

MODEL

1230

AUTOMATIC

DEICING

SYSTEM



The Model 1230 Automatic Deicing System (ADS) is a versatile and reliable system designed to maintain ice-free surfaces on the main reflector, subreflector, and feed window of earth station antennas from 4.6 to 21 meters in diameter. The 1230 ADS features fully automatic operation with manual override capability from the rack-mounted control unit front panel or through a rear panel remote interface (parallel, dry contact closures).

The main reflector is heated by forced air convection; air is continuously heated and circulated in a plenum formed by the reflector panels and special insulating panels added to the rear of the reflector backup structure. A high quality, low watt-density heater blanket adhered to the outer feed horn surface provides direct conductive heating to

keep the feed window free of freezing precipitation. Subreflector heat is applied through embedded elements in fiberglass units or by forced air convection when metal subreflectors are used.

Antenna heat may be controlled individually in two stages for the main reflector and for the combined stage of feed and subreflector heaters. Any of these heat stages may be selected or locked out in manual mode and in automatic mode.

In automatic mode, heat is applied, subject to stage selection, as dictated by an ice detector probe that senses moisture and temperature to detect freezing precipitation.

Key Features

- Operates in automatic or manual mode
- Logical, straightforward controls and indicators
- Accepts dry contact closures for remote monitoring and operation
- NEMA 4X-rated power control unit enclosure
- Heavy gauge steel heater housings with corrosion resistant heating elements
- Locking toggle switches prevent accidentally turning a subsystem OFF or ON
- Totally enclosed heater motors and elements

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SIMPLE OPERATION

The 1230 ADS is simple to use. In automatic operation, when the ice detector probe senses an icing condition at the antenna, the selected heaters activate until precipitation ceases and a predetermined time delay expires. The system resets automatically, and when further icing conditions are detected, the selected heaters activate.

For manual operation, simply toggle the MODE switch to MANUAL and toggle the desired ON/SELECT/OFF switch(es).

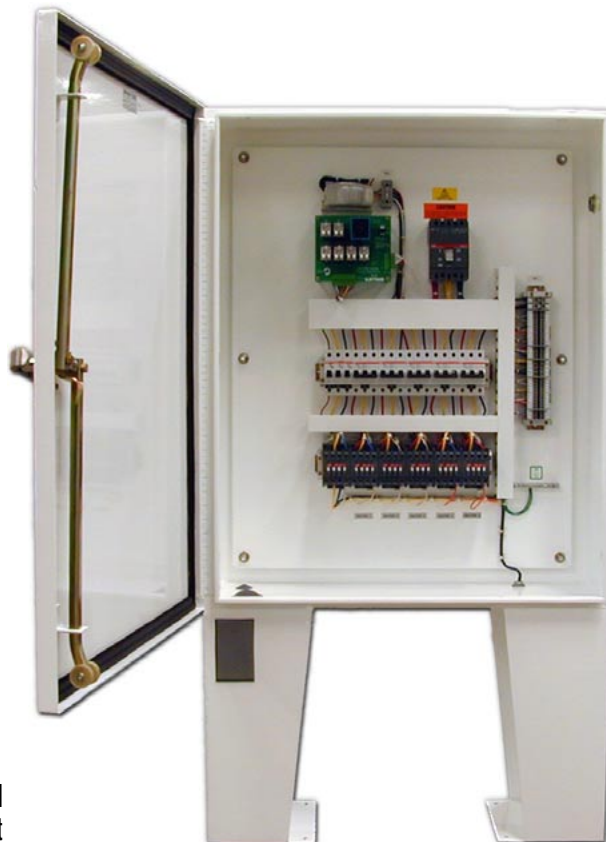
For remote operation, the 1230 accepts relay dry contact closures, and for remote status indication, relay dry contacts output the operational status of the deicing system.

RUGGED CONSTRUCTION

Heavy duty, electric heaters circulate air throughout the reflector cavity. The rugged, industrial-rated heaters use totally enclosed, permanently lubricated fan motors with built-in thermal overload protection. The tubular, nickel chromium heating elements are corrosion resistant and surrounded by a protective, electrically isolated metal sheath.

The heater housings are constructed from heavy gauge, phosphate-coated steel and finished with epoxy paint.

The deicing system power control unit housing comes standard as a NEMA 4X-rated enclosure for outstanding corrosion protection even in the harshest of environments. This unit is normally located in close proximity to the antenna.



Power Control
Unit

Power Requirement Specifications for Deicing Systems

Antenna Size	Type (if applicable)	Band	Total KW	Total Nominal Amps (at VAC)				
				208	380	400	415	480
4.6M	Cassegrain	Ku	10.2	28.3	15.5	14.7	14.2	N/A
	Compact Cassegrain	C	13.6	37.6	20.6	19.6	18.9	N/A
	Compact Cassegrain	Ku	13.6	37.6	20.6	19.6	18.9	N/A
4.8M		C	18.5	51.4	28.1	26.7	25.8	N/A
		Ku	18.3	50.8	27.8	26.4	25.5	N/A
6.1M	Cassegrain	Ku	21.0	58.3	31.9	30.3	29.2	N/A
6.1M	Compact Cassegrain	C	26.4	73.1	40.0	38.0	36.7	N/A
		Ku	26.4	73.1	40.0	38.0	36.7	N/A
6.3M		C	27.3	75.8	41.5	39.4	38.0	N/A
		Ku	27.1	75.2	41.1	39.1	37.7	N/A
7.2M		C	27.0	74.9	41.0	39.0	37.6	N/A
		Ku	26.0	72.2	39.5	37.5	36.2	N/A
8.1M		C	32.0	88.8	48.6	46.2	44.5	N/A
		Ku	31.0	86.0	47.1	44.7	43.1	N/A
9.0M		C	39.5	109.6	60.0	57.0	55.0	N/A
		Ku	38.5	106.9	58.5	55.6	53.6	N/A
9.3M		C	39.2	108.9	59.6	56.6	54.6	N/A
		Ku	38.8	107.8	59.0	56.0	54.0	N/A
11.0M		C	62.4	N/A	94.8	90.1	86.8	75.1
		Ku	61.4	N/A	93.3	88.6	85.4	73.9
13.1M		C	93.0	N/A	141.2	134.2	129.3	111.8
		Ku	92.0	N/A	139.7	132.7	127.9	110.6
16.1M		C	153.1	N/A	232.6	221.0	213.0	184.2
18.3M		C	186.9	N/A	284.0	269.8	260.0	224.8
21.0M		C	232.4	N/A	353.1	335.4	323.3	279.5

INTELLIGENT ICE DETECTOR

A self-contained, microprocessor-controlled ice detector combines temperature and moisture sensors to simplify installation and increase reliability.

Icing conditions exist if the ice detector senses moisture and an ambient temperature between 17°F and 38°F. The precipitation sensor on top of the ice detector collects frozen or liquid precipitation. A heater built into the precipitation sensor melts frozen precipitation in order to detect moisture. The ambient temperature sensor on the bottom of the ice detector senses the ambient temperature at the antenna. The sensor incorporates a “smart by-pass” switch to permit on-site testing of the deicing system.



Above left: View of the Ice Detector unit showing the round ice detector at the top. Above right: View of the Ice Detector unit showing the ambient temperature sensor on its base.

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Input Power Requirements

Power Control Unit	
	208 VAC, 3-phase, 60 Hz, 5-wire, WYE (208/120 VAC) 4.6 to 9.0 M
	380 VAC, 3-phase, 50/60 Hz, 5-wire, WYE (380/220 VAC) All sizes
	400 VAC, 3-phase, 50/60 Hz, 5-wire, WYE (400/230 VAC) All sizes
	415 VAC, 3-phase, 50/60 Hz, 5-wire, WYE (415/240 VAC) All sizes
	480 VAC, 3-phase, 50/60 Hz, 5-wire, WYE (480/277 VAC) 11M and above
	Voltage Tolerance \pm 10%

Model 1230 Rack-Mounted Control Unit

	115-120 VAC, 1-phase, 60 Hz
	220 VAC, 1-phase, 50 Hz
	230 VAC, 1-phase, 50 Hz
	240 VAC, 1-phase, 50 Hz
	Voltage Tolerance \pm 10%

Physical Dimensions (Standard Config.)

1230 Rack-mounted Control Unit Dim. (in.)	3.5H 19W 19D (2 EIA Rack Units)
Power Control Unit Dim.	36H 30W 10D (54H total w/legs)

Environmental

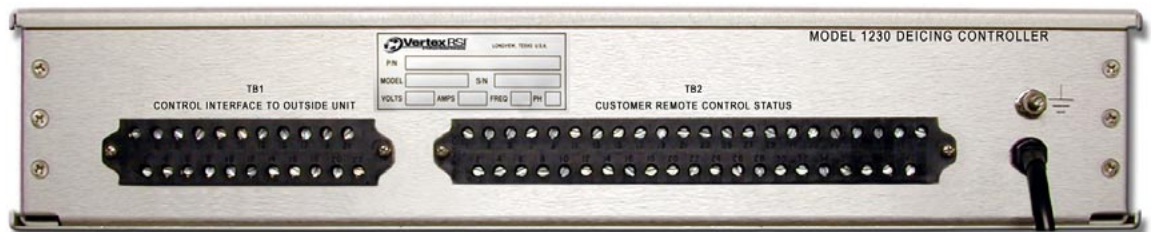
Rack-mounted unit	
Temperature	0 to 50° C
Humidity	90% Noncondensing
Outside Equipment	
Temperature	-10 to 50° C (-40° C with optional low temp package)
Humidity	100% Condensing

Ordering Information

Specify:

- 1) Specify size and make of antenna.
- 2) Specify line voltage and frequency; for example: 208 VAC, 60 Hz.
- 3) Specify line voltage and frequency for rack-mounted equipment; for example: 120 VAC, 60 Hz.
- 4) Specify low temperature option, if necessary.

The rear panel of the 1230 controller accommodates all connections to the power control unit and customer remote control status.



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