



Snow Shield®

With over 35 years of experience in battling mother nature, Walton De-Ice continues to expand its product line to give the customer even more options to keep their VSATs and Large Satellite Earth Station antennas operational during the harshest of environmental conditions.

Icequake®

Solar Cover

Rain Shield

# Snow Shield



We are now offering three types of Snow Shield fabrics and coatings to choose from to help the customer with their budget requirements.

The first is a polyester fabric that is coated in Kynar®. This is a architectural material that has been used to created outdoor structures since the 1940's. with great success.

The second is a polyester fabric that is coated in Tedlar®. This is also a Architectural material and has been used to create outdoor structures since the 1980's with excellent success.

The third is the PTFE white fabric (shown on right) which is also PTFE coated for a life expectancy to exceed 20 years. We have now sold over 4,974 PTFE Gore-Tex Snow Shield Covers world wide with no failures since 1996!

The two new fabrics are less expensive then the PTFE Snow Shield Covers but are still far superior to the competition's covers and can be used as passive or active covers. The Architectural Fabric with either a Kynar® or Tedlar® coating will provide years of service to the customer without having to remove the Snow Shield Covers during the warmer months to increase longevity as some competitor's suggest be done with their antenna covers.

The customer needs to factor in the costs and down time associated with having to replace the antenna cover several times within a 10 year period (antenna cover on the left) as apposed to purchasing a Walton De-Ice Snow Shield Cover (on the right) made with Kynar®, Tedlar® or PTFE coated fabrics with a usable life of 10 to 25 years. With the Walton De-Ice Snow Shield Cover, the customer can also add heater inlet pockets or Ice Quake pocket (s) to add an electric, gas heater or Ice Quake System at time of purchase or at a later date without having to replace or remove the Snow Shield Cover.

## Compare Your Snow Shield fabric options

<b>Architectural Kynar® Fabric</b>	<b>Architectural Tedlar® Fabric</b>	<b>PTFE Fabric / PTFE Coated</b>
Our most economical option	High-Performance and Cost-Effective	Unsurpassed Performance for Snow Shield Cover
RF transparency close to PTFE at C/Ku-Band	RF transparency close to PTFE at C/Ku-Band	RF transparency superior at C/Ku/Ka-Band
Fabric quality superior to competing cover options on the market	Fabric quality superior to competing cover options on the market	Fabric quality superior to other options on the market
Save 65% compared to our PTFE Snow Shield Covers	Save 50% compared to our PTFE Snow Shield Covers	Over two decades of field-proven performance in 1,000's of locations worldwide
Ability to add active Electric/ Gas heated De-Icing Systems	Ability to add active Electric/ Gas heated De-Icing Systems	Ability to add active Electric/ Gas heated De-Icing Systems
Ability to add an Ice Quake De-Icing System	Ability to add an Ice Quake De-Icing System	Ability to add an Ice Quake De-Icing System
Long useful performance life: you'll replace 3 of our competitor's covers before ours wears out	Long useful performance life: you'll replace 4 of our competitor's covers before ours wears out	Long useful performance life: you'll replace 5 of our competitor's covers before ours wears out

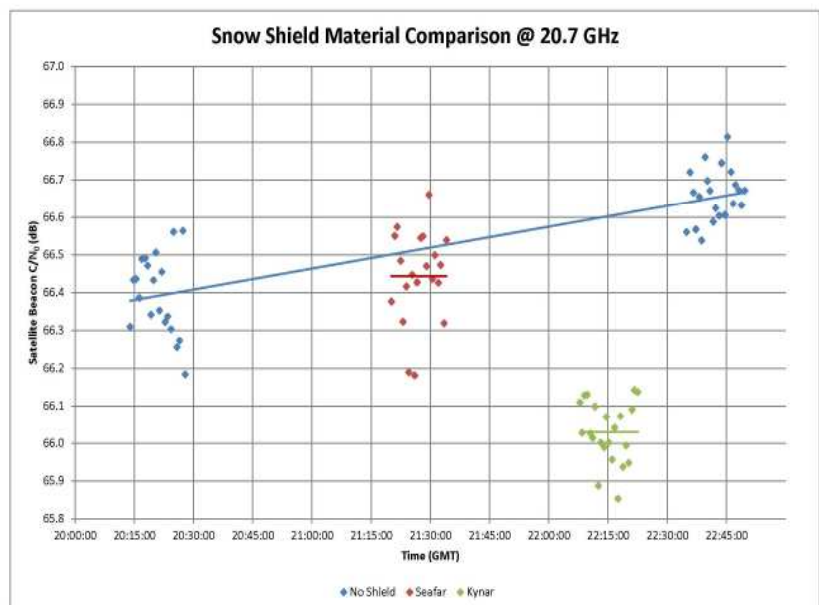
## The Better Fabric for Snow Shield Covers



### Architectural Kynar® Fabric Specifications Sheet

	Standard	Metric
Base Fabric Type	Polyester	Polyester
Base Fabric Weight (nominal)	4.3 oz/yd <sup>2</sup>	146 g/m <sup>2</sup>
Finished Coated Weight	21 oz/yd <sup>2</sup>	712g/m <sup>2</sup>
ASTM D751	+2/-1 oz/yd <sup>2</sup>	+70// -35 g/m <sup>2</sup>
Trapezoidal Tear		
ASTM D4533	50/60 lb <sub>f</sub>	223/267 N
Grab Tensile		
ASTM D751	375/350lb <sub>f</sub>	1669/1558N
Strip Tensile		
ASTM D751 Procedure B	350/325 <sub>f</sub> lb/in	307/285 daN/5 cm
Hydrostatic Resistance		
ASTM D751 Procedure A	500 psi	3.45 MPa
Dead Load		
ASTM D751	106 lb <sub>f</sub> @ Room Temp. 53 lb <sub>f</sub> @ 160 ° F	472 N @ Room Temp 236 N @ 91 ° C
Low Temperature		
ASTM D2136	LTA: Pass @ -67 ° F LTC: Pass @ -40 ° F	Pass @ -55 ° C Pass @ -40 ° C
Flame Resistance	<ul style="list-style-type: none"> <li>Meets NFPA 701, ULC-S109, ASTM D6413 (2 second flameout)</li> <li>ASTM E84 - Flame spread index &lt;25, smoke development rating &lt;450</li> </ul>	

W. B. Walton Enterprises, Inc. (Walton De-Ice) is announcing a new fabric for use in making the Snow Shield Covers. “We are very excited with the results that we have seen so far in both C and Ku Band with the new fabric. Recently, the fabric was tested at Ka band with impressive results. At 20.7 GHZ. there was only a .4 db drop in gain. The Rf transparency is almost the same as the PTFE fabric that we have been using since coming out with the Snow Shield Cover 18 years ago”. The quality of the fabric is far superior to any of our competitor’s fabrics and will be roughly a third the price of the PTFE Snow Shield Cover. With the new fabric, we will still be able to offer it as a passive system or utilize both Electric and Gas Heater De-Icing Systems along with the Ice Quake De-Icing Systems.





## The Best Fabric for Snow Shield Covers

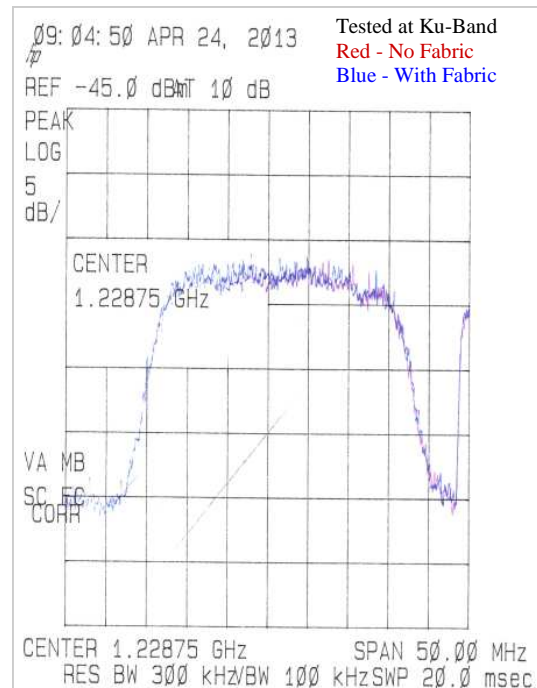
### Architectural Tedlar® Fabric Specifications Sheet

	Standard	Metric
Base Fabric Type	Polyester	Polyester
Base Fabric Weight (nominal)	5.0 oz/yd <sup>2</sup>	170 g/m <sup>2</sup>
Finished Coated Weight ASTM D751	24 oz/yd <sup>2</sup> +2/-1 oz/yd <sup>2</sup>	814g/m <sup>2</sup> +70/-35 g/m <sup>2</sup>
Trapezoidal Tear ASTM D4533	800/65 lb <sub>f</sub>	356/289 N
Grab Tensile ASTM D751	400/350lb <sub>f</sub>	1780/1558N
Strip Tensile ASTM D751 Procedure B	300/240 <sub>f</sub> lb/in	263/210 daN/5 cm
Hydrostatic Resistance ASTM D751 Procedure A	500 psi	3.45 MPa
Dead Load ASTM D751	120 lb <sub>f</sub> @ Room Temp. 60 lb <sub>f</sub> @ 160 ° F	534 N @ Room Temp 267 N @ ° 91 C
Low Temperature ASTM D2136	LTC: Pass @ -40 ° F LTA: Pass @ -67 ° F	Pass @ -40 ° C Pass @ -55 ° C

#### Flame Resistance

- Meets NFPA 701, ULC-S109, ASTM D6413 (2 second flameout)
- ASTM E84 - Flame spread index <25, smoke development rating <450

W. B. Walton Enterprises, Inc. (Walton De-Ice) is announcing a new fabric for use in making the Snow Shield Covers. “We are very excited with the results that we have seen so far in both C and Ku Band with the new fabric. The mechanical characteristics and Rf transparency is almost the same as the PTFE fabric that we have been using since coming out with the Snow Shield Cover 18 years ago. The quality of the fabric is far superior to any of our competitor’s fabrics and will be roughly half the price of the PTFE Snow Shield Cover. With the new fabric, we will still be able to offer it as a passive system or utilize both Electric and Gas Heater De-Icing Systems along with the Ice Quake De-Icing Systems.



# The Unsurpassed Fabric for Snow Shield Covers

## Sefar PTFE fabric / PTFE Coated

- Chemical Consistent: 100% fluoropolymer
- Construction: Two layers composed of GORE-TEX® membrane (heavy duty) laminated to woven GORE-TEX® fiber fabric
- Weave Type: 2 X 2 Basket weave
- Mullen Burst (typical) 5515.8 kN/m<sup>2</sup>/800PSI

## ASTM D-3786

- Weight: (typical) 630 grams per square meter
- Breaking Load: (typical) cross machine direction 53 kN/m / 300 lbs/inch, Machine direction 61.3 kN/ 350 lbs/inch

## ASTM D-1682

- Nominal Thickness: 0.38 mm
- Thread Count: Cross machine direction 35 cm<sup>-1</sup> / 90 inch<sup>-1</sup>, machine direction 35cm<sup>-1</sup>/90 inch<sup>-1</sup>
- Air Permeability: 0

## STRENGTH CHARACTERISTICS

- Mullen Burst Strength > 800 PSI, Breaking Load Strength > 350 PSI, Water Entry Pressure > 30 PSI

## MECHANICAL CHARACTERISTICS

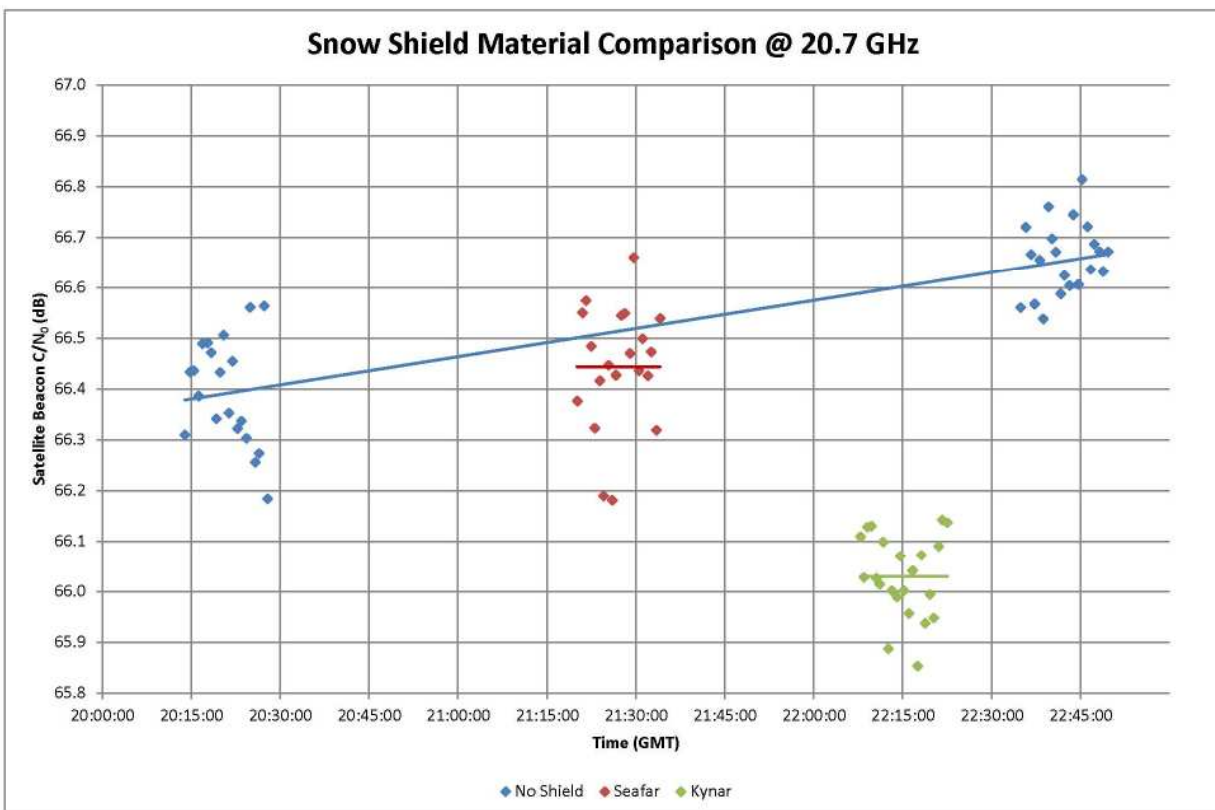
- Light Weight (15oz/sq yd), form fitting. Material will **NOT** tear or swell and is guaranteed to **EXCEED** 5 years fabric life

## CHEMICAL CHARACTERISTICS

- Oil repellent, Water repellent, UV resistant, Chemically inert, Resistant to acids, Bases, Solvents, Paints, Fungus, Corrosive Reagents, Grease, Oils, and Salt Spray (2000 hours), Non-fading per ASTM D 2244-89

## TEMPERATURE CHARACTERISTICS

- Range: -350<sup>0</sup> F to 550<sup>0</sup> F (-212<sup>0</sup> C to 288<sup>0</sup> C)
- Non Flammable per UL 94V-0



**WALTON**  
**DEVICE**

Snow Shield

**Icequake**





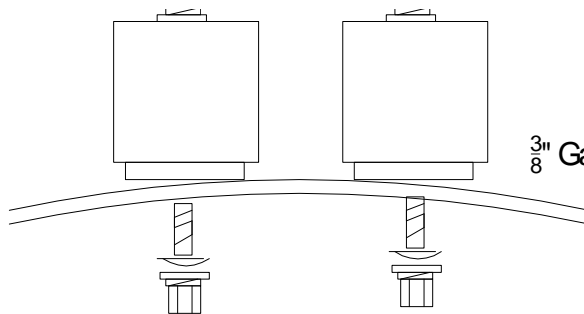


# Ice Quake

Snow Shield

Ice Quake

The Ice Quake Assemblies are installed on the edge of the antenna reflector by drilling 2 each  $\frac{3}{8}$ " holes into the edge of the reflector and mounting the vibration isolator pads. These pads cause the vibration to transfer into the Snow Shield and not into the antenna's reflector



$\frac{3}{8}$ " Galvanized Wedge thin side face

Edge of Antenna Reflector

$\frac{3}{8}$ " Sealing Washer  
 $\frac{3}{8}$ " Flat Washer  
 $\frac{3}{8}$ " Lock Washer  
 $\frac{3}{8}$ "x1" Hex Head Bolt







# Ice Quake

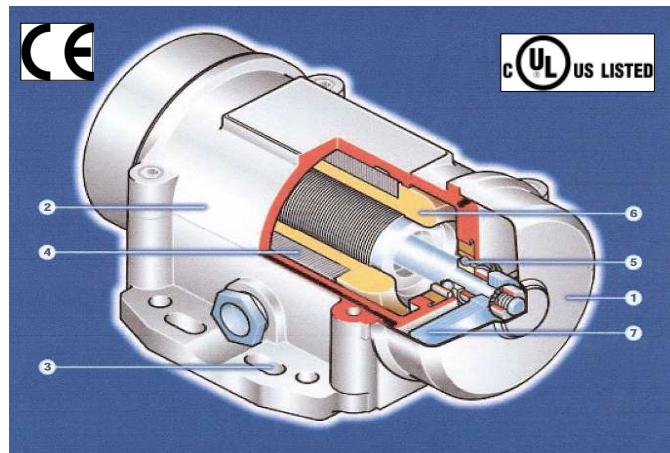
Snow Shield

Ice Quake

The new Micro Series represents the natural evolution of the previous series produced by Italvibras. Experience acquired throughout years of work and specific workshop tests, have allowed significant improvements to be applied to both the technical aspects and design of the new Micro vibrators, so much so that the product has become even more reliable.

The Micro Series has been designed for continuous use in industrial processes that require smaller size electric vibrators with lower centrifugal force.

Micro electric vibrators feature IP65 mechanical protection, a highly resistant light aluminum alloy casing and stainless steel weight covers. Lubrication is not required as long life maintenance-free type bearings are used.



1. Weight covers in stainless steel that combine high mechanical strength with the protection guaranteed by stainless steel.
2. Aluminum casing with surface polishing treatment.
3. The fixing center-distances, which are identical to those of the previous Micro series, ensures perfect interchangeability.
4. Stator insulated by means of the impregnation process, guaranteeing perfect insulation and the utmost protection against damage from the vibration process
5. Ball bearings set in specifically researched positions to ensure top-most efficiency throughout the stress caused by the centrifugal force.
6. The windings are subjected to the strict tests established by the standards in all pieces produced under CSA, UL and CSA guidelines.
7. The lamellar eccentric weights can be regulated in steps by changing the actual number of weights mounted.



# 24VAC Ice Quake System

Snow Shield

Ice Quake



18/2 outdoor rated cable runs from Moisture Grid Assembly to Ice Quake



18/2 outdoor rated cable runs from Transformer to Ice Quake's Moisture Grid Assembly. 25 feet of cable is include in each system. Ad-  
ditional cable can be pur-

120 VAC or 220 VAC to 24 VAC Transformer rated at 100 VA plugs into standard wall outlet.





# DS-4 Sensor/Controller

Snow Shield

Ice Quake

The DS-4 LCU is used to control the Ice Quake System on antennas 2.1 and larger. The Ice Quake System will automatically activated using a moisture/temperature sensing unit. This unit closes a 30amp 1 pole relay in the event that there is moisture present and the temperature is 39 degrees or below.

## The DS-4B Rain/Snow Sensor Controller

- Automatic Activation means Lower Deicing Costs
- Reliable Rain and Snow Detection
- Full 30A @ 240VAC Control
- Field Strap for 100-120/200-240 VAC Operation
- Replaceable Precipitation Sensor
- Easy Installation, Full Access to Electronics
- 8 Different Functions, 1 Part Number
- Adjustable Temperature Trigger Point
- Adjustable Delay Off Cycle
- Selectable Low Temperature Cutoff
- Smart "Manual On" Operates for One Delay Off Cycle





# DP-7IQ De-Ice Controller

Snow Shield

Ice Quake

## Walton DP-7IQ Remote Monitor/Control Unit

The DP-7IQ is mounted on a 1.75" X 19" standard, single rack mount panel. The black powder finish assures high indicator visibility, even from a long distance. Termination of the cabling from the local unit is easily made through the rear mounted terminal blocks on the back of the unit. All connections to the unit are clearly marked on the rear of the panel to simplify installation. A de-pluggable terminal block for interface also makes swap-out a snap. Control Leads going to the DS-4 Local Control/Sensor are optoisolated in order to improve noise immunity, reduce ground loop problems, and provide circuit protection. This also allows the DP-7IQ to be mounted up to 1200 feet away from the Local (DS-4) Control/Sensor. Dry contact I/O for customer monitor and control equipment is also provided for monitoring the status of the deicing system along with allowing full remote **Manual On** activation, no matter what position the DP-7IQ control Switch is in. A panel indicator will show a remote M&C **Manual On** command.

### Key Features of the DP-7IQ

- Inexpensive Assurance of Proper De-icing Operation
- Full Remote Control for Testing
- M & C Interface for Station Control/Monitor
- 100-120VAC Standard, 200-240 VAC Optional
- Controls can be located up to 1200 Feet from the Local Antenna De-ice Controls
- Stand or High Density Configurations Available



The DP-7IQ remote control/status display panels coupled with the DS-4 provides a low cost method to remotely monitor and control your Ice Quake System. The DP-7IQ provides basic **Ice Quake on** Status for the Ice Quake System, along with **Manual on**, **Automatic**, and **Standby** control capabilities. The DP-7IQ also has a Feed Heater On Indicator.



# Minimize The Impact of Ka-Band Rain Fade with **Walton Rain Quake**

**Your Signal Without Walton Rain Quake**



**With Walton Rain Quake**



**Rain Fade is a serious challenge with the new Ka-Band systems.**

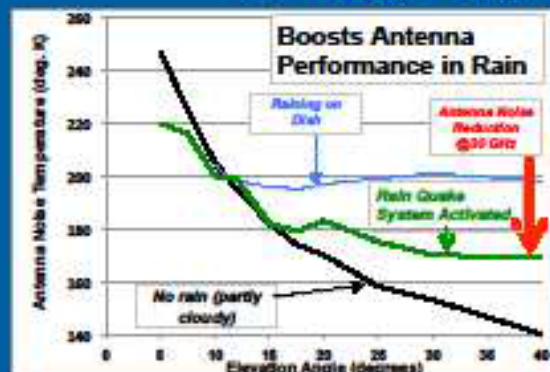
Signal attenuation at Ka-Band during heavy rainfall can be up to four or five times that of G/Ku-Band. Antenna wetting alone can add 2.7 to 3.9 dB of link losses at Ka-Band.

Walton Rain Quake systems reduce rain fade on your Ka-Band antennas, and protect your antenna G/T performance. During heavy rain conditions, Walton Rain Quake systems can reduce data loss — by over 20X compared to Ka-Band antennas without protection.

- Prevents water from sheeting on your antenna surface - and causing Ka or Ku-band rain fade — from VSATs to large antennas.
- Covers your antenna — keeping rain off with GORTOX® material that's virtually invisible to RF.
- Rain Quake is also the Ice Quake De-Icing System for year-round protection in areas with snow and ice.



**Rain Quake**



Tests show that the Rain Quake System helps to minimize bit error rates and antenna noise temperature increases, as well as increase your link margins during a rain storm.

**WALTON  
DE-ICE**

**Rain Quake**

**Solar Cover**

**Ice Quake**



# Rain Quake

Snow Shield

Ice Quake

## Rain Fade Testing of the Walton Snow Shield (Winterization Kit) Cover and Ice Quake System on a 3.9 meter Ka Band Antenna



Rain fade test performed at Ka Band using a FDMA Modem and a satellite simulator. The duration of all testing was 10 minutes. Solar-Winterization Cover with Ice Quake System activated with water at a rate of 2.5 gallons per minute. During this phase of the test a total of 4 hits (data lost) were recorded (photo on the left)



Test performed on a 3.9 meter GD antenna

## Summarization of Testing Performed

Description of Test Performed	Number of Hits (Data Lost)
Reflector Dry with no Solar-Winterization Cover	2
Reflector Wet with no Solar-Winterization Cover	43
Solar-Winterization Cover installed and dry	2
Solar-Winterization Cover installed, dry with Ice Quake activated	1
Solar-Winterization Cover installed, wet with no Ice Quake activated	34
Solar-Winterization Cover installed, wet with Ice Quake activated	4



# Snow Shield

## Electric and Gas Heating Units







# Snow Shield Controls

Snow Shields

Heated

## Automated Snow Shield Heating System

All W. B. Walton Enterprises heated Snow Shield de-icing systems are supplied with an automatic local controller which interfaces with a moisture sensor and Thermister to monitor precipitation and temperature. This system provides the user with a versatile, yet inexpensive method of controlling the de-icing system. These systems were designed specifically to operate in high noise, low temperature environments, for added reliability.

## DS-4 Automatic Local Control Unit

The DS-4 Controller operates by detecting temperature through a base mounted thermistor and precipitation using a precipitation sensor. These signals are then supplied to the micro-controller, which will activate your de-icing system. The DS-4 Controller can be powered by either 110-120 VAC or 200-240 VAC 50/60 Hz power. For Gas heaters or Electric Heaters 6000 Watts or greater, you will need the DS-6 Controller.

### KEY FEATURES

- Automatic Activation Lowers De-icing Operational Costs
- Reliable Snow Detection
- Dual 30A @ 240 VAC Individually Controlled Relays
- Replaceable Precipitation Sensor
- Adjustable Temperature Trigger Point
- Adjustable Delay Off Cycle
- Selectable Low Temperature Cutoff
- Easy Installation and full access to electronics
- Field strap for 100-120/200-220VAC Operation



Now UL and CE Certified





# Walton Electric Heaters

**Snow Shield**

**Heated**

## Walton 48 VAC Heater for 0.6 to 1.2-meter Antennas

The 48VAC system was designed for sites with no AC power to the antenna. This system requires no conduit or wire from the power source to the antenna, and can be installed without the need for an electrician. Number 8/2 conductor 150 volt cable is used from the transformer to the antenna. The transformer can be located (plugs into wall outlet) up to 500 feet from the antenna. Electrical cable can be installed with the RF Cable.

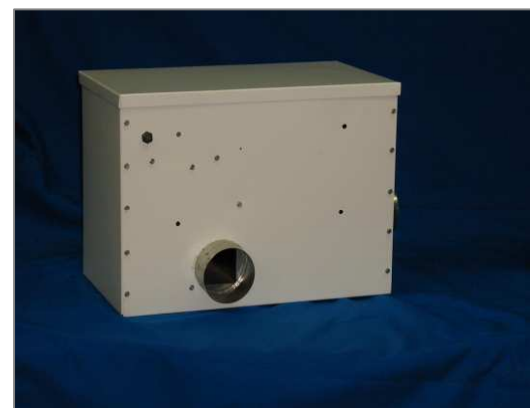
Power to the heater is 48 VAC, which is supplied to the 800 Watt element, and rectified for the 48 VDC blower motor.

The system is controlled with an on/off switch on the transformer assembly. The system should be turned on in the fall, and off in the spring. The blower will operate continually while the switch is on. There is a thermostat in the heater, which turns on the heater element whenever the outside temperature falls below a pre-set temperature range.



## Walton 120 VAC, 220 VAC and 230 VAC Heaters for 0.6 to 2.3-meter Antennas

This small heater is the same design as the 48 VAC heater except it uses 120 VAC, 220 VAC or 230 VAC for the heater element and the blower motor. The heater will provide 1,200 Watts, 1,700 Watts or 2,000 Watt of heat, as required. The heater unit utilizes brush less and maintenance free blower motors. The heater is controlled by the DS-4 Moisture/Temperature sensor. The Rack mounted DP-7SS Remote Monitor/Control Panel can be added to the DS-4. Unlike the 48 VAC heater above, this heater requires a professionally installed electrical service.



Heater KW	120VAC 60Hz	220VAC 50/60Hz	230 VAC 50 Hz
1.2	14 amps	* 7.45 amps	7.22 amps
1.7	18.17 amps	* 9.72 amps	9.39 amps
2	* 20.67 amps	* 11.09 amps	10.69 amps

\* Pending  Approval

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# Walton Electric Heaters

**Snow Shield**

**Heated**

## Walton 120VAC, 220 VAC and 230 VAC Heaters for 2.4 to 3.1-meter Antennas

This heater uses 2 elements at 2,000 Watts each to provide 4,000 Watts of heat, and utilizes brush less maintenance free blower motors. The heater is controlled by the DS-4 Moisture/Temperature sensor. The Rack mounted DP-7SS Remote Monitor/Control Panel can be added to the DS-4. This heater does require a professionally installed electrical service.



### Single Phase Electric Power Consumption

Heater KW	120VAC 60Hz	220VAC 50/60Hz	230 VAC 50 Hz
4	36.83 amps	* 20.48 amps	19.39 amps

\* Pending  Approval

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## Walton 120VAC, 220 VAC and 230 VAC Heaters for 3.2 to 5.0-meter Antennas

Using the same concepts as the two smaller heaters, this heater wattage ranges from a three element 6,000 Watt unit to a six element 12,000 Watt unit. The blower motors are brush less and maintenance free.

The heater can be controlled by the Walton Thermostat Controller or the DS-4 Moisture/Temperature sensor. The Rack mounted DP-7SS Remote Monitor/Control Panel can be added to the DS-4. This heater required a professionally installed electrical service.

### Single Phase Electric Power Consumption

Heater KW	208/220/230 50/60Hz
6	37.45 amps
12	66.29 amps

### Three Phase Electric Power Consumption

Heater KW	208 VAC 60 Hz	220/230/240 VAC 50 Hz	380/400 VAC 50Hz
6	22.26 amps	* 21.35 amps	14.14 amps
12	38.31 amps	* 37.10 amps	23.25 amps

\* Pending  Approval



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## Snow Shield Gas Heater and Electric Heater Comparison

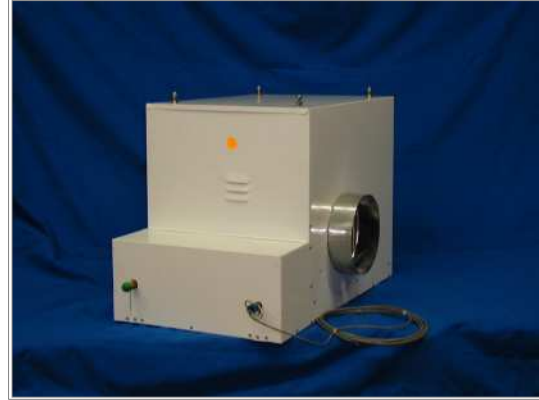
Snow Shield

Heated

### Electric Snow Shield Heater



### Gas Snow Shield Heater



### Representative Average Unit Cost of Energy

Energy Type	In common Therms:	\$ per million BTU (British Thermal Unit
Electricity	10.8 cents per KWh	<b>\$31.65</b>
Natural Gas	75.3 cents per therm	<b>\$13.28</b>
Propane	2.42 dollars per gallon	<b>\$26.50</b>

Note: Energy Costs as set forth by the Dept. of Energy, Effective Date March 3, 2008.

### Heater Specifications

#### Natural Gas

**Inlet Pressure:** 7 inches water column to heater and 4.5 inches of water column to burner.

#### **Electrical Consumption**

**Electric:** 9.6 amps @ 120VAC 1 phase 60 Hz or 4.8 amps @ 220VAC 1 phase 50 Hz.

#### Liquid Propane Gas

**Inlet Pressure:** 10 pounds per square inch to second stage regulator and 11 inches of water column to heater burner.

#### **Electrical Consumption**

**Electric:** 9.6 amps @ 120VAC 1 phase 60 Hz or 4.8 amps @ 220VAC 1 phase 50 Hz.



# Snow Shield Control Units

**Snow Shields**

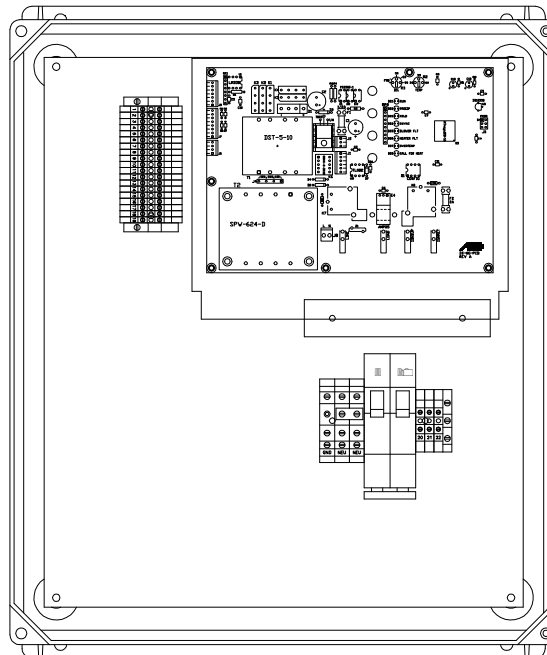
**Heated**

## DS-6 Local Control Unit located inside the Power Distribution Panel Enclosure

The DS-6 series of controllers were developed to provide a cost effective, automatic control system for Heated Snow Shields with Gas heaters or Electric heaters of 6KW or 12 KW. Similar to the DS-4 in operation, the DS-6 is in a NEMA 4X non-metallic enclosure which houses the DS-6 Printed Circuit Board, Terminal Blocks, and circuit breakers. These added items are required for the gas heaters and the larger electric heaters.

### Key Features

- Automatic Activation Lowers De-icing Operational Costs
- Reliable Snow Detection
- Replaceable Precipitation Sensor
- Adjustable Temperature Trigger Point



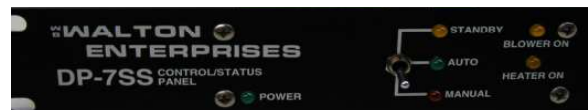
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## DP-7SS Remote Monitor/Control Unit

The DP-7SS remote Monitor and Control/Status Panel provide a low cost method of remotely monitoring and controlling the DS-4 or the DS-6 De-icing Control Units. The DP-7SS, mounted in a single rack unit (1.75 in. X 19 in.) panel with black finish to assure good indicator visibility.

The DP-7SS, which can be located up to 1200 ft from the DS-4 or DS-6, has a blower on and heater on indicator LED. Manual, Auto or Standby mode can be selected from the DS-7SS Panel. Dry Contact I/O's are provided for interfacing with customer's M&C System.







## Gore-Tex Feed Horn Covers Passive and Heated

Walton De-Ice

Heated

W. B. Walton Enterprises, Inc. optional Feed Horn Covers can either be passive or heated. The Passive cover is the same PTFE Coated GORE-TEX® Fabric that is used to manufacture the antenna reflector cover. PTFE has the lowest coefficient of friction of any solid, and therefore does a good job of preventing ice and snow accumulation on the feed. For an even higher level of performance, Walton offers a Heated Feed Cover. The Heated Feed Cover is also the PTFE Coated GORE-TEX® Fabric that has a 24 VAC, 12 watt Silicon Heater Pad that is located inside the Feed Horn Cover and can operate at 220/230 VAC 1 phase 50 Hz. or 120 VAC 1 phase 60 Hz.





# Hot-Air De-Ice

Walton De-Ice

Heated

The Walton Hot Air De-ice system is designed to prevent snow and ice from accumulating on the Satellite Earth Station Antenna. This Hot Air De-Ice System is the original Walton concept, with a plenum (enclosure) located on the rear of the antenna. Heaters (Gas or Electric) located on the antenna structure provide Hot Air for inside the plenum, which in turn heats the reflector surface to remove or prevent ice and/or snow from accumulating.

Over the Past 32 years, Walton has updated the plenum and heaters to ease installation, and provide the most reliable and economical satellite antenna de-icing system on the market today. In order to provide maximum flexibility, Walton offers Electric, Natural Gas, and Liquid Propane Gas Heaters so the customer can make their choice, based on the cost and availability of the fuel source at their location.

Unlike Electric Pad or Heat Tape Anti-ice, the Walton Hot Air De-ice System heats the entire Satellite Communications Antenna Reflector and Back Structure uniformly. This minimizes the chances of reflector distortion (which can cause signal problems) caused by thermal expansion and contraction.

Most people agree that enclosing the back of the Satellite Earth Station Antenna makes it more esthetically pleasing. This enclosure will hide the unsightly support structure and will also prevent birds from nesting in the back structure of the antenna.



## Key Features

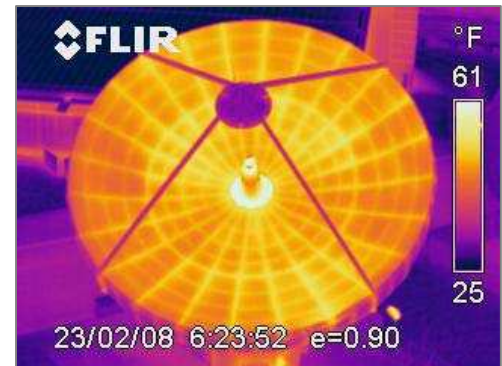
- Prevents the accumulation of snow and ice on the Satellite Earth Station Antenna, which therefore prevents the Signal loss associated with snow and ice.
- Heat Source Flexibility – Electric, Natural
- Gas and Liquid Propane Gas Heaters are available.
- De-icing System carries a **full two- year warranty.**
- De-icing system makes antenna more
- Esthetically pleasing.
- **Technical Support available 24 hours a day 7 days a week.**



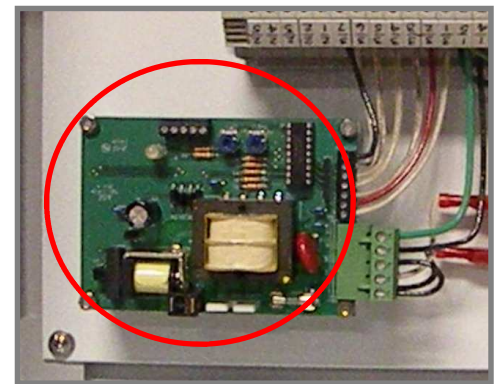


# Plenum De-Icing System's for Ka-Band Antennas

Walton De-Ice has successfully installed over 125 Ka-Band antenna Gas and Electric Heating Systems utilizing an Infrared Camera technique on the proper location of both Gas Heater Ducts and the Placement of the Stainless Steel Electric Space Heaters.



The TBC-1 is used to monitor the air temperature of up to four quadrants of a satellite antenna and activate circulation fans if a high temperature differential is detected. A control is provided for setting the allowable differential for activation (DIFF) from 2°C to 15°C. A second control provides adjustment of minimum run time in order to reduce short cycling of the fans (DWELL.)



Circulation Fans controlled by the TBC-1 are used to move the heated air throughout the plenum to evenly distribute the out bound heat. The Circulation Fans operate all year long to keep the air inside the plenum at a temperature of no more then 10 degrees F. difference at any location within the plenum.





# Gas and Electric Heaters

Walton De-Ice

Heated

W. B. Walton Enterprises, Inc. manufactures a Gas Heater which is designed specifically for De-icing Satellite Earth Station Antennas. These Heaters are suspended from the antenna mounting structure and provide economical and reliable service for years to come.

Walton offers the best electrical heater in the business. These heaters are virtually maintenance free with Stainless Steel Housing, Stainless Steel Fins, V-Seal Technology to seal the Elements and T.E.F.C. (Totally Enclosed Fan Cooled) Motor, for the highest level of reliability in the industry.



## Gas Heaters vs. Electric Heaters Operational Costs

Energy Type	In Common Therms	\$ per million BTU (British Thermal Unit)
Electricity	10.8 cents per KWh	<b>\$31.65</b>
Natural Gas	75.3 cents per therm	<b>\$13.28</b>
Propane	2.42 dollars per gallon	<b>\$26.50</b>

## Available Options

- Feed Horn and Subreflector De-icing systems.
- Control of Antenna manufacturer's Feed Horn and Subreflector De-ice
- Field Services
- Custom Systems for special applications.





W. B. Walton Enterprises, Inc. (Walton De-Ice)  
Gas Heaters for Snow Shield Cover De-Icing Sys-  
tems and the Gas Heaters for Plenum De-Icing  
Systems now meet the European Union Declara-  
tion of Conformity for directives: EN 60204-  
1:2006+A1:2009, EN 60529:1991+A1:2000/IEC  
60529:1989+A1:1999 and EN12669 (EN298:2003  
EN126:2004 EN1854:2006)

EU Gas Appliance Directive Test Standards:  
2009/142/EC (GAD)

EU Low Voltage Directive Test Standards:  
2006/95EC

Environmental Tests:  
EN 60529:1991+A1:2000



## New CE Certified Gas Heating Unit's Features

### New Dual Hot Surface Ignition System

- Dual hot surface igniter's means redundancy in the ignition sequence.
- Large flame sensing rod. Turbulence no longer a factor during ignition sequence.
- Same reliable 3 try ignition sequence with factory adjustable pre-purge time.



### Positive Blower Recognition for Ignition Sequence

- Normally open contact on air flow switch operates power to the ignition unit. No air flow, no ignition.
- If no airflow is verified, the ignition unit will not be energized and the unit will go into ignition failure mode.



### Same Wiring and Mounting Configuration as Original Heaters

- Older Gas Heaters can be changed out with the new designed Gas Heating Units. Mounting and wiring is the same.



**WALTON**  
REFRIG





# Stainless Steel Electric Heaters

Walton De-Ice

Heated

The Forced Air Electric heaters used on the Walton Hot Air De-icing Systems are built specifically for Antenna De-icing Systems. The Heating units are built to Walton's demanding specifications in order to provide reliable operation over a long period time and under difficult climatic conditions. The heater (including the heater element's fins) is made of Stainless Steel, and all hardware is either stainless steel or aluminum, for a rust and corrosion free life. These heaters also incorporate the latest innovation with V-seal technology. Because these heaters are inactive for long periods of time, while also being exposed to the elements, preventing moisture absorption is paramount for long trouble free heater service. V-Seal Technology does just that, and extends the life of the heater elements and improves their reliability.

The fan motors are totally enclosed fan cooled (T.E.F.C.) motors, which are better suited for this type of outdoor operation than open winding type motors. These heaters also incorporate built in thermal devices, which provide high heat protection.



## Virtually Maintenance Free Heaters

### Key Features

- Stainless Steel Housing
- Stainless Steel Fins
- Totally Enclosed Fan Cooled (T.E.F.C.) Motor
- V-Seal Technology for battling the elements
- Technical Support available 24 hours a day 7 days a week.





## ADC-2000's DS-15 Local Monitor/Control Board

Walton De-Ice

Heated

### ADC-2000 Antenna De-Icing Control System

The Walton De-ice ADC 2000 Antenna De-icing Control System consisting of a rack mounted Remote Control/Status Unit (DP-8) that communicates with the Local Control (DS-15) Power Distribution Panel located on or near the antenna. These Local and Remote Units work in unison to provide the most up to date and cost effective Antenna De-ice Control System in the industry. This system can also serve as the Rain Blower Controller if the antenna is fitted with a Rain Blower. When coupled with the Walton Hot Air De-icing System, the ADC 2000 Automatic De-ice Control System is designed to maintain ice free conditions on the Reflector, Feed and Subreflector without assistance from site personnel. The logical and Straightforward controls and indicators provide simple yet versatile operation.

### DS-15 Local Control Unit located inside the Power Distribution Panel Enclosure.

The DS-15 Local Control Unit is located inside the Power Distribution Panel Enclosure, which is mounted on or near the antenna. Together they provide rain and snow detection, basic monitoring functions and switching power for the heaters. At the Local Control Unit Power Distribution Panel, the operator will have access to three LED indicators. The PRECIP LED indicator will show if the sensor is indicating moisture. The COLD LED indicator will show if the Thermister is indicating the air temperature is below the trigger point. The Run LED indicator will show if the DS-15 local controller is operating properly. The Operator will also have access to the System Bypass Switch and the Thermal Disc bypass switch for testing and emergency operation. The Local Control Unit communicates with the Rack Mounted Remote Control/Status Panel via a dedicated 4-wire RS-422 serial link, along with a summary alarm relay contact. The interconnecting cable will be a #22 multi-conductor cable with an overall shield. DS-15 Local Control Unit which will be integrated into the Power Distribution Panel.

### Key Features

- Automatic Activation Lowers De-icing Operational Costs
- Reliable Rain and Snow Detection
- Replaceable Precipitation Sensor
- Can operate as a Rain Blower and De-ice Control System.
- Adjustable Temp. Trigger Point and Delay Off Cycle
- Selectable Low Temperature Cutoff
- Monitors each Heater for "Blower On", "Call for Heat" and "Heater Failure" Monitors Feed Horn and Subreflector Heater/Blower for "Blower On", Feed Heater On" and Sub Heater On"
- Remote Rack Mounted Unit can communicate with the Customer's M&C System via a RS-232 or addressed 4 wire RS-485 "Party Line". It is also IP Addressable through a separate optional port.

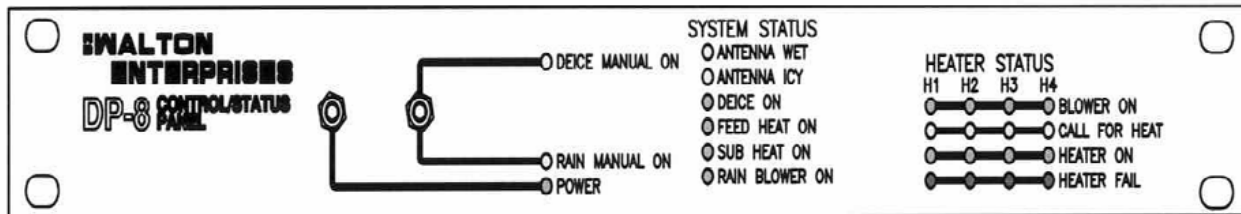


## ADC-2000's DP-8 Remote Control/Status Unit

Walton De-Ice

Heated

### DP-8 Rack Mounted Remote Control/Status Unit



From the Remote Control/Status Panel (DP-8) the operator is able to select between Automatic Operation, De-ice Manual On and Rain Blower Manual On. When in the automatic mode, the Rain Blower (if supplied) will activate when the precipitation sensor detects moisture but the Temperature is above the trigger point. The De-icing System will activate when the precipitation sensor detects moisture, and the temperature falls below the adjustable (34o F to 44o F) temperature trigger point. When the De-ice Manual On is selected, the system is activated, just as if the precipitation sensor indicated moisture, and the temperature was below the trigger point. When the Rain Blower Manual On is selected the Rain Blower (if supplied) will be activated. The Remote Panel is equipped with System status LED indicators for “Antenna Wet”, Antenna Icy”, De-ice On”, “Feed Heat On”, “Sub Heat On” and “Rain Blower On”. Additionally, the Remote Panel has LED status indicators for up to 4 heaters. These LED indicators show, “Blower On”, “Call For Heat”, “Heater On”, and “Heater Failure”. All of this status is available to the customers M&C system via RS-232 or an addressed 4 wire RS-485 “party Line” M & C interface. The port for this interface is located on the Rack Mounted (DP-8) Remote Control/Status Unit.





# ADC-3000's DS-16 Local Monitor/Control Board

**Walton De-Ice**

**Heated**

## **Introducing the new ADC-3000 Antenna De-Icing Control System**

The Walton De-ice ADC 3000 Antenna De-icing Control System is just like ADC 2000 except it can handle up to 6 heaters and has the capability to monitor propane fuel consumption. The ADC 3000 consists of a rack mounted Remote Control/Status Unit (DP-9) that communicates with the Local Control (DS-16)/Power Distribution Panel located on or near the antenna. These Local and Remote Units work in unison to provide the most up to date and cost effective Antenna De-ice Control System in the industry. This system can also serve as the Rain Blower Controller if the antenna is fitted with a Rain Blower. When coupled with the Walton Hot Air De-icing System, the ADC 3000 Automatic De-ice Control System is designed to maintain ice free conditions on the Reflector, Feed and Subreflector without assistance from site personnel. The logical and Straightforward controls and indicators provide simple yet versatile operation.

## **DS-16 Local Control Unit located inside the Power Distribution Panel Enclosure**

The DS-16 Local Control Unit is located inside the Power Distribution Panel Enclosure, which is mounted on or near the antenna. Together they provide rain and snow detection, basic monitoring functions and switching power for the heaters. At the Local Control Unit Power Distribution Panel, the operator will have access to three LED indicators. The PRECIP LED indicator will show if the sensor is indicating moisture. The COLD LED indicator will show if the Thermister is indicating the air temperature is below the trigger point. The Run LED indicator will show if the DS-16 local controller is operating properly. The Operator will also have access to the System Bypass Switch and the Thermal Disc bypass switch for testing and emergency operation. The Local Control Unit communicates with the Rack Mounted Remote Control/Status Panel via a dedicated 4-wire RS-422 serial link, along with a summary alarm relay contact. The interconnecting cable will be a #2 multi conductor cable with an overall shield. DS-16 Local Control Unit which will be integrated into the Power Distribution Panel

### **Key Features**

- Automatic Activation Lowers De-icing Operational Costs
- Reliable Rain and Snow Detection
- Replaceable Precipitation Sensor
- Can operate as a Rain Blower and De-ice Control System.
- Adjustable Temp. Trigger Point and Delay Off Cycle
- Selectable Low Temperature Cutoff
- Monitors each Heater for "Blower On", "Call for Heat", "Heater Failure" and "Over Temp"
- Monitors Feed Horn and Subreflector Heater/Blower for "Blower On", Feed Heater On" and Sub Heater On"
- Remote Rack Mounted Unit can communicate with the Customer's M&C system via a RS-232 or addressed 4 wire RS-485 "Party Line". It is also IP
- Addressable through a separate optional port.
- Propane Fuel consumption monitoring capabilities.



## ADC-3000's DP-9 Remote Control/Status Unit

Walton De-Ice

Heated

### DP-9 Rack Mounted Remote Control/Status Unit



From the Remote Control/Status Panel (DP-9) the operator is able to select between Automatic Operation, De-ice Manual On and Rain Blower Manual On. When in the automatic mode, the Rain Blower (if supplied) will activate when the precipitation sensor detects moisture but the Temperature is above the trigger point. The De-icing System will activate when the precipitation sensor detects moisture, and the temperature falls below the adjustable (34o F to 44o F) temperature trigger point. When the De-ice Manual On is selected, the system is activated, just as if the precipitation sensor indicated moisture, and the temperature was below the trigger point. When the Rain Blower Manual On is selected the Rain Blower (if supplied) will be activated. The Remote Panel is equipped with System status LED indicators for “Antenna Wet”, Antenna Icy”, De-ice On”, “Feed Heat On”, “Sub Heat On” and “Rain Blower On”. Additionally, the Remote Panel has LED status indicators for up to 6 heaters. These LED indicators show, “Blower On”, “Call For Heat”, “Heater On”, “Heater Failure” and “Over Temp”. LED indicators showing 50% and 20% Propane Fuel consumption are also located on the Remote Control/Status Panel (DP-9). All of this status is available to the customers M&C system via RS-232 or an addressed 4 wire RS-485 “party Line M & C interface. The port for this interface is located on the Rack Mounted (DP-9) Remote Control/Status Unit.