

A10-M Rubidium Frequency Reference

- Low Phase Noise
- Aging $<5 \times 10^{-10}$ per year
- High Precision Atomic Clock
- Two years warranty



Description

The Quartzlock A10-M rubidium frequency reference is a 10 MHz, high-stability Rubidium frequency standard with flexible output options and very low cost of ownership primarily for production test of quartz oscillators and RF instrumentation frequency referencing. The A10-MX incorporates the latest high stability and low drift designs. It may also have both 5MHz and 10MHz outputs presented on the front panel to align with A7-MX Signal Stability Analyzer reference input.

Applications

- Frequency Calibration
- Telecom Network Synchronization
- Broadcast – Radio & TV & Satellite Communications
- HDTV
- Production Test Reference for instrumentation
- Microwave Test Bench or Test Solution

Features

Output signals: Sine wave & CMOS/TTL

Multiple Output options: 5 to 100MHz

Custom Frequency Outputs: 2 - 125MHz, 1PPS

Low Noise Floor: -170dBc at 10KHz offset

Front panel outputs

Exceptionally low drift/aging and high stability per hour/day

Stability	5×10^{-13}
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Magnetic field sensitivity	$2 \times 10^{-11}/\text{Gauss}$
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Frequency trim range	2×10^{-9}
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Optional disciplined to external 1PPS, or 10MHz

Harmonic distortion	$< 30\text{dB}$ (for 5 MHz output)
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Non-harmonic distortion	$< -100\text{dB}$ in the range from 10Hz to 10kHz
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A10-M Specification

Outputs <i>See options</i>	
5 & 10MHz	+7dBm into 50 Ohms, 0.5V _{rms}
Connector	BNC (Standard), SMA (specify)
Frequency Stability <i>Allan Deviation</i>	
	Options A Options B
Frequency	10MHz 5MHz 10MHz 5MHz
$\tau = 1s$	$\leq 2 \times 10^{-12}$ $\leq 1 \times 10^{-12}$ $\leq 5 \times 10^{-13}$ $\leq 5 \times 10^{-13}$
$\tau = 10s$	$\leq 3 \times 10^{-12}$ $\leq 2 \times 10^{-12}$ $\leq 7 \times 10^{-12}$ $\leq 7 \times 10^{-13}$
$\tau = 100s$	$\leq 5 \times 10^{-12}$ $\leq 4 \times 10^{-12}$ $\leq 8 \times 10^{-13}$ $\leq 8 \times 10^{-13}$
Phase Noise (SSB)	
	Options A Options B
Frequency	10MHz 5MHz 10MHz 5MHz
1Hz	-110 dBc -115 dBc -117 dBc -123 dBc
1Hz	-135 dBc -138 dBc -140 dBc -145 dBc
100Hz	-145 dBc -152 dBc -152 dBc -153 dBc
1 kHz	-155 dBc -154 dBc -155 dBc -155 dBc
10KHz	-158 dBc -155 dBc -158 dBc -158 dBc
Harmonics	
	Options C
	<-40dBc <-40dBc <-50dBc <-50dBc
Spurious	
100 KHz BW	<-100dBc <-100dBc <-100dBc <-100dBc
Aging (After 30 days)	
Frequency	10MHz 5MHz
<i>Per day</i>	5×10^{-12} 1×10^{-12}
<i>Per Month</i>	5×10^{-11} 4×10^{-11}
<i>Per Year</i>	5×10^{-10} 4×10^{-10}
Frequency accuracy	
Accuracy at shipping	5×10^{-11}
Frequency retrace	
After 1 hours of continues operation	3×10^{-11}
Frequency Adjustment	
Mechanical	$\pm 2 \times 10^{-9}$ Optional
Electrical	$\pm 2 \times 10^{-9}$ Control voltage 0 to +5V
Warm up time	
<6 minutes, time to lock	
<7 minutes to 1×10^{-9} at room temperature 25°C	

Included with shipment: Calibration certificate, Certificate of Conformance, product test sheet and 24 month warranty.

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Environmental	
<i>Temperature :</i>	Operating -20°C +60°C
	Storage -40°C +80°C
<i>Temp stability :</i>	-20°C +60°C 1×10^{-9}
<i>Relative humidity :</i>	95% non-condensing
<i>Magnetic Field sensitivity :</i>	2×10^{-11} Gauss
<i>Atmospheric pressure :</i>	-60m –4000m < 2×10^{-11} Per mbar
<i>Approximate MTBF :</i>	100,000 Hrs, Stationary
<i>Dimensions :</i>	88mm (3.5") 2U 19" rack mount
Power supply	
<i>AC power:</i>	90-245V AC, 50Hz
<i>Optional redundancy switch:</i> see option 00	
Seamless battery back-up switch	
Data output & monitoring	
RS232, 9600 baud rate	Options D
	USB Ethernet
Built-in options	
Option 00:	Redundant switchover for external power back-up
Option 02:	Output 2048kHz
Option 03:	Output 1544kHz
Option 04:	13MHz Output
Option 05:	TTL Output
Option 06:	1PPS Output
Option 07:	10.24MHz Output
Option 08:	10.23MHz Output
Option 09:	Add 6 Output Distribution Card
Option 10:	26MHz Output
Option 18:	Extended warranty to 3 years
Option 20:	Discipline to external GPS 1PPS or 10MHz input
Option 21:	2 x 1PPS Output
Option 42:	Low noise floor -170dBc at 10KHz
Option 51:	Rack Mount 19" 1U
Option 52:	Rack Mount 19" 2U
Option 53:	Rack Mount 19" 3U
Option 62:	AC Input 110V
Option 64:	DC input: Specify +12V, +24V, +48V or +60V
Option 75:	Add internal battery, up to 4 hours of battery life.

Contact us to configure this product to meet your requirement.
Designed and manufactured in the U.K.