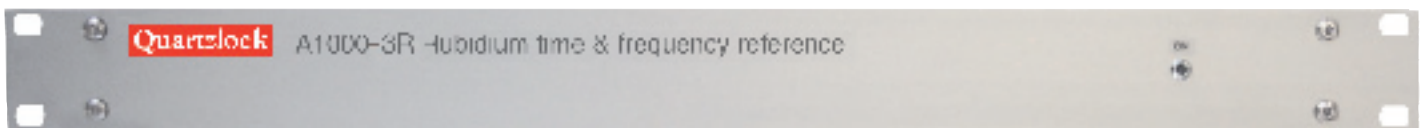


10MHz Redundant Rubidium Reference

Employs Quartzlock Digital PLL Technology



Description

The Quartzlock A1000-3R Redundant Rubidium Frequency Reference is a 10MHz high stability standard with multiple rubidium oscillators whose outputs are phase aligned. In the event of a rubidium failure, the failed unit may be exchanged during operation, the new rubidium joins the ensemble when warm. No phase hit or step in frequency registers at the output.

Features

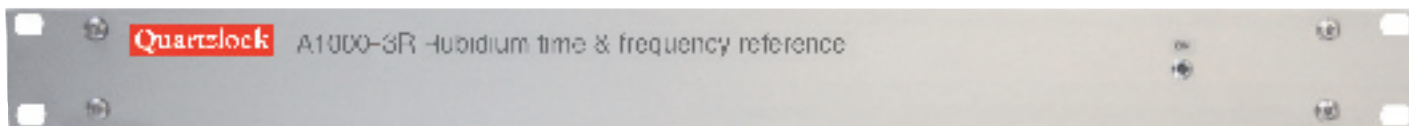
- Three Rubidium Oscillators in a Redundant System
- Hot Swap option
- Multiple PSU switch option
- External dc BBU Battery Back-Up option
- Low Phase Noise
- Low Drift
- High Stability
- 3 Year Warranty

Applications:

- HDTV TX reference
- Systems & Test Solutions
- Frequency Reference
- Frequency Standard
- Wireless Transmitter Ref.

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Low phase noise • low drift • high stability

SPECIFICATION

Output (50 ohms) 10MHz sine 0.5V rms +7dBm
OPTION A 1V rms +13dBm
OPTION B Custom output frequencies

Accuracy $\pm 5 \times 10^{-11}$ at shipment @25°C

Phase to Noise (SSB)
 10Hz -100dBc
 100Hz -120 dBc
 1KHz -140 dBc

(Lower Phase Noise Options available – ask Quartzlock)

Input Power 13W

Input Voltage Range 90-240V ac

Warm Time 5 minutes to lock @ 25°C

Retrace $\pm 3 \times 10^{-11}$

Frequency Control Internal (external – ask Quartzlock)
 Internal trim range (trimpot) greater than 2×10^{-9}
 External trim range greater than 2×10^{-9} (0V~5V)

Short term stability
 1s 3×10^{-11}
 10s 1×10^{-11}
 100s 3×10^{-12}
 hour $x 10^{-13}$
 day 1×10^{-12}

(Higher short term stability available – ask Quartzlock)

Harmonics

Second Harmonic -48 dBc
 Third Harmonic -45 dBc

Frequency Drift $3 \times 10^{-12}/d, 3 \times 10^{-11}/m, 5 \times 10^{-10}/yr$

Status Monitors Lock and On LED

RS232 i/o NMEA NTP, lock advice etc.

Operating Temp. Range -20°C to +50°C

Temperature Coefficient (ambient) 3×10^{-10} (-20° to 50°C)

Storage Temperature -40° to 70°C

MTBF 100,000 hours

Connectors BNC RF & IEC line supply input

Size 19" Rack 1 U (44mm/1.75")
 For hot-swap Rubidium and PSU options a 2U rack
 (88mm/3.5" high) case is used

Weight 3.5kg approx (for hot swap options to 8kg approx)

Warranty 3 years

MULTIPLE REDUNDANCY TECHNIQUE

A number of parameters may be used to define in any combination an output failure. The customer may decide his applications tolerance to amplitude or frequency change before failure correction.

The ideal performance is where no change in amplitude or frequency is apparent at the output and no hit or step in frequency, amplitude or phase is seen.

The Quartzlock solution employs a number of rubidium oscillators (usually three) whose outputs are phase aligned and combine into a single output.

Three rubidium oscillators enable a single failed rubidium to be detected against the two 'good' rubidium.

The Quartzlock A1000-3R may be customised to suit exactly any application.

Options

Low Noise and Ultra Low Noise versions
 – see A10-Y data sheet for oscillator specifications

24V DC BBU (Battery Back-Up switch) Input

1PPS Output

1MHz to 40MHz output frequencies

Multiple Outputs Option 9 6 x 10MHz Distortion Outputs

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