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AHC-20 Antenna Heating Controller

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GENERAL

The AHC-20 features a versatile and professional antenna heating controller unit. With its multisensory technology and extremely flexible I/O design, this device offers all options combining **maximum operating safety simultaneously and rational use of energy.** The AHC-20 can be accessed and controlled remotely via Web-Interface, SNMP and the GLOBUSS protocol *(see further information for the GLOBUSS NMS at our website)*. In a log file all status messages and parameter changes are recorded. The log file can be read out and exported via FTP Server. The AHC-20 decides, depending on options and **operating modes,** whether the antenna heaters (Pre-, Main-Reflector and Feed-heating) must be turned on or off. This will be supported by using one or more light barriers, one or more temperature sensors, the sensor for measuring relative humidity, the calculated dew point, and the snow sensor. The control of the **main heating** is usually done by means of the light barrier(s) and the air temperature sensor. The reflective light barriers, serve as reliable snow detectors, are mounted on the satellite dish. Any additional sensors are used for plausibility checks. The possibility of the supporting pre-heating enables a significant optimization of switch-on point and duty cycle of the main heating.

The control of the optional **pre-heating** is carried out by means of the sensor for relative humidity, the reflector temperature sensor, the snow sensor and the calculated dew point. The pre-heating may be switched on constantly or pulsed. The pre-heating allows to switch on in the main heating by effective need with an **already preheated reflector.** As a result, a faster de-icing and a highly cost-efficient heating is possible. Due to its multi-sensors and parameterization, the AHC-20 can avoid an unnecessary heating during bad weather conditions.

1RU/19" design

DIN-rail mount design

Conclusion

This innovative and unique AHC-20 antenna heating controller is equipped with all facilities to ensure de-icing and snow clearance of satellite antennas of all dimensions under all climatic conditions. **The required energy consumption can be optimized significantly and simultaneously, the operating safety can be increased!**

FEATURES

- Remote controlable (Ethernet, RS-232)
- Fault alarms on LC Display, Ethernet/SNMP, RS-232
- Adjustable heating operation and limits
- Selectable operating-modes and sensor operations
- Status display of heating, sensor values, outputs and accumulated heating time
- Separate control of pre-, main- and post- heating
- Reflection light barriers & digital temperature-sensors
- Separate switchable feed heating
- Control of several antennas with sequential switching
- Cascadable (Master / Slave)
- 1RU/19" or DINrail mount designs
- Firmware update via Ethernet
- Logfile Download via FTP

OPTIONS

- Web Interface with log file
- Multi sensors: Light barriers, relative Humidity-, Snow-, Outdoor- & Reflector Temperature- Sensors
- Pulse controlled pre-heating
- 1-8 switchable outputs, potential- free relay, open collector, 230VAC
- Overload/Emergency Stop
- Switched 230V power output
- Language options

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TECHNICAL SPECIFICATION

The AHJC-20 unit is available as 1RU/19" or DIN rail-mount design. Both variants are designed for professional use. All necessary parameters can be changed via the front panel keypad or the web interface. The LCD screen is automatically heated (DIN-rail version) at an outdoor temperature below 7°C. This enables to use the AHC-20 also in climatically challenging areas such as high mountains.

The AHC-20 has two internal resp. external power supplies. PSU-1 is used for its own power supply. PSU2 is provided at the ports for the external sensors such as light sensors, temperature sensors, etc. In order to avoid a ground loop due to potential differences, all sensor connections are electrically isolated from the device by opto-isolators. The built-in relay outputs are switched depending on the selected device options as open collector (OC), as potential-free relay (1-8 relays) or high-current outputs (1-4). For the optional 1RU/19" version, a switched 230VAC device-jack for small heating power is available. For controlling of multiple heaters in antenna farms, an AHC-20 Master Controller can be expanded with several slaves.

TECHNICAL SPECIFICATION

- **Voltage Range/power:** 100 - 240 VAC, 30VA
- **Mechanical Dimensions:** 1RU/19" or DIN rail mount
- **Temperature Range:** -20°... +50°C
- **Display/local Control:** LC-Display, 5 buttons
- **Control Outputs (Open-Colletor):** Potential free (max.48 VAC / 1 A) Voltage: 5, 12, 24VDC dep. on PSU
- **Control Outputs Relay:** max. 48VAC/VDC, max. 1A
- **Control Parameter (dep. options):** Operating Temperatures, min. Humidity, Dew Po max. and Convergence, max. Reflector Temp., Postheat-Time, Pulsing Pre Heating, On- and Off Delay Sensor- and Antenna Operations
- **Analyses:** Accumulated Heating Time, Logfile

LIGHT-BARRIE(S)

- **Type:** Baumer 12P5101
- **Functionality:** Reflection Light Barrier, Red light diode
- **Maximum Distance:** 100m (with CAT-5 cable)

REL. HUMIDITY & TEMP.-SENSORS

- **Type:** GloboTech TDS-10/THS-20
- **Functionality:** Digital
- **Max. Distance:** 100m (with CAT-5 cable)

SNOW-SENSOR

- **Type:** GloboTech MDS-20
- **Functionality:** Electrolytic VAC Measure.
- **Maximum Distance:** 100m (with CAT-5 cable)

OPTIONS

- **2nd Light Barrier :** And/Or Operation w. LB 1
- **Snow Sensor:** Rain-/Snow Sensor
- **Humidity Sensor:** Relat. Humidity, Dew Point
- **Pre Heating:** Pulse Control, Reflector temp. Sensor
- **Feed Heating(s):** Parametrizable
- **Additional In-Outputs:** N.o. of Relay-Outputs, N.o. of Inputs Overload/Emergency-Stop
- **Interfaces:** Ethernet 10/100 Base-T, RS-232
- **Remote Control:** GLOBUSS, SNMP, incl. FTP download
- **Webserver:** Integr. Web-Interface (HTTP)
- **Multi-Outputs:** Control of several Antenna Heatings (Individuel, Sequential, Prioritised)
- **Switched 230V Output:** Max. Power 1500W (Device Jack), only available for 19" Version

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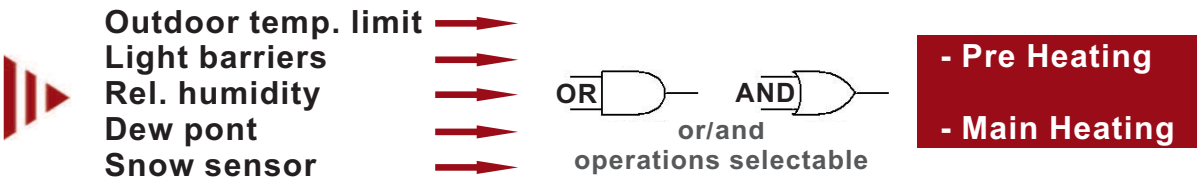
OPERATION MODES OF THE AHC-20

With these modes, the outputs of the AHC-20 for pre-and main-heating are controlled depending on the selected operations. The sensors are having impact of either not or only on the pre-heating, only the main heater or both heaters,

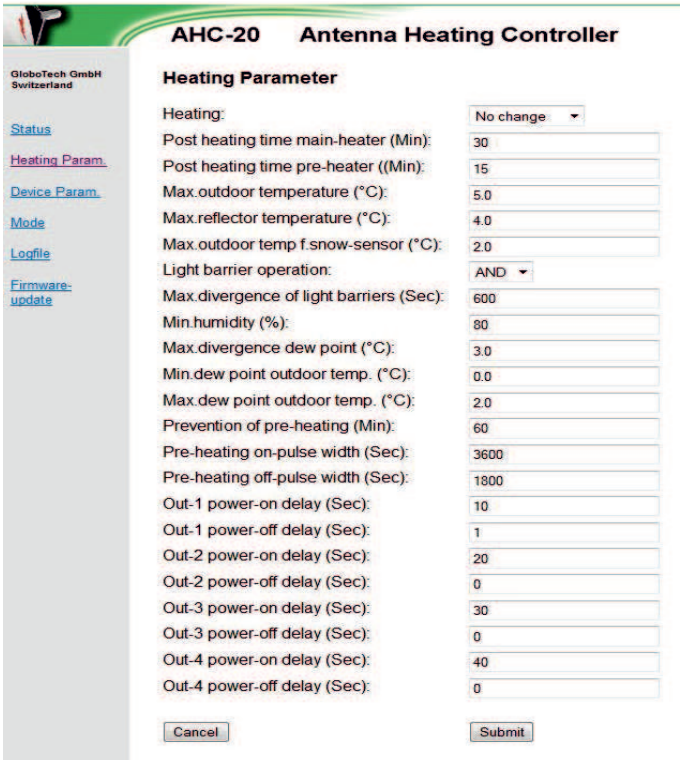


Pre Heating

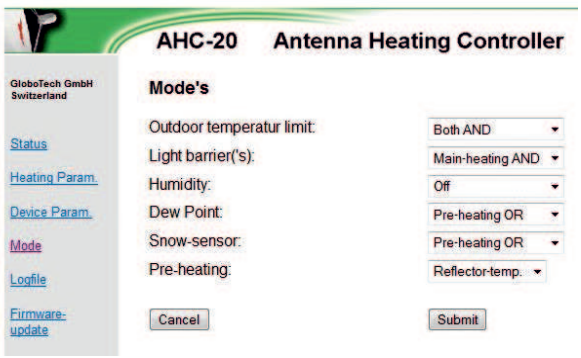
The pre-heating can be controlled via various modes or turned off completely. With the pulse control the pre-heating is switched on and off either constant or switched with selectable pulse length. If the mode “reflector temperature” is selected, the pre-heating will switched on if the configured threshold temperature of the reflector will undershot. Thus, the reflector can be kept at a constant temperature.

Parameter Adjustments

The heating of the antenna can be adjusted optimally taking into consideration any local characteristics and climatic conditions as well as the individual antenna heating type. Through the possibility of supporting pre-heating, the start-up point and the duration of the main heating can be significantly optimized. Within circuit-groups, the corresponding outputs (e.g for fan overrun) can be switched on or off delayed on the basis of the selected parameter values.



Mode Example



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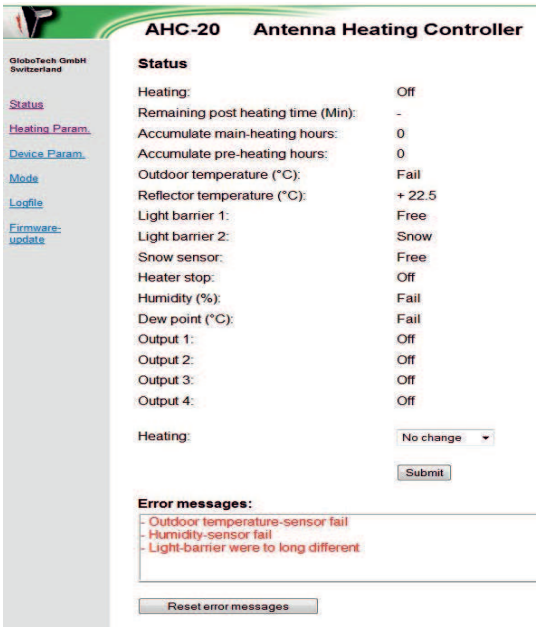
Status Monitoring and Error Messages in the Web-Interface of the AHC-20

This overview shows the most relevant operating conditions of the heating, the current values determined by the sensors and also the current status of the output-circuits. The status page of the web interface is updated at intervals of 60 seconds.

Using the pull-down menu, one can switch manually to the desired heating states .

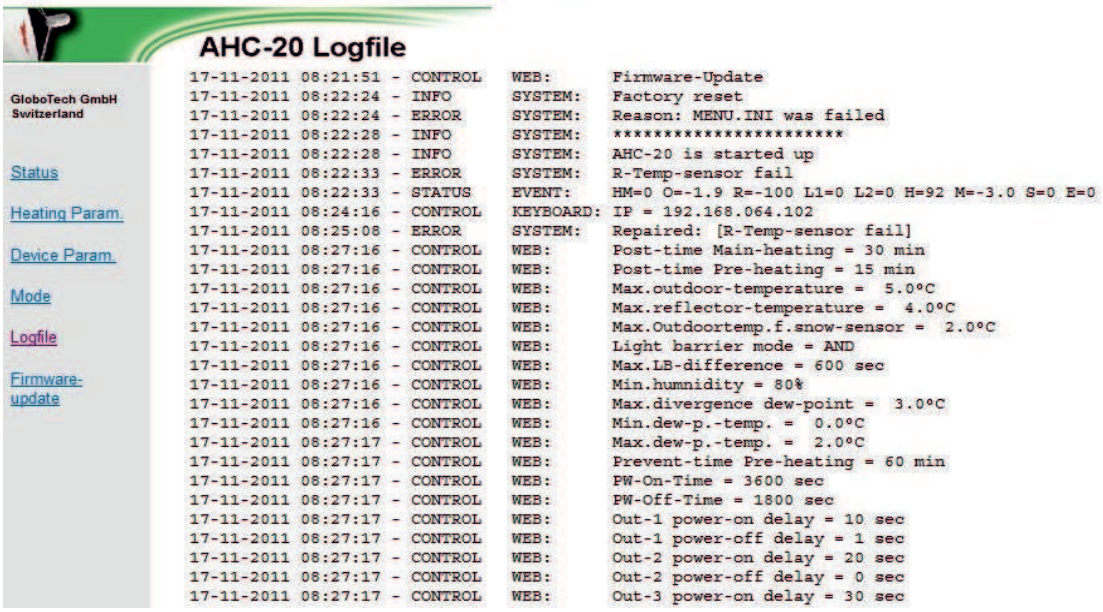
Error messages are shown on this page at the bottom. They are identical to the LCD display messages.

Some error messages, e.g. the plausibility of the photocells, are stored. They remain, even after the error criterion is not fulfilled anymore. They will only be deleted by pressing a key and then appear not until reoccurrence.



Log-File

The "Log File" records the current parameterization, deteced errors and setting changes. If the device starts up in the service mode, additional entries are made.



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