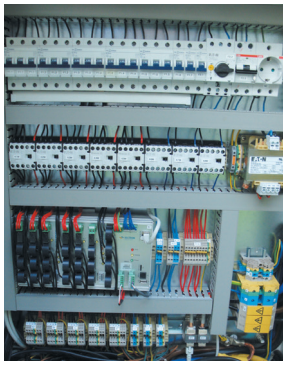
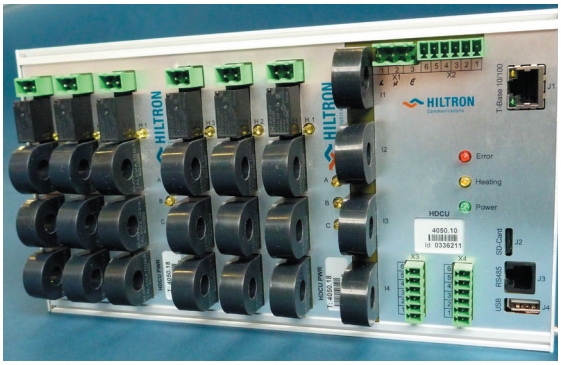
HDCU-E - Hiltron De-Icing Control Unit

Web-based Antenna De-Icing System (extended)

HILTRON Communications

A combined de-icing sensor and dish heating system for direct control of big satellite antenna dishes to cover the required high power demand with electric power consumption up to 200 kW for higher numbers of heater panels.





Features

- 3-phase supply operation with 400 VAC.
- Three individual circuits (phases) for heater control to connect up to three pads per circuit.
- With four additional heater groups each consisting of 3 heater arrays with 3 heater circuits each. In total 36 heater circuits (pads or pads groups) can be controlled.
- One individual circuit for feed heater control (240 VAC).
- The permitted current for each heater circuit is max. 20 A (45 circuits max.).
- Heater current control and protection.
- Controlled switch-on and switch-off of individual heater pads.
- Processor controlled de-icing with four sensors.
- Ethernet interface for M&C
- Web based user friendly operator interface.
- Control via SNMP.

Options

- Optional logical control in- and outputs for manual remote operation.

The Control Unit consists of several heating groups. Each heating group consists of three independently controlled heater arrays. One array is dedicated to the heating supply of one antenna dish segment. Each array supplies three antenna heater circuits. All currents are measured, monitored and evaluated by the control unit. Any malfunction (too high / too low heater pad current and too high panel temperature) will be detected and indicated by the control unit. Each measured current (heater circuit) is controlled individually and supervised by an adjustable max. / min. threshold. This allows non-connected or broken heater pads to be exluded via the control process. In case of a short circuit the whole array will be excluded.

The control concept is modular and therefore the number of groups can be tailored to the respective requirements. The heating group “main group” is dedicated to sub-reflector heating, the feed heater and further applications. In order to prevent high transient currents when the heating process is activated, a user configurable delayed starting sequence for each heater array is avaliable. All status messages on the heating circuits and the de-icing process are visible in the Web-interface which allows for easy monitoring and control of the whole system. All important parameters and status messages can be controlled via SNMP.

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Specifications

Electrical

Power consumption of Control Logic:	AC input: 85-245V; 47-63Hz;
Standby power:	< 4 W
Power capability (3-phase):	n x 40 kW@400VAC n = number of groups
Current for 3 common supplied heater pads:	nom. 20 A@230 VAC

Sensors

Temperature sensors:	PT 100 (ambient) PT 100 (on antenna) PT 100 (tbd)
Snow sensor:	Reflective Sensor with polarization filter

M&C- Parameters

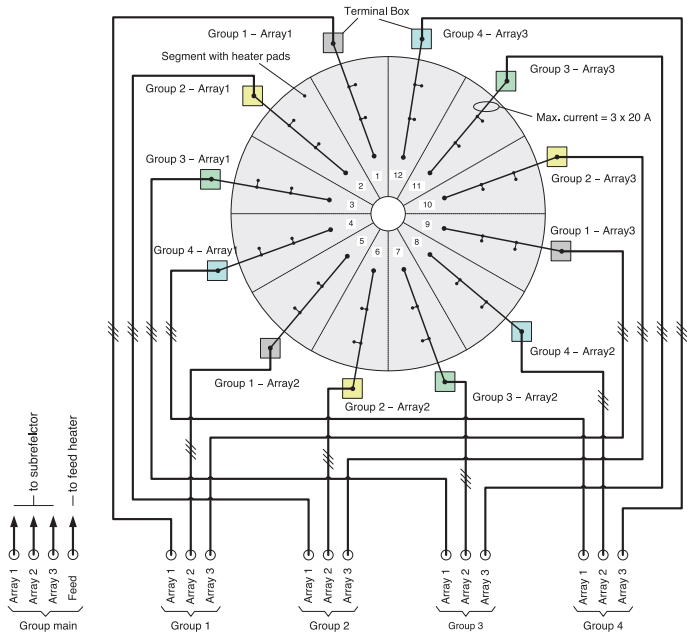
Heater currents limits (upper and lower threshold):	for all heater circuits
Heater currents safety limits:	for all heater circuits
Monitoring of parameters:	Currents, settings, statuses
Control parameters:	Thresholds for activation and deactivation of heating, heating delay

M&C - Interfaces

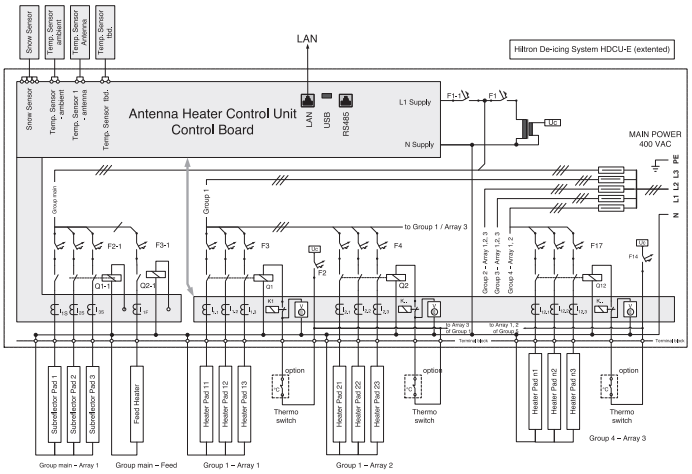
LAN interface:	Ethernet / IEEE802.3 Data transfer rate: 10/100 Mbit/s Connector: RJ45 Communication: Web / SNMP
RS485 interface:	Type: RS485 Connector: RJ11 Baud rate: tbd.
Control input:	form C contacts optional
Monitor output:	form C contacts optional

Mechanical / Environmental

Size:	tbd.
Weight:	tbd.
Temperature:	
- Operating:	-30°C to +50°C
- Non operating:	-40°C to +80°C
Humidity:	
- Operating:	5% to 95% non-condensing
- Non operating:	0% to 100% non-condensing
CE safety:	EN60950-1 / UL 60950
CE EMC:	EN 55022 Class B
Emissions:	EN 61000-6-4
Immunity:	EN 61000-6-2



Example for heater pad configuration and connection



Circuit Diagram of HDCU-E

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