sat-nms ACS3000 Upgrade Kit

To retrofit your existing **ACS3000** antenna tracking controller from ASC Signal Corporation and formerly Andrew Corporation, SatService GmbH developed an Upgrade Kit for your existing controller cabinet.

This kit is designed for easy on-site replacement. The cabinet, the frequency inverters and main parts of the existing cabling are reused, only the old controller, the power supply and some single cables have to be replaced. All outdoor cables to the cabinet can be reused.

All new cables that are necessary for the upgrade are delivered ready for use pre-assembled with this upgrade kit as well as the mechanical parts.

A detailed installation manual describes the complete step-by-step replacement procedure. This allows you as our customer to perform the complete upgrade on your own.

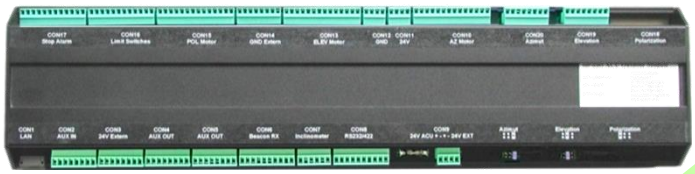
If you add a ***sat-nms*** LBRX Beacon Receiver into the drive cabinet or a ***sat-nms*** LBRX19 in a 19" rack the tracking system receives the beacon level information via UDP on the Ethernet interface. In this way, you have a complete state of the art tracking system in your existing ACS3000 controller cabinet.

It is also possible to use an existing beacon receiver with analog output voltage to complete a step-track system.

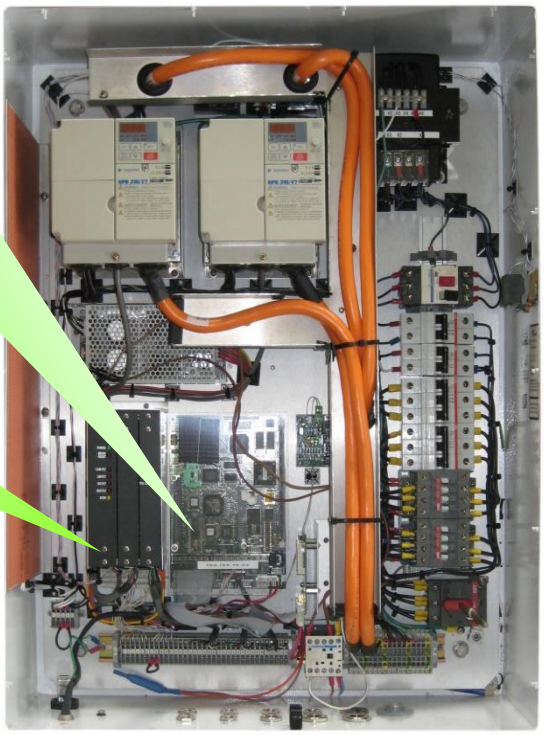
The ***sat-nms*** ACU-ODM Outdoor Module is the core module of the complete antenna step-track system, which tracks precisely any antenna size on the satellite. The integrated software does not only implement the standard step-tracking mode but SatService has also implemented an improved Adaptive Tracking Algorithm. The ***sat-nms*** ACU records the tracked positions over several days and based on this data calculates a mathematical model, which is used to predict the antenna position. This reduces the step-track failure and provides continuous operation in case of a beacon receiver failure.

In the Program Tracking Mode, the antenna follows a path defined by a file containing time stamped azimuth, elevation and polarization values. These values have usually been calculated by external software.

sat-nms ACU-ODM



sat-nms LBRX



Key Features

- Complete Upgrade Kit contains all cables and mechanical parts for easy on-site integration
- Together with ***sat-nms*** LBRX a complete step- track system in one cabinet at the antenna
- Web-based, user-friendly Operator Interface
- HTTP Protocol for external MNC Interface
  High sophisticated ***sat-nms*** ACU-IDU Indoor Unit

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The ***sat-nms*** ACU-ODM Outdoor Module includes an integrated web server and provides its operator interface via web browser. The Ethernet is the main interface and the ***sat-nms*** ACU-ODM Processor includes http, ftp and telnet services for remote diagnosis and support. The system is easy to maintain and all support can be performed remotely. Furthermore, the interface to high-level MNC Systems or a ***sat-nms*** ACU-IDU is provided via Ethernet and TCP/IP.

Technical Specification

Positioning/Tracking

Position Encoding	Resolver, Digital SSI and Potentiometer, scalable per Axis
Quantization Error	Resolver 16bit: 0.0055° SSI: 13bit: 0.044°, 16bit: 0.0055°, 17bit: 0.0028°, 19bit: 0.0007°
Display Position Resolution	0.001°
Maximum Travel Rate of each Antenna Axis	1°/sec
Interfaces to Beacon Receivers	***sat-nms*** LBRX or analog Voltage Input for other Vendors Equipment
Analog Voltage Input	0 to 10V
Option Tracking Accuracy	Encoder coupling and alignment error should not exceed 0.003° to achieve specified tracking accuracy. The influence of antenna structure thermal error is not considered.
In step-track Mode	Better than 10% of Receive 3dB Beamwidth (RMS).
In adaptive tracking Mode	Better than 5% of Receive 3dB Beamwidth (RMS).
Position Encoding	1 LSB of Resolver / Digital Conversion
Operational Modes	Manual Mode, Step-Track, Adaptive Tracking takes into account last Days History, Program Tracking based on time stamped File Data
Number of Presets	99 Storage of ***sat-nms*** ACU Configuration (including ***sat-nms*** LBRX Beacon Receiver Settings)

System Interfaces

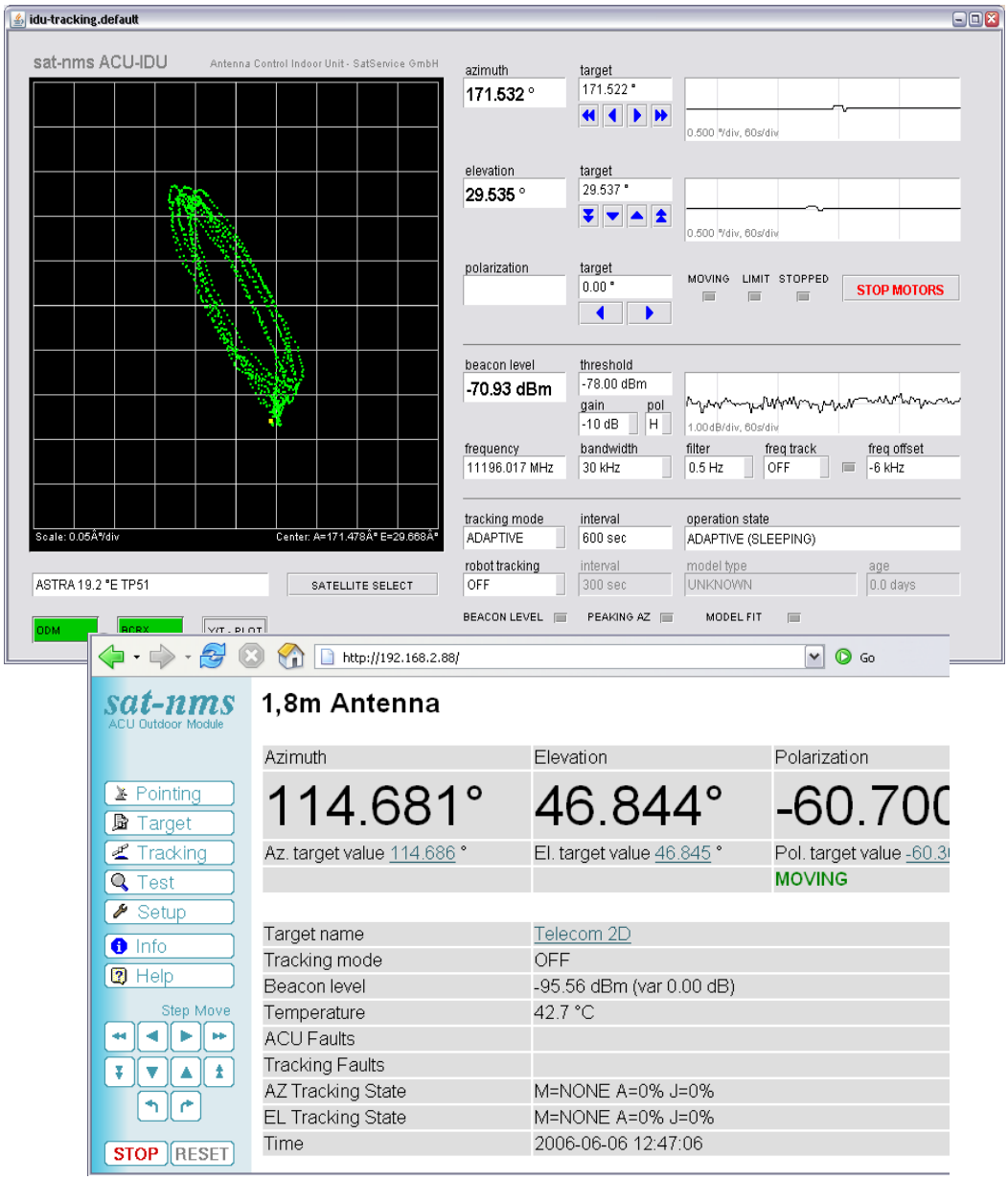
MNC Interface	10-Base-T, via HTTP GET Requests
Operator Access	With Web Browser
To ***sat-nms*** MNC and ***sat-nms*** ACU-IDU	Ethernet RJ45 or RS232
Up to 6 Limit Switches	Opto-Coupler Input for Azimuth, Elevation and Polarization
Interlock and motors-off switches	Opto-Coupler Input
3 angular Detectors	Resolver, SSI or A/D Input
Motor Driver Interface	Via Opto-Coupler In- and Outputs: Motor on/off and Direction, low and high-Speed Selection, Reset Driver, Driver Fault

Electrical and Environmental Conditions

Supply Voltage	360V 3 Phase
Temperature Range	-30° to +50° C
Humidity	Up to 90% non-condensing

ACU Indoor Unit

The ***sat-nms*** ACU-IDU is for customers who want to have a more classic antenna step-track system, which also provides an Indoor Unit. This ***sat-nms*** ACU System does even provide more functionality, like data archiving, adaptive tracking, tracking on the basis of Intelsat data, two-line Kepler Elements, graphical presentation of the angular and beacon level variation via time and other sophisticated features. The ***sat-nms*** ACU-IDU is an industrial PC incorporating digital technology for accurate antenna tracking with high reliability, flexibility and a user-friendly operator interface. This system is ideally suited for all kind of satellite ground station antennas.



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