SatService

Gesellschaft für Kommunikationssysteme mbH

sat-nms ACU-ODM Antenna Control – Outdoor Module

The *sat-nms* ACU-ODM module (Outdoor Module) is the core module of a complete antenna step track system which tracks precisely any antenna size on the satellite. The software implements the standard step tracking mode as well as an improved Adaptive Tracking algorithm. The ACU-ODM records the tracked positions over several days based on these data and calculates mathematical model to predict the antenna position. This reduces possible step track failures and provides continuous operation in case of a beacon receive failure.

In the third operation mode called "Program Tracking" the antenna follows a path defined by a file that contains time stamped Azimuth, Elevation and Polarization values, which usually has been calculated by external software.





The *sat-nms* ACU-ODM module can also be used as a pure and very cost effective antenna-positioning controller for smaller antennas as in this case the tracking software option has not to be installed.

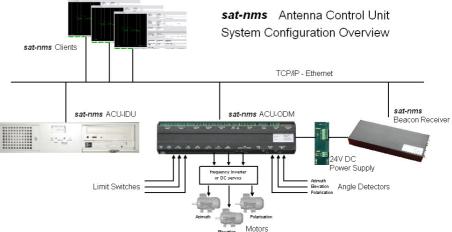
The DIN rail module provides all necessary interfaces to any antenna. The ACU-ODM module can be very flexible adapted to any type of antenna as the motor controllers can be selected independent.

- Three motor controllers, like DC servos (for smaller antennas or frequency inverters, which are commonly used in larger antennas
- Limit switches, Alarm circuits
- Angular detectors which measure the azimuth, elevation and polarization angle, three different daughter boards are available which cover most of the angle detectors used in satellite ground stations:
 - Analog resolver, covering the existing antennas
 - Digital angle detectors with SSI interface
 - A/D interface to measure the voltage across a precision potentiometer

The DIN rail module can be directly integrated into a cabinet at the antenna. Together with the **sat-nms** LBRX Beacon Receiver, also available as DIN rail module, it is possible to have a complete step track system integrated into the

antenna cabinet.

The sat-nms ACU-ODM module includes an integrated web server and provides its operator interface via web browser. The sat-nms ACU-ODM includes also http and ftp for remote diagnosis and support. The system is easy to maintain. All support can be performed remotely and the interface to high-level M&C systems is provided via Ethernet and TCP/IP.



Key Features

- · Web-based, user-friendly operator interface
- Step track algorithm as option available
- Together with *sat-nms* LBRX a complete steptrack system in cabinet at the antenna
- Outdoor Unit: high quality frequency converters for AZ and EL drive speed control
- HTTP protocol for external M&C interface

Contact Information

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Technical Specification

Positioning						
Operational Mo	odes			Manuel Mode (Pos	sitioning)	
				Step Track		
				Adaptive Tracking	, takes into account la	ist days history
					, based on time stamp	
PRESETS, storage of ACU system configuration			99 (including beac	99 (including beacon receiver configuration of LBRX)		
Position Encoding with three different interfaces via			ia Resolver, digital S	Resolver, digital SSI and potentiometer		
daughter board	ds			-		
Quantization E	rror			Resolver 16bit: 0,0	0055°	
			SSI 13bit: 0,044°,	SSI 13bit: 0,044°, 16bit: 0,0055°, 17bit: 0,0028°, 19bit: 0,0007° 0,001°		
Display Position Resolution						
Interface to beacon receivers selectable				sat-nms LBRX or analog voltage input		
Analog voltage input			0 to 10V			
Option Tracking Accuracy			• • • • •	Better than 10% of receive 3dB beamwidth (RMS). The		
opasti radiang radarday				encoder coupling and alignment error should not exceed		
						acking accuracy. The
						error is not considered.
Maximum tray	al rata of acab anta			1 %sec	na structure thermal e	inor is not considered.
	el rate of each ante	nna a	axis	T % Sec		
System Interfa						
Interfaces conr				Mini Combicon MC Ethernet or RS232		
	To M&C and ACU-IDU					
To 6 limit switc					t for azimuth, elevatio	n and polarization
Interlock and motors-off switches				Opto-coupler input	t	
3 angular deteo				Resolver, SSI or A		
Motor driver int	terface for frequend	cy inv	verter, DC serve	os Via opto coupler ir	puts and outputs:	
etc.				Motor on/	off and direction (outp	out)
				Low and	high speed selection	(output)
					ver (output)	
				Driver fau		
M&C Interface	e Specification					
	ace for M&C and us	or in	tarfaaa	10 Data T \//a b#		
			leriace	10-Base-T, Via htt Mini Combicon M		
RS232 M&C In	nterface		lenace	Mini Combicon MC	ČV1,5/10-G-3,5	
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