

# Low Noise Rubidium Oscillator Module

- Low phase noise -113dBc/Hz @ 1Hz
- Lower power operation
- Ageing  $5 \times 10^{-10}$ /year

The E10-LN Low Noise Rubidium Oscillator Module is a sub miniature atomic clock combined with '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 improvement in performance over other rubidium components.

Dimensions	
Length	95.5mm
Width	60mm
Height	37mm



## Features

- 10MHz output
- 95.5 x 60 x 37mm standard size
- 91 x 55 x 30mm (Option A)
- -113dBc/Hz@1Hz phase noise
- $5 \times 10^{-11}$  accuracy
- $2 \times 10^{-12}/s@100s$

## Benefits

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

## Applications

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

Specification	E10-LN
<b>Type</b>	<b>Rb OEM</b>
<b>Output</b>	
Frequency	10MHz
Level	+7dBm ±2dBm 50 Ω
Number of output	1
Connector	SMA
<b>Accuracy at Shipment</b>	±5.00E-11
<b>Frequency Stability</b>	
1s	≤2.00E-12
10s	≤5.00E-12
100s	≤2.00E-12
1 Hour	≤6.00E-12
<b>Aging</b>	
1 Day	≤5.00E-12
1 Month	≤5.00E-11
<b>Phase Noise</b> dBc/Hz in 1Hz BW	
	Option 1   Option 2
1Hz	-110dBc/Hz   -113dBc/Hz
10Hz	-134dBc/Hz   -138dBc/Hz
100Hz	-150dBc/Hz   -152dBc/Hz
1kHz	-155dBc/Hz   -155dBc/Hz
10KHz	-158dBc/Hz   -158dBc/Hz
<b>Harmonics</b>	<-30dBc
<b>Spurious</b>	<80dBc
<b>Start Up (Warm) Time</b>	5 Minutes
<b>Retrace</b>	±3.00E-11
<b>Adjustment</b>	
Electrical	2.00E-09 Max
Control Voltage	0 ~ 5Vdc
Factory Setting	5.00E-11
<b>Power Supply</b>	
DC Minimum	+12V
DC Maximum	+15V
<b>Power Consumption @ 25°C</b>	
Warm Up	22W Max
Stabilized	6W
<b>Temperature</b>	
Operating	-20°C to +60°C
Storage	-40°C to +85°C
Humidity	90% (Non Condensing)
Frequency stability over operating temperature range	3.00E-10 (-20°C to +60°C)
<b>Magnetic Field</b>	
Sensitivity (Gauss)	±2.00E-11
Atmospheric Pressure (mbar)	1.00E-13
Approx MTBF Stationary	100000 hours
<b>Mechanical</b>	
Dimension (Standard)	95.5 x 60 x 37mm LWH
Dimension (Option A)	91 x 55 x 30mm LWH