



Communications & Power Industries



malibu division

Model P-Series ACU Antenna Control Unit

Product Data Sheet

Features:

- PC-104 Based Controller; DSP/FPGA Based Controller
- Wide Angle Viewing TFT Touch Screen
- Local Control via LAN, RS-232/422 or Fiber Optic
- Help Menu with ACU User Guide
- Password Protection for Sensitive Settings
- BIT (Built in Test) Features
- Robust Field Tested Software
- Analog & Digital Display of Antenna Position, Error Signals, and AGC
- 5 Modes of Operation; Standby, Manual, Track / Acquire, Search and Slave
- Removable Flash Memory Drive
- Standard 19-in Rack Mount
- Optional Expansion Bay for ISA or PCI Interfaces
- Controller Operates with Analogue, Pulse Width Modulated, and Serially Controlled Servo Amplifiers
- Utilizes Commercial Off-The-Shelf Hardware



- Integrated Handwheels
- IMU Self Stabilization (Optional)
- Fiber-Optic Control Interface (Optional)

The P-Series Antenna Control Unit is a digital control system that provides all the necessary commands and displays required for real time operation of an antenna system, pedestal, and associated equipment. Utilizing commercial off-the-shelf hardware, the P-Series offer a high level of functionality, field-proven software, and superior reliability. The antenna control unit utilizes the latest available CPU processors, thus ensuring adequate processing power. The operating system are Windows™ and Linux based and CPI Malibu Division proprietary application software is written using several host languages including C, C++ and others.

The ACU operates with the CPI Malibu pedestal hardware of different sizes to produce a complete Antenna Tracking System. Software setting of threshold, hysteresis, saturation and noise floor are part of the standard ACU package.

The rear panel of the ACU is customized for the individual system requirements, standard interface connections include an AC power connector, a pedestal interface cable connector, BNC-female connectors for AM & AGC input (will accept up to sixteen receivers), an Ethernet interface connector, an RS-232 interface connector, IEEE-488 connector, two USB interface connectors (one used for the desktop mounted joystick provided), as well as keyboard and mouse connections. Optional interfaces include RS-485 and fiber-optic connectors.

An optional expansion bay, capable of storing up to six boards, can be integrated into the ACU chassis to support third party boards, such as IRIG, receiver, combiner, bit synchronizer, and decommutator modules

Related Data Sheets

- HD Pedestal Series

- Local/Remote ACU

Model P-Series ACU

Specifications

Modes of Operation	Function
Standby	All positioning commands are disabled and brakes are set.
Manual	Operator may position antenna via handwheels, joystick, immediate designate command or user pre-programmed position selection.
Track/Acquire	If Acquire mode activated antenna will automatically track the target once the AGC detected level is greater than threshold level set by operator.
Search	The pointing angle of antenna is scanned in search of the target in a box type pattern. The search center, width and rate can all be modified real-time.
Slave	The antenna is slaved to another system via an RS232/422 communication link or digital inputs.
Test & Calibrate Modes	
Velocity	Verifies pedestal dynamics. Can be programmed by operator in GUI set-up.
Acceleration	Verifies pedestal dynamics. Can be programmed by operator in GUI set-up.
Sun Track	Used to verify tracking operation and perform G/T measurements.
GPS Track	Accepts GPS data for pointing.
Satellite Track	Uses COTS software with information on most commercial satellites to guide the ACU.
Demodulator Zero Calibrate Demodulator Gain Calibrate	Used to optimize tracking control loop. User specified or automatically set.
General Specifications	
General	Designed for use in indoor environments; Rugged MIL versions available
Power Requirement	115-230 VAC, 50-60 Hz (150 watts)
Weight	<28 lbs (13 kg)
19" Rack Mount	Standard for rack mount

The screenshot displays the Antenna Control Software interface. At the top, it shows 'Antenna Control Software', '>> Local ACU <<', and 'Mission: Default'. The menu bar includes 'File', 'Settings', 'Test', 'Tools', and 'Help'. Below the menu, there are status indicators for 'Safe', 'Servo', 'RSafe', 'Stow', 'FLimit', 'OVHP', 'RMem', 'Slave', and 'DatLog'. The main control area is divided into several sections:

- Elevation Control:** Features a 'Servo' button, 'Feed', and 'LNA' buttons. It shows 'Angle' at 89.99, 'Cmd' at 89.99, and 'Slave' as empty. A circular gauge shows the current angle. Below are 'DN', 'UP', and 'MPC' buttons.
- Azimuth Control:** Shows 'Angle' at 180.02, 'Cmd' at 180.02, and 'Slave' as empty. A circular gauge shows the current angle. To the right are 'MPC', 'RMem', and 'PMem' buttons.
- Tracking Error:** A central plot shows tracking error with 'Az Error' and 'El Error' both at 0.0. 'Feed Spd' is at 90%. Below are 'AGC' (3.0) and 'SAT' (65) indicators.
- Receiver and Antenna Settings:** Includes 'Auto' buttons for both, and 'LHCP', 'RHCP', 'L-Band', 'S-Band', 'Hi G', and 'Low G' options.
- Transmitter Control:** Includes 'Polarity' (LHCP, RHCP) and 'Band' (L-Band, S-Band) buttons.
- System Information:** Shows 'System Location: MRA_Test' and 'Date/Time: 05/16/08 08:22:25.77'.
- Mode Selection:** Large buttons on the left and right for 'Track', 'Acquire', 'Slave', 'Search', 'Manual', and 'Standby'.

