

# ACU4000 Antenna Control Unit

- The ACU4000 is an antenna control unit designed to operate with the Advent NewSwift, Lynx 2000 or motorised Mantis antenna systems.
- The unit provides user friendly 3 speed motor control of all 3 azimuth, elevation and polarisation axis as well as automatic stow and deploy functions.
- The ACU4000 provides all power and communication interfaces to the drive control unit (DCU) mounted on the antenna from 2 D-type connectors on the rear panel.
- The antenna control unit communicates to the DCU via a RS485 serial communications bus.
- The ACU4100 combines all the features of the ACU4000 with the option of interfacing with a GPS receiver, a fluxgate compass and a beacon receiver to provide facilities for automatic satellite acquisition or tracking.
- The ACU4200 also provides an 800 city database to enable satellite pointing without the need for GPS.



# Specification

## INTRODUCTION

The ACU4000 series antenna control units are designed to operate with the NewSwift, Lynx 2000 or motorised Mantis antenna systems. The ACU4000 provides all power and communication interfaces to the DCU (Drive Control Unit) mounted on the antenna from two D-type connectors on the ACU rear panel.

The ACU4000 provides a user friendly interface enabling the control of azimuth, elevation and polarisation for the deployment and operation of the motorized antenna system. An LCD front panel displays the position of azimuth, elevation and polarization.

The ACU4100 has software embedded into the controller to be able to calculate the position of a satellite from the location and orientation of the uplink system. The location and orientation can either be entered manually or obtained automatically from a GPS and compass unit interfaced to the ACU4100. If a beacon receiver is added to the system the ACU4100 can search for and peak on the satellite beacon signal. If a tracking beacon receiver is used the software embedded into the unit can track inclined orbit satellites.

Tracking is maintained using a predictive step track algorithm. From the detailed characteristics of the beam pattern stored within the controller the ACU4100 can optimise the antenna pointing with the minimum of movement during the tracking process.

The ACU4200 provide all the functions of the ACU4000 and ACU4200 with up to 50 stored satellite locations and additional software providing up to 800 city information database enabling the controller to find the satellite without the need of GPS.

The ACU4000 series controller is a 1U high 400mm deep chassis, powered directly off a nominal 12V DC battery supply. This is used to power the ACU as well as provide all power requirements for the antenna mounted DCU. This allows the antenna to be deployed and stowed without the presence of a mains power supply.

## FRONT PANEL INDICATIONS

### Alarm

Indication of alarms within the antenna system.

### Remote

Indication that front panel is 'locked out' by a controller on the PC or REMOTE Interface

### Power

Indicates unit is connected to a power supply

### Fast/Medium/Slow

Indication of rate of movement of antenna drive motors

## FRONT PANEL CONTROLS

### STOP

Stops any current antenna system activity

### DEPLOY/STOW

To control the automatic deploy or stow of the antenna

### TX SWITCH

To change the state of the transmit waveguide polarisation switch

### RATE

Changes the current movement rate

### POL ← POL →

Controls the polarisation axis movement

### SHIFT

Allows alternative control of all dual function control keys

↑, ↓, ←, → Controls the azimuth and elevation axis movement functions. In the menu mode, used to navigate and select options

### MENU

Enter the unit menu

### ENTER, ESCAPE

Used to select menu options, and escape from current selections

## POSITIONAL DISPLAY ACCURACY

Azimuth, elevation & polarisation  
± 0.1%

## ANGULAR CONTROL RATES

### NewSwift

#### Azimuth/polarisation

Fast 2.0°/s  
Medium 0.5°/s  
Slow 0.1°/s

### Elevation

Fast 1.0°/s  
Medium 0.5°/s  
Slow 0.1°/s

## ANGULAR CONTROL RATES

### Lynx

#### Azimuth/Elevation

Fast 1.0°/s  
Medium 0.5°/s  
Slow 0.1°/s

### Polarisation

Fast 2.0°/s  
Medium 0.5°/s  
Slow 0.1°/s

## ANGULAR CONTROL STEPS

All antenna types

Fast 1.0°  
Slow 0.5°  
Slow 0.1°

## ENVIRONMENTAL AND PHYSICAL

### Temperature range

-20 to +50°C operating

### Size

1RU chassis by 400 mm deep

### Weight

3.0 Kg approx.

## POWER

### Operating Voltage

12V DC nominal

### Power Consumption

16A peak