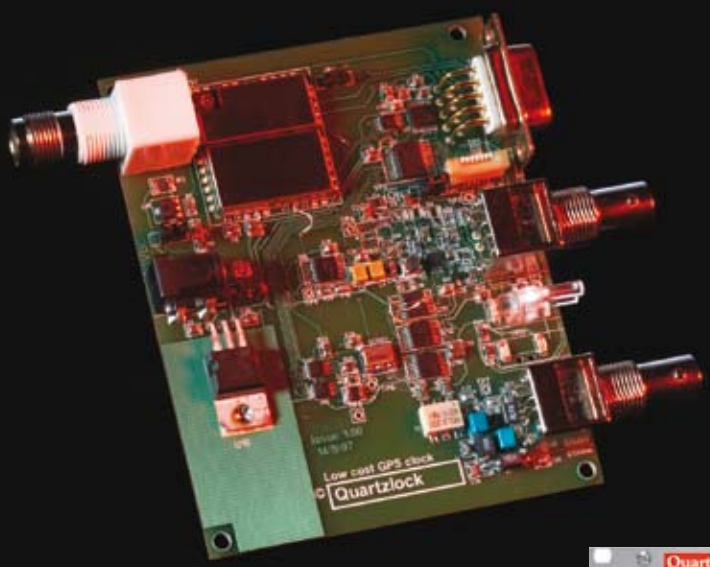
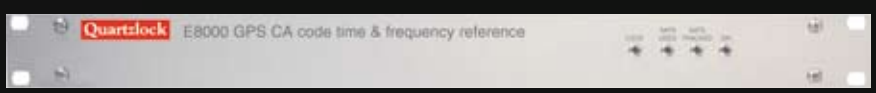
Quartzlock **E8-X**

PROVISIONAL

Breakthrough, Economy GPS Timing & Frequency Standards





Description

The Quartzlock E8-X represents a breakthrough in exceptionally low cost, tracable, **calibration-free "off air" frequency & time standards**. These very low cost references maintain the high frequency & time accuracy required for demanding applications.

Low distortion 10MHz Sine & 1PPS outputs.

Features

- $1x10^{-12}$ accuracy
- No Drift
- High Stability
- 1 Year Warranty
- Lowest Cost Available
- Very long production life & support. Quartzlock 2A (E8-X predecessor) series has been in production for > 30 years (3 generations)
- Many versions of the E8-X are available. PCB, Mill, Low & Very Low Noise etc.

Benefits

- No Calibration Required
- Tracable Reference, nationally & internationally

Applications:

- **Calibration of:** Counters, Frequency Meters, Spectrum & Network Analysers, Synthesizers, & Communication Analysers
- **Reference for:** VHF, UHF & PMR TX, CDMA, Tetra, DTV & DAB
- Production Test Frequency Standard
- Network Time Protocol use in Financial, Utilities, Security & Communications Timing
- OEM
- **Standard for:** Calibration Labs, Radio Workshops, Labs and Stations

Quality:

- Quartzlock's Hydrogen Maser based laboratory is used in production test & QA to ensure compliance with offset and stability specifications.

Quartzlock **E8-X**

Economy GPS Timing & Frequency Standards

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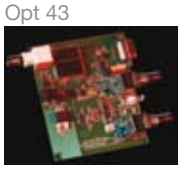
Opt 43



100 x 120mm

E8000

1U rack mount

E8-X

105 x 30 x 125mm

SPECIFICATION

Outputs

a) Sinewave, 10MHz, 12dBm +/- 2dBm into 50 Ohms
Harmonics < -50dBc
Spurii <-75dBc

b) TTL, 3.3VCMOS, 1pulse per second (4ns std dev)

Frequency Accuracy	$1x10^{-12}$ Long Term	
Short Term Stability	tau	Allan Variance
	1s	$<2x10^{-10}$
	10s	$<4x10^{-10}$
	100s	$<5x10^{-11}$
	1000s	$<2x10^{-11}$
	10000s	$<5x10^{-12}$
Phase Noise (typ)	1Hz	-60 dBc
	10Hz	-90 dBc
	100Hz	-115 dBc
	1kHz	-130 dBc
	10kHz	-140 dBc
Lock Indicator	On - Not Locked Off - Locked, Low Phase Error Short flash every second - Locked, High Phase Error	
GPS Indicator	Green - Indicates number of satellites used in time solution Amber - Indicates number of satellites tracked but not used in time solution	
Warm Time	<15 minutes to specified accuracy	
Power Supply & Antenna	6 to 12V dc (ac psu provided) GPS antenna supplied	
Current Consumption	250mA typical	
Size		
E8-X	105 x 30 x 125mm desktop module	
E8-X PCB OEM	100 x 120mm	
E8-X MIL	CNC machined microwave housing	

OPTION 41

Interface	Shared between DPLL and GPS receiver
DPLL	9.6kbaud, RS232, PC compatible (8bits no parity, no handshake)
GPS	9.6kbaud, Motorola binary format (8bits no parity, no handshake)
DPLL Tracking	5mHz to 500mHz typical in 8 binary Bandwidths increments default 20mHz

Model E8-Y **See A5000 Spec**

Outputs: 6 x10MHz low distortion, sinewave, isolated, +13dBm 1V rms 50 Ohms

Low Noise Options (48) (contact Quartzlock)

Short Term Stability		Phase Noise (typ -dBc/Hz) (contact Quartzlock)				
tau	Allan Variance	Options				
1s	$x10^{-11}$	1Hz	69	90	100	115
10s	$x10^{-11}$	10Hz	98	120	130	145
100s	$x10^{-12}$	100Hz	120	130	150	
1000s	$x10^{-12}$	1kHz	130	145	155	
10000s	$x10^{-12}$	10kHz	140	145	155	160
		100kHz	143	145	-	

Option 43 (E8-X or Y) **PCB version**

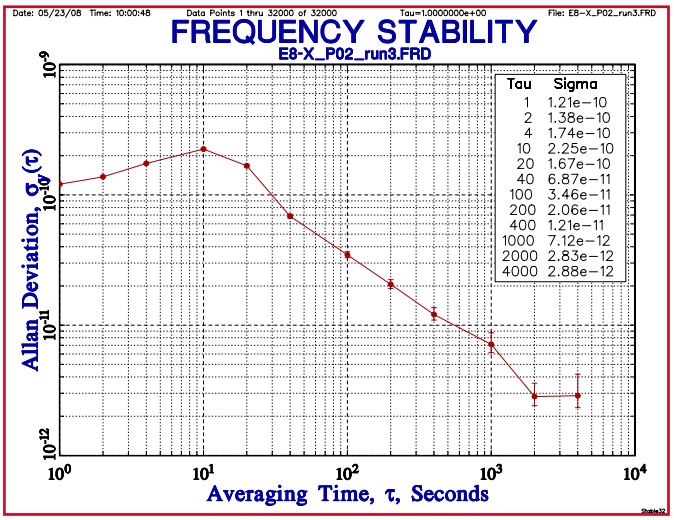
Option 44 (E8-X or Y) **for OEM qty use** **OCXO type case enclosure for PCB mounting. 1 output**

Option 45 (E8-X or Y) **MIL spec environmental in CNC machine housing**

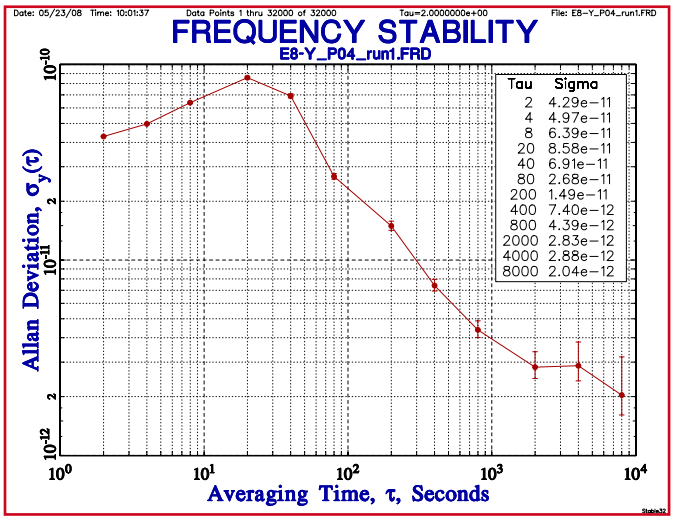
Option 46 **Antenna & PSU**

Option 47 **High gain antenna & PSU**

E8-X & E8-Y Short Term Stability



E8-X



E8-Y

Phase Noise Plots available – contact Quartzlock

E8-Y lowest noise version to -115dBc/Hz @ 1Hz offset & <-160dBc/Hz @ 10kHz
A number of oscillator options are available to suit customer requirements, see options listed on page 3.

The E8-X or E8-Y may be built into 1U rack format, see E8000.

The E8010 is a GPS disciplined Rubidium in 1U rack format, ask Quartzlock for details.

The E8-X & E8-Y are supplied with wall plug power supplies with international connector fittings. A GPS antenna is supplied.

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