



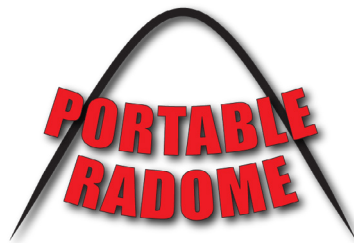
WALTON DE-ICE

2023 Product Catalogue

Walton De-Ice is the **ONLY manufacturer of Satellite Earth Station Antenna De-Icing Systems that are used by the major antenna manufacturers such as ASC Signal, Kratos, Calian SED, Alpha-Satcom, GD Satcom, CPI, and ViaSat.**

With over four decades 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 environmental conditions.

**HOT AIR
DE-ICE SYSTEMS**



Snow Shield

ICE QUAKE

SOLAR COVER

RAIN QUAKE

- **Simple facts about De-Icing and Anti-Icing Systems for VSAT's and medium to large Earth Station Antennas.**
 - **Snow Shield Fabric Introduction**
 - **Compare your Snow Shield Fabric Options**
 - **Architectural *Kynar* Fabric specifications sheet**
 - **Architectural *Tedlar* Fabric specifications sheet**
 - **General comparison of Architectural Fabrics**
 - **Non-wicking properties of Architectural Fabrics**
 - **Tear resistant properties of Architectural Fabrics**
 - **Tensile strength properties of Architectural Fabrics**
 - **UV light and weathering properties of Architectural Fabrics**
 - **Coating adhesion properties of Architectural Fabrics**
 - ***SEFAR PTFE* Fabric specifications sheet**
 - **Ice Quake Introduction**
 - **Electrical consumption comparison between the Ice Quake System and heat pad or heat tape systems**
 - **Attaching the Ice Quake Unit to Antenna Reflector**
 - **Ice Quake's eccentric vibrating motor specifications sheet**
 - **24VAC Ice Quake's PS-2 Rain sensor/controller**
 - **24VAC Ice Quake/Rain Quake System**
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 - **DS-4C sensor/controller for Ice Quake System**
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 - **Rain Quake Systems Introduction**
 - **Rain Quake System's test data on 3.9 meter GD Ka-Band Antenna**
 - **Snow Shield Electric and Gas Heating Systems Introduction**
 - **DS-4C Moisture/Temperature Sensor/Controller**
 - **Snow Shield Electric Heating Systems for 0.6 to 3.1 meter Antennas**
 - **DS-6 Local Unit and DP7-SS Remote Monitor/Controller Unit**
 - **Snow Shield Electric Heating Systems for 3.2 to 6.3 meter Antennas**
 - **Snow Shield Gas Heating Systems for 3.2 to 6.3 meter Antennas**
 - **Snow Shield Gas Heater and Electric Heater Comparison**
 - **Snow Shield SEFAR PTFE Feed Horn Covers**
 - **Heating Systems for Transportable Antennas**
 - **Heating Systems for L-Band Array Feed Horns**
- Plenum Hot-Air De-Icing Systems and Portable Radomes on next page**

HOT AIR DE-ICE SYSTEMS

Plenum Hot-Air De-Icing Systems Content Hyperlinked

- **Plenum (*Enclosure*) Hot-Air De-Icing System Introduction**
- **TBC-1 Controller for Ka-band Antennas**
- **DS-4C De-Ice Controller**
- **DP-7EX De-Ice Controller**
- **ADC-3000's DS-16 Local Control and Monitor Unit**
- **ADC-3000's DP-9 Remote Control and Status Unit**
- **Gas Heating Unit Introduction**
- **CE Certified Gas Heating Unit Features**
- **Stainless Steel Electric Heaters**
- **Comparison of Gas and Electric Heating Systems**
- **Feed Horn and Sub-Reflector De-icing Systems**
- **Field Service**



Portable Radomes Content Hyperlinked

- **Portable Radome (*3 Pages*)**
- **Radome Aluminum Stake Kit Option**
- **Radome Tedlar Floor Kit Option**
- **Radome A/C Option**
- **Radome De-Icing/Heater System**
- **Radome ECU Ports**
- **Kymeta u8 Go Case Antenna De-Icing System**
- **Kymeta u8 Fixed Mount Antenna De-Icing System**

The Simple Fact about De-Icing Systems for VSAT's and medium to large Earth Station Antennas

Walton Hot-Air De-Icing Systems (plenum closeout), along with our Snow Shield, either Passive, Heated or Ice Quake Systems are not only designed, manufactured, and supplied for the major antenna manufacturer's products, our products are the only De-Icing systems sold and installed by the major antenna manufacturers such as Kratos, CPI, GD Satcom, ViaSat, and Alpha-Satcom. So, while our competitors are trying to decide if they are "Anti-Ice or De-Ice", we are leading the way with our partnerships with the major antenna manufacturers in the technology of "De-Icing" both VSAT's and Satellite Earth Station Antennas.

Here's Why

The "Electric Pad De-Icing System" that was used by the major antenna manufacturer's during the C-band era was all but obsolete when the advent of Ku-band antennas came along in the early 80's. The pad technology would only heat the antenna reflector and not the reflector's back structure, causing movement in the alignment of the reflective surface causing attenuation in the signal and a loss of gain. This loss in performance was not acceptable for the antenna manufacturers or their customers, thus the Hot-Air De-Icing System became the accepted solution for evenly heating both the antenna reflector and reflector's back structure. The end users also enjoyed the aesthetically pleasing looks of the plenum (close-out) rather than thin aluminum foil, foam, and wires hanging from the back of their antenna.

Why Walton Hot-Air?

The Hot-Air De-Icing System is playing even a more important role today with the advancements being made with Ka-band antennas where the alignment of the reflector and back structure is more important than ever. Why install an Anti-Icing System which the major antenna manufacturers would not even sell to you due to degrading effects on signal performance?

Visit our product pages to learn why Walton De-Icing solutions are the only systems on the market that antenna manufacturers rely on to meet their performance requirements.



Walton De-Ice, Hot Air De-Ice

The Walton Hot-Air De-Ice system is designed to prevent accumulation of snow and ice on the Earth Station Antenna. There is a plenum (enclosure) located at the rear of the antenna and heaters located on the antenna structure. The heaters provide hot air for inside the plenum, which heats the reflector surface to remove or prevent ice and/or snow from accumulating.

Unlike electric pad or heat tape anti-ice systems the Walton Hot-Air De-Ice System heats the entire antenna reflector and back structure uniformly. This minimizes the chances of reflector distortion which can cause signal problems caused by thermal expansion and contraction.

Key Features

- Prevents the accumulation of snow or ice
- Fully encloses the reflector back structure with aluminum sheet sided foam panels with an aluminum frame
- DS-4C Precipitation Detector and DP-7EX Remote Panel included
- Includes one hundred feet of IFL interface cable

*Page from the ASC Signal ESA catalogue.

Snow Shield



We are now into our 27th year of offering Snow Shield Covers and optional products with 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 an architectural material that has been used to create outdoor structures since the 1940's with great success and now shares the same success in covering antennas.

The second is a polyester fabric that is coated in Tedlar®. This is also an Architectural material and has been used to create outdoor structures since the 1980's with excellent success and with its self-cleaning abilities, has proven to work very well both passive and with the Ice Quake System.

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 sold over 5,122 PTFE Snow Shield Covers worldwide with zero failures since 1996!

Though the two fabrics are less expensive than the PTFE Snow Shield Covers they have proven to be 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 Cover during the warmer months to increase longevity, as some competitors suggest being done with their antenna covers.

The customer must 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 opposed to purchasing a Walton De-Ice Snow Shield Cover (on the right) made with Kynar®, Tedlar® or PTFE coated PTFE 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 later, without having to replace or remove the Snow Shield Cover.

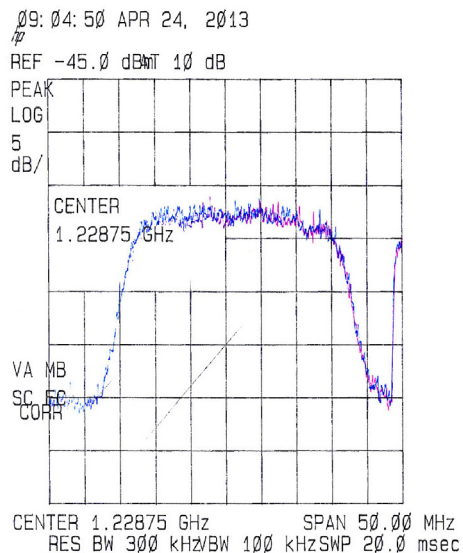
Architectural Kynar® Coated Fabric	Architectural Tedlar® Coated Fabric	Architectural Sefar PTFE Fabric / PTFE Coated
<ul style="list-style-type: none"> • Our most economical option 	<ul style="list-style-type: none"> • High-Performance and Cost-Effective 	<ul style="list-style-type: none"> • Unsurpassed Performance for Snow Shield Cover
<ul style="list-style-type: none"> • Rf transparency for L, S, C, X, and Ku-Band Antennas 	<ul style="list-style-type: none"> • Rf transparency for L, S, C, X, and Ku-Band Antennas 	<ul style="list-style-type: none"> • Rf transparency for L, S, C, X, Ku, K, and Ka-Band Antennas
<ul style="list-style-type: none"> • Fabric quality superior to competing cover options on the market 	<ul style="list-style-type: none"> • Fabric quality superior to competing cover options on the market 	<ul style="list-style-type: none"> • Fabric quality superior to competing cover options on the market
<ul style="list-style-type: none"> • Ability to add active Electric/ Gas heated De-Icing Systems 	<ul style="list-style-type: none"> • Ability to add active Electric/ Gas heated De-Icing Systems 	<ul style="list-style-type: none"> • Ability to add active Electric/ Gas heated De-Icing Systems
<ul style="list-style-type: none"> • Ability to add an Ice Quake De-Icing System 	<ul style="list-style-type: none"> • Ability to add an Ice Quake De-Icing System 	<ul style="list-style-type: none"> • Ability to add an Ice Quake De-Icing System
<ul style="list-style-type: none"> • Long useful performance life: <i>you'll replace 4 of our competitor's covers before ours wears out</i> 	<ul style="list-style-type: none"> • Long useful performance life: <i>you'll replace 5 of our competitor's covers before ours wears out</i> 	<ul style="list-style-type: none"> • Long useful performance life: <i>you'll replace 5 of our competitor's covers before ours wears out</i>
<ul style="list-style-type: none"> • Full reflector De-Icing Systems as opposed to competitor's half reflector anti-icing systems 	<ul style="list-style-type: none"> • Full reflector De-Icing Systems as opposed to competitor's half reflector anti-icing systems 	<ul style="list-style-type: none"> • Full reflector De-Icing Systems as opposed to competitor's half reflector anti-icing systems

Architectural Kynar® Coated Fabric Specifications Sheet

	Standard	Metric
Base Fabric Type	Polyester	Polyester
Base Fabric Weight (<i>nominal</i>)	4.3 oz/yd ²	146 g/m ²
Finished Coated Weight	21 oz/yd ²	712 g/m ²
ASTM D-751	+2/-1 oz/yd ²	+70/-35 g/m ²
Trapezoidal Tear		
ASTM D-4533	50/60 lb	223/267 N
Grab Tensile		
ASTM D-751	375/350 lb	1669/1558 N
Strip Tensile		
ASTM D-751 Procedure B	350/325 lb/in	307/285 daN/5 cm
Hydrostatic Resistance		
ASTM D-751 Procedure A	500 psi	3.45 MPa
Dead Load		
ASTM D-751	106 lb @ Room Temp. 53 lb @ 160° F	472 N @ Room Temp. 236 N @ 91° C
Low Temperature		
ASTM D-2136	LTA: Pass @ -67° F LTC: Pass @ -40° F	Pass @ -55° C Pass @ -40° C
Flame Resistance		
	<ul style="list-style-type: none"> Meets NFPA 701, ULC-S109, ASTM D-6413 (<i>2 second flame out</i>) ASTM E84 - Flame spread index <25, smoke development rating <450 	

W. B. Walton Enterprises, Inc. (Walton De-Ice) has been using the Kynar and Tedlar Snow Shield Covers for 10 years. "We are very excited with the results that we have seen so far in both C and Ku-Band along with the longevity of the architectural fabrics.

The quality of the architectural fabric is far superior to any of our competitor's fabrics. With the Kynar and Tedlar coated fabrics, 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.



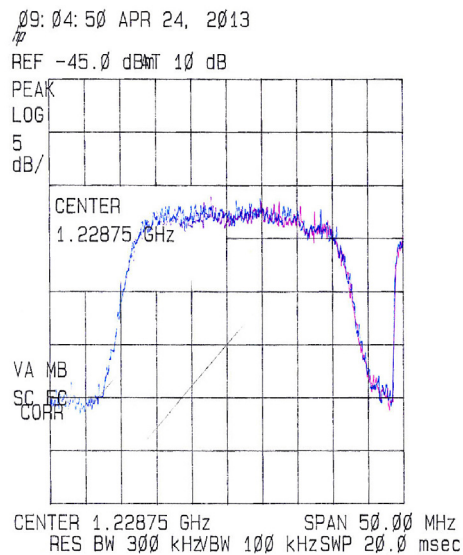
Test at Ku-Band
Red - No Fabric
Blue - with Fabric

Architectural Tedlar® Coated Fabric Specifications Sheet

	Standard	Metric
Base Fabric Type	Polyester	Polyester
Base Fabric Weight (<i>nominal</i>)	5.0 oz/yd ²	170 g/m ²
Finished Coated Weight	24 oz/yd ²	814 g/m ²
ASTM D-751	+2/-1 oz/yd ²	+70/-35 g/m ²
Trapezoidal Tear		
ASTM D-4533	800/65 lb	356/289 N
Grab Tensile		
ASTM D-751	400/350 lb	1780/1558 N
Strip Tensile		
ASTM D-751 Procedure B	300/240 lb/in	263/210 daN/5 cm
Hydrostatic Resistance		
ASTM D-751 Procedure A	500 psi	3.45 MPa
Dead Load		
ASTM D-751	120 lb @ Room Temp. 60 lb @ 160° F	534 N @ Room Temp. 267 N @ 91° C
Low Temperature		
ASTM D-2136	LTA: Pass @ -40° F LTC: Pass @ -67° F	Pass @ -40° C Pass @ -55° C
Flame Resistance		
	<ul style="list-style-type: none"> Meets NFPA 701, ULC-S109, ASTM D-6413 (<i>2 second flame out</i>) ASTM E84 - Flame spread index <25, smoke development rating <450 	

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The quality of the architectural fabric is far superior to any of our competitor's fabrics. With the Kynar and Tedlar coated fabrics, 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.



Test at Ku-Band
Red - No Fabric
Blue - with Fabric

FOR ARCHITECTURAL FABRICS

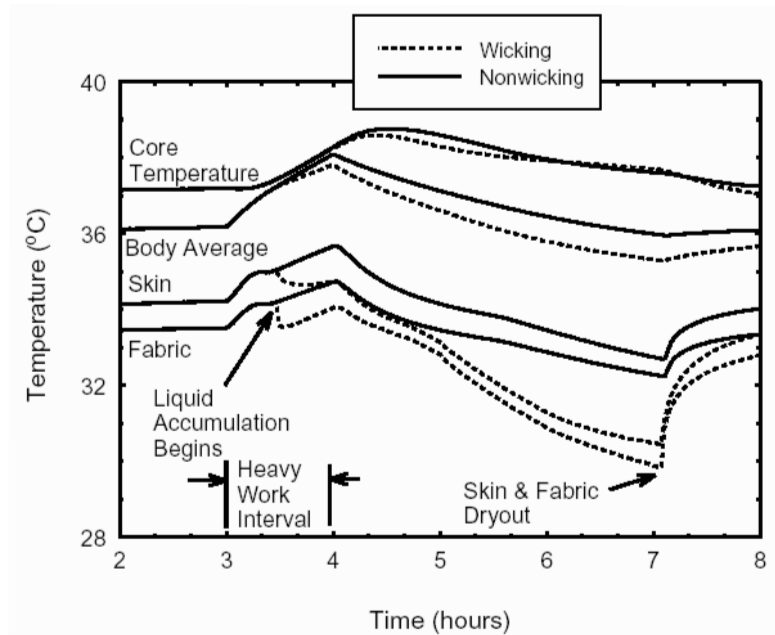
	Acrylic	PVDF	Kynar®	Tedlar®
Retention of Color	●●●	●●●	●●●●	●●●●●
Retention of Gloss	●●●	●●●●	●●●●	●●●●
Stain Resistance	●●	●●●	●●●●●	●●●●●
Dirt pick-up	●●●	●●●	●●●●	●●●●●
Mildew Resistance	●●●	●●●	●●●●●	●●●●●
Resistance to Environmental Pollutants	●	●●	●●●●●	●●●●●
Cleanable	●●●	●●●	●●●●●	●●●●●
Overall Life Expectancy <small>*based on field performance</small>	●●●	●●●	●●●●●	●●●●●

Scale: Good ●●●●● Best

The ability of a material to resist moisture from wicking into the polyester yarns is important for both structural and aesthetic reasons. Continuous filament polyester yarn can pull water into the space between the filaments by capillary action. If allowed to do so, this moisture can affect the adhesion properties of the material, causing seam problems or delamination of the coating compound. Even small amounts of moisture present in the base fabric can be a source of fungal growth, causing the material to discolor. This creates an aesthetic problem when viewed from the inside of the building.

Shelter-Rite has been designed to achieve non-wicking properties by the selection of polyester yarns, the adhesive coat, and the coating procedure. The application of the adhesive coating compound that fully saturates the base fabric is an effective way to eliminate wicking. In recent years, another means is the use of anti-wick polyester yarns to reduce the problems associated with wicking. The yarns are treated with a finish by the yarn producer to reduce wicking.

A wicking test is performed per ASTM D-751 Wicking of Coated Cloth section by immersing a one-inch strip of synthetic resin coated polyester fabric into a dye-water solution. The sample is exposed on one end for a period of 24 hours, then removed from the solution, and examined for wicking.

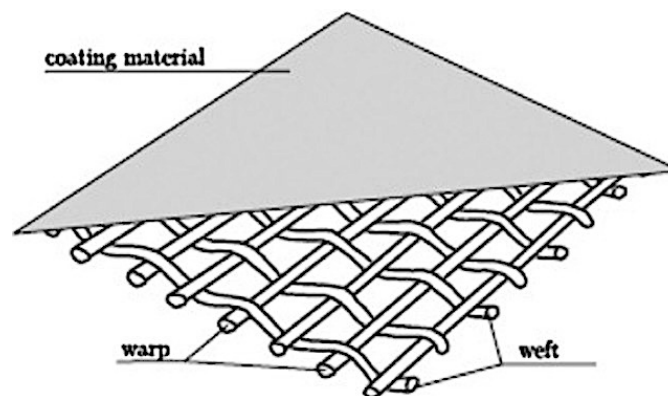


The tear strength of an architectural fabric is an important performance property. The ability of a material to resist a tear or tear propagation may be critical to the structural integrity of the building. This can be particularly true in an air-supported building where the loss of air pressure inside the structure can lead to a catastrophic failure.

Tear strength properties are related to a combination of factors involving the base fabric, weave/knit construction, and adhesion values. To obtain the highest possible tear properties, the yarns need to be able to slide within the coated fabric. If the yarns are locked into place, a tearing force is applied to individual yarns one at a time, resulting in lower tear values. In general, a warp-knit weft-inserted material will have a higher tear strength than a conventional plain-woven fabric since the yarns are not inter-woven. Shelter-Rite architectural fabrics have superior tear strength and are warp-knit weft-inserted. Seaman also offers a woven polyester into the framed structure business.

The adhesive coat and adhesion values between the base fabric and the coating compound will also greatly influence the tear strength properties. Seaman has formulated the Shelter-Rite fabric to have an excellent balance between adhesion and tear strength. Higher coating adhesions will limit the ability of the polyester yarns to slide and rope-up within the coated fabric, thereby reducing the tear strength. While low coating adhesion may yield higher tear strength, it will introduce other significant problems.

Testing for tear strength can be done by either ASTM D-751 Tongue Tear Method or Trapezoid Tear Method. In many cases both methods are used to better characterize the tear properties. In addition, tear testing is performed on material that has been aged to determine if there is a loss in tear strength over time.



The first and most important performance property that needs to be considered is the tensile strength of the architectural fabric. Like any building material, knowledge of the tensile strength is required to meet the design and engineering criteria of a building.

The Shelter-Rite material on a fabric structure, whether an air supported, tension membrane or custom structure, must withstand the forces that are applied. These stresses are related to the internal air pressure or pre-tension on a structure, or are related to forces such as wind load, snow load, or other dead and live loads.

The strength requirements of a coated material for a given structure can be calculated using conventional engineering formulas and applying appropriate safety factors.

The tensile strength is directly related to the base fabric. In fact, the base fabric controls both tensile strength and stretch properties and the thickness of the coating compound have little or no effect on these properties. Seaman begins with high tenacity, continuous filament polyester yarns. The yarns are then formed into the base fabric by either weaving or knitting the threads into the base cloth. Typically, the yarns are placed in two directions, perpendicular to each other: the warp (machine) yarns and the weft (fill) yarns. The tensile strength is determined by the tenacity of the yarn multiplied by the denier of each yarn multiplied by the number of yarns per inch width. To increase the tensile strength of a given material, typically a higher tenacity yarn or increasing the number of yarns per inch can be used. It is important to note that on Seaman specifications, the strip tensile strength is based on 1 inch of yarn and reported as a minimum requirement at the time of manufacture. This is not to be confused with other specifications in which the 'typical' results are reported.

Testing the tensile strength of a material can be done by either the Cut Strip Test Method or the Grab Test Method as outlined in ASTM D-751. Samples of a material are tested in both the warp and fill directions. It is critical when comparing tensile and stretch of multiple fabrics, to use the same test method/criteria.

Because the tensile strength of the architectural fabric depends on the base fabric and the polyester yarns, the useful life of a fabric structure is then dependent on keeping the yarns from deteriorating. If the yarns start to break down, than the structural integrity of the entire building system is in question. Protecting the yarns from damage is one of the main functions of the exterior coating compounds.

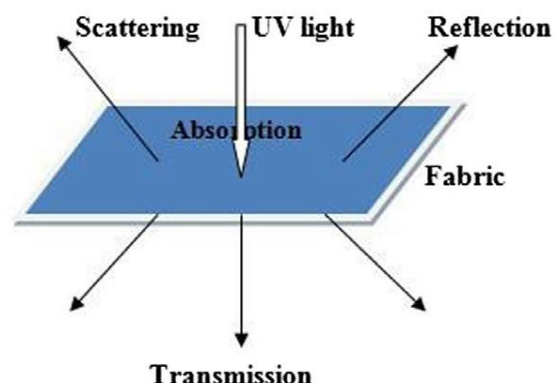
Today's architectural structures require a great deal of design and engineering and unique fabrication processes, representing a significant investment. Building owners expect to amortize this investment over a long life for the structure. These structures also compete with conventional building systems, which have a proven long, useful life.

The technology for designing and manufacturing Shelter-Rite architectural fabrics will provide quality performance properties for a period of 15 to over 20 years, depending on the chosen fabric and top finish.

A critical performance factor in assuring a long-lasting structure is the ultraviolet (UV) light and weathering resistance of the synthetic resin coated polyester fabric. Any building material exposed to the sunlight, wind, rain, snow, and air-borne pollutants, will exhibit some form of degradation over time. The most harmful effects are those caused by the UV light present in sunlight.

The principle in extending the life of a structure is to maintain the tensile strength of the base fabric. To do this, Seaman's proprietary coatings protect the base fabric from UV light and other factors. It is the top exterior coating compound that provides protection from UV light. Shelter-Rite is formulated to either reflect UV light or absorb the light, so that the UV light cannot affect the base fabric or the compound itself. This is normally accomplished with the proper selection of pigments and the use of UV absorbers, or a combination of both. Further, based on Seaman's years of experience in exterior coatings different color structures or light transmission into the structures can be made.

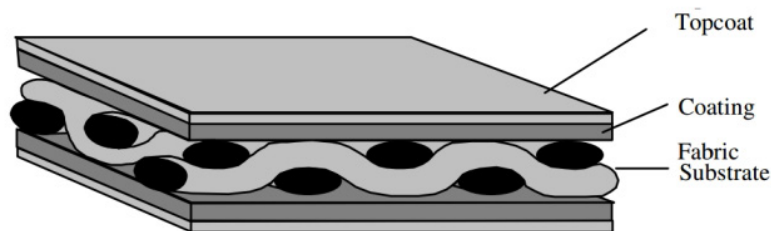
Ultraviolet light testing can be performed by either ASTM D-2565 Xenon-Arc testing or ASTM G-154 Fluorescent UV testing. These accelerated weathering machines combine high concentrations of UV light with water spray and high temperatures. These machines can simulate years of outdoor exposure in a matter of months and have a very good correlation to actual field exposure. Shelter-Rite Architectural Fabrics have been performing globally for over 50 years in a wide variety of applications.



Coating adhesion is the ability of the exterior coating compound to be adhered to the polyester base fabric. Having the strongest base fabric and the best-formulated compound is of no value if the two cannot be properly bonded together. Good coating adhesion is required to allow the material to be handled and welded. It is also important in preventing the exterior coating compound from delamination when the material is exposed to the environment.

Shelter-Rite is designed to provide a chemical and mechanical bond of the coating. The primary function of the adhesive coat is to bind the coating to the base cloth. The adhesive coating compound is formulated as a synthetic resin plastically with an adhesion promoter added to the compound. When this compound is applied to the base fabric, a chemical bond forms between the polyester yarns and the adhesive coat. The adhesive also provides a bond between the exterior coating compound and the fibers. This process is carefully monitored to develop the right level of adhesion. Too little adhesion will cause problems with seam strength or coating delamination, and too high adhesion will adversely affect tear strength. Mechanical adhesion is attained on open weaves/knits by adhering the exterior coating on both sides through the openings in the cloth. Seaman provides an adhesive coat on all Shelter-Rite architectural fabrics ensuring a good, high-quality bond. Not all coaters provide an adhesive coat, relying totally on mechanical adhesion. In cases of flex fatigue or wind whipping of the fabric, the mechanical adhesion may fail resulting in delamination.

Coating adhesion is tested per ASTM D-751 Peel Adhesion test. Samples are prepared by either welding or gluing two pieces of material together, then peeling the samples apart in a constant rate of separation testing machine. Results are reported as pounds-force per inch.



Material Type: SEFAR EL-40-T1 for 0.6-to-6.3 meter Antennas

- Fabric Chemical Makeup: PTFE (Polytetrafluoroethylene)
- Coating Material: 100% Fluoropolymer
- Construction: PTFE Fabric Emulsion Coated with 100% Pure Fluoropolymer
- Weave Type: Panama 2 / 2

ASTM D-3786

- Weight: (typical) 320 grams/square meter = 11.3 oz/square meter
- Maximum Breaking Strength: 2400/2600 N/5cm = 282/305 lbs/square inch

ASTM D-1682

- Nominal Thickness: 0.23mm
- Thread Count, Warp/Weft per cm: 25/28
- Air Permeability: 0

STRENGTH CHARACTERISTICS

- Water Column (mm): 2000 (2.81 PSI)

WARRANTY

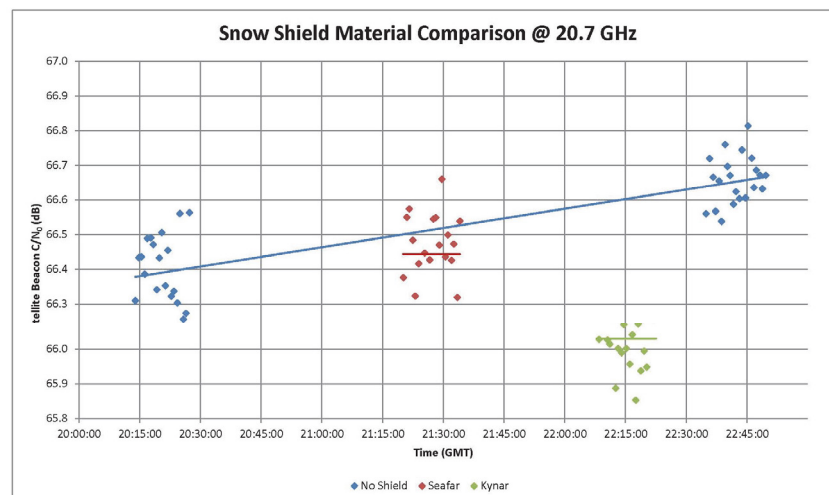
- 10 Year standard use warranty per SEFAR

CHEMICAL CHARACTERISTICS

- Permanently UV-resistant and color fast, weather-proof, dirt- and water repellent, no absorption of moisture and resistant to salt spray.
- Do not use solvent-based cleaning agents, including but not limited to those containing MEK toluene, THF, MIBK butyl acetate, ethyl acetate, acetone.

TEMPERATURE CHARACTERISTICS

- Range: -60°C to 90°C
- Non-Flammable per ASTM E84, Class A



ICE QUAKE





The first and only **“Green”** De-icing System on the market

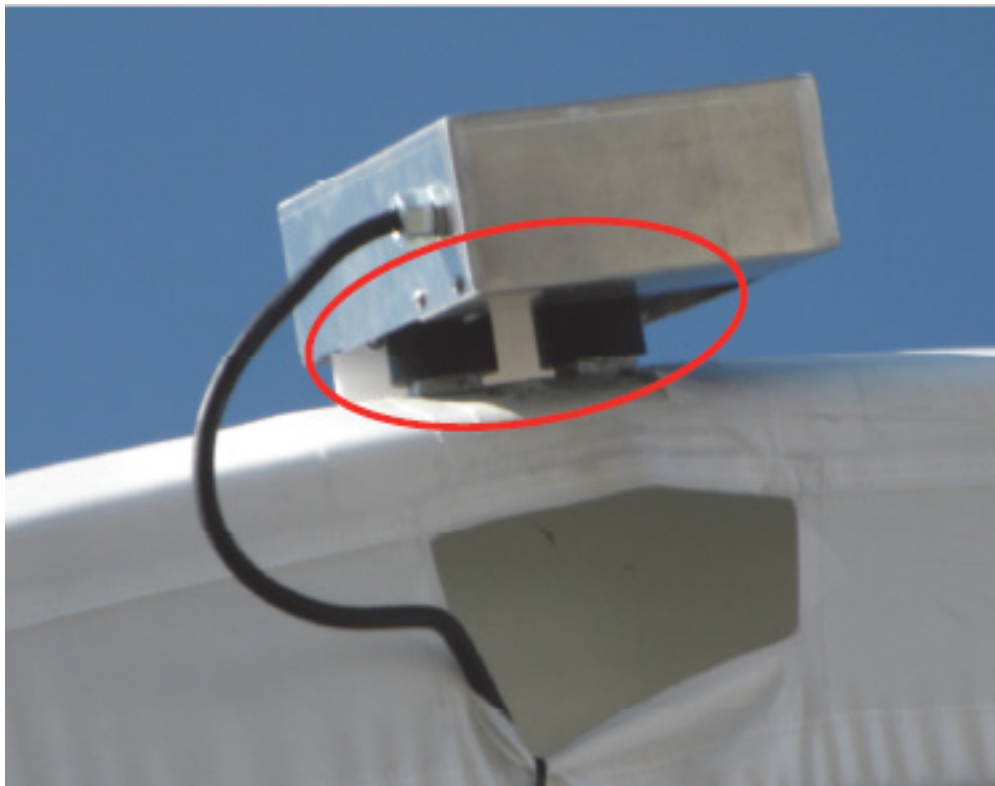
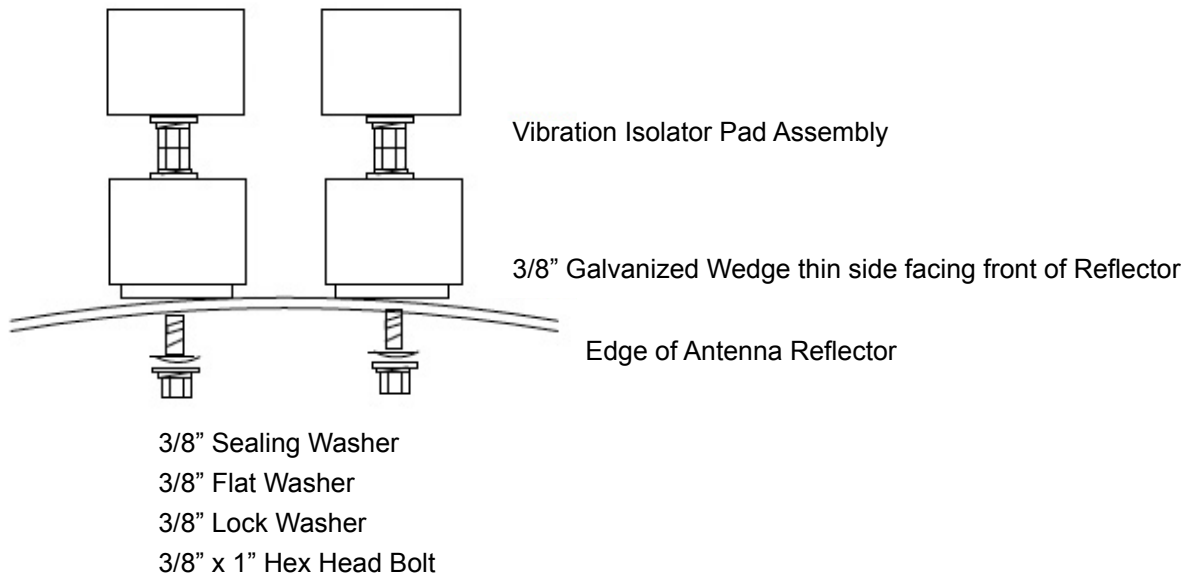
After only a few years of operation, the Ice Quake System will pay for itself!

Annual Snow & Freezing Rain Fall in Hours	Cents per Kilowatt Hour Commercial Charges *	2.4 to 3.0 meter Antennas Full Reflector De-Icing Systems		3.2 to 4.2 meter Antennas Full Reflector De-Icing Systems		4.3 to 4.8 meter Antennas Full Reflector De-Icing Systems	
		Annual costs shown below		Annual costs shown below		Annual costs shown below	
		Electric HTR 4000 watts	IQ System 45 watts	Electric HTR 6000 watts	IQ System 90 watts	Electric HTR 12000 watts	IQ System 150 watts
450	\$0.1426	\$256.68	\$2.89	\$385.02	\$5.78	\$770.04	\$9.63
350	\$0.1426	\$199.64	\$2.25	\$299.46	\$4.49	\$598.92	\$7.49
250	\$0.1426	\$142.60	\$1.60	\$213.90	\$3.21	\$427.80	\$5.35
150	\$0.1426	\$85.56	\$0.96	\$128.34	\$1.93	\$256.68	\$3.21
50	\$0.1426	\$28.52	\$0.32	\$42.78	\$0.64	\$85.56	\$1.07

* Cents per Kilowatt Hour Commercial Charges as of March 2022, Department of Energy

The chart above shows the costs savings of using the Walton Ice Quake System over the conventional electric heater pad or heat tape systems. Shipping, installation, and maintenance would be another cost saving factor using the Ice Quake System.

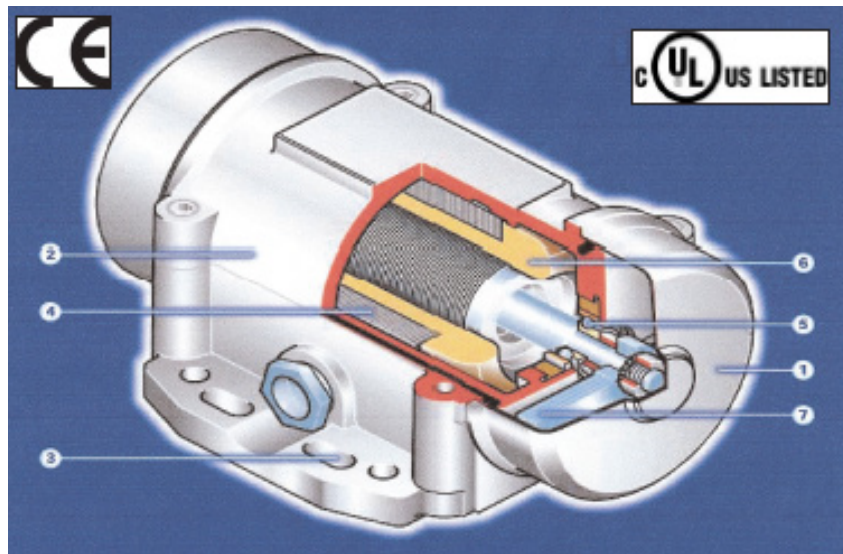
The Ice Quake Assemblies are installed on the edge of the antenna reflector by drilling 2 each 3/8" holes into the edge of the reflector and mounting the vibration isolator pads. These pads cause the vibration to transfer into the Snow Shield and not into the antenna's reflector.



The Micro Series represents the natural evolution of the previous series produced by Italtibras. 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.



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

For 0.6 meter to 2.0 meters, Walton Ice Quake systems will be supplied with an automatic rain sensor-controller unit (PS-2). Providing the user with a versatile, yet inexpensive method of controlling the Ice Quake system and Heated Feed Horn Cover.

The PS-2 automatic moisture sensor operates by detecting precipitation using a moisture sensing grid.

A signal is then sent to the micro-controller, which will activate the Ice Quake system and Heated Feed Horn Cover.

The PS-2 can be powered by either a 110-120VAC or 200-240VAC 50/60Hz. Indoor transformer with outdoor rated cable.

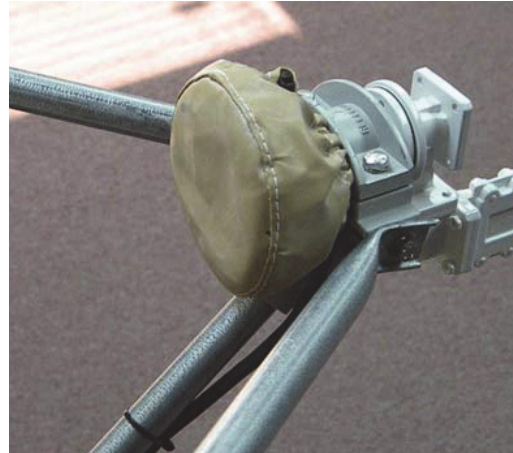


Key Features

- Automatic activation lowers De-Icing operational costs
- Reliable rain detection
- Operates on 24VAC
- Easy installation and full access to electronics



18/2 outdoor rated cable runs from PS-2 to the Ice Quake motor



18/2 outdoor rated cable runs from the PS-2 to the Heated Feed Horn Cover utilizing a 24VAC 12-watt heater strip.

18/2 outdoor rated cable runs from transformer to Ice Quake's PS-2. 25 feet of cable is include in each system.

Additional cable can be purchased.

110/120VAC or 220/240VAC to 24VAC indoor transformer rated at 100VAC is included with each system and plugs into standard wall outlet.



For 0.6 meter to 2.0 meters, Walton Ice Quake systems will be supplied with an automatic rain sensor - controller unit (PS-4). Providing the user with a versatile, yet inexpensive method of controlling the Ice Quake system and Heated Feed Horn Cover.

The PS-4 automatic moisture sensor operates by detecting precipitation using a moisture sensing grid.

A signal is then sent to the micro-controller, which will activate the Ice Quake system and Heated Feed Horn Cover.

The PS-4 is powered by site provided 45-watts, 24VDC at the base of the antenna.



Key Features

- Automatic activation lowers De-Icing operational costs
- Reliable rain detection
- Operates on 24VDC
- Easy installation and full access to electronics

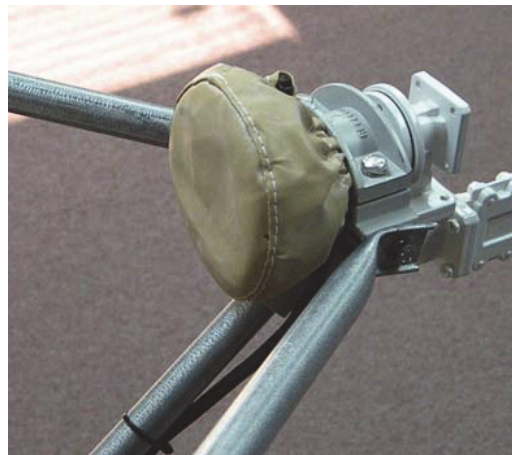


18/2 outdoor rated cable runs from PS-4 to the Ice Quake motor.



15 feet of 18/2 outdoor rated cable runs from the PS-4 to the site provided 50 watts, 24VDC power located at the base of the antenna.

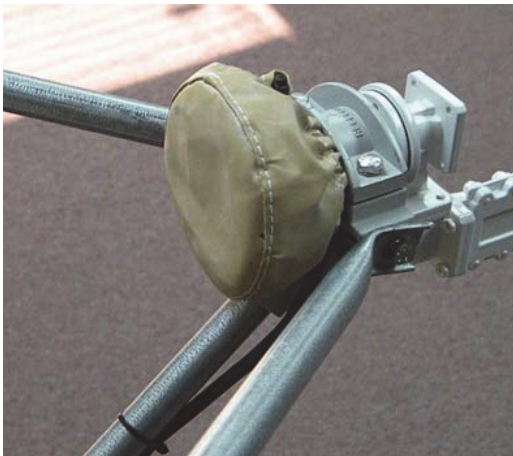
Additional cable can be purchased.



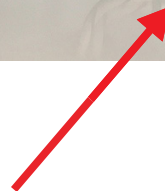
18/2 outdoor rated cable runs from the PS-4 to the Heated Feed Horn Cover utilizing a 24VAC 12-watt heater strip.



18/2 outdoor rated cable runs from PS-4 to the Ice Quake motor.



18/2 outdoor rated cable runs from Outdoor Control Unit to the Heated Feed Horn Cover utilizing a 24VAC 12-watt heater strip.



15 feet of 18/2 outdoor rated cable runs from the Control Unit to the site provided 45-watts, -48VDC power located at the base of the antenna.



NEMA 4X Plastic enclosure housing the PS-4 P.C. Board, Isolated converter -48VAC to 24VDC and Moisture Grid located on top outside of control unit. Control unit installed on the antenna reflector's pipe mount.

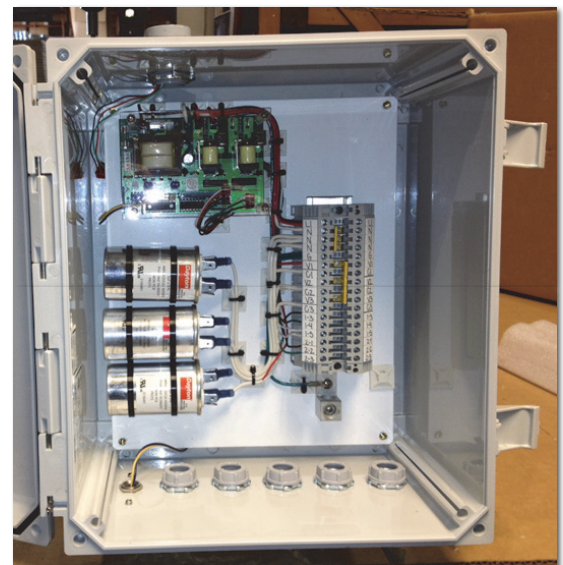
Additional cable can be purchased.



Why gamble with a heat wire or heat pad system that cannot even be installed during the weather conditions that it is supposed to be protecting your antenna's signals in; extreme cold, extreme heat, rain, snow, or ice due to the adhesive tapes that must be used to hold the heat wire or pad to the back of the antenna's reflector?

The Walton Snow Shield and Ice Quake System can be installed in any weather conditions. The Snow Shield Cover and Ice Quake System also incorporate a redundancy factor. If the Ice Quake System should lose power, in most conditions the Snow Shield Cover will continue to shed the ice and snow. Keeping the antenna from losing signal and you staying on the air.

The Ice Quake System is automatically activated by the DS-4C LCU moisture and temperature sensing control unit. An optional DP-7IQ Remote Monitor/Control Unit can also be added to monitor the Ice Quake and Heated Feed Horn Cover. The Ice Quake System can also be activated during a rain event to reduce the water sheeting on the Snow Shield Cover to reduce rain fade.



The DS-4C LCU is used to control the Ice Quake System on antennas 2.1 and larger. The Ice Quake System will be automatically activated using a moisture/temperature sensing unit. This unit closes a 30-amp 1-pole relay if there is moisture present, and the temperature is 42 degrees or below. A second 30-amp 1-pole relay closes in the event there is moisture only present to control Ice Quake System (Rain Quake) for Ka-Band Antennas.

The DS-4C Rain/Snow Sensor Controller

- Automatic activation means lower De-icing costs
- Reliable rain and snow detection
- Full 30A @ 240VAC control
- Field strap for 100-120/200-240VAC operation
- Replaceable precipitation sensor
- Easy installation, full access to electronics
- 8 different functions, 1 part number
- Adjustable temperature trigger point
- Adjustable moisture sensing sensitivity
- Adjustable delay off cycle
- Selectable low temperature cutoff
- Smart “**Manual On**” operates for one delay off cycle
- Housed in a NEMA 4X plastic enclosure



UL and CE Certified

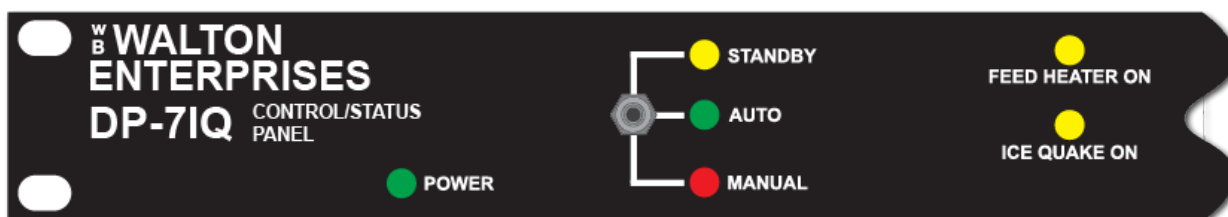


Walton DP-7IQ Remote Monitor/Control Unit

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-4C Local Control/ Sensor are Opto-isolator 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-4C) 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 serial or ethernet interface
- 100-120VAC standard, 200-240VAC 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-4C 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 with
Walton Rain Quake System



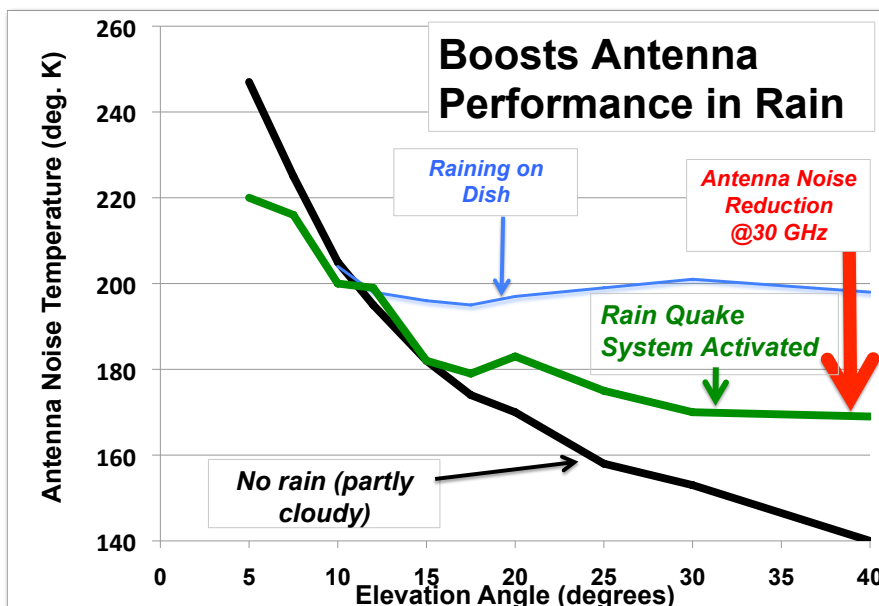
Your Signal without
Walton Rain Quake System

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 C/Ku-Band. Antenna wetting alone can add 2.7 to 3.9dB 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 antennas surface – and causing Ka or Ku-Band rain fade – from VSATs to large antennas.
- Covers your antenna – keeping rain off with Sefar PTFE 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.



Test shows that the Rain Quake System helps to minimize hit error rates and antenna noise temperature increases, as well as increase your link margins during a rainstorm.

Rain Fade Testing of the Walton Snow Shield Cover and Ice Quake/ Rain Quake System on a 3.9 meter Ka Band Antenna



*Test performed on a 3.9 meter GD 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*).

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

Electric and Gas Heating Units



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 thermistor 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-4C Automatic Local Control Unit

The DS-4C 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-4C Controller can be powered by either 110-120VAC or 200-240VAC 50/60Hz power.

KEY FEATURES

- Automatic activation lowers De-icing operational costs
- Reliable snow detection
- Dual 30A @ 240VAC individually controlled relays
- Replaceable precipitation sensor
- Adjustable temperature trigger point
- Adjustable moisture sensing sensitivity
- Adjustable delay off cycle
- Selectable low temperature cutoff
- Easy installation and full access to electronics
- Automatic selection for 100-120/200-220VAC operation

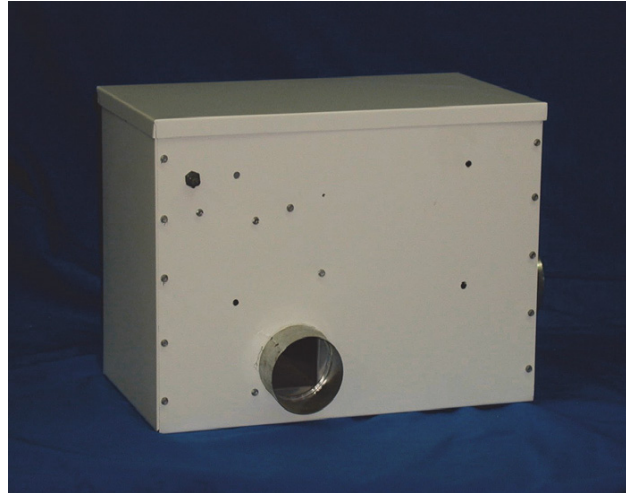


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Walton 120VAC, 220VAC and 230VAC Heaters for 0.6 to 2.3-meter Antennas

This heater operates on 120VAC, 220VAC or 230VAC for that includes the heater element and the blower motor. The heater will provide 1,200 Watts, 1,700 Watts, or 2,000 Watt of heat, depending on the size of the antenna and customer requirements. The heater unit utilizes brushless and maintenance free blower motors. The heater is controlled by the DS- 4C Moisture/Temperature sensor. The rack mounted DP-7SS Remote Monitor/Control Panel can be added to the DS-4C.



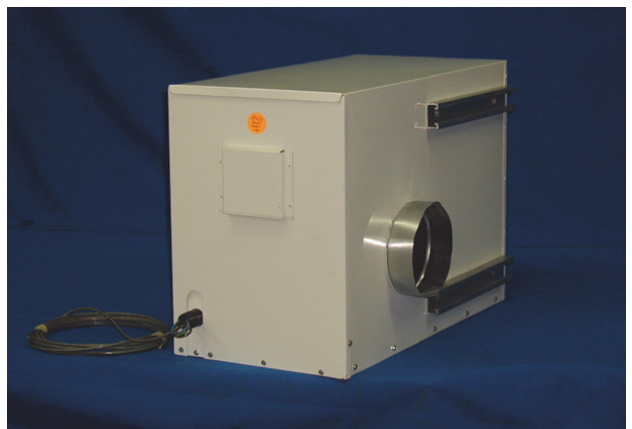
Heater Kw	120VAC 60Hz	220VAC 50/60Hz	230VAC 50Hz
1.2	14 amps	7.45 amps	7.22 amps
1.7	18.17 amps	9.72 amps	9.39 amps
2	20.67 amps	11.09 amps	10.69 amps

UL and CE Certified



Walton 120VAC, 220VAC and 230VAC 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 brushless maintenance free blower motors. The heater is controlled by the DS-4C Moisture/Temperature sensor. The rack mounted DP-7SS Remote Monitor/ Control Panel can be added to the DS-4C. This heater requires a professionally installed electrical service.



Single Phase Electric Power Consumption

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

UL and CE Certified



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 12Kw. Like the DS-4C 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



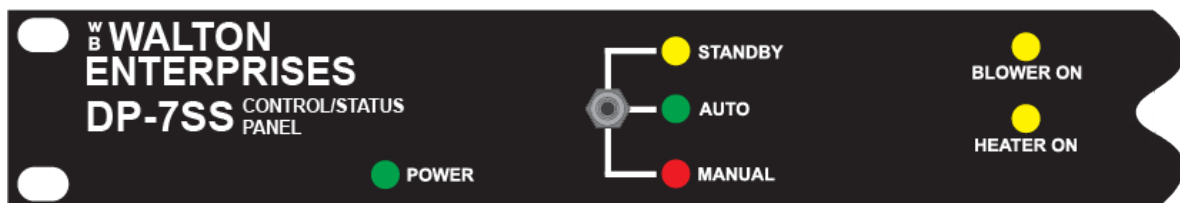
UL and CE Certified



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-4C 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-4C 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 or Ethernet is provided for interfacing with customer's M&C



Walton 208, 220, 240, 380, and 400VAC Heaters for 3.2 to 6.3-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 brushless and maintenance free.

The heater can be controlled by the Walton Thermostat Controller or the DS-6 Local Control Unit. The Rack mounted DP-7SS Remote Monitor/Control Panel can be added to the DS-6. This heater requires a professionally installed electrical service.



Single Phase Electric Power Consumption

(Additional charges would apply)

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

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Three Phase Electric Power Consumption

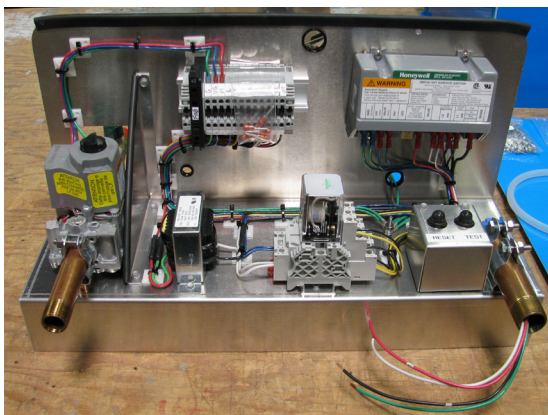
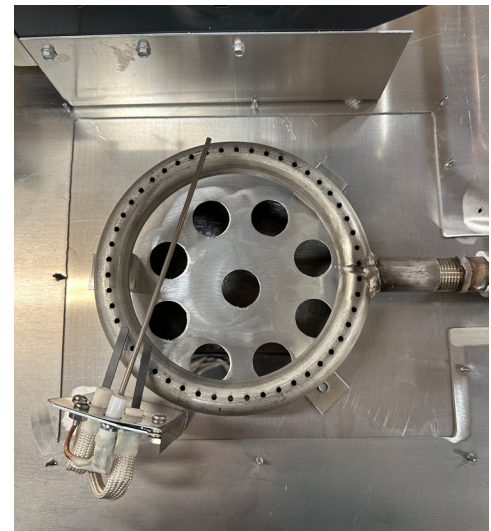
Heater Kw	208VAC 60Hz 3-Phase (5 wire)	220/230/240VAC 50Hz 3-Phase (5 wire)	380/400VAC 50Hz 3-Phase (5 wire)
6	22.26 amps	21.35 amps	14.14 amps
12	38.31 amps	37.10 amps	23.25 amps

W. B. Walton Enterprises, Inc. (Walton De-Ice) Gas Heaters for Snow Shield Cover De-Icing Systems and the Gas Heaters for Plenum De-Icing Systems now on their 6th year of meeting the European Union Declaration 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)z
EU Low Voltage Directive Test Standards:	2006/95EC
Environmental Tests:	EN 60529:1991+A1:2000

Dual Hot Surface Ignition System

- Dual hot surface igniter means redundancy in the ignition sequence.
- Large flame sensing rod. Turbulence is no longer a factor during ignition sequence.
- Same reliable 3 try ignition sequence with purge time.
- No more pilot assembly or pilot orifice
- Stainless Steel Burner greatly reduces maintenance costs and increases reliability.



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.

Electric Snow Shield Heater



Gas Snow Shield Heater



Representative Average Unit Cost of Energy

Energy Type	In common Terms:	\$ Per million Btu (<i>British Thermal Unit</i>)
Electricity	14.26 cents per KWh	\$41.79
Natural Gas	1.209 cents per therm	\$12.09
Propane	2.23 dollars per gallon	\$24.46

Note: Energy costs are from the Dept. of Energy, Effective Date March 7, 2022.

[FR Doc. [2022-04765](#) Filed 3-4-22; 8:45 am]

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 60Hz or 4.8 amps @ 220VAC 1 phase 50Hz.

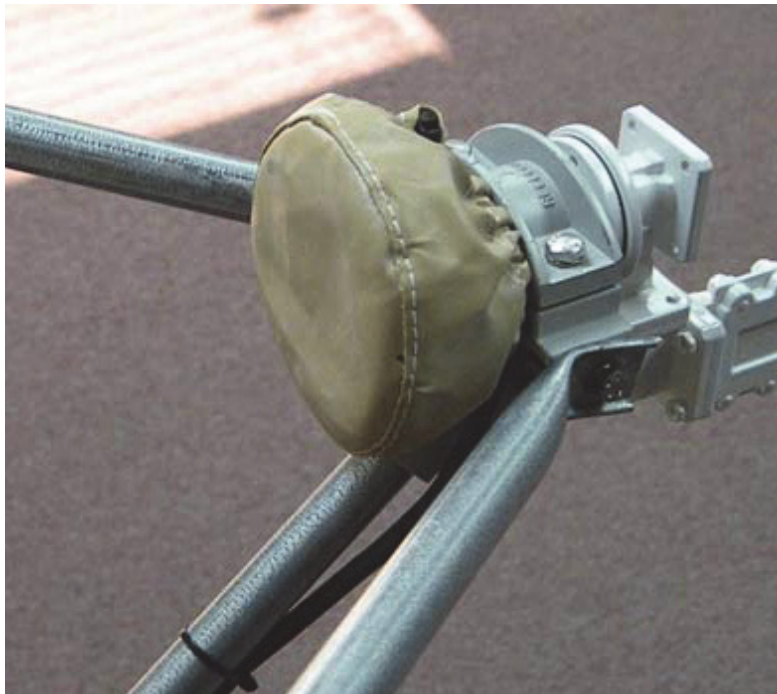
Liquid Propane Gas

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 60Hz or 4.8 amps @ 220VAC 1 phase 50Hz.

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



Customers that have maintenance contracts are also purchasing the Passive Feed Horn Cover for protection from UV rays degrading the window material and for protecting the feed horn window from birds pecking at the material and creating holes. The PTFE fabric is self-cleaning as well. We have been told this can save thousands of dollars in additional site visits due to holes in the feed horn window.





Snow Shield Cover consist of Sefar PTFE fabric that is also coated in PTFE. Stainless steel cable and ratchet assembly is used to secure Snow Shield Cover behind the antenna reflector taking two persons 1 hour or less to install.

Snow Shield Cover is permanently UV-resistant and color fast, weather-proof, dirt and water repellent, no absorption of moisture and resistant to salt spray.

Snow Shield Cover is nearly invisible at Ka-band frequencies and prevents water from sheeting on the face of the antenna reflector reducing rain fade.



Product Transportability Package includes shipping container, pre-wired mounted heater and control unit, and storage capability for fully transportable Snow Shield Cover and Electric Heating System.

Shipping container weighs 330 pounds and is 61.31" x 37.25" x 35.55".



Pre-wired mounted heater and control unit are attached to the base of the shipping container and can either be utilized while attached to the base or can quickly be removed and positioned in another location.

Snow Shield Cover and Electric Heating System can be installed with two persons in 2 hours or less and requires a 50-amp 208VAC 3-phase 5-wire or a 30-amp 380/400VAC 3-phase 5-wire power supply.



Sefar PTFE Snow Shield Cover installed over the L-Band Array and standard feed horn.

Air is then blown into the cover to keep the cover inflated 24/7.

Air can also be heated for De-Icing.

HOT AIR DE-ICE SYSTEMS

Hot Air De-Ice System's Introduction

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 four decades, Walton has updated the plenum, heaters, and controllers 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.**



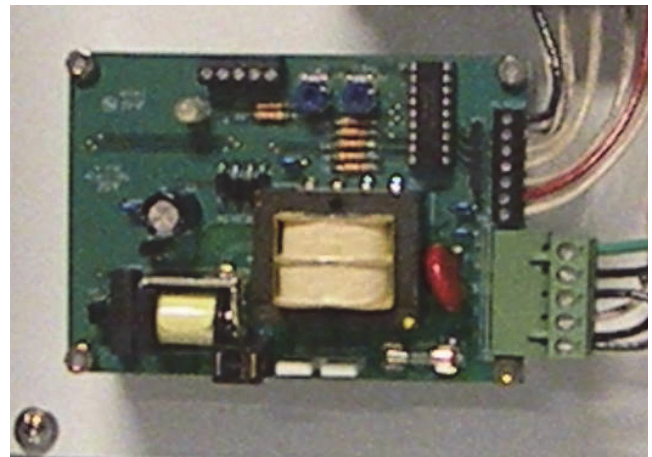
HOT AIR DE-ICE SYSTEMS

TBC-1 Controller for Plenum De-Icing System's for Ka-Band Antennas

Walton De-Ice has successfully installed over 235 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 along with placement and pointing of the Hose Down Circulation Fans.



The TBC-1 is used to monitor the air temperature of up to four quadrants of a satellite antenna and activate hose down 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 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 than 10 °F difference at any location within the plenum.



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 Thermistor 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-4C Automatic Local Control Unit

The DS-4C 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-4C Controller can be powered by either 110-120VAC or 200-240VAC 50/60Hz power.

KEY FEATURES

- Automatic activation lowers De-icing operational costs
- Reliable snow detection
- Dual 30A @ 240VAC individually controlled relays
- Replaceable precipitation sensor
- Adjustable temperature trigger point
- Adjustable moisture sensing sensitivity
- Adjustable delay off cycle
- Selectable low temperature cutoff
- Easy installation and full access to electronics
- Automatic selection for 100-120/200-220VAC operation



UL and CE Certified



The DP-7EX 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-4C Local Control/Sensor are opto-isolated to improve noise immunity, reduce ground loop problems, and provide circuit protection. This also allows the DP-7EX to be mounted up to 1200 feet away from the Local (DS-4C) 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-7EX control Switch is in. A panel indicator will show a remote M&C **Manual On** command.

Key Features of the DP-7EX

- Inexpensive assurance of proper De-icing operation
- Full remote control for testing
- M&C Interface for station control/monitor serial or ethernet interface
- 100-120VAC standard, 200-240VAC optional
- Controls can be located up to 1200 feet from the local antenna de-ice controls
- Stand or high density configurations available



DP-7EX Remote/Monitor Unit (*HEAT ON Indicators*)

The DP-7EX remote control/status display panels coupled with the DS-4C provides a low-cost method to remotely monitor and control your De-Icing System. The DP-7EX provides basic **De-Ice On** status for the De-Icing System, along with **Manual On**, **Automatic**, and **Standby** control capabilities. The DP-7EX also has **Heater On** Indicator for up to 8 each Gas or Electric Heating Units.

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) within the 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 sub-reflector without assistance from site personnel. The logical and Straightforward controls and indicators provide simple yet versatile operation.

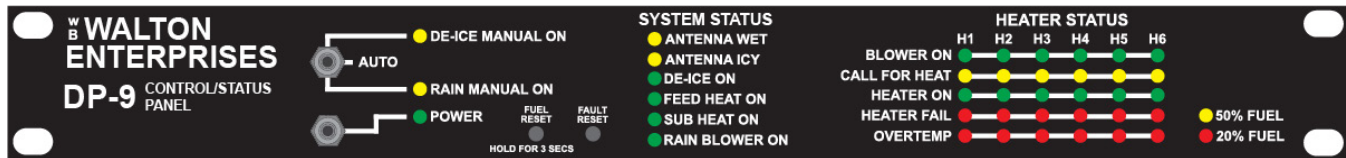
DS-16 Local Control Unit located inside the Power Distribution Panel Enclosure

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 thermistor 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 temperature 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 sub-reflector 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.

DP-9 Rack Mounted Remote Control/Status Unit



From the Remote Control/Status Panel (DP-9) the operator can select between **Automatic Operation**, **De-ice Manual On**, and **Rain Blower Manual On**. When in the **Automatic mode (AUTO)**, 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 (34°F to 44°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 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.

HOT AIR DE-ICE SYSTEMS

Gas Heating Unit Introduction

W. B. Walton Enterprises, Inc. (Walton De-Ice) Gas Heaters for Snow Shield Cover De-Icing Systems and the Gas Heaters for Plenum De-Icing Systems now on their 8th year of meeting the European Union Declaration of Conformity for directives:

- EN 602041:2006+A1:2009,
- EN60529:1991+A1:2000/IEC 60529:1989+A11999
- 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

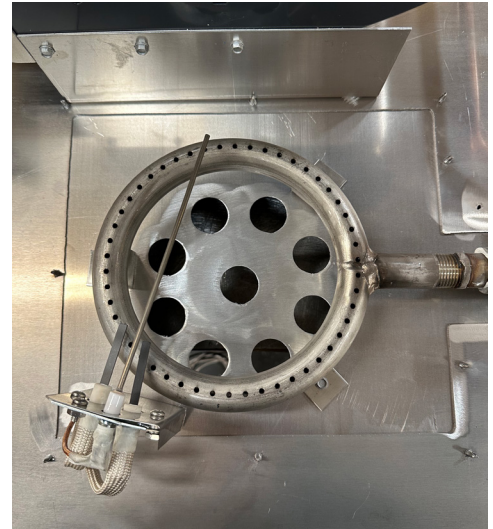
Environmental Tests:

- EN 60529:1991+A1:2000



Dual Hot Surface Ignition System

- Dual hot surface igniter's means redundancy in the ignition sequence.
- Large flame sensing rod. Turbulence is no longer a factor during ignition sequence.
- Same reliable 3 try ignition sequence with purge time.
- No more pilot assembly or pilot orifice
- Stainless steel burner greatly reduces maintenance costs and increases reliability.



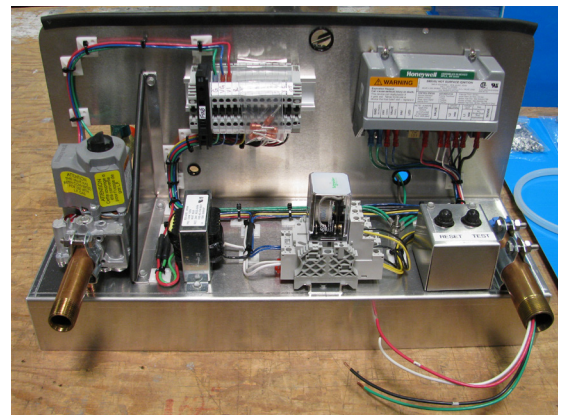
Positive Blower Recognition for Ignition Sequence

- 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



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.



HOT AIR DE-ICE SYSTEMS

CE Certified
Stainless Steel Electric Heater

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 to provide reliable operation over a long period time and under difficult climatic conditions. The heater (including the heater element's fins) are 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.

* Yearly maintenance to include inspecting fan/element area for debris and tightening all wire terminal blocks in heating units, junction boxes and outdoor local control/power distribution panel.



Virtually Maintenance Free Heaters *

Key Features

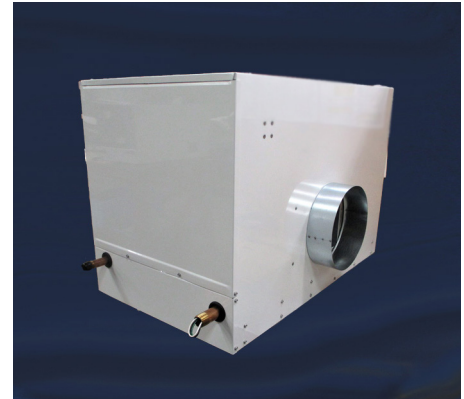
- Stainless Steel Housing
- Stainless Steel Fins
- Totally Enclosed Fan Cooled (T.E.F.C.) Motor
- V-Seal Technology for battling the elements
- Technical Support available 24 hours a day, 7 days a week.



HOT AIR DE-ICE SYSTEMS

Gas and Electric Heaters

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 Terms:	\$ Per million BTU (<i>British Thermal Unit</i>)
Electricity	14.26 cents per KWh	\$41.79
Natural Gas	1.209 cents per therm	\$12.09
Propane	2.23 dollars per gallon	\$24.46

Note: Energy costs are from the Dept. of Energy, Effective Date March 7, 2022.
[FR Doc. [2022-04765](#) Filed 3-4-22; 8:45 am]

Available Options

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



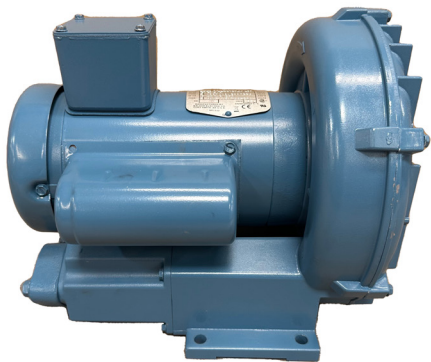
HOT AIR DE-ICE SYSTEMS

Feed Horn and Sub-reflector De-Icing Systems

The Walton De-Ice Feed Horn and Sub-reflector De-Icing Systems utilize the existing heated air within the plenum. The air is ducted to the Feed Horn and Sub-reflector using a 60 CFM Regenerative Blower that can operate at 120VAC or 230VAC 1-phase 50Hz or 60Hz. The system can also be used as a Rain Diverter System to keep the Feed Horn window clear of any moisture.

Key Features

- The Regenerative Blower Assembly is CE compliant
- Totally Enclosed Fan Cooled (T.E.F.C.) capacitor started motor is half horsepower with permanently sealed bearings and is rated for continuous duty
- Cast aluminum blower housing, impeller and cover
- Inlet and outlet internal muffling
- Quiet operation within OSHA standards



60 CFM Regenerative Blower



Walton De-Ice Feed Horn and
Sub-reflector De-Icing System

W.B. Walton Enterprises, Inc. installs and maintains what we sell. Who better to install or maintain a Walton System than our highly trained Field Technicians. Our Field Technicians are familiar with our equipment as they only work on our products. We offer a wide variety of field services for De-Icing Systems, so call today for a price quote on installing or maintaining your Walton De-Icing System(s).

Available Field Options

- Turnkey Installation Services for Snow Shield or Hot-Air De-Icing Systems
- Updating existing Walton De-Icing Systems
- Working installation supervisors
- Removal of old pad or heat tape anti-icing systems
- Worldwide installation and maintenance services available



Walton Field Technician removing competitor's anti-icing system prior to installing a Walton Hot- Air De-Icing System



Walton Field Technicians installing a Walton Hot-Air De-Icing System on a 18 meter Antenna

For Earth Station and VSAT Antennas, Coms-on-the-Pause (COTP), Coms on-the-Move (COTM)

Customers told us they needed a solution to keep antennas operating in extreme and harsh environments like ice, rain, high winds, and sandstorms. Traditional antenna radomes are not built for transportable operation, yet many of today's military, first-responder, and oil & gas applications on land can require deployable systems where harsh elements demand radome-like protection.



Walton 7' x 5.5' Portable Radome

Walton De-Ice	Baseline	Radome	Radome w/ rain water
Frequency	Gain	Gain/Loss	Gain/Loss
20.6 GHz	46.2 dBi	46.0 dBi (0.2 dBi Loss)	45.9 dBi (0.3 dBi Loss)
30.5 GHz	48.2 dBi	47.6 dBi (0.6 dBi Loss)	47.1 dBi (1.1 dBi Loss)

Key Features

Multiple Frequency Options: L, S, C, X, Ku, K, and Ka-Band	Rapid Deployment less than an hour (unlike conventional radomes)	Wind Resistant 85 MPH (136 KPH) Wind Load Test
Light Weight 44.45 Kg. for a 3.13 x 1.6 Meter Unit	Fly Away Terminals Airline Baggage Checkable	Quick Assembly No Tools Required
Ability to De-Ice Radome (No Snow Ropes Required)	Hydrophobic Material Over Frame Structure Both Rf Transparent	Heating and/or Air Conditioning Options Available

- Walton De-Ice's new **Portable Radome** is designed to protect satellite terminals for applications such as transportable, coms on-the-pause (COTP), first responder, and similar VSAT and smaller earth station sites. Walton's solution is also resistant to high winds. It can also yield cost-savings for permanent installations, SNGs, and LEO/MEO gateway terminals.
- The rapid set-up **Walton Portable Radome** design unleashes new possibilities for operation in extreme environments, plus significant cost-savings compared to traditional antenna radomes. Installs in less than an hour.

Satellite Frequency Bands

- L-Band
- S-Band
- C-Band
- X-Band
- Ku-Band
- K-Band
- Ka-Band

Outstanding Wind Survival

Walton's Portable Radome unit is designed to support operation during 85 mph (136 kph) wind conditions.



Labor-Savings | Automatic De-Icing or Air Conditioning | No More Manual Snow Removal

With the Walton Portable Radome, the days of manual snow removal are gone! Conventional radomes cannot be de-iced by heat transfer through the radome's material. To solve this problem, manufacturers offer a "Snow Rope" option that allows workers to manually remove the snow from a conventional radome. Not with Walton's solution.

A distinct advantage with Walton's solution is that it can be kept ice-free automatically using Walton De-Icing systems. The heat easily transfers through the Portable Radome to keep the Radome free of any ice or snow, with no strings (or snow ropes) attached.

In very hot climates, the interior of the radome can be cooled using a closed loop air/HVAC system to protect equipment temperatures underneath the Radome and prevent damage.



Installation Costs Minimized

Depending on the antenna size, The Walton De-Ice system could also be installed with less shipping cost and labor expense, in just hours where a comparable size conventional radome takes a day or two with a crane.

Permanent Installations

On top of its portability and rapid deployment advantages, the Walton De-Ice Portable Radome system can also be installed as a permanent/fixed site system.

Cost Advantages

The Portable Radome design enables significantly lower cost-of-acquisition than conventional radomes. With its promise of cost-savings and survivability, the Walton Portable Radome may soon become an essential element for ground segment designers and integrator's need to consider for military, first-responder, and similar deployable satellite networks that need to work in extreme environments on land. LEO/MEO ground networks with polar region gateway requirements can also leverage the Portable Radome for its advantages in labor-saving, and upfront cost.



Assembly Parts

A 2.2'x 1.7m' Portable Radome model weighs under 45 kg. It is designed so that two persons can assemble or dismantle it in less than an hour. No tools required.

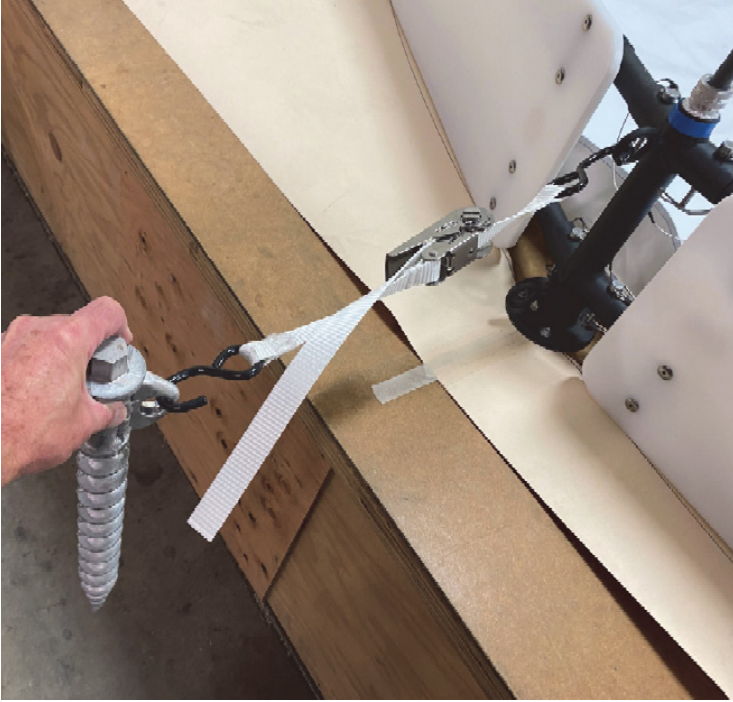


Additional Options

Walton's Portable Radome will be offered for civil or military applications offered as follows:

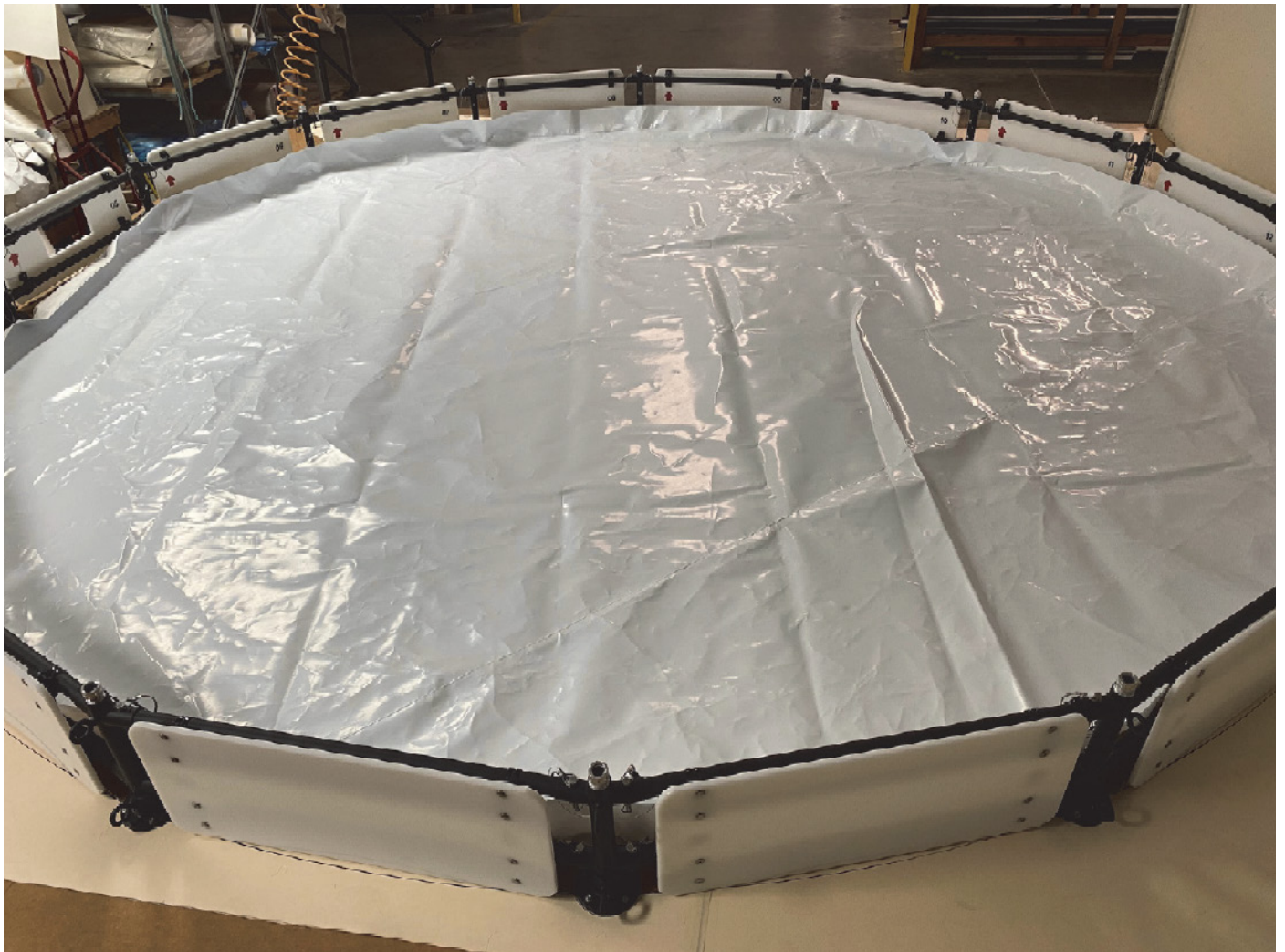
- White for Ka-Band (PTFE Architectural Fabric)

U.S. Government purchasing CAGE Code: 5Z770 (five Z seven seven zero)



An optional Aluminum Stake Kit with installation/removal tool is also available for all Portable Radomes to secure the Portable Radome to the ground if no concrete pad is available at site location. Ballast can also be used to secure the Portable Radome to the ground.





An optional Tedlar Floor Kit is available for all Portable Radomes. The Tedlar Floor Kit helps keep electronics and motor drives clean from any debris along with any fan intakes for electronic components.



An optional Air Conditioning Unit can be purchase directly from the manufacturer to cool the electronics within the Portable Radome. As an option for the A/C Unit, Walton can provide all ducting and nozzles required to incorporate the A/C Unit with the Portable Radome.

<https://www.oceanbreezeac.com/radome-units-that-withstand-heavy-vibration/#>

Phone number: (866) 227-7773



The automatically activated De-icing systems come in four different sizes 2KW, 4KW, 6KW and 12KW depending on the size of the Portable Radome. The De-icing systems can also be utilized as a heater for the electronics inside the Portable Radome using a thermostat to monitor the inside air temperature.

These are the same heating systems that have been used since 1996 De-icing the Snow Shield Cover products for VSAT and antennas up to 6.3 meters in size.



Each Portable Radome is equipped with a Cable Access Opening that is sealed with Velcro loop and hook around the com cable after installation.

Each Portable Radome also is equipped with ECU ports for air-conditioning and/or heating units can be installed. The ECU ports are sized for 5 inch square-to-round ducting adapters that can be purchased as an option for interface with the Sea Breeze Air-Conditioning Units.



Kymeta u8 Go Case De-Icing System utilizes one each 1,450 Watt Electric Heating Unit controlled by a thermostat that operates one of the two 725 Watt Elements to keep the antennas electronics warm in harsh environments. The second 725 Watt Element is controlled by the DS-4C Moisture/Temperature Sensor for De-Icing conditions when there is snow or ice present.

The DS-4C 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-4C Controller can be powered by either 110-120VAC or 200-240VAC 50/60Hz power.

KEY FEATURES

- Automatic activation lowers De-icing operational costs
- Reliable snow detection
- Dual 30A @ 240VAC individually controlled relays
- Replaceable precipitation sensor
- Adjustable temperature trigger point
- Adjustable moisture sensing sensitivity
- Adjustable delay off cycle
- Selectable low temperature cutoff
- Easy installation and full access to electronics
- Automatic selection for 100-120/200-220VAC operation





Kymeta u8 Fixed Mount De-Icing System utilizes one each 1,450 Watt Electric Heating Unit controlled by a thermostat that operates one of the two 725 Watt Elements to keep the antennas electronics warm in harsh environments. The second 725 Watt Element is controlled by the DS-4C Moisture/Temperature Sensor for De-Icing conditions when there is snow or ice present.

The DS-4C 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-4C Controller can be powered by either 110-120VAC or 200-240VAC 50/60Hz power.

KEY FEATURES

- Automatic activation lowers De-icing operational costs
- Reliable snow detection
- Dual 30A @ 240VAC individually controlled relays
- Replaceable precipitation sensor
- Adjustable temperature trigger point
- Adjustable moisture sensing sensitivity
- Adjustable delay off cycle
- Selectable low temperature cutoff
- Easy installation and full access to electronics
- Automatic selection for 100-120/200-220VAC operation



The optional DP-7SS remote Monitor and Control/Status Panel provide a low cost method of remotely monitoring and controlling the DS-4C 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-4C, 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 or Ethernet is provided for interfacing with customer's M&C System.

