

Quartzlock A10-Y

Ultra Low Noise Rubidium Oscillator

Uses Quartzlock Digital
PLL DDS Clean-up Loop
technology

10MHz -173 dBc/Hz noise floor
100MHz -180 dBc/Hz noise floor

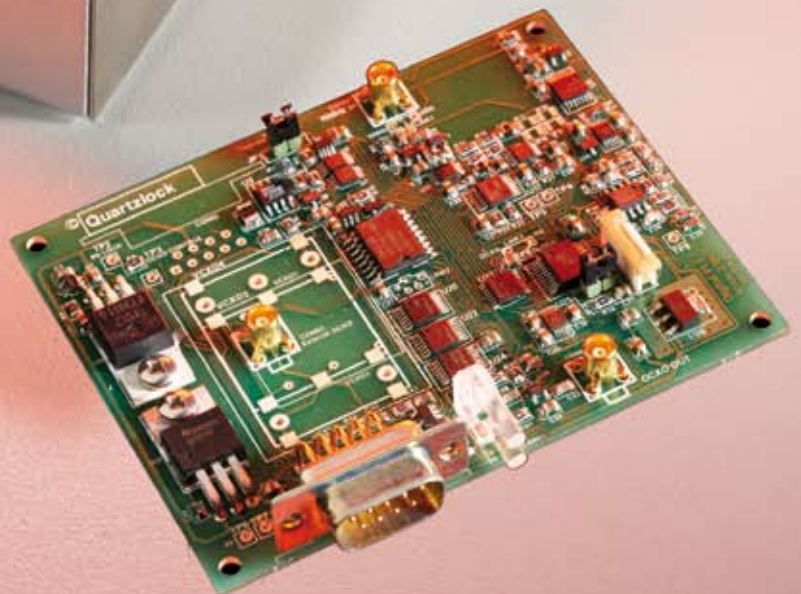


APPLICATIONS

Security, Low Noise Instrumentation Reference,
Radar, Navigation, RF & Microwave Test
Solution Reference, Secure Communications

BENEFITS

The use of ULN-Rb Oscillators enables: Weak
Signal Detection, Low Error Rates, Higher
Radar Sensitivity, Higher Definition in MRI
Imaging Systems



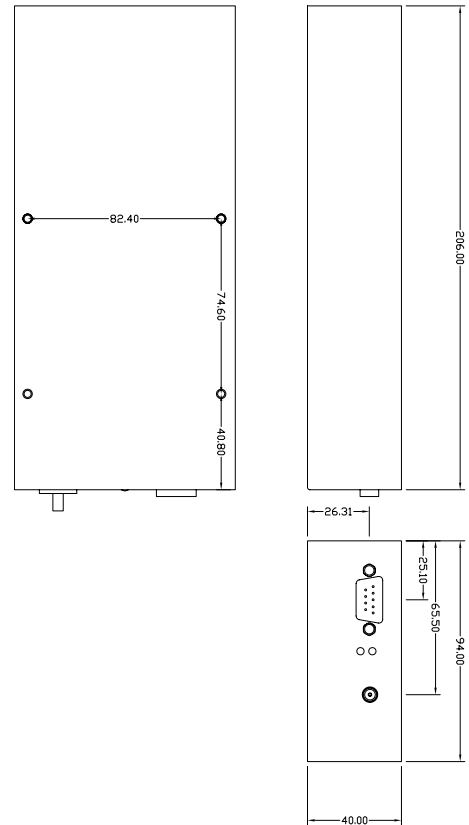
STANDARD SPECIFICATIONS This product replaces the HSRO

| | | |
|---|---|--|
| Output (100MHz ULN option) | 10MHz, +7dBm into 50Ω, 0.5VRMS 1MHz to 40MHz output. Option 5MHz output (not using DDS). Option | |
| Adjustment Mechanical Range Electrical Range Control Voltage Factory Setting | 2x10 ⁻⁹ min 2x10 ⁻⁹ min 0 ~ 5V ±5x10 ⁻¹¹ | |
| Frequency Stability 100ms 1s 10s 100s 1day | Low Noise <1x10 ⁻¹² <1x10 ⁻¹² <1x10 ⁻¹² 4x10 ⁻¹³ x10 ⁻¹² | Ultra Low Noise x10 ⁻¹³ x10 ⁻¹³ x10 ⁻¹³ <4x10 ⁻¹³ x10 ⁻¹³ |
| Aging 1 day 1 month 1 year | Low Noise 1x10 ⁻¹² 4x10 ⁻¹¹ 5x10 ⁻¹⁰ | Ultra Low Noise x10 ⁻¹³ 4x10 ⁻¹¹ 5x10 ⁻¹⁰ |
| Phase Noise dBc/Hz 1Hz 10Hz 100Hz 1kHz 10kHz 100kHz | Low Noise -110 -139 -157 -162 -168 -170 | Ultra Low Noise -115 -148 -158 -165 -170 -173 |
| Harmonics | <40dBc | |
| Spurious | <80dBc | |
| Warm time to 1x10⁻⁹ | 5min | |
| Retrace after 24h off & 1h on, same temp | <3x10 ⁻¹¹ | |
| Power Supply Power at steady state at 25°C Freq offset over output voltage range | 13W @ 24V (22~30Vdc) @ 25°C, Max 2A <2x10 ⁻¹¹ | |
| Temperature Operating Storage Freq offset over operating temperature range | -20°C ~ +50°C -40°C ~ +70°C <3x10 ⁻¹⁰ | |
| Magnetic Field Sensitivity Atmospheric Pressure Approx MTBF, Stationary | <2x10 ⁻¹¹ /Gauss -60m ~ 4000m <1x10 ⁻¹³ /mbar Approx MTBF, Stationary | |
| Mechanical | 40x94x206mm, 1000g approx 1.6"x3.7"x8.1", 35oz approx | |
| Lock Indicator | on off short flash every second: long flash, short flash | not locked locked, low phase error locked, high phase error no processor clock |
| Interface | 9.6kbaud, RS232, PC compatible, Windows front end program | |
| Interface Codes | see separate document | |
| Option 42 | 1MHz to 40MHz output. 5MHz output (not using DDS). | |
| Ask Quartzlock about new 100MHz Rb with -180dBc/Hz noise floor & options to +60° or 65°C output maintained – not to full spec | | |

PIN CONNECTIONS

- C1:** 'D' 9 Pin Male
C2: SMA RF Output
1. Lock
 2. GND
 3. GND
 4. Rx
 5. EXT control
 6. TX
 7. +24V
 8. VCXO monitor
 9. Lamp monitor

OUTLINE DRAWING



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