Portable Rubidium Frequency Reference

Features

- Compact light weight portable for a wide range of application
- Sine wave or CMOS/TTL output
- Accuracy of $5x10^{-11}$
- 10 hours battery running time
- Available 1 to 8 outputs
- Two years warranty

E10-P: Standard configuration

E10-P configured with option 09

Description

Compact simple to install, portable frequency reference for use as a general purpose 10MHz rubidium frequency standard. This portable Rubidium frequency standard will operate from an External 12VDC supply or its Internal Batteries. For remote site operation i.e. cellular BTS the E10-P may run from the cigarette lighter socket to arrive fully charged the internal capacity batteries. The E10-P incorporates the latest high stability and low drift designs. It can be configured to frequencies from 1 to 100MHz outputs presented on the front or rear panel.

Applications

- Remote site frequency reference for cellular BTS & satellite ground station
- Telecom Network Synchronization
- Broadcast – Radio & TV & Satellite Communications
- Microwave Test or Test Solution
- Field service & production test

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-Y**: Low Phase Noise Desktop Rubidium frequency reference, 1 to 8 outputs
- **E10-X** : Desktop & Bench top Frequency reference 1 to 4 outputs

E10-P Specification

Outputs *See options*		
10MHz	+10dBm into 50 Ohms, 0.7V_{rms} (Specify for 75Ω load)	
Connector	BNC (Standard), SMA (specify)	
No. outputs	1-8	

Frequency Stability *Allan Deviation*		
	Options A (Standard)	**Options B**
Frequency	**10MHz**	**10MHz**
τ =1s	≤$8x10^{-11}$	≤$2x10^{-12}$
τ =10s	≤$3x10^{-11}$	≤$3x10^{-12}$
τ =100s	≤$8x10^{-12}$	≤$6x10^{-12}$

Phase Noise (SSB)		
	Options A (Standard)	**Options B**
Frequency	**10MHz**	**10MHz**
1Hz	-67 dBc	-108 dBc
10Hz	-95 dBc	-130 dBc
100Hz	-125 dBc	-140 dBc
1 kHz	-135 dBc	-155 dBc
10KHz	-145 dBc	-155 dBc

Harmonics		**Options C**
	10MHz	**10MHz**
	<-30dBc	<-45dBc

Spurious		
100 KHz BW	<-90dBc	

Aging (After 30 days)		
Frequency	**10MHz**	
Per day	5 x 10^{-12}	
Per Month	5 x 10^{-11}	
Per Year	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 POT ±$2x10^{-9}$ (Control voltage 0 to +5V)

Warm up time

<6 minutes, time to lock

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

Battery operation

Battery running time at full charge at +20°C: >10 hours

Charging time: 7-8 hours

Environmental			
Temperature :		Operating	-40°C +65°C
		Storage	-40°C +80°C
Temp stability :		-20°C +60°C	<$1x10^{-9}$
	Standard	-20°C +60°C	<$0.3x10^{-9}$
	Option E	-30°C +65°C	$0.5x10^{-9}$
	Option F	-50°C +65°C	$0.7x10^{-9}$
Relative humidity :		90% 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 battery	>600gms
		With internal battery	>700gms

Power supply	Standard	Option X
DC power:	External +12	+5.5V
Power consumption:	18W at start (25°C), 8W at steady state	5.2W at start (25°C), 1.6W at steady state

Built-in options

Option 02:	Output 2048kHz
Option 03:	Output 1544kHz
Option 04:	13MHz Output
Option 05:	CMOS/TTL Output
Option 06:	1PPS Output
Option 07:	10.24MHz Output
Option 08:	10.23MHz Output
Option 09:	Increase 2, 4, 6 or 8 output distribution card
Option 10:	26MHz Output
Option 11:	1MHz Output
Option 12:	5MHz Output
Option 18:	Extend warranty to 3 years
Option 20:	External synch input. 1PPS, 5MHz or 10MHz
Option 21:	2 x 1PPS Output
Option 42:	Low Phase Noise 10MHz output
Option 52:	Rack Mount 19" 1U
Option 53:	Rack Mount 19" 2U
Option 75:	Add internal battery, up to 4 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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