

Rubidium Time & Frequency Reference

- ❑ Low phase noise
- ❑ Ageing $<4 \times 10^{-10}$ / year
- ❑ High Precision Atomic Clock



The A1000 exhibits extraordinarily low ageing/drift and very high stability per hour and per day. These characteristics along with our three year warranty make the A1000 suitable for mission critical applications. The A1000 can be highly customised with multiple outputs and frequencies.

Features

- Multiple Output options
- 3 Years warranty
- Custom Frequency outputs
- $<-135\text{dB/Hz}$ @ 10Hz phase noise

Benefits

- Stability to 2×10^{-12}
- 10MHz Standard Output (available up to 100MHz)
- 1-40MHz Optional
- 100MHz option (-170dBc/Hz NF)
- 5MHz option (-123dBc/Hz @ 1Hz)

Applications

- Frequency Calibration
- Telecom Network Synchronisation
- Broadcast – Radio & TV & Satellite Communications
- Production Test Reference for instrumentation
- Microwave & Radar Test Bench or Test Solution
- HDTV

Specification

| | | | |
|--|---|---------------------|-------------|
| Outputs <small>See options</small> | 10MHz, +7dBm into 50,0.5VRMS | | |
| Adjustment | | | |
| Mechanical Range | 2x10 ⁻⁹ min | | |
| Electrical Range | 2x10 ⁻⁹ min | | |
| Control Voltage | 0 ~ 5V | | |
| Factory Setting | ±5x10 ⁻¹¹ 1x10 ⁻¹¹ | | |
| Frequency Stability | | | |
| | 1s | 2x10 ⁻¹² | |
| | 10s | 5x10 ⁻¹² | |
| | 100s | 8x10 ⁻¹³ | |
| | 1day | 8x10 ⁻¹² | |
| Ageing | | | |
| | 1 day | 3x10 ⁻¹² | |
| | 1 month | 4x10 ⁻¹¹ | |
| | 1 year | 5x10 ⁻¹⁰ | |
| Phase Noise | | Option A | Option B |
| | 1Hz | -108 dBc/Hz | -113 dBc/Hz |
| | 10Hz | -135 dBc/Hz | -138 dBc/Hz |
| | 100Hz | -150 dBc/Hz | -152 dBc/Hz |
| | 1kHz | -155 dBc/Hz | -155 dBc/Hz |
| | 10KHz | -158 dBc/Hz | -158 dBc/Hz |
| Option C | | | -115 dBc/Hz |
| | | | -140 dBc/Hz |
| | | | -154 dBc/Hz |
| | | | -155 dBc/Hz |
| | | | -158 dBc/Hz |
| Harmonics | <-40dBc | | |
| Spurious | <-80dBc | | |
| Warm Time to 1 x 10 ⁻⁹ | 5 minutes | | |
| Retrace after 24h off & 1h on, same temp | <3x10 ⁻¹³ | | |
| Power Supply Power at steady state at 25C | 90 245V ac Battery Back Up option 13W @ 24V (22-30Vdc) @ 25C, Max 2A | | |
| Frequency Offset over output voltage range | <2x10 ⁻¹¹ | | |
| Temperature Operating | -20C ~ +50C | | |
| Storage | -40C ~ +70C | | |
| Freq offset over operating temperature range | <1x10 ⁻¹⁰ | | |

| | |
|---|--|
| Magnetic Field | <2x10 ⁻⁷ /Gauss -60m ~ 4000m <1x10 ⁻⁷ /mbar |
| Sensitivity Atmospheric Pressure Approx MTBF, Stationary | Approx MTBF over 100,000 hours |
| Mechanical | 88mm (3.5") 2U x 19" rack mounted |

| | |
|----------------|---|
| Options | <ul style="list-style-type: none"> 0 Seamless Battery Back-up Switch 1 Add 5MHz output 2 E1 Output 2048KHz 3 T1 Output 1544KHz 4 13MHz Output 5 TTL Output 7 10.24MHz Output 8 10.23MHz Output 9 Add 6 Output Distribution Card 10 Upgrade short term stability to 5x10⁻¹³ at 1 second 11 Redundancy switch For External input DC 18 Add Additional 1-5 Years Warranty (18.1 = 1 Year ... 18.5 = 5 Years) 40 Reduced Harmonic (<-50dBc) and Spurii 48 ULN Ultra Low Noise Outputs <ul style="list-style-type: none"> 5MHz -123dBc/Hz @ 1Hz 10MHz -115dBc/Hz @ 1Hz 100MHz -130dBc/Hz @ 100Hz -160dBc/Hz @ 1kHz -170dBc/Hz @ 100kHz |
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Revision date: May 2017