Avoid the time consuming tasks of manually positioning your mobile antenna and tracking inclined orbit satellites. The RC3000 allows even non-technical personnel to automatically locate and position a mobile antenna within minutes from power up.

FEATURES

- **Automatic Pointing Solution**
  calculates azimuth and elevation angles from any position and heading

- **Auto Acquisition**
  Via Built in DVB or External Modem

- **Optional GPS Receiver**
  battery backup for fast position fix, one pulse per second clock synch pulse

- **Optional Fluxgate Compass**
  calibrate by driving in circle

- **Optional Inclined-Orbit Tracking**
  Step Track, Memory Track, TLE & Intelli-Search™ modes

- **Non-volatile Memory**
  store position and polarization data (including inclined orbit track data) for 50 satellites

- **Slim 2U Rack Panel**
  uses less space than RC8097 predecessor

- **User Friendly Interface**
  operator interaction similar to industry standard RC2000 fixed base controllers

- **Continuous Antenna Status Monitoring**
  motion limits, jammed and runaway sensing

- **Optional Serial (RS-422 or RS-232) or Ethernet Control Interface**
  Remote control from any popular PC software packages

- **Multi-Band Operation**
  supports C, Ku, L, Ka and X-band satellites

- **Potentiometer & Pulse Sensor or Resolver Interface**
  high resolution pulse sensor or resolver ensures accurate tracking, inclinometer for true elevation sensing

- **Designed for Future Expansion**
  beacon receiver, GPS derived heading, resolver based position feedback

- **Motor Types**
  Low voltage DC, 90/180 VDC or AC motor with External AIU

www.researchconcepts.com
The RC3000 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 RC3000 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.

In **Ephemeris Track** the RC3000EPH option allows the RC3000 to track satellites using NORAD Two Line Element (TLE) data sets. The RC3000 uses TLE data to calculate a satellite’s current az/el position.

Orbital elements are determined for all satellites by NORAD. Orbital elements for commercial satellites are freely distributed on the Internet in the form of TLE data sets. For many satellites, TLE data is updated weekly.

TLE data can be entered into the RC3000 either directly via the front panel or remotely via the (optional) RS232/422 serial or ethernet interfaces.