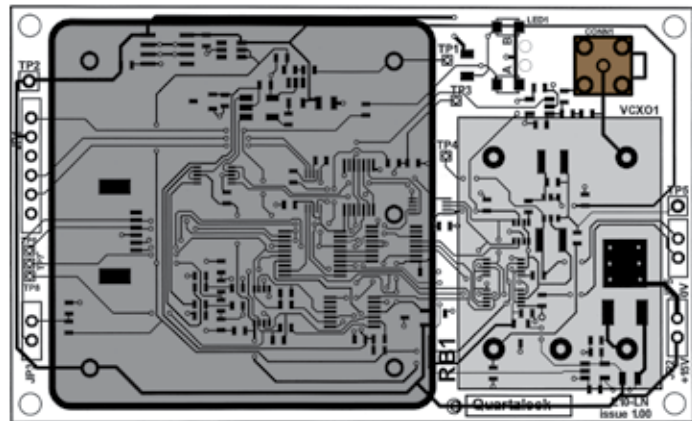


Very Low Noise Miniature Rubidium Oscillator Module

- Very low phase noise -110dBc/Hz @ 1Hz
- Low power operation
- Ageing 5×10^{-10} /year



Actual size

The E10-LN Very Low Noise Rubidium Oscillator Module is a sub miniature atomic clock with Quartzlock's A6-CPS 'active noise filter' technology. This rubidium oscillator has 100x less drift than OCXO's. With short term stability of $2 \times 10^{-12}/s$ @ 100s this rubidium oscillator provides significant improvements in performance over other rubidium components.

Ultra Low Noise 100MHz versions for radar and millimetre wave applications

Features

- 10MHz output
- 91 x 55 x 30mm form factor
- -110dBc/Hz @1Hz phase noise
- 5×10^{-11} accuracy
- $5 \times 10^{-12}/s$ @100s

Benefits

- Very low noise and higher stability in customers' product
- Atomic accuracy
- Low power consumption
- 100x less drift than OCXOs

Applications

- Where sizes are restricted this 'breakthrough' very low noise rubidium oscillator will enable new applications
- LTE
- Extended holdover for CDMA, WiMAX and LTE base stations
- Higher stability and lower phase noise communication and surveillance applications

Specification

| | | |
|---|---|---------------------|
| Outputs See options | 10MHz, +7dBm into 50Ω, 0.5VRMS | |
| Adjustment | | |
| Mechanical Range | 2x10 ⁻⁹ min | |
| Electrical Range | 2x10 ⁻⁹ min | |
| Control Voltage | 0 ~ 5V | |
| Factory Setting | ±5x10 ⁻¹¹ | |
| Frequency Stability AVAR | | |
| | 1s | 2x10 ⁻¹² |
| | 10s | 5x10 ⁻¹² |
| | 100s | 4x10 ⁻¹³ |
| | 1 hour | 6x10 ⁻¹² |
| Ageing | | |
| | 1 day | 5x10 ⁻¹² |
| | 1 month | 5x10 ⁻¹¹ |
| | 1 year | 4x10 ⁻¹⁰ |
| Phase Noise dBc/Hz in 1Hz BW | | dBc/Hz |
| | 1Hz | -110 |
| | 10Hz | -140 |
| | 100Hz | -145 |
| | 1kHz | -155 |
| | 10kHz | -157 |
| Harmonics | <30dBc | |
| 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 | 6W at 15V @ 25°C, Max 1.2A | |
| Frequency Offset over output voltage range | <2x10 ⁻¹¹ | |
| Temperature | | |
| Operating | -20C ~ +50C | |
| Storage | -40C ~ +70C | |
| Freq offset over operating temp range | <3x10 ⁻¹⁰ | |
| Magnetic Field | | |
| Sensitivity | <2x10 ⁻¹¹ /Gauss | |
| Atmospheric Pressure | -60m ~ 4000m <1x10 ⁻¹³ /mbar | |
| Approx MTBF, Stationary | 100,000 hours | |
| Mechanical | 91 x 55 x 30mm PCB component | |

Options to 100MHz

- 100MHz
-182dBc/Hz Noise Floor

CNC Machined Defence Housing