



### Description

- 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.
- Model IQRB-2
- Model Issue number 4

### Frequency Parameters

- Frequency 10.0MHz
- Frequency Tolerance  $\pm 0.05\text{ppb}$
- Tolerance Condition @ 25°C
- Frequency Stability  $\pm 0.30\text{ppb}$
- Operating Temperature Range -20.00 to 60.00°C
- Short Term Stability (AVAR):
  - 1s 0.002ppb max
  - 10s 0.003ppb max
  - 100s 0.002ppb max
  - 1hr 0.001ppb max
- Ageing:
  - Day  $\pm 0.003\text{ppb}$  max
  - Month  $\pm 0.04\text{ppb}$  max
- Magnetic Field Sensitivity (Gauss):  $\pm 0.02\text{ppb}$  max
- Retrace:  $\pm 0.02\text{ppb}$  typ

### Electrical Parameters

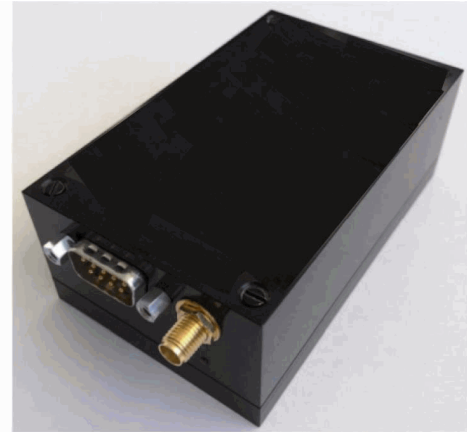
- Supply Voltage 12.0V
- Note: The device will operate over the Supply Voltage Range 12V to 15V.
- Input Power (@ 25°C): 6W @ 12V, 1.7A max.
- Warm Up Time: 5mins typ to lock @ 25°C.
- Lock Monitor: Pin 1 is high (5V) when out of lock and low (0V) when locked.

### Frequency Adjustment

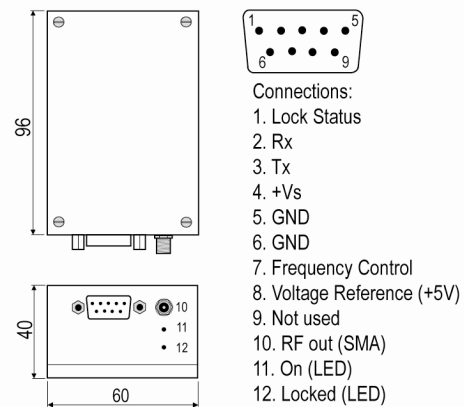
- Pulling  $\pm 2\text{ppb}$  max
- Control Voltage 2.5V  $\pm 2.5\text{V}$
- Input Impedance 10k $\Omega$  min
- Note: The oscillator will detect if no control voltage is applied to Pin 7 and will automatically set the control voltage internally to 2.5V.

### Output Details

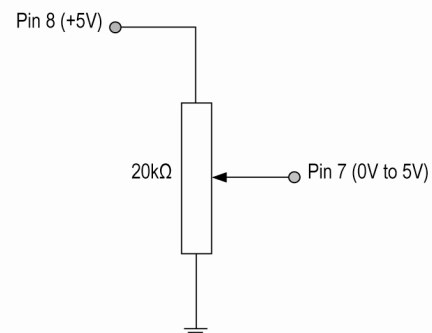
- Output Compatibility Sine
- Drive Capability 50 $\Omega$
- Output Level: +7dBm  $\pm 2\text{dBm}$
- Output Connector Type: SMA
- Rx and Tx connections for RS232 communication of the status of the oscillator.



### Outline (mm)



### Frequency Control & Voltage Reference Circuit



### Sales Office Contact Details:

UK: +44 (0)1460 270200  
Germany: 0800 1808 443

France: 0800 901 383  
USA: +1.760.318.2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
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**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
- Mechanical Shock: IEC 60068-2-27, Test Ea: Acceleration of 50G peak amplitude for 11ms duration.
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-55Hz 1.5mm displacement, 55Hz-500Hz 10G acceleration.
- Atmospheric Pressure: -60m to 4000m:  $1 \times 10^{-3}$  mbar max
- EMI: Compliant to FCC Part 15, Class B.

**Manufacturing Details**

- MTBF (Stationary): Approx 100000hrs

**Compliance**

- RoHS Status (2011/65/EU) Compliant
- REACH Status Non-Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

**Packaging Details**

- Pack Style: Bulk      Bulk pack  
Pack Size: 1
- *Alternative packing option available*

**Technical Notes**

- *RoHS Compliance: 6/6*

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