

Antenna Technologies



Overview

System

The CPI Antenna Technologies' Model 950A Antenna Control System is comprised of an Antenna Control Unit (ACU), Tracking Receiver Unit (TRU) and a Power Drive Unit (PDU) which are linked via dedicated Ethernet connections. This configuration provides flexibility in locating the key system components, allows for variable separation distances, and provides immunity to electrical ground plane transients.

The Model 950A is Intelsat - Standard A compliant for great tracking performance, offers extensive modes for pointing, acquisition and tracking and its software is field-upgradable via USB or remote interfaces. In addition, the Model 950A is CE compliant for EU applications and features a large color touchscreen display for modern user interfaces.

Tracking Accuracy - Optrack Normally better than 5% of the receive beamwidth in winds of 30 mph gusting to 45 mph, satellite inclination of up to 15° and signal scintillation of up to 2 dB.

Monopulse Tracking

The monopulse option provides high performance and new life to existing antennas at an economical price point.

Pointing Accuracy

Normally better than 0.05° RMS in winds of 30 mph gusting to 45 mph. This includes all drive train errors, but excludes structural errors between the position transducers and RF beam.

FEATURES:

- Precision satellite tracking and control
- Fiber, Ethernet, and serial interfaces
- Full software upgradeability
- Extensive tracking, pointing, and acquisition modes
- Ideal for single AC motor (per axis) antennas
- Stable to 15° inclined GEO targets
- Single, dual, or multi-speed antenna motor drives
- Single or multi-band operation
- Support for complex feeds
- Flexible receiver options
- Designed to minimize site cabling

BENEFITS:

- Full featured system with wide compatibility and inverter drive control.

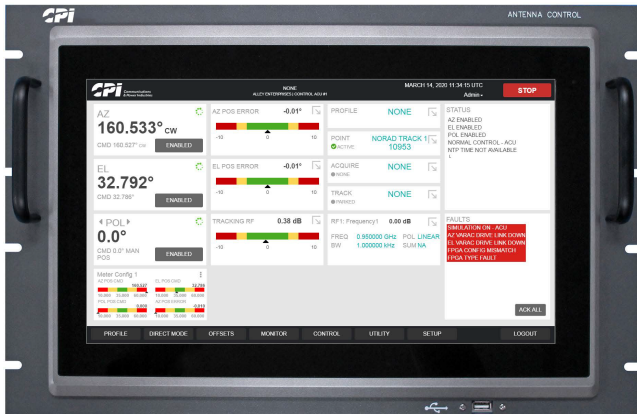
APPLICATIONS:

- Communications, data transfer, broadcast,
- Can be used with almost any limited motion antenna
- Retrofits for legacy Model 100 and Model 7200 applications and more

OPERATIONAL MODES			
Tracking	Pointing	Acquisition	Other
Optrack Steptrack Monopulse (optional)	Intelsat 11 Preset Designate TableTrack NORAD StarTrack SunTrack Moon Track	Box Scan Geo Scan	Maintenance Manual Stop Computer Simulator Polarization Stow

Antenna Control Unit

The Antenna Control Unit (ACU) is the primary control and monitor interface point for the entire system, featuring a friendly touch screen windowed interface.



7RU ACU with 15 Inch Touch Screen

FEATURES:

- Optrack, which provides high performance tracking of stable or inclined orbit satellites with an adaptive self-learning ephemeris modeling mode
- Easy touch screen operation
- Informative display with color readouts
- Extensive diagnostic monitoring and test capabilities
- Antenna and satellite simulators
- Supervisory control link (Ethernet; TCP/IP), standard protocol, SNMP, and HTML5 GUI over browser
- Fully software field upgradable

Receiver Options

- 4 RU Model 550A (Digital) or Model 520A (Analog) with zero additional rack space mount behind ACU screen
- 2 RU Model 550A (Digital) or Model 520A (Analog) with dual 5 inch displays
- Receivers also available with internal block down conversion for common frequency bands

Portable Maintenance Unit

The Portable Maintenance Unit (PMU) provides manually commanded, bi-directional control of all axis.

It has the following features:

- Hand held ruggedized unit with a 10-ft pendant cable and 40-ft extension cable for convenient local operation at the antenna
- Backup means of moving antenna & is ACU independent
- Four line, 20 character display for axis positions, tracking signal strength, mode and scrolling status messages
- Modes include position jog, Hi/Lo speed
- Optional weather proof access junction boxes at convenient antenna locations
- Enable/disable per axis



Manual Control Unit

The Manual Control Unit (MCU) provides manually commanded, bi-directional control of all axis.

- Slim, 1RU chassis
- PMU functionality

System Options

- Fiber Optic ACU-PDU Link, M&C/WAN Link
- Time Synchronization via NTP
- Manual Control Unit
- Rack Mount Tracking Receiver
- Extended low temperature operation
- Extended Warranty
- PDU configurable for various motor sizes and polarization controls
- E-Stops in panel mount or J-Box
- Fourth Axis Control
- Serial M&C (Remote Control)
- Stainless Steel Enclosure

Multi-Speed Inverter PDU

The Power Drive Unit (PDU) provides all digital control to the AC drive motors and contains the hardware/firmware logic to close the position and tracking loops with high resolution. It also provides controlled acceleration and deceleration profile & speed regulation range of up to 15:1 with conventional inverter rated AC motor (antenna system dependant).

The inverter PDU's are free-standing housed in a NEMA 4 (IP66 equivalent) aluminum enclosure and contains the electrical/mechanical components necessary to move the antenna. The PDU contains an internal fan for ambient air circulation and "hotspot" avoidance and a thermostat controlled, internal heater for cold weather operations. Single speed contactor configurations are also supported.

A lockable handle secures the access door while the system is operating. A lockout, tagout power disconnect is provided on the cabinet exterior. Mounted in the enclosure is a panel assembly consisting of the Antenna Control Board (ACB) logic, power supply, inverter

drives, and various ancillary devices. Status interlocks and position signals report to the ACB and, while in constant communication with the ACU, the ACB transmits information and receives commands to control movement of any antenna information and receives commands to control movement of any antenna axis.

Communication within the system via Ethernet between ACU, TRU, and PDU by a dedicated controller. A second Ethernet controller and port provides independent connection to M&C or customer WAN. System design minimizes cable installation cost and complexity, and allows for flexible site layout.



Transducers

1:1 Resolver (optional)

- 0.0055° resolution, 0.05° accuracy
- Standard 16 bit design

Optical Encoder (standard)

- 0.00001° resolution, 0.0055° accuracy
- 25 bit optical design

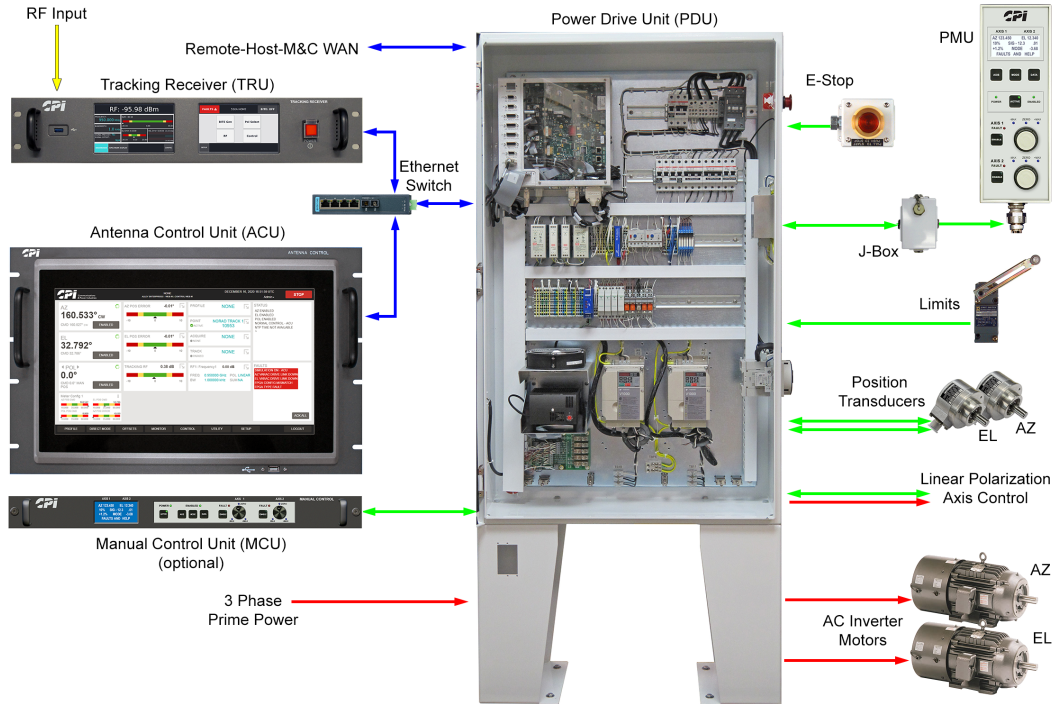


AC Motor Support

The motor has the following features:

- Single or multiple inverter duty windings
- Optional handcrank interlock
- 208-480v 3 phase voltage





SPECIFICATIONS

- Tracking accuracy $\leq 5\%$ of Beamwidth
- Total system results are antenna (mechanically) dependent
- Pointing accuracy $\leq 0.05^\circ$ RMS
- FCC, CE, and REACH

UNIT	SIZE	WEIGHT	POWER
ACU- 7RU rack mount chassis with slides	12.25" H x 19" W x 18" D	10 lbs	Single phase, 100-240 VAC~ 350 VA
PDU- AC Inverter or Single speed contactor	66.5" H x 30" W x 11.25" D (Including Floor Stand)	230 lbs	Single Phase Electronics, 100-240 VAC~500 VA 208/380/415 VAC~, 3 ϕ , KVA Motor Dependent Three Phase 200-240 VAC~, 7.5 HP Max Three Phase 380-480 VAC~, 10 HP Max Single Speed 5HP Max, 208/380/415 3 Phase
MCU- 1RU rack mount chassis	1.75" H x 19" W x 8" D	5 lbs	Single phase, 100-240 VAC~15 VA

ENVIRONMENTAL	TEMPERATURE	HUMIDITY
Indoor Equipment	0° to 50° C (Operating), -20° to 70° C (Storage)	95% Non-Condensing
Outdoor Equipment	-10° to 50° C (Operating) -40° to 40° C (Operating, Optional Extended) -20° to 70° C (Storage)	100% Condensing

Contact us at CustomerCareSAT@cpii.com or call us at +1 770-689-2040

The data should be used for basic information only.
Formal, controlled specifications may be obtained from CPI for use in equipment design.



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