



- **Automatic De-icing System for Protection against Snow and Ice**
- **Simple to Field Install and Operate**
- **Engineered for Customer Specified Voltages**
- **Low Energy Costs**
- **User selectable Automatic, Off or Manual On Modes**
- **Available for Skyware Global Antennas**

DESCRIPTION

The Viking SATCOM De-icing system consists of a factory pre-wired control unit, heater pads for reflector coverage, and a feedhorn heater. All systems are engineered to be easily assembled, installed and operated.

The control unit has three modes of operation: Automatic, Manual Off and Manual On. The Automatic mode allows the control to monitor the ambient temperature and sense the presence of moisture. An ambient temperature of less than 40 degrees F and the presence of moisture activate a heater contactor. The heater contactor is rated up to 50 amps. The heaters will remain on for a factory preset time of one hour longer than conditions warrant. The Manual Off mode turns the heaters off, regardless of the weather conditions. The Manual On mode turns the heaters on, regardless of the weather conditions. Control units are factory preset to operate on 120 to 240 volts, single or three phase power. All cabling to attach the heater pads is factory pre-wired. The larger systems have a control unit with remote moisture sensor.

The heater pads consist of heater wire sandwiched between layers of aluminum foil. Heater pads allow for a faster install without the need for templates. The aluminum foil is coated with an aggressive acrylic adhesive and a peel and stick liner. Watt density of the heater pads, depending on the reflector, is between 40 and 55 watts per square foot. The aggressive acrylic adhesive adheres to a variety of substrates and will not release when pad temperature increases. Heater pads have water resistant connectors that plug into the cables from the control unit.

The feedhorn heaters consist of heater wire attached to a strap and covered with heatshrink. They are attached to a rib on the feedhorn.

Installation of the de-ice system consists of applying the heater pads to the backside of the reflector, mounting the control unit / moisture sensor, routing power to the control unit, attaching the feedhorn heater, and connecting the heater pads to the control cables.

The De-icing systems can be custom made for a variety of antennas and applications.

Typical Installation

Instruction Manual for the Skyware Global 1.2 meter

Type 123/125 120 Volt Full Coverage Heater System with Medium Feedhorn Heater

System Specifications:

Automatic snow and ice detection

Heater output – 500 watts

Amperage draw – 4.2 amps at 120VAC

Read these instructions carefully and follow all of the procedures for installing this system. All electrical wiring must be performed in accordance with all applicable electrical codes, including the use of GFI breakers as required.

***Remove ALL power from the system during the warm months.**

***Remove ALL power from the system before performing any maintenance.**

Materials Provided List

<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	85485	Lower Heater pad for Skyware Global 1.2m Type 123/125
1	85484	Upper Heater pad for Skyware Global 1.2m Type 123/125
1	85482	Controller for Skyware Global 1.2 meter Type 123/125 full coverage 120 volt with feedhorn heater attached
2		Foil strips for lead wire attachment
1		1/4-20 bolt, nut and lockwasher SS
1		Instruction manual for Skyware Global 1.2 meter Type 123/125 120 volt full coverage with feedhorn heater

Tools and Supplies Needed

- Adjustable wrenches
- Clean rags
- Windex glass cleaner
- Cable Tie Straps



De-Ice Control and Harness

APPLY THE HEATER PADS TO THE REFLECTOR

1. Properly support the reflector so that no distortion results from heater pad attachment.
2. The surface temperature of the reflector should be above 50 degrees Fahrenheit, 10 degrees Celsius for proper adhesion of the heater pads.
3. Thoroughly clean the rear, lower half of the reflector with Windex and dry thoroughly.
4. Test fit the pads by laying all of them on the back of the reflector and orienting them for the best alignment. There is an Upper pad set and a Lower pad set. See the Heater Pad Layout picture for the proper locations.
5. Remove the backing paper from the heater pads one at a time and carefully apply to the cleaned reflector. Smooth each pad as it is placed on the reflector. The adhesive is pressure sensitive so apply pressure as it is smoothed to promote adhesion.
6. Tape down the exposed heater wire that passes over ribs with the foil strips provided.



Heater Pad Layout

MOUNT THE CONTROL ENCLOSURE TO THE SIDE OF THE REFLECTOR

1. This location will be used to attach the Control enclosure in a way that it will not be shielded from falling and blowing snow. The bracket can mount to the left or right side of the reflector. After mounting, the Control can be turned to face the direction that is preferred. See the Control Enclosure Mounting picture for the orientation.
2. Insert the 1/4-20 bolt through the hole used to attach the Side Feed Legs to the reflector. The head of the bolt should be on the inside of the reflector. The Side Feed Leg is then placed over the bolt, followed by the L-bracket that is attached to the Control. Place the lockwasher over the bolt and thread on the nut. The cable should exit in a downward direction. The cordgrip in the enclosure can be loosened to allow the bracket to turn, aiding in the insertion of the 1/4-20 bolt and allowing the enclosure to be turned to face another direction if desired. Retighten when finished.
3. Level the moisture grid on top of the Control enclosure and snug the 1/4" lock washer and nut. The moisture sensor grid on the top of the control should always remain parallel with the horizon so that it will receive a representative amount of falling and blowing precipitation.



Control Enclosure Mounting

CONNECT THE HEATER PAD LEADS TO THE CONTROL HARNESS

1. Connect the Male heater pad leads from the lower heater pad set (85485) to the 6 inch Female leads from the control harness.
2. Connect the Male heater pad leads from the upper heater pad set (85484) to the 18 inch Female leads from the control harness.
3. Use the supplied foil strips to secure the heater pad leads to the back of the reflector as needed.
4. Attach the ring terminal on the green ground wire to the mounting structure.
5. Anchor the SJTW cable union area to the mounting structure of the reflector.

ATTACH THE FEEDHORN HEATER TO THE FEEDHORN

1. Route the Feedhorn Heater Cable along the feedhorn support arm.
2. Place the feedhorn heater around the feedhorn and loosely attach it by passing the tail of the strap through the head. Be sure the heater wire in the feedhorn heater is against the feedhorn.
3. Position the heater with the head of the cable tie and the connectors toward the bottom of the feedhorn and tighten the strap fully. Do not cut the tail off of the feedhorn heater at this time. It will be done when the final test of the system is performed. See the Feedhorn Heater Placement picture for proper placement.
4. Use one tie strap (not supplied) to anchor the Feedhorn Heater Cable near the feedhorn heater.



Feedhorn Heater Placement

ROUTE POWER TO THE CONTROL ENCLOSURE

1. The heater system is supplied with a 30 foot power cord. The system operates on 120 volt AC power. A GFCI breaker should be used. Do not apply power to the system at this point.
- * The entire system supplies 500 watts of heat and draws approximately 4.2 amps.

SECURE ALL CABLES WITH TIE STRAPS

1. Secure the entire lengths of the power cable, the feedhorn heater cable, and the De-Ice control cable with tie straps (not supplied).
2. Extra cable length should be coiled and secured to the mounting structure.

TEST THE HEATER SYSTEM

1. Apply 120 VAC power to the system.
2. Allow the sensor to go through its start-up test.
3. When the sensor enters the Automatic Enabled mode (steady green indicator), push the selector switch twice to place the sensor in the Manual On mode (steady amber indicator).
4. Wait a few minutes and feel the surface of the reflector for warmth. The feedhorn heater should also feel warm to the touch. Retighten the feedhorn heater strap while the heater is warmed and cut off all but ½" of the excess strap material.

5. Return the system to the Automatic Enabled mode by pressing the selector switch one more time.

RE-ADJUST THE MOISTURE SENSOR TO LEVEL WITH THE HORIZON

1. After the reflector has been calibrated, readjust the moisture sensor on top of the Control to level with the horizon.

DE-ICE CONTROL SPECIFICATIONS

The control operates electric heaters to prevent the build-up of snow and ice on the reflector when conditions are conducive to their formation. That is, during precipitation when the ambient temperature is below 40 F.

1. The controller will assure a minimum On time of approximately one hour. The system will continue to supply heat as long as conditions warrant it.

2. The controller provides AUTO, OFF, and ON functions. These modes are user selectable through a single push button switch which alternates through each mode.

- The normal power-up mode is AUTO. In this mode, the controller will turn on the heater contactor when conditions are conducive to the formation of snow and ice.

- When in the OFF mode, the heater contactor remains disengaged as long as the ambient temperature is less than 70 degrees Fahrenheit, regardless of moisture conditions. A temperature of greater than or equal to 70 F will return the control to the AUTO mode after ten minutes. To shutdown the system completely you must remove power from the system.

- When in the ON mode, the heater contactor is engaged until the controller mode is changed, the power is reset, or the ON mode has run for ten minutes at 70 F or greater, at which point the mode will be changed to AUTO. Temperatures less than 70 F will enable the ON function to run uninterrupted. This function allows ten minutes of ON time for system function checks but does not allow the system to heat during the warmer weather.

3. The control provides two indicator lights. The green indicator lights when the control is in the AUTO mode. The yellow indicator lights when the heater contacts are closed and the heaters are on.

4. The moisture sensor is heated to melt snow and ice for detection as moisture.

5. The controller has been factory preset to operate on 120 volt AC power.

6. The heater system draws approximately 4.2 amps.

Skyware Global 1.2 meter Type 123/125 Full Coverage 120V Heater System with Feedhorn Heater

Revision 4 dated 8-3-15