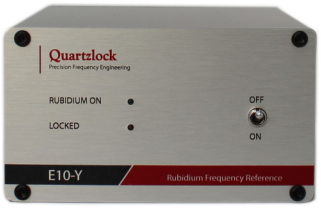
Low Noise Rubidium Frequency Reference



Features

- Sine wave or CMOS/TTL output
- Short term stability 2 x10^{-12} at 100sec
- Accuracy 5 x10^{-11}
- Phase noise -115dBc at 1Hz
- Phase-lock to external 1PPS
- 1µ sec. holdover per 24hrs
- 1PPS output

Description

The Quartzlock E10-Y rubidium frequency reference is a 10 MHz, high-stability and low phase noise 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 E10-Y incorporates the latest high stability and low drift designs. It can be configured to frequencies from 1 to 100MHz outputs presented on the rear panel.

Applications

- Frequency Calibration
- Telecom Network Synchronization
- Broadcast – Radio & TV & Satellite Communications
- Microwave Test Bench or Test Solution
- Production Test Reference for instrumentation
- 5G Network

Related frequency reference products

- **A10-M**: Low Noise 1U 19” rack mount Rubidium Frequency standard up to 12 output, 1 to 100MHz
- **A1000** : Low Noise 2U 19” rack mount Rubidium Frequency standard up to 24 output, 1 to 100MHz
- **E10-LN**: Low phase noise Rubidium oscillator module
- **E10-X**: Low cost Desktop Rubidium frequency reference, 1 to 4 outputs
- **E10-P** : Portable Desktop & Bench top Frequency reference 1 to 4 outputs

E10-Y Specification

Outputs *See options*		
10MHz	+10dBm into 50 Ohms, 0.7V_{rms} (Specify for 75Ω load)	
Connector	BNC (Standard), SMA (specify)	
No. outputs	Standard: 8	Specify number of outputs: up to 12

Frequency Stability *Allan Deviation*	Options A (standard)	Options B
Frequency	10MHz	10MHz
τ =1s	≤2x10^{-12}	≤8x10^{-13}
τ =10s	≤3x10^{-12}	≤2x10^{-12}
τ =100s	≤6x10^{-12}	≤3x10^{-12}

Phase Noise (SSB)	Options A (standard)	Options B	Options C
Frequency	10MHz	10MHz	10MHz
1Hz	-108 dBc	-110 dBc	-115 dBc
10Hz	-130 dBc	-135 dBc	-140 dBc
100Hz	-140 dBc	-145 dBc	-152 dBc
1 kHz	-155 dBc	-155 dBc	-155 dBc
10KHz	-155 dBc	-158 dBc	-158 dBc

Harmonics		Options C
	10MHz	10MHz
	<-35dBc	<-50dBc
Spurious		
100 KHz BW	<-100dBc	

Aging (After 30 days)		Option G
Frequency	10MHz	10MHz
Per day	5 x 10^{-12}	2.5 x 10^{-12}
Per Month	5 x 10^{-11}	2.5 x 10^{-11}
Per Year	5 x 10^{-10}	2.5 x 10^{-10}

Frequency accuracy

Accuracy at shipping 5 x 10^{-11}

Frequency retrace

After 1 hours of continues operation 8 x 10^{-11}

Frequency Adjustment

Mechanical	±2x10^{-9}	Optional
Electrical	±2x10^{-9}	Control voltage 0 to +5V

Warm up time

8 minutes, time to lock

<7 minutes to 1x10^{-10} at room temperature 25°C

Environmental			
Temperature :		Operating	-40°C +65°C
		Storage	-40°C +80°C
Temp stability :	Standard	-20°C +60°C	<0.5x10^{-9}
	Option E	-30°C +65°C	0.3x10^{-9}
	Option F	-50°C +65°C	0.5x10^{-9}
Relative humidity :		95% non-condensing	
Magnetic Field sensitivity :		3x10^{-11} Gauss	
Atmospheric pressure :		-60m –4000m <2x10^{-11} Per mbar	
Approximate MTBF :		100,000 Hrs, Stationary	
Dimensions :		122 x 105 x 60mm LWH	
Weight:		Without internal battery	600gms
		With internal battery	750gms

Power supply

DC power:	External +12 to +15V
Power consumption:	22W Max at start (25°C) 6W at steady state

Data output & monitoring	Option D
RS232, 9600 baud rate	Ethernet Module

Built-in options

Option 02:	Output 2048kHz
Option 03:	Output 1544kHz
Option 04:	13MHz Output
Option 05:	CMOS/TTL Output
Option 06:	100MHz output
Option 07:	10.24MHz Output
Option 08:	10.23MHz Output
Option 10:	26MHz Output
Option 11:	1MHz Output
Option 12:	5MHz Output
Option 18:	Extend warranty to 3 years
Option 21:	6 x 1PPS Output
Option 42:	Low noise floor -170dBc at 10KHz
Option 52:	Rack Mount 19" 1U
Option 53:	Rack Mount 19" 2U
Option 75:	Internal battery, up to 5 hours of battery life.

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

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

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