



# RC3500

## Satellite Earth Station Antenna Control Unit



### FEATURES

- **Resolver Type Position Sensors**  
*0.005 deg resolution, 3.5 minute accuracy*  
*Optional potentiometer for polarization position sense.*
- **Directly Interfaces Low DC Motors**  
*Simultaneous az/el to pol movement, 10 amp max*
- **Non-volatile Memory**  
*store position and polarization data (including inclined orbit track data) for 50 satellites*
- **Inclined Orbit Tracking**  
*Via step track / memory track*
- **Optional support NORAD TLE**  
*NORAD Two Line Element Track*
- **Multi-Band Operation**  
*supports C, Ku, L, Ka and X-band satellites*
- **2U Rack Enclosure**  
*115/230 VAC switchable, 20lbs weight, 19" depth*
- **RS-422 or RS-232 Monitor & Control Interface**  
*remote control from many popular PC software packages*
- **Optional Ethernet Interface**  
*Support browser based Remote Front Panel & VDP encapsulation of serial M&C commands*
- **Optional SNMP Support**  
*Reports ACU status*
- **Optional DISA compliant Beacon Receiver**  
*A low threshold of 43dBHz, fast re-acquisition of less than 1s and high linearity, manufactured by Novella Satcoms Ltd.'s receivers the preferred choice for small antenna field deployable stations (C,X , Ku and Ka Band) requiring fast automatic satellite acquisition.*

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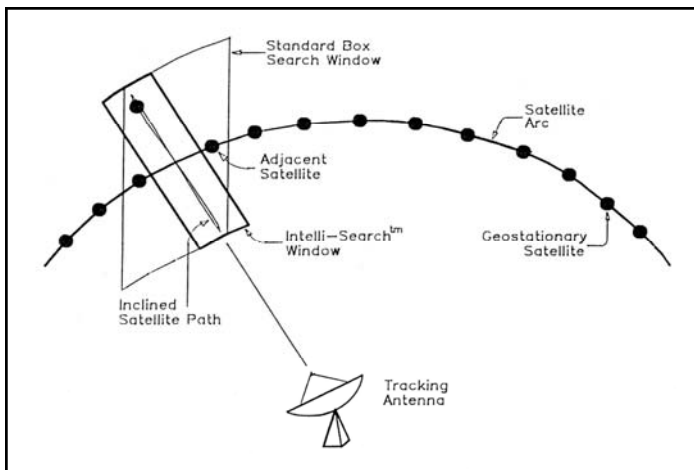
## TRACKING ALGORITHM

The RC3500 tracking algorithm can be divided into three distinct stages - STEP\_TRACK, MEMORY\_TRACK, and SEARCH.

In **STEP\_TRACK**, the controller periodically peaks the receiver's AGC signal strength by jogging the antenna. The time and position are recorded in a track table maintained in the controller's non-volatile memory. The interval between peakups is determined by antenna beamwidth (determined from antenna size and frequency band), satellite inclination and a user specified maximum allowable error (in dB). When a track table entry exists for the current sidereal time, STEP\_TRACK switches to MEMORY\_TRACK.

In **MEMORY\_TRACK**, the controller smoothly moves the antenna to azimuth and elevation positions derived from entries in the track table. The time between movements is determined by the same factors which govern the time between peakup operations in STEP\_TRACK. By increasing the maximum allowable error, antenna movements can be performed less frequently. In MEMORY\_TRACK, the accuracy of the track table is monitored by periodically peaking up the receiver AGC signal. If the error exceeds a level set by the user, all entries in the track table are flagged for update.

**SEARCH** is entered when the satellite signal has been lost. The RC3500 utilizes Intelli-Search, an efficient search algorithm that minimizes errors associated with traditional box searches and frees the user from having to update vague search window parameters. This scheme accounts for the specific mount geometry, calculates the nominal trajectory for the satellite and then searches in an area that coincides with the satellite's expected path. When the satellite is located, the controller re-enters the STEP\_TRACK mode.



## SPECIFICATIONS

### PHYSICAL

<b>Size:</b>	19.0" x 3.5" x 17.0" (rack)
<b>Weight:</b>	20.0 lbs. (A model), 18.0 lbs. (B model)
<b>Temperature:</b>	0° – 50° C
<b>Input Power:</b>	115/230 VAC: switchable (A model), specify input power when ordering (B model), 50/60 Hz., 50 W idle, 850 W when moving – CE compliant
<b>Display:</b>	4 x 40 LCD

### INTERFACES

<b>Position:</b>	Elevation inclinometer, azimuth & polarization potentiometers, azimuth & elevation pulse sensors (Reed, Hall Effect, Optical), discrete limit switches
<b>Serial:</b>	RS-422/RS-232 (Jumper selectable on PCB)
<b>AGC Input:</b>	-15 to +15 VDC input range, 2M $\Omega$ input
<b>Output:</b>	12 – 36 VDC motor drive (3500 A model), 90 VDC motor drive, 180 optional (3500 B model), Antenna Interface Unit (3500 G model), External AC Motor Drive (3500 D model)