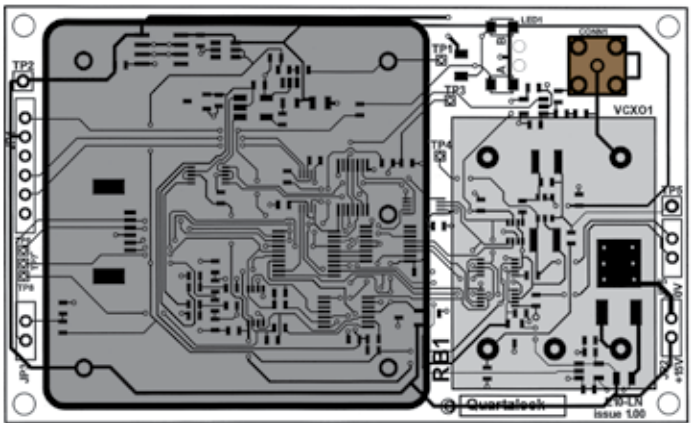
Very Low Noise Miniature Rubidium Oscillator Module

- Very low phase noise -110dBc/Hz @ 1Hz
- Low power operation
- Ageing $5x10^{-10}$/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 $2x10^{-12}$/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
- $5x10^{-11}$ accuracy
- $5x10^{-12}$/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

Tel **+44 (0)1803 862062**
Fax **+44 (0)1803 867962**
Email **sales@quartzlock.com**
www.quartzlock.com

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	$\pm5x10^{-11}$	
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