The IQRB-2 low noise rubidium oscillator is a sub-miniature atomic oscillator combined with 'active noise filter' technology. This rubidium oscillator has 100 times less drift than OCXOs and with short term stability of 0.002ppb/s at 100s this rubidium oscillator provides significant improvements in performance over other rubidium components.

**FEATURES:**
- 10MHz output
- 96 x 60 x 40mm standard size
- -113dBc/Hz @ 1Hz phase noise
- 0.05ppb accuracy
- 0.002ppb/s @ 100s
- Atomic accuracy
- Low noise and high stability
- 100 times less drift than OCXOs

**APPLICATIONS:**
- Long-Term Evolution (LTE) high-speed wireless communications.
- Extended holdover for CDMA, WiMAX and LTE base stations.
- Higher stability and low phase noise communication and surveillance applications.

**Frequency Parameters**
- Frequency: 10.0MHz
- Frequency Tolerance: ±0.05ppb
- Tolerance Condition: @ 25°C
- Frequency Stability: ±0.30ppb
- Short Term Stability:
  - 1s: 0.002ppb max
  - 10s: 0.003ppb max
  - 100s: 0.002ppb max
  - 1hr: 0.001ppb max
- Ageing:
  - Day: ±0.003ppb max
  - Month: ±0.04ppb max
- Magnetic Field Sensitivity (Gauss): ±0.02ppb max
- Retrace: ±0.02ppb typ
- Note: Standard operating temperature range is -20 to 60°C. Operating temperature range of -40 to 60°C is available upon request, please contact an IQD Sales Office.

**Electrical Parameters**
- Supply Voltage: 12.0V
- Note: The device will operate over the Supply Voltage Range 12V to 15V.
- Power Consumption Start Up (@ 25°C): 22W @ 12V, 1.8A max.
- Power Consumption Steady State: 6W @ 12V, 0.5A max.
- Warm Up Time: 5mins typ to lock @ 25°C.
- Lock Monitor: Pin 1 is high (5V) when out of lock and low (0V) when locked.
# Rubidium Oscillator Specification

## IQRB-2

### Frequency Adjustment
- Pulling: ±2ppb max
- Control Voltage: 2.5V ±2.5V
- Input Impedance: 10kΩ min

*Note: The oscillator will detect if no control voltage is applied to Pin 7 and will automatically set the control voltage internally to 2.5V.*

### Operating Temperature Ranges
- -20 to 60°C

### Output Details
- Output Compatibility: Sine
- Drive Capability: 50Ω
- Output Level: +7dBm ±2dBm
- Output Connector Type: SMA
- Rx and Tx connections for RS232 communication of the status of the oscillator.

### Noise Parameters
- Phase Noise (typ):
  - -113dBc/Hz @ 1Hz
  - -138dBc/Hz @ 10Hz
  - -152dBc/Hz @ 100Hz
  - -155dBc/Hz @ 1kHz
  - -158dBc/Hz @ 10kHz
- Harmonics: -30dBc max
- Spurious: -80dBc max

### Environmental Parameters
- Storage Temperature Range: -40 to 85°C
- Vibration: IEC 60068-2-6, Test Fc: 10Hz-55Hz 1.5mm displacement, 55Hz-500Hz 10G acceleration.
- Atmospheric Pressure: -60m to 4000m: 1x10⁻¹³mbar max
- EMI: Compliant to FCC Part 15, Class B.

### Manufacturing Details
- MTBF (Stationary): Approx 100000hrs

### Compliance
- RoHS Status (2015/863/EU): Compliant
- REACH Status: Non-Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

### Packaging Details
- Pack Style: Bulk
- Pack Size: 1

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**Sales Office Contact Details:**

UK: +44 (0)1460 270200  
France: 0800 901 383  
Germany: 0800 1808 443  
USA: +1.760.318.2824  
Email: info@iqdfrequencyproducts.com  
Web: www.iqdfrequencyproducts.com

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