GPS Synchronised Rubidium

C-MAC offers a family of Time and Frequency Systems based on Rubidium Clocks, which are synchronised to the Global Positioning System (GPS), thereby providing extremely accurate time and frequency. The output frequency and time are derived from the Rubidium Standard which is locked to the GPS signal, thus combining the excellent short term stability of the Rubidium Standard with the superb long term stability of the GPS signal. If the GPS signal is lost the Rubidium continues to maintain accurate frequency and time with no interruption. C-MAC offers two lines of products; the commercial 19" rack mount AR73A series and the fully militarised AR-51A series.

The following table summarises the common features of the GPS Rubidium :-

Output Frequency	10MHz (other frequencies optional)
Frequency Accuracy (10MHz)	1E-11, 5E-11/month holdover (no GPS)
Time Accuracy (1PPS)	1µs relative to UTC (50ns optional) 1µs/24 hours holdover (no GPS)
Short Term Stability (Allan Deviation)	2E-11 @1 sec 2E-12 @100 sec

GPS Synchronised Rubidium Clock AR-73A

Description

- The AR-73A is based on a 19" 1U rack mountable encasement and is available as a basic version (Option Code 00) and in two additional versions (Option Code 01 and Option Code 11). It may include numerous other unique options denoted as additional options. Customised solutions based on the customer's distinctive requirements can be provided

Basic Version - Option Code 00

Outputs	10MHz, 1PPS
Input	1PPS
Enclosure	19" x 1U (1.75") x 12"

Option Code 01

Outputs	10MHz, 1PPS, IRIG B/A, Time and Location Serial Protocol (RS232)
Inputs	1PPS, IRIG B
Enclosure	19" x 1U (1.75") x 12"

Option Code 11

Outputs	10MHz, 1PPS, IRIG B, Serial outputs (customising available), PC channel, LAN-NTP (optional)
Inputs	1PPS, IRIG B
Enclosure	19" x 1U (1.75") x 18"
Display	Time / date display — Satellites used Time source — Leap seconds (from UTC to GPS) Position — 1PPS output delay BIT (Built In Test) Comm. — 1PPS output-input diff. measure
Power Supply	110-240VAC / 18-32VDC (optional)
Power Backup	Optional

Fully Militarised GPS Synchronised Rubidium Clock AR-51A

Description

- The AR-51A family has been fully qualified for operation in harsh stressed environments on ground, mobile, airborne, fighter aircraft, helicopter and shipborne platforms. Summaries of the available AR-51A versions are given in the table below.

Version 02 **Rubidium Clock with internal GPS for intial time acquistion and synchronisation**

Outputs	10MHz, 2 x 1PPS, 1KPPS & 100KPPS (RS422), IRIG B, IRIG A Serial Time and Location Serial Protocol (RS232)
Inputs	External IRIG B and 1PPS
Enclosure	185(w) x 122(h) x 210(d) mm With shock tray: 210(w) x 164(h) x 274(d) mm
Synchronisation	Time acquisition and synchronisation from the internal GPS receiver is performed upon initialisation or by operator request

Version 03 **Rubidium Clock locked via PLL to an external or internal GPS**

Outputs	10MHz, 2 x 1PPS, 1KPPS & 100KPPS (RS422), IRIG B, IRIG A Serial Time and Location Serial Protocol (RS232)
Inputs	External IRIG B and 1PPS
Enclosure	185(w) x 122(h) x 210(d) mm With shock tray: 210(w) x 164(h) x 274(d) mm
Synchronisation	Digital PLL circuit locks Rubidium's frequency and time to an input from an external or internal GPS receiver
Hold-over mode	Rubidium clock maintains frequency and time when GPS is unavailable