SATELLITE **TRACKING** SOLUTIONS

NEYRPIC® ACS450T

Transportable satellite tracking system

The satellite tracking system for transportable antennas in extreme environmental conditions.

The NEYRPIC® ACS450T is a satellite tracking system designed for transportable L to Ka frequency band antennas for tracking geostationary satellites in a stable or inclined orbit. Specifically engineered to be used in **harsh and rough environmental and operating conditions**, the NEYRPIC® ACS450T product is tailored for flyaways and vehicle-mount antennas.

NEYRPIC® ACU450T

Description

The NEYRPIC® ACS450T is offered in two form factors:
Rack – **NEYRPIC® ACS450TR** and Cabinet – **NEYRPIC® ACS450TC**.
Both products include:

- **NEYRPIC® ACU450T** antenna control unit
- **NEYRPIC® ACU Param450T** set-up software
- Motor Drive Unit
- **NEYRPIC® HMI450T**

They interface with the following antenna peripherals:

- Beacon receiver
- Azimuth, elevation and polarisation axes motors
- Optical positions sensors
- Limit switches and interlocks
- Compass
- GPS receiver
- Temperature gauge
- Tilt Sensors
- Motorization emergency stop button
- LNA Alarms
- RF switches

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NEYRPIC® ACU450T Antenna Control Unit

The NEYRPIC® ACU450T antenna control unit is the main controlling device for the NEYRPIC® ACS450TR and NEYRPIC® ACS450TC.

While monitoring system status, the ACU allows the operator to have access to the following features:

SPEED MODE

Each motor can be operated independently in low or high speed.

POSITION MODE

Manual entry of the AZ/EL /POL position.

SATELLITE HOMING

The ACU has 32 pre-programmed satellite orbit parameters. Two sets of parameters are available for each of the 32 satellites. They can be loaded via the Ethernet port. 64 RF configurations are also available.

SATELLITE ACQUISITION

After homing, satellite acquisition is made using a raster scan.

STEP TRACKING

After homing and acquisition of the satellite, tracking is made by configurable period intervals.

CALCULATED TRACKING

When the signal is weak or lost, the system switches over to calculated tracking which operates on orbit parameters from Intelsat, NORAD TLE or CNES.

ORBIT PREDICTION TRACKING

Intelligent Progressive Orbit Prediction (I.P.O.P.) tracking allows efficient orbit prediction and tracking up to 7 days without a beacon signal.

STANDBY MODE

The motors are stopped.

SURVIVAL/TRANSPORT MODE

The motors are stopped with the antenna in a specific position.

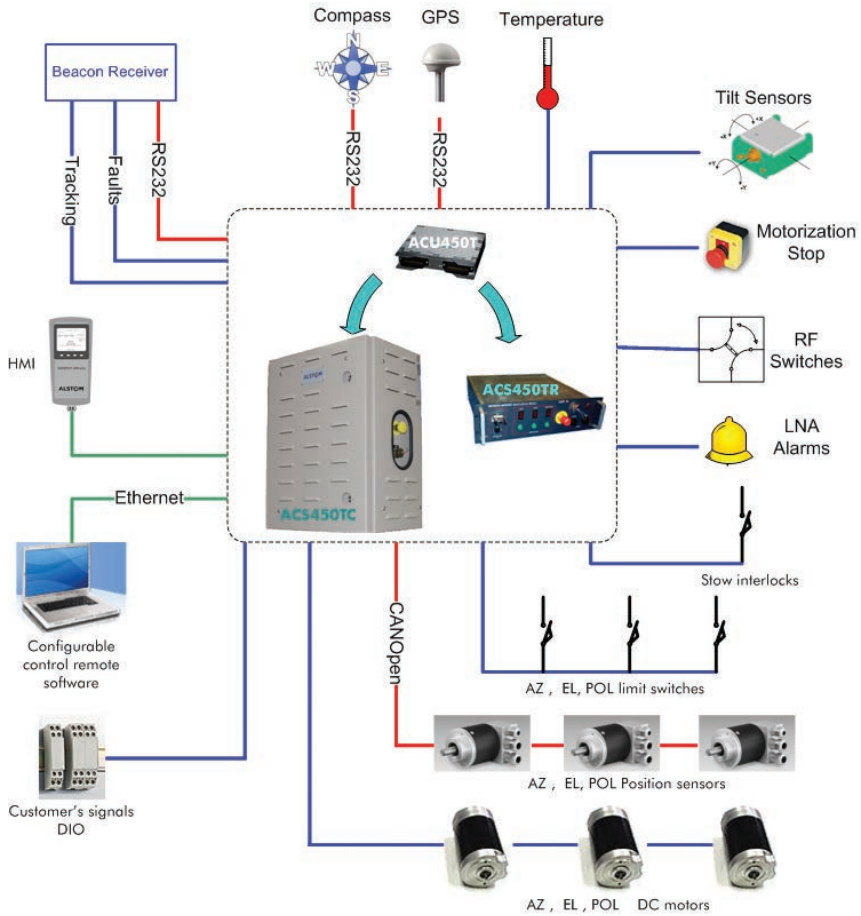
Additional features

Beacon receiver control: Via an RS232 link the ACU can control the most commonly used receivers such as SMP, Vertex DTR, Novella and MITEQ. Other models can be added upon request.
Managing multi-band antennas: The ACU automatically adapts its satellite search and tracking parameters according to the frequency band being used.
Anti-secondary lobe: A broad scan algorithm is executed around the theoretical position to determine the main lobe position.
Peripherals: Interface with instrumental peripherals (GPS, magnetic compass, inclinometer) to optimise satellite tracking with a static or dynamic plate compensation.
LNA Monitoring: Tells if contact is open or closed.
RF switches: Possibility to control and retrieve status of the two RF switches.
RF inhibition: Output of an SPDT reflecting if RF transmission is allowed according to antenna position.
Automatic detection of movement error: Monitors antenna movements according to control commands.
Intelligent travel management: Selects proper travel direction (CCW, CW) upon calculated satellite drift box before pointing to a satellite.
Customer DIO: Four 24V DI and six connections for customer use.

Technical specifications

150 MHz 32-bit controller	8 x 4 A and 16 x 2.5 A high side digital outputs/PWM
4 MB external RAM	3 independent stabilized voltage outputs 5 to 10 V
3-state input	Size: 2.5 kg
RS232; up to 115 kbit/s	Operating temperature: -40°C to +85°C
28 analog inputs (4-20 mA or 0 to 5/10/40 V,12bit A/D)	4 CAN 2.0B busses (remote control, encoders, operator console)
28 digital inputs active high/low switchable	

NEYRPIC® ACS450T



Position sensors

The ACU can read from the three position sensors (AZ, EL and POL). These sensors can use different technologies:

- 12-bit optical absolute encoder (single or multi turn).
- 18-bit optical absolute encoder.
- 34-bit multi-turn encoder.

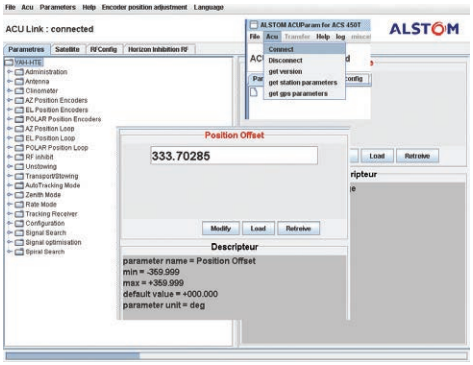
NEYRPIC® HMI450T

The NEYRPIC® HMI450T lets users control the whole system. Its large display provides information on operating modes, antenna position and beacon signal strength. Its rugged and ergonomic housing means in can be used in any rough environment.

Technical specifications

Backlit screen: 110 mm x 110 mm
4 illuminated buttons on the front panel
80 dB buzzer
Communication via CANOpen bus
French/English display
Protection index IP67

NEYRPIC® ACS450T: interface, monitor and control



NEYRPIC® M&C interface is the dedicated control application for the NEYRPIC® ACS450T.
Software updates are downloaded via the CAN bus or the RS232 port.

NEYRPIC® ACU Param450T: backup/restore software tool

The NEYRPIC® ACU450T is delivered with a set-up software tool which enables easy configuration and installation using a PC. The NEYRPIC® ACU param450T allows backup/restore of all parameters, as well as read-write access to them.
Features include:

- On-line modification of the ACU parameters.
- Saving and backing up all ACU parameters.
- Instant display and modification of the parameter file.
- Restoring all parameters.

This software, developed in Java, runs on Microsoft Windows and Linux.

NEYRPIC® ACS450T servo drive unit

The servo drive unit is included in the NEYRPIC® ACS450TR and the NEYRPIC® ACS450TC.
Its features include:

- Control of the 24V AZ and EL motors with a frequency converter.
- Control of a 24V POL motor.
- Motor stop mounted on front (ACS450TR) or side (ACS450TC).
- Axis limit switches.
- Power supply 24V DC or 110/220v AC 50/60 Hz.

Regulations and standards

EMC Directives 2004/108/CE
Low Voltage Electrical Equipment Directives 2006/95/CE
MIL-STD-810F
French Military Environment Standard GAM EG13
ISO 14001:2004 version
CE Marking

ISO International Organization for Standardization

CE

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