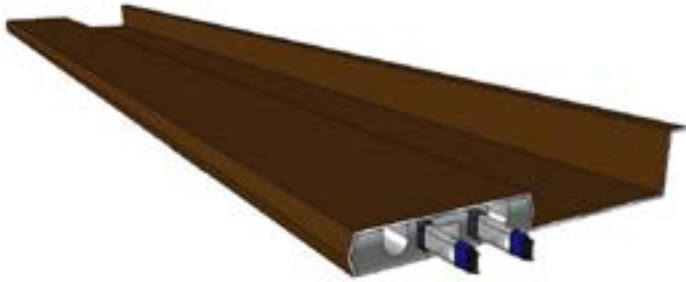
4" (SFP-V4-E)

6" (SFP-V6-E)



- 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, transition areas, dormers and all 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

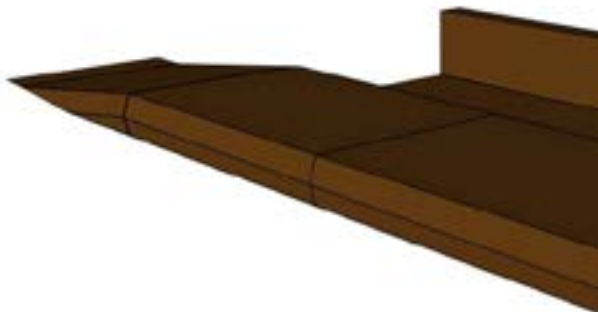
Panel System for Standing Seam Roofs



Also available in 6" wide & non-penetrating clips

SFP-SSP-4

- Effectively controls ice and snow with 2 passes of cable.
- Heats and 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 Rails SFP-SR series 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

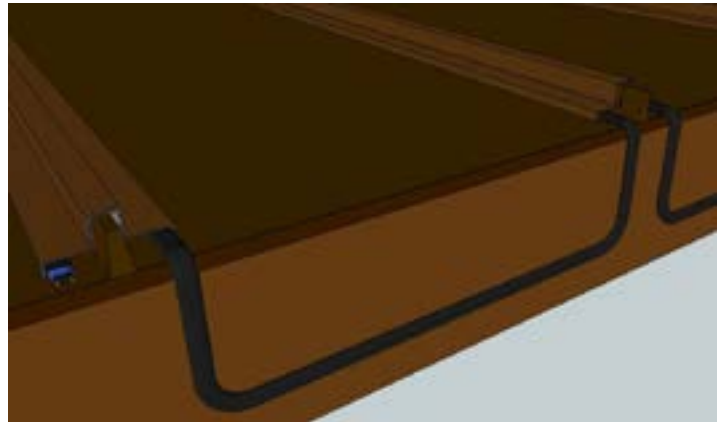
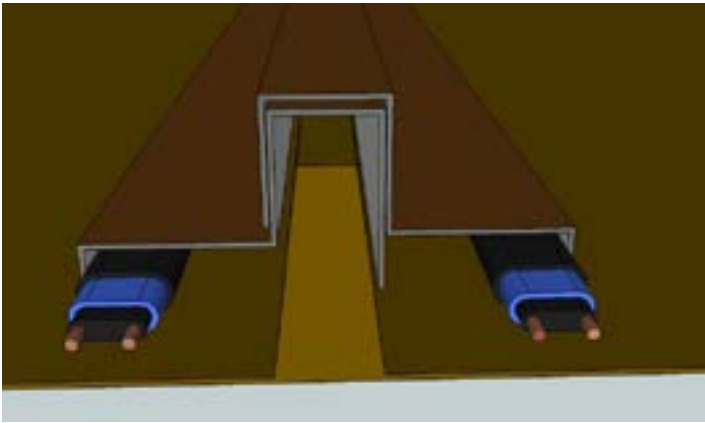
- Allows minimal surface area for ice to slide over the heated extrusion holder.
- Easily attaches over the top of the SFP-SSP panel, recommended to adhere with exterior adhesive for metal surfaces.
- Comes with a 30 Year protective Kynar finish.
- An economical and beautiful option to control standing seam roof ice dams.
- Our Heated Snow Rails SFP-SR series 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, cold roll steel, etc.

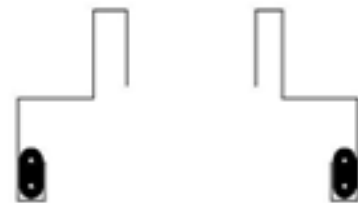
This system requires information about the specific manufacturer and model number of the roof material.



SFP-RIB-1-U

SFP-RIB-1-L

1.5" and Smaller SnapLock Standing Seam Panels



SFP-RIB-2-U

SFP-RIB-2-L

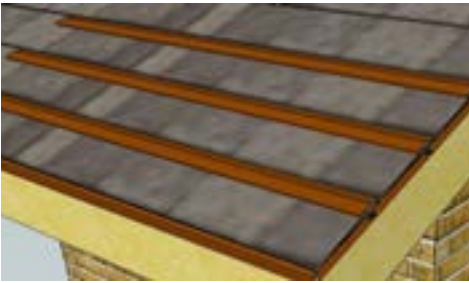
1.75" and Larger Mechanical Standing Seam Panels

Shingle Cable Holder

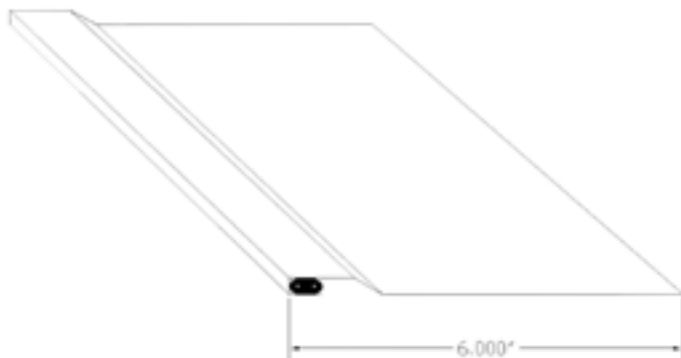
SFP-SCH

- Beautifully heats the roof while keeping the intended look of the roof.
- Simple to access.
- Attractive and completely hides the heat cable for added protection.
- Simple to install.
- Available in 24 ga. Kynar steel, aluminum, cold roll steel, and copper.
- Works great for valleys.

For the best ice dam protection, ensure every layer of shingle from the drip edge until 1' above the heated wall is covered. This product should also be used in conjunction with the SFP-Drip Edge systems.

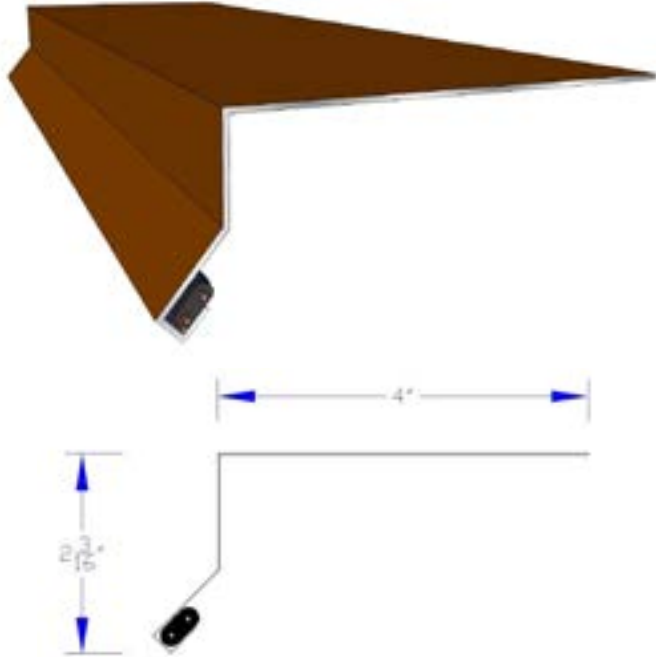


Shingle Cable Holder



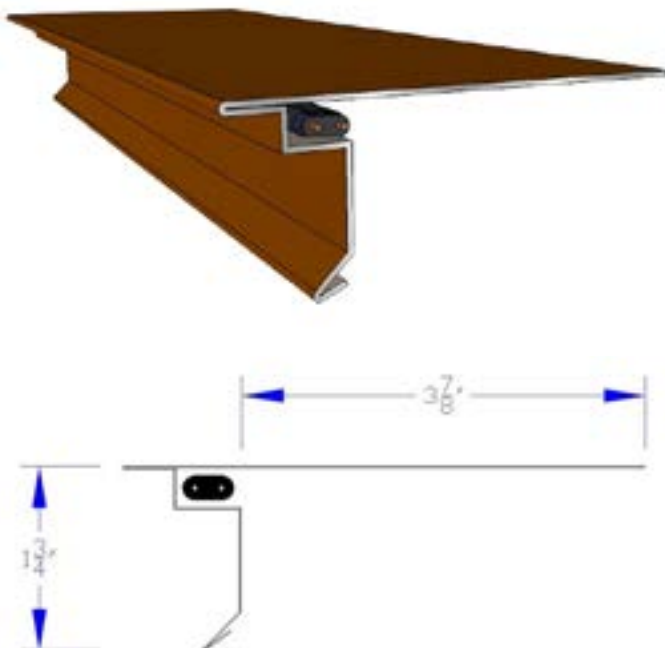
Heated Drip Edge System

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, and cold roll steel.

SFP – DE – D Style



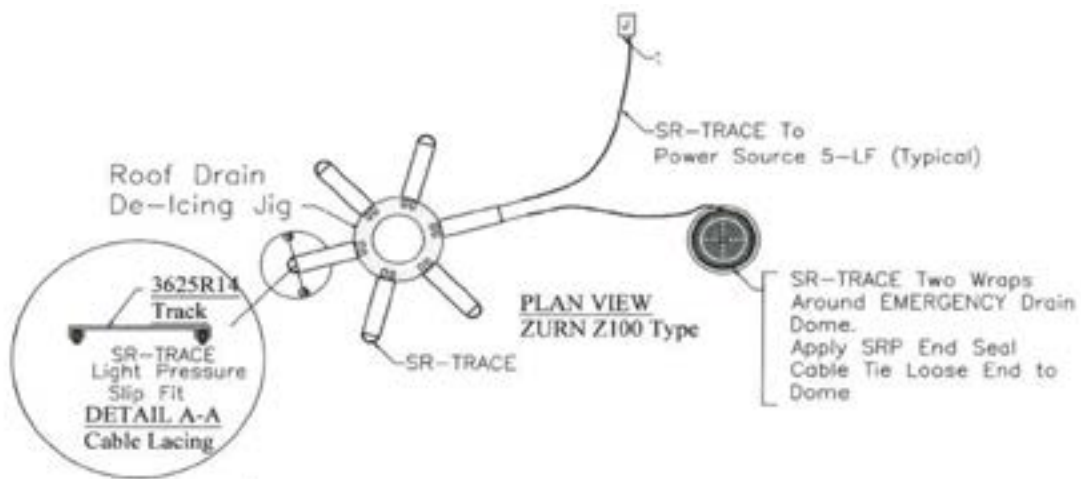
- Works efficiently to reduce icicles on roof edges with no gutters.
- Simple to install.
- Attractive and completely hides the wiring along the drip edge.
- Built to match common roofing colors.
- Available in steel, aluminum, copper, and cold roll steel.

Roof Drain Heater System

RDHS

- Effectively opens pathways to flat roof drains and scuppers.
- Simple to access.
- Evenly spaced arms to protect cable.
- Simple to install.
- Available in several sizes and expandable.
- GSA building approved.
- No adhesive required.

4 point jig and 6 point jig available. Additional universal clamping collars available for drains installed below insulation depth.



HTS-6

Self-Regulating Heating Cable

Performance Ratings

Output Wattage

6 W/ft @ 40°F

Supply Voltages

vh8 V - 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 with modified Polyolefin Jacket

Approvals/Certifications

CSA

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

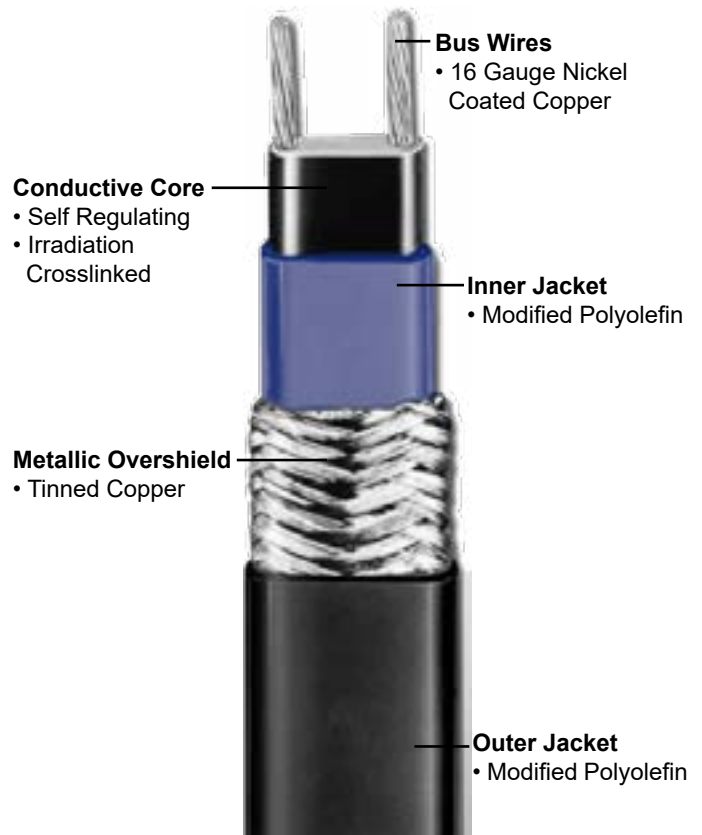


Pipe Heating Cables
Industrial and Commercial

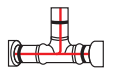
Description

The HTS-6 commercial grade heater cable offered by Heat Trace Specialists is designed for use in both indoor and outdoor locations as well as for residential and commercial freeze protection on water pipes and drain pipes. In roof and gutter applications the HTS-6 provides a pathway for flowing water on the roof or in gutters and downspouts to safely distance itself from the building before the opportunity to re-freeze and cause damage.

The HTS-6 cable is the ideal cable for the Snofree™ Panel systems offered by Heat Trace Specialists.



Applications for the HTS-6
Self-Regulating Heating Cable:



Typical HTS-6 heater cable applications include:

- Roof and gutter protection
- Freeze protection
- Temperature maintenance

HTS-6

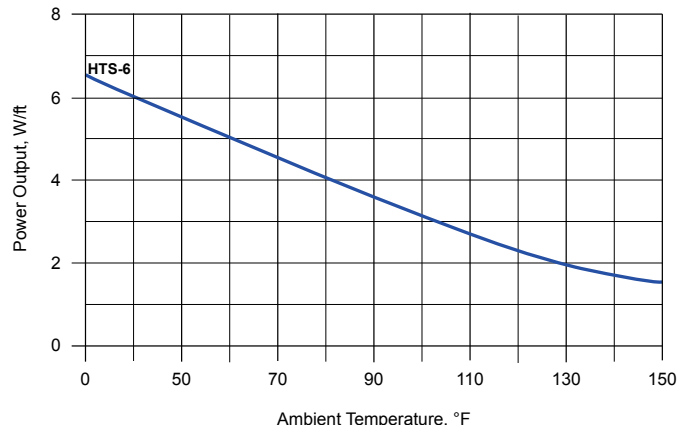
Self-Regulating Heating Cable

HTS-6 Part Numbers

HTS-6-1R (6=6 Watts 1=120V R=Polyolefin)

HTS-6-2R (6=6 Watts 2=240V R=Polyolefin)

Power Output Curve - HTS-6



HTS-6-1R (120 Volt)

Max Circuit length (FT)

Minimum TEMP (DEG F)	20A	30A	40A
-20	115	170	225
-10	120	180	230
-5	125	185	240
0	130	190	250
10	145	205	250
15	165	220	250
30	195	250	250
40	200	250	250

HTS-6-2R (208 to 277 Volts)

Max Circuit length (FT)

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

Power Adjustment Factor

Part No.	208 Volts	277 Volts
HTS-6-2R	.86	1.16

Pre-Terminated Cable Assemblies



- Ready to plug-in
 - 30 mA trip breaker GFEPD (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 GFEPD cords are commonly 14 gauged wire.
240 Volt GFEPD 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

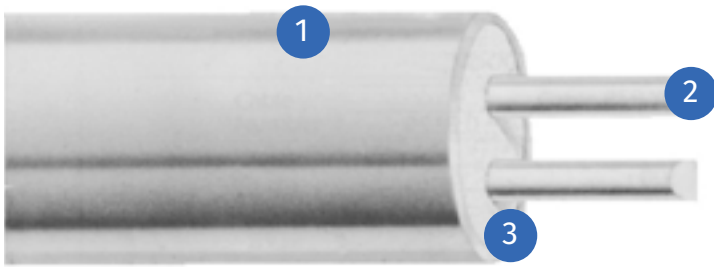
● = Acceptable

× = Not recommended

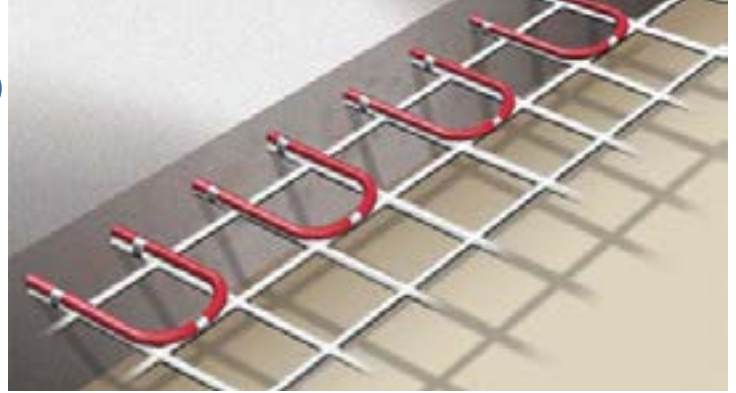
*All accessories are available for a complete installation.

Roof Clips, Gasketed Screws

Mineral Insulated Cable



- 1 Alloy 825 Sheath
- 2 Heating Elements
- 3 Magnesium Oxide Insulation



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. Mineral insulated 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:

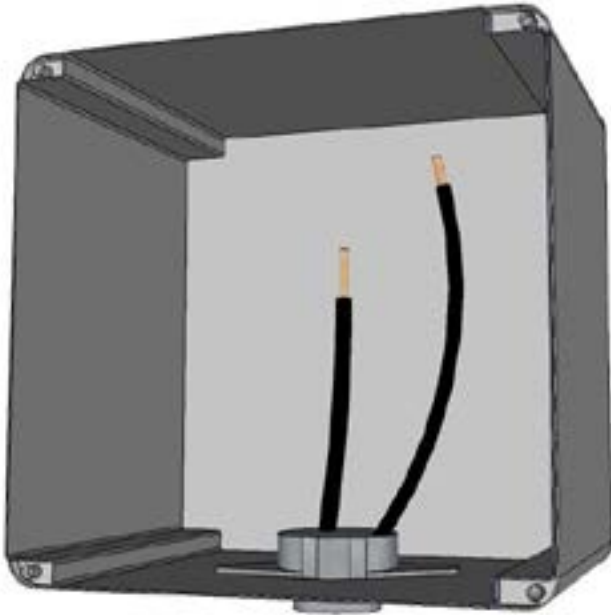
Nelson MI Cable is high performance, industrial grade heat tracing cable used for applications requiring:

- 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)

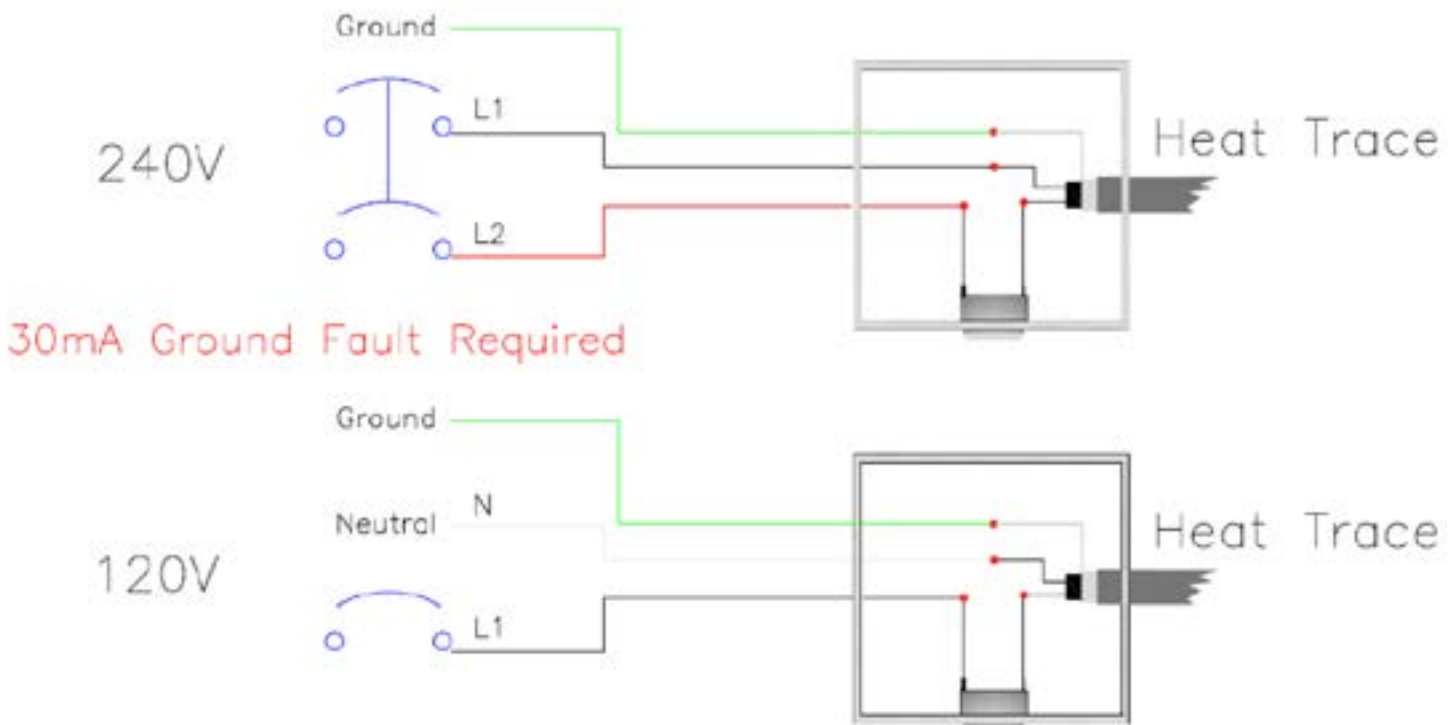
MI Cable is custom designed and fabricated for specific applications.

HTS-AT

Ambient Thermostat



- Thermostat switch – circuit ON at 35°F & OFF at 45°F
- UL approved up to 250 VAC and 25 AMP resistive load
- Rated for environmental conditions up to 350°F
- Snapdisc thermal control opens on temperature rise: Open 45°F, Close 35°F (+/- 5°F)
- Temperature switch will last for over 100,000 operations under normal usage
- Mounted in a 4 x 4 x 2 PVC junction box with surface mounting tabs
- Comes with two #10 soldered leads



TF4X40 Thermostat

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

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

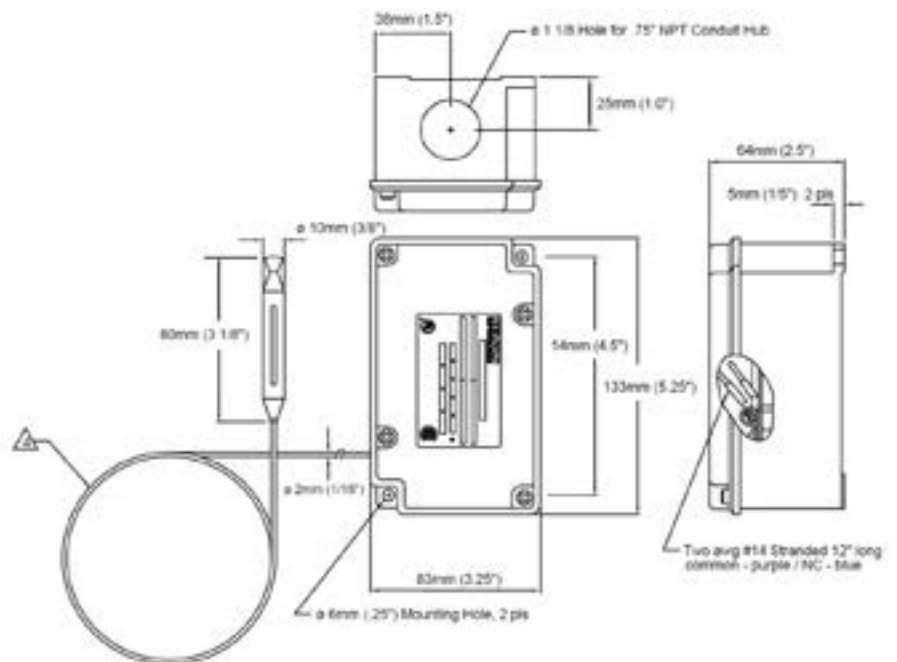
CSA Rating and UL Rating
22 amp Resistance 250VAC

Calibration Accuracy

2.2°C (4°F) Environmental

Switch Type

Single Pole Single Throw



Annual Maintenance

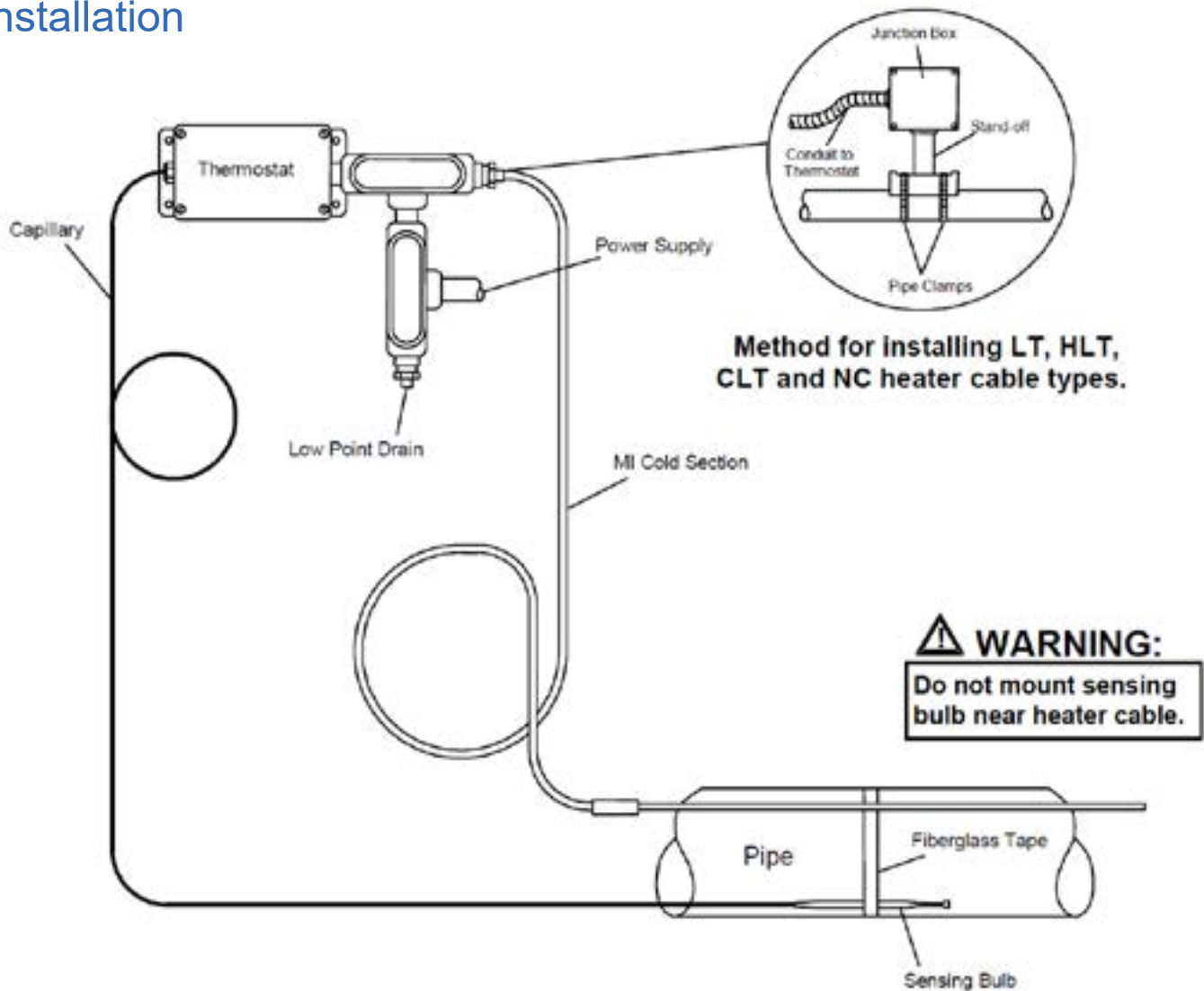
1. Remove cover
2. Spray a coat of lubricant and rust preventative such as CRC stor and Lube, electrical grade, on the thermostat body.
3. Replace cover

Approvals

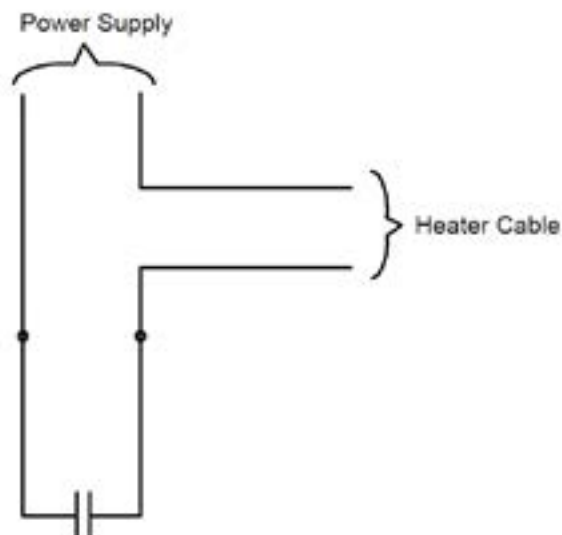
Federal Locations
UL-E50023 CAS - LR52088-4 CE

TF4X40 Thermostat

Installation



Wiring Diagram



DS-8C/DS-824C

Rain/Snow Sensor Controller



The DS-BC (line voltage) & DS-824C (low voltage) are primarily designed for automatic control of roof and gutter snow and ice melting systems, satellite antenna/broadcast tower deicing, railroad switch deicing, both as a stand-alone controller and as a sensor for larger control systems. The units may be used as a rain sensor/controller for high frequency satellite rain diversion applications, intake air handling, any application that requires reliable detection of rain and/or snow with the added feature of a remote mount precipitation sensor.

Features

- Automatic Activation means Lower Deicing Costs
- Reliable Rain and/or Snow Detection
- DS-8C: Supply Universal 100-277V AC 50/60Hz
- Controls 30A @ 277V AC
- DS-824C: Supply 22-28V AC/DC, 15VA Max
- Controls 30A @ 24V AC, 20A @ 28V DC
- Replaceable Precipitation Sensor
- Easy Installation, Full Access to Electronics
- 10 Different Functions, 1 Part Number
- Adj Temperature Trigger Point (34°F-44° F)
- Adj Delay Off Cycle with 30-90 Min or 2-6 Hr Range
- Adj Precipitation Sensitivity
- Super Bright Power/Activation LED Indicator
- Simple Remote Control/Monitor Capability
- Selectable Low Temp Cutoff with Unique "Recover" Mode
- Manual On - Automatic - Standby Override Switch
- Smart "Manual On" Operates for One Delay Off Cycle

Limited 2 Year Manufacturer's Warranty



Add convenience and value with the CDP-2 Indoor Control & Monitor Display Panel and CS-xxx Cable Sets

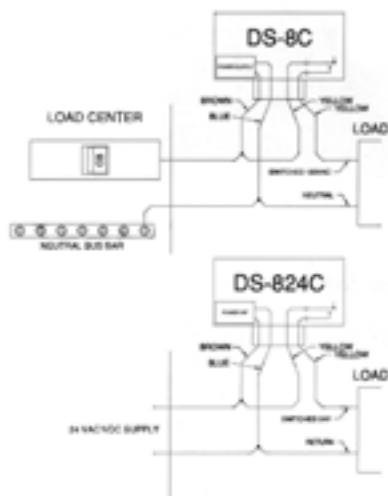


DS-8C/DS-824C Operating Modes

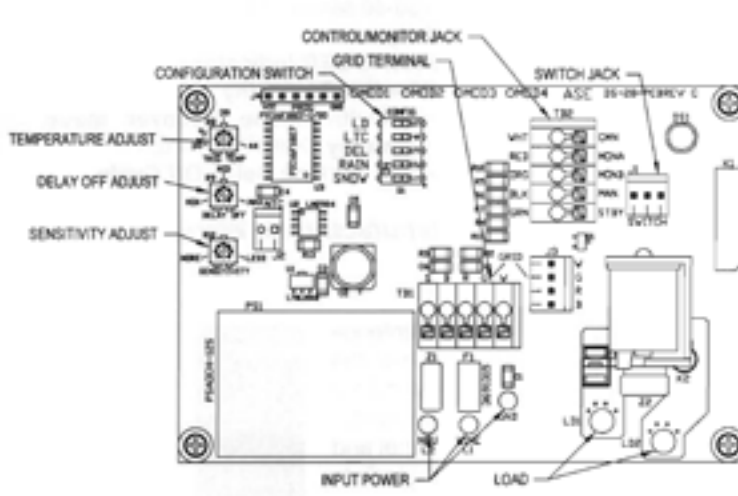
Function	Ambient Temp (AT)	Delay Off	Suggested Application
Snow sensor w/o LTC	AT < TT	2 Min	Snow and ice alert, Sensor for external deice/snow melt control system
Snow sensor w/LTC	AT < TT & AT > 5°F	2 Min	Sensor for external deice/snow melt control system (limited heat)
Snow controller w/o LTC	AT < TT	30-90 Min/2-6 Hrs	Stand-alone controller for electric/hydronic snow melting
Snow controller w/ LTC	AT < TT & AT > 5°F	30-90 Min/2-6 Hrs	Stand-alone controller for electric/hydronic snow melting
Precipitation sensor	Not Used	2 Min	Snow, ice, and rain alert, Ku band rain and snow diversion
Precipitation controller	Not Used	30-90 Min/2-6 Hrs	Snow, ice, and rain alert, Ku band rain and snow diversion
Rain sensor	AT < TT	2 Min	Intake vent, Ku band rain diversion
Rain controller	AT < TT	30-90 Min/2-6 Hrs	Intake vent, Ku band rain diversion
LT Thermostat w/o LTC	AT < TT	2 Min	Low temperature intelligent thermostat
LT Thermostat w/ LTC	AT < TT & AT > 5°F	2 Min	Low temperature intelligent thermostat (limited output)

DS-8C/DS-824C Specifications

Dimensions	4¾" {120} X 7" {178} X 2¾" {70}
Weight	3 Lbs. (1.4 Kg)
Operating Temperature	-40°F to +158°F (-40°C to +70°C)
Enclosure Rating	NEMA3R
Base Conduit Hub	¾" NPT, ½" NPT Reducer Provided
Supply Power: DS-8C	100-277V AC 50/60Hz 15W maximum
Supply Power: DS-824C	22-28V AC/DC 15VA max, 5VA typ
Load Capacity: DS-8C	30A@ 277V AC 100,000 ops/full load
Load Capacity: DS-824C	30A@24V AC, 20A@ 28V DC 100,000 ops/full load
Trigger Temperature	34°F-44° F (1.1 °C-6.6°C) Field Adjustable
Delay Off (Sensor Mode)	2 Mins Fixed
Delay Off (Controller Mode)	30-90 Mins/2-6 Hrs Field Selectable/Adjustable
Monitor Contact Capacity	24V DC/AC 400mA 10W total



Wiring Examples



Sensor Interior

DS-5C/DS-9C

Rain/Snow Sensor Controller



The DS-5C & DS-9C are higher switching capacity versions of the DS-2C & DS-8C and are primarily designed for automatic control of driveway, sidewalk, and other pavement snow melting applications, roof and gutter deicing, satellite antenna/broadcast tower deicing, railroad switch deicing, both as a stand-alone controller and as a sensor for large control systems. The units may be used as a rain sensor/controller for high frequency satellite rain diversion applications, intake air handling, observatory shutter control, any application that requires reliable detection of rain and/or snow.

Features

- Controls TWO 30A @ 277V AC Circuits
- Automatic Activation means Lower Deicing Costs
- Reliable Rain and/or Snow Detection
- DS-5C: Integral Precipitation Sensor
- DS-9C: Remote 10' Precipitation Sensor
- Universal 100-277V AC 50/60Hz Input
- Replaceable Precipitation Sensor
- Easy Installation, Full Access to Electronics
- 10 Different Functions, 1 Part Number
- Adj Temperature Trigger Point (34°F-44° F)
- Adj Delay Off Cycle with 30-90 Min or 2-6 Hr Range
- Adj Precipitation Sensitivity
- Super Bright Power/Activation LED Indicator
- Simple Remote Control/Monitor Capability
- Selectable Low Temp Cutoff with Unique "Recover" Mode
- Manual On - Automatic - Standby Override Switch
- Smart "Manual On" Operates for One Delay Off Cycle

Limited 2 Year Manufacturer's Warranty



Add convenience and value with the CDP-2 Indoor Control & Monitor Display Panel and CS-xxx Cable Sets

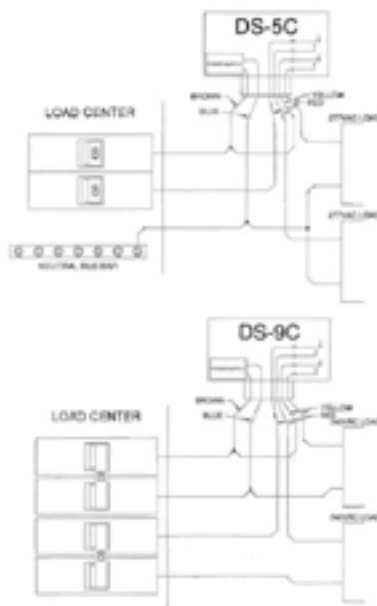


DS-5C/DS-9C Operating Modes

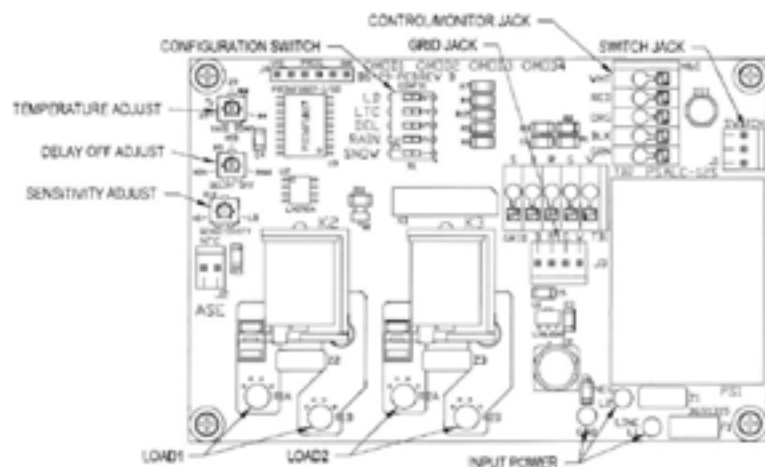
Function	Ambient Temp (AT)	Delay Off	Suggested Application
Snow sensor w/o LTC	AT < TT	2 Min	Snow and ice alert, Sensor for external deice/snow melt control system
Snow sensor w/LTC	AT < TT & AT > 5°F	2 Min	Sensor for external deice/snow melt control system (limited heat)
Snow controller w/o LTC	AT < TT	30-90 Min/2-6 Hrs	Stand-alone controller for electric/hydronic snow melting
Snow controller w/ LTC	AT < TT & AT > 5°F	30-90 Min/2-6 Hrs	Stand-alone controller for electric/hydronic snow melting
Precipitation sensor	Not Used	2 Min	Snow, ice, and rain alert, Ku band rain and snow diversion
Precipitation controller	Not Used	30-90 Min/2-6 Hrs	Snow, ice, and rain alert, Ku band rain and snow diversion
Rain sensor	AT < TT	2 Min	Intake vent, Ku band rain diversion
Rain controller	AT < TT	30-90 Min/2-6 Hrs	Intake vent, Ku band rain diversion
LT Thermostat w/o LTC	AT < TT	2 Min	Low temperature intelligent thermostat
LT Thermostat w/ LTC	AT < TT & AT > 5°F	2 Min	Low temperature intelligent thermostat (limited output)

DS-5C/DS-9C Specifications

Dimensions	4¾" {120} X 7" {178} X 2¾" {70}
Weight	2.5 Lbs. (1.1 Kg)
Operating Temperature	-40°F to +185°F (-40°C to +85°C)
Enclosure Rating	NEMA 3R
Base Conduit Hub	¾" NPT, 1/2" NPT Reducer Provided
Supply Power	100-277V AC 50/60Hz 15W maximum
Load Capacity	2 X 30A @ 277V AC 100,000 ops/full load
Trigger Temperature	34°F-44° F (1.1 °C-6.6°C) Field Adjustable
Delay Off (Sensor Mode)	2 Mins Fixed
Delay Off (Controller Mode)	30-90 Mins/2-6 Hrs Field Selectable/Adjustable
Monitor Contact Capacity	24V DC/AC 400mA 10W total



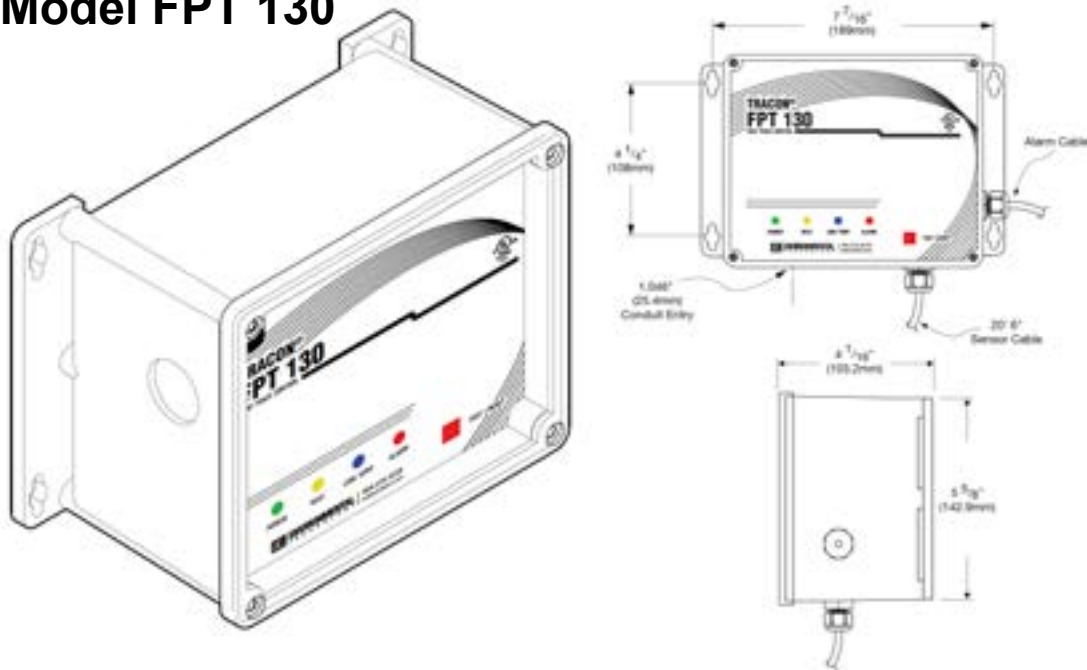
Wiring Examples



Sensor Interior

Single–Point Freeze Protection Heat Trace Control

Tracon Model FPT 130



The FPT 130 Heat–Trace Control is a single–point microprocessor–based heat–trace control thermostat. It is ideal for applications which require Ground– Fault Equipment Protection (GFEP). Ideal uses include freeze protection, and other temperature monitoring and control applications.

The FPT 130 Heat–Trace Control operates from the heater's power source. A universal power supply allows the FPT 130 to operate from 100 V ac to 277 V ac, and control a resistive load up to 30 A.

Adjustable Temperature Setpoint and Alarms

The temperature setpoint is adjustable from 30 °F, 38 °F, 45 °F, or 50 °F (–1.1 °C, 3.3 °C, 7.2 °C, or 10 °C) to a tenth degree resolution.

Sensor Inputs

The FPT 130 comes with a 100K ohm thermistor temperature sensor with a 20 ft. jacketed cable. The included sensor has an operating range of –40 °F to 230 °F (–40 °C to 110 °C).

Precision Monitoring and Control

The FPT 130 monitors temperature, load current, and ground leakage current. Alarms include low temperature, low load current, ground fault, sensor fault, internal fault, and power fail. These alarms are pre-set and easy to observe from the front panel.

Ground–Fault Equipment Protection

The FPT 130 Heat–Trace Control includes integral GFEP. This eliminates the extra expenses associated with having to provide separate GFEP components in the circuit panel.

The FPT 130 normally disconnects power immediately when ground fault current exceeds 30 mA. If it is set to Fire Protect mode, for critical fire protection systems, then it will generate the alarm but power will be maintained to prevent freezing.

Automatic GFEP Circuit Self–Test

To ensure continued safe operation, the FPT 130 performs a self–test of the GFEP circuit when power is first applied, along with a load ground fault test, and this test repeats every 24 hours while power is applied if the load has not been energized.



Specifications

General

Certifications

UL 60730–1, UL 1053, CSA E60730–1:13

Environmental

Area of use

Nonhazardous locations

Operating temperature

–40 °F to 131 °F (–40 °C to 55 °C)

Enclosure

Dimensions

8 1/8" (W) x 5 1/2" (H) x 4 3/8" (D)

207 mm (W) x 140 mm (H) x 112 mm (D)

Ingress protection

NEMA 4X, IP66

Cover attachment

Polycarbonate cover, plastic screws

Cable entries

Two liquid-tight cable glands installed for sensor and alarm leads, cable diameter 0.08" to 0.24" (2 mm to 6 mm)

One 1.046" hole to accommodate a 3/4" conduit fitting for power wiring connection

Material

Polycarbonate

Weight

2.7 lb. (1.22 kg)

Mounting

Wall mount with flanges

Wiring Connector Ratings

Power

Barrier Strip Terminals for Line, Neutral, and Ground; use 10 AWG wires rated for at least 194 °F (90 °C)

Sensors

Terminal Block, rising cage clamp, 12–28 AWG leads

Alarm relay

Terminal Block, rising cage clamp, 12–28 AWG leads

Parameter Settings

Temperature setpoints

30 °F, 38 °F, 45 °F, or 50 °F

(–1.1 °C, 3.3 °C, 7.2 °C, or 10 °C)

Low-temperature threshold

2 °F (1 °C) below setpoint

Low-current alarm threshold

0.1 A

Low-current alarm delay

5 s

Ground fault limit current

30 mA

Self-test interval

24 h

User Interfaces

Pushbutton

Test / Reset

DIP switches

Temperature setpoint

Thermistor fault mode

Fire protection mode

Remote Interface

Alarm relay

Isolated DPDT AMP Class 2 contact

Indicators

Status indicator

Power to the unit (Green solid)

Calibration error (Green blinking)

Call for heat (Yellow solid)

Low current alarm (Yellow blinking)

Stuck relay (Yellow blinking fast)

Low temperature (Blue solid)

Sensor fault (Blue blinking)



Specifications Cont.

Ground fault (Red solid)
GFEP circuit failure (Red blinking)

Summary alarm relay reporting

Low load current
High ground fault current
Sensor fault
Internal fault

Control Ratings

Temperature accuracy
+/- 2 °F (1 °C)

Temperature Sensors

Temperature input
(Included) Thermistor, 100k ohms at 25 °C, range -40 °F to 230 °F (-40 °C to 110 °C), 20ft Lead (25076)

GFEP (Ground-Fault Equipment Protection)

Threshold
30 mA

Automatic self-test range

Verifies GFEP functionality every 24 hr. and when the load is turned on

Power

Supply voltage
100 – 277 V ac 50/60 Hz

Controller power consumption
5 W maximum, 2 W idle

Load rating
30 A, 100 – 277 V ac resistive

Specifications are at 77 °F (25 °C) unless otherwise stated and are subject to change without notice.

Ordering Information

Description	Part Number
Tracon MODEL FPT 130 Single-Point Freeze Protection Heat-Trace Control	25169
Temperature Sensor	25076

Limited Warranty

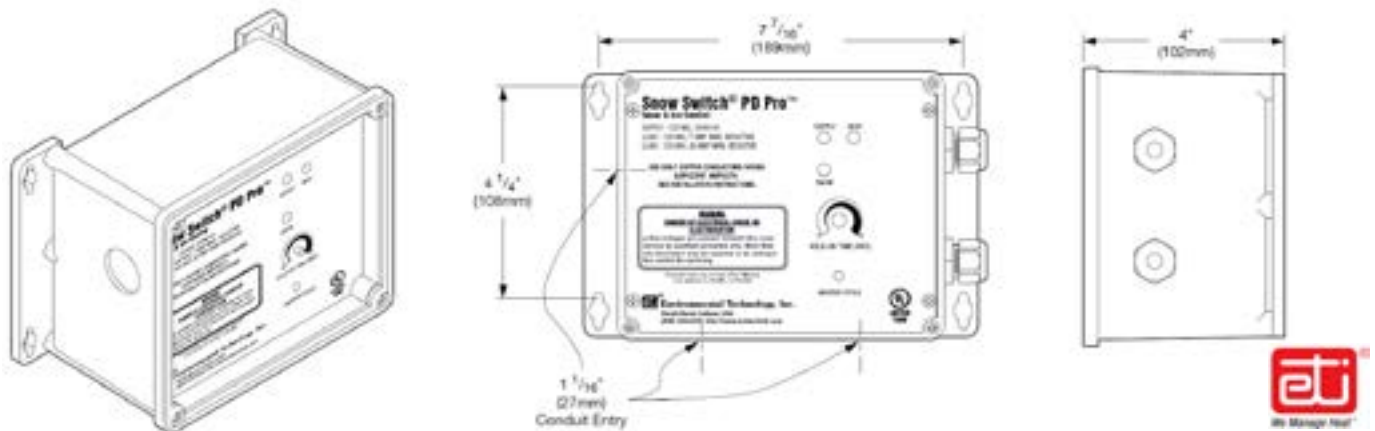
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Snow Switch Model PD PRO



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
- CU-UL-US Listed for Temperature Regulating Equipment
- Adjustable Hold-On timer continues heater operation after snow and ice stop 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 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 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.



Specifications

General

Area of use

Nonhazardous locations

Approval

C-UL-US Listed, Type 873 Temperature Regulating Equipment

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 and left) for supply and 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: 50/60Hz

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.

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)

Limited Warranty

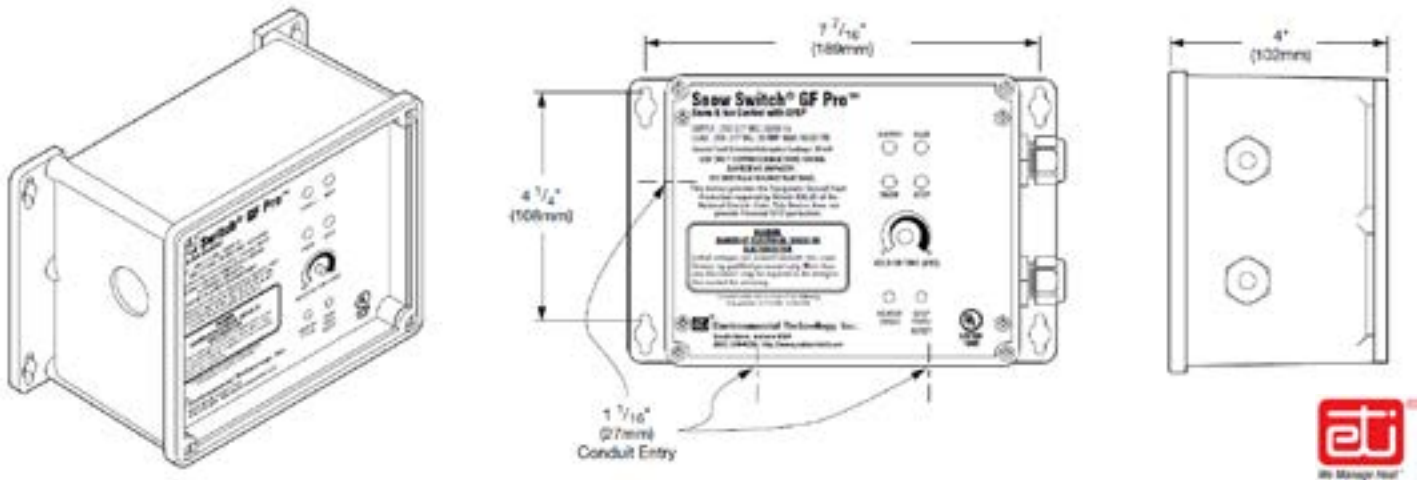
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Snow Switch Model GF PRO

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

General

Area of use

Nonhazardous locations

Approval

UL Listed Type 873 Temperature Regulating Equipment

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 and load power

Material

Polycarbonate

Mounting

Wall mounted

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

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.

Limited Warranty

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

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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 jacket, 2-conductor

Ground Fault Equipment Protection (GFEP)

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

Environmental

Operating temperature

-31°F to 130°F (-35°C to 55°C)

Storage temperature

-61°F to 167°F (-55°C to 75°C)

APS-3C Snow Switch



Automatic Snow/Ice Melting System Control Panel

Features & Benefits:

- Automatic snow/ice melting control
- Operates electrically-and mechanically- held contactors
- 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 site performance requirements. The APS-3C is an exceptionally capable deicing controller.



Specifications

General

Area of use

Nonhazardous locations

Approval

C-UL-US Listed 109R, Type 873 Temperature Regulating Equipment

Enclosure

Protection

NEMA 3R

Cover attachment

Hinged polycarbonate cover, lockable

Entries

3X1-1/6" entries

Material

Polycarbonate

Mounting

Wall mounted

Control

Supply

120 VAC, 50/60 Hz, 35VA

208-240 VAC, 50/60 Hz, 35 VA

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

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

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APS-4C Snow Switch



Features & Benefits:

- Automatic snow/ice melting control
- Satellite contactor interface for larger systems
- Energy management computer (EMC) interface
- Accommodates MI, constant wattage and self-limiting heaters
- Multiple sensor capability
- Advanced patented and patent pending 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 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.



Specifications

General

Area of use

Nonhazardous locations

Approval

C-UL-US Listed 109R, Type 873 Temperature Regulating Equipment

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

Control

Supply

ETI PN 22472: 208-240 VAC, 35 VA, three phase 50/60 Hz
 ETI PN 22473: 277 VAC, 45 VA, single phase 50/60 Hz
 ETI PN 22475: 277/480 VAC, 45 VA, three phase 50/60 Hz
 ETI PN 22476: 600 VAC, 50 VA, three phase 50/60 Hz

Load

ETI PN 22472: 208-240 VAC, 50 amp max. resistive
 ETI PN 22473: 277 VAC, 40 amp max. resistive
 ETI PN 22475: 277/480 VAC, 50 amp max. resistive
 ETI PN 22476: 600 VAC, 50 amp max. resistive

Contact type

3 Form A

Maximum Ratings

Voltage: 600 VAC

Current: 50 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.

Ground Fault Equipment Protection (GFEP)

Set point

30 mA (default); 60 mA and 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

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)

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

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)



Ordering Information

Order Number	Description
22472	APS-4C Control Panel, 208-240 VAC 50/60 Hz Three Phase
22473	APS-4C Control Panel, 277 VAC 50/60 Hz Single Phase
22475	APS-4C Control Panel, 277/480 VAC 50/60 Hz Three Phase
22476	APS-4C Control Panel, 600 VAC 50/60 Hz Three Phase

Accessories	
21358	RCU-4 Remote Control (Optional)
19272	High Temperature Sensor w/ 20' (6m) lead (Qty 1 included)
22690	PTS-100 Embedded Temperature Sensor (Optional)

Snow/Ice Sensors (Not Included)	
10001	CIT-1 Aerial Snow Sensor
11351	GIT-1 Gutter Ice Sensor
20756	SIT-6E Pavement Mounted Snow/Ice Sensor

Satellite Contactors (Not Included)	
22477	SC-40C Satellite Contactor, 208-240 VAC 50/60 Hz Three Phase
22478	SC-40C Satellite Contactor, 277 VAC 50/60 Hz Single Phase
22480	SC-40C Satellite Contactor, 277/480 VAC 50/60 Hz Three Phase
22481	SC-40C Satellite Contactor, 600 VAC 50/60 Hz Three Phase

Limited Warranty

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

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LCD-8 Snow Switch



Features & Benefits:

- Automatic snow and ice melting controller minimizes operating costs
- Automatic voltage selection operates from 100VAC-240VAC
- 24VAC 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 100VAC – 240VAC or from 24VAC. 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 iglooming 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.



Specifications

General

Snow Melt Systems Controls Area of Use

Nonhazardous locations

Approval

CU-UL-US Listed 109R, Type 873 Temperature Regulating Equipment

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

ETI Part 24619: 100VAC - 240VAC; 50/60 Hz

ETI Part 24781: 24VAC; 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 indicator

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)

Ordering Information

24619

LCD-8, 100VAC - 240VAC

24781

LCD-8, 24VAC

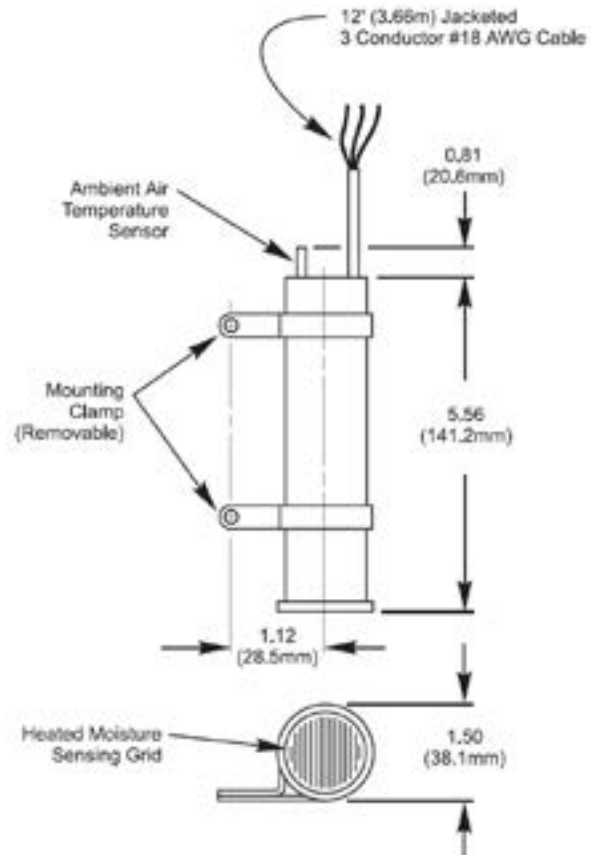
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GIT-1 Gutter Ice Sensor



Features & Benefits:

- Reduces operating cost
- Reliable automatic deicing control
- 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.

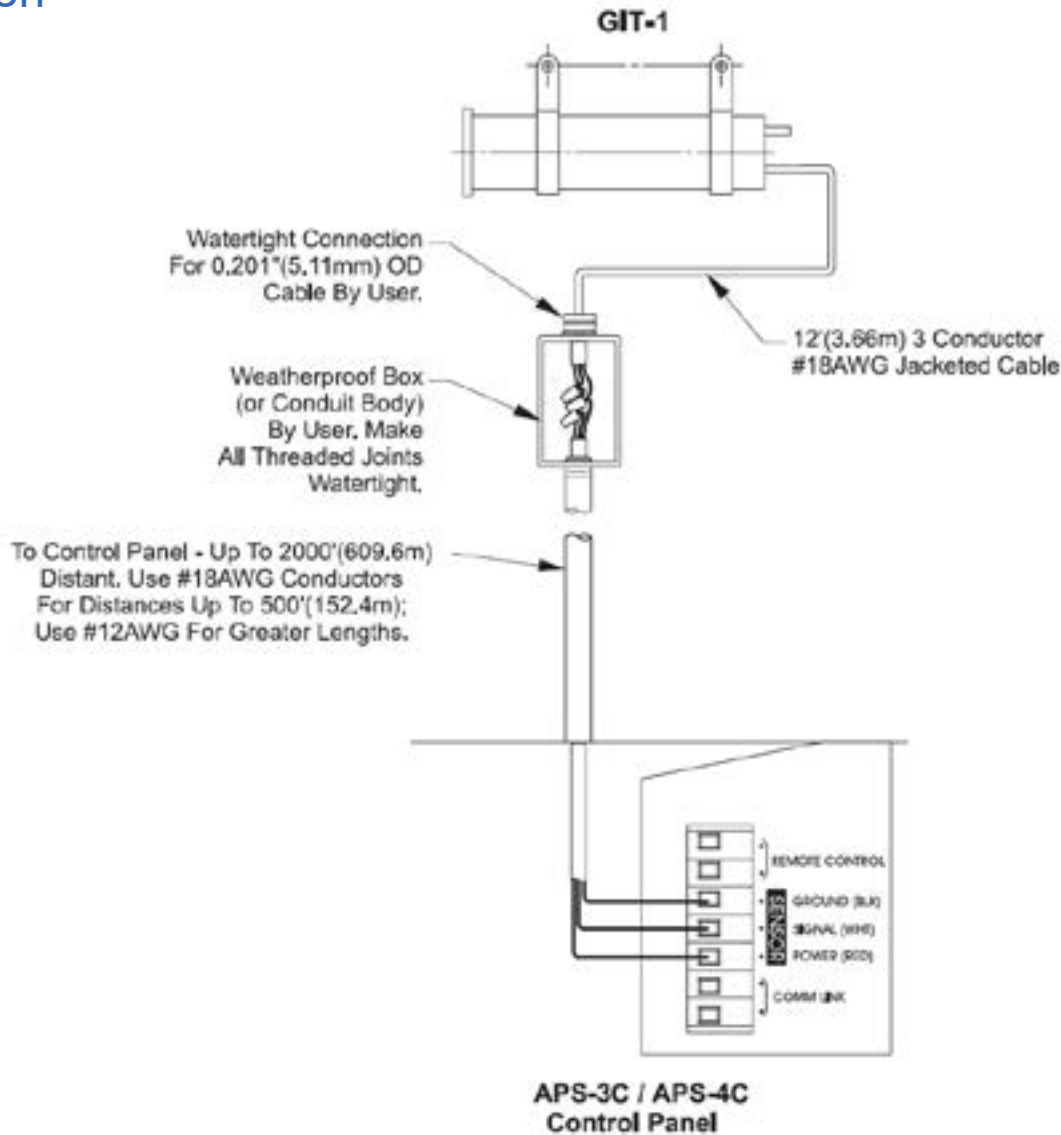
Since the GIT-1 mounts in gutters and downspouts it senses actual environmental conditions. This improves sensing accuracy. Solid state moisture and temperature sensors provide the sensitivity required for effective automatic control.

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' (609.6m) away from the control panel.

GIT-1 Gutter Ice Sensor

Installation



Gutters: Position sensor within 1/4" (6.4mm) 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).

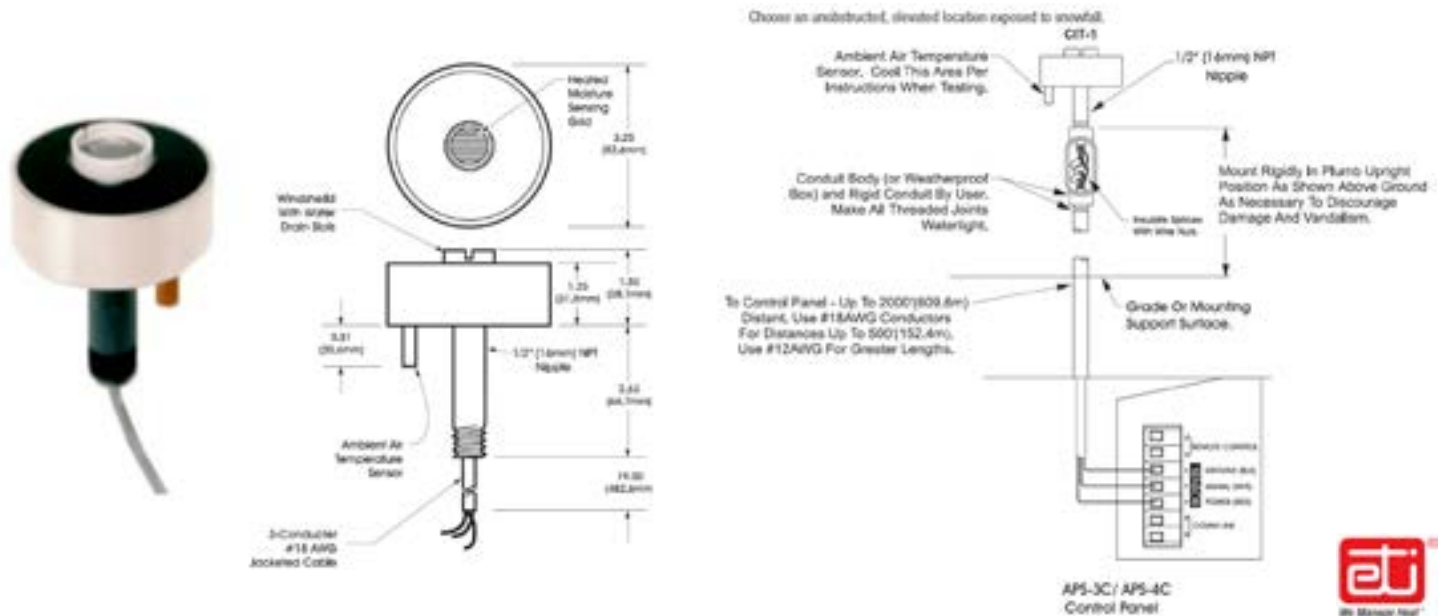
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CIT-1 Snow Sensor



Features & Benefits:

- Minimum snow melting costs
- No supervision required
- 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.

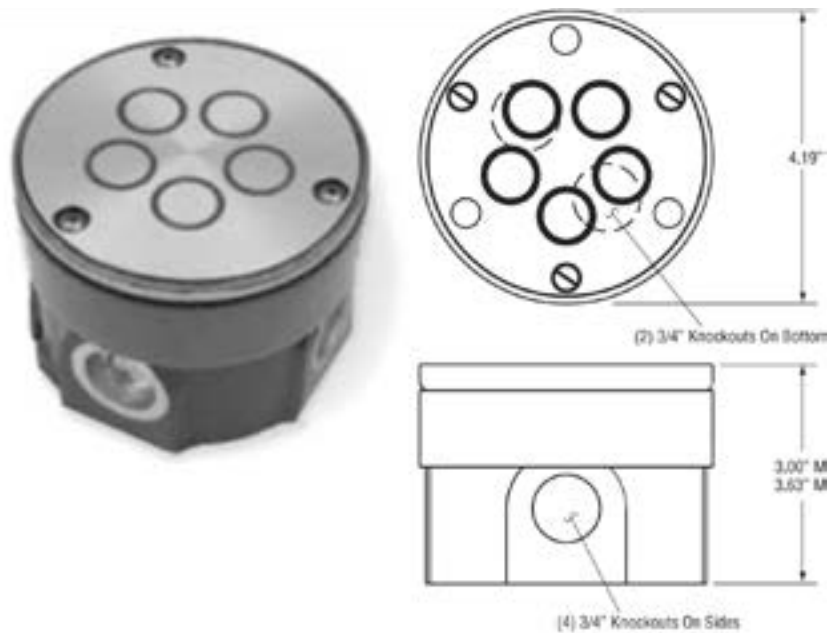
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SIT-6E Pavement-Mounted Snow & Ice Sensor



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.

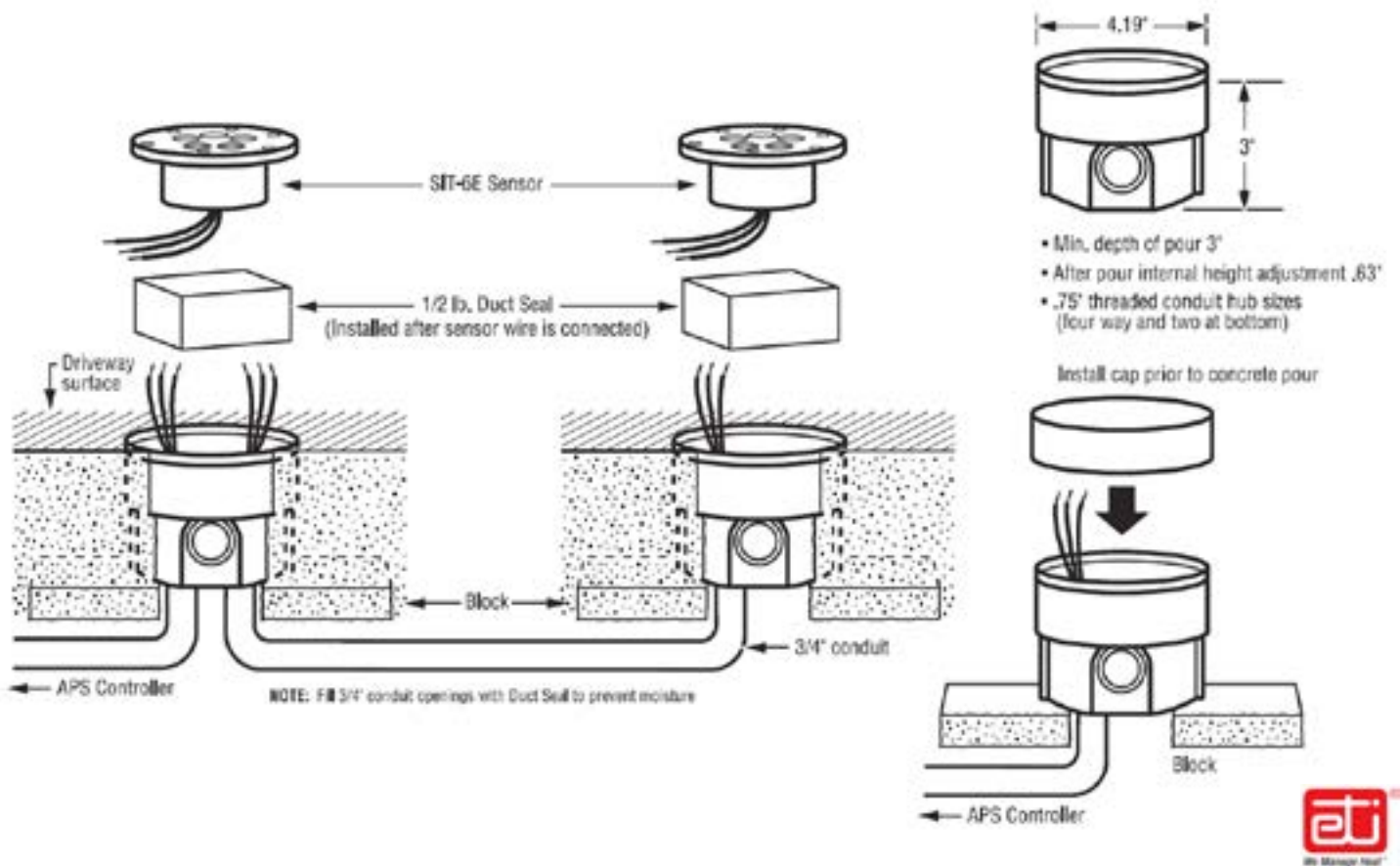
The SIT-6E accurately measures pavement temperature by compensating for its internal heating. This eliminates the cost and complexity of a separate pavement temperature sensor. For improved efficiency, the SIT-6E mounts closely to the deicing heaters to ensure that pavement and sensor become dry at about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

SIT-6E Pavement-Mounted Snow & Ice Sensor

Typical Installations



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 panels.

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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

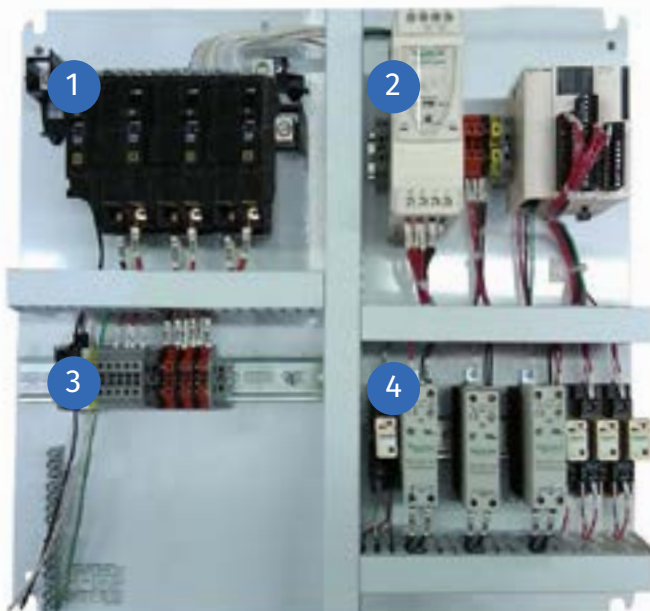
Description:

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.

UL 508A Panel Shop

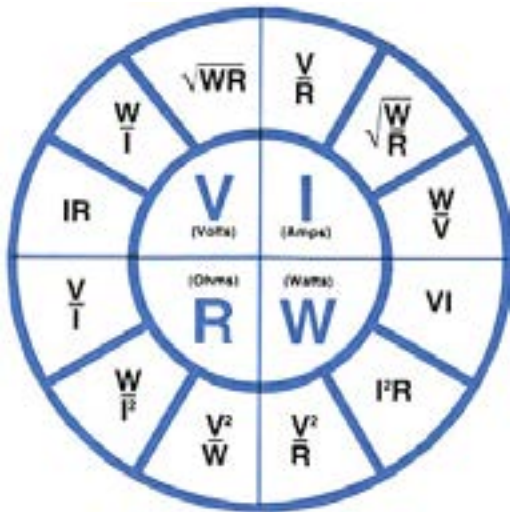


- Hazardous Areas
- Touch Screen Control
- PLC Based
- Wireless Communications
- Heat & Control Panels
- Custom Panels
- Professional
- Competitive



- 1 Clean and Organized Load Center with 30 Milliamp Breakers
- 2 Programmable Logic Control system for efficiency and total system accountability.
- 3 Organized and labeled terminal blocks for ease of installation.
- 4 30 Amp Solid State Relay Contactors for years of heavy use.

OHM'S LAW



Volts = Volts/Watts X Ohms

Volts = Watts/Amperes

Volts = Amperes X Ohms

Amperes = Volts/Ohms

Amperes = $\sqrt{\text{Watts/Ohms}}$

Ohms = Volts/Amperes

Ohms = Volts²/Watts

Ohms = Watts/Amperes²

Watts = Volts²/Ohms

Watts = Amperes²/Ohms

Watts = Volts X Amperes

Engineering Constants

1728 Cu. In. = 1 Cu. Ft. = 7.48 Gal

1in. = 2.54 cm

3412 BTU = 1 kWh = 1.34 HP Hour

491 BTU/Ft.² = 1 Watt Hour/In.² = 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: $W^2 = W^1 \times (E^2/E^1)^2$

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 -

$T_k = T_c + 273.15$

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 x30 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

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 gauge

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

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.



DGF1 (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 Power and End Kits

Kit includes power connection and end seal components.

DPEST 50 = 1/2" entry gland

DPEST 75 = 3/4" entry gland

Heat Trace Accessories for Snow Melt



DTEK-2 or 3 T Splice and End Termination Kit

For Self-regulating heater cable. This kit is used to T splice a cable run. Available in a two leg or three leg unit.



RRC-1 Roof Clips

Used to secure heat trace to metal or shingle roofs. Sold in bags of 10.



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.

Heat Trace Accessories for Snow Melt



Screws

1 1/2" Self Piercing Screws

Self Tapping Screws with Neoprene washer



For inquiries about Heat Trace Specialists' expertise
in heat trace solutions for roof & gutter, sidewalks,
driveways & pipes, **please call**

877.244.1055