HACU® 1000

State-of-the-art Antenna Control Unit
Program Track Model

KEY FEATURES

Software-based design guaranteeing:

- Comfortable installation
- Efficient use as refurbishment system

Modular design:

- Easy customisation
- Efficient upgrading on-demand
- Extensive logging capabilities

Running on COTS hardware platform

Development based on Industry requirements and backed by the European Space Agency (ESA)

HACU® 1000 IS A STATE-OF-THE-ART ANTENNA CONTROL UNIT (ACU) PERFECTLY SUITED FOR APPLICATIONS WHERE THE REQUIRED TRACKING ACCURACY DOES NOT JUSTIFY THE USE OF A MORE COSTLY CLOSED-LOOP TRACKING SYSTEM

HACU® 1000 is part of a product series of ACUs providing a wide variety of control modes and an enhancing set of optional features.

The ACU is designed as a software-based and modular package to ensure future-proof solutions fitting the specific requirements of our worldwide client base, e.g. ESA Redu Ground Station (Galileo In Orbit Testing antenna). The modular approach allows for more efficient upgrading if requirements change.

The software is running on a COTS hardware platform that can be selected following specific customer needs and preferences. HACU® 1000 is remotely controllable via an easy to use M&C interface. Other products from the HACU® product family offer step-track, monopulse and adaptive tracking modes.

HITEC LUXEMBOURG

QUALITY ASSURED FIRM ISO 9001

Version 08/2015

ANTENNA CONTROL UNIT CHARACTERISTICS: HACU® 1000

AXES

Controls Azimuth, Elevation and Polarisation axes

MODES

Standby	Antenna brakes are applied
Pointing	Pointing to angles directly entered into the ACU
Slew	Movement according to angular speeds directly entered into the ACU
Program Track	Movement along pre-defined path specified in terms of antenna pointing elements, which can be of different types

PROGRAM TRACK MODES

Tabular Track (*)
TLE Track
Sun Track (*)
Star Track (*)

ADDITIONAL FEATURES

Atmospheric Refraction correction (*)	Automatic correction of the refraction applied by the atmosphere onto the electromagnetic waves
Pointing Error correction (*)	Automatic correction of the mechanical pointing errors by application of 2-dimensional error correction lookup tables
Command Pre-processing (*)	Transformation of the pointing angle trajectories such that no speed or acceleration limits imposed by the drive system are exceeded
Zenith-Pass Handling (*)	Followed trajectory is modified so that the tracking error is minimized during the zenith pass

INTERFACES

M&C Interface	TCP/IP based text protocol, in conjunction with the optional ACU client application
Logging Interface	TCP/IP based binary protocol, in conjuction with the optional logging application
Time Reference	IRIG-B based interface for the reception of precise time signals
SCU Interface	Profinet based interface

DEFAULT HARDWARE

Industrial PC
Redundant power supplies and cooling-systems
Redundant and hot-swappable hard-drive (*)

ENVIRONMENTAL CONDITIONS

Power supply	110 / 220V, 50 / 60Hz
Temperature (in-door operation)	Operational: 10-35°C
Humidity	10-85% non-condensing

SAFETY

CE marking

RELATED SOFTWARE PRODUCTS

ACU Client Application	User-friendly GUI-based client application for configuring and monitoring the ACU (locally or remotely) via its M&C interface
Logging Application	High-performance logging application allowing very fast logging of all relevant ACU and antenna parameters over long periods of time
Antenna Simulation Application	User-friendly GUI-based application simulating a complete antenna system including RF and mechanical aspects
Scenario Sender Application	Basic application allowing sending pre-defined sequences to command and requests to the ACU via its M&C interface

(*) optional

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