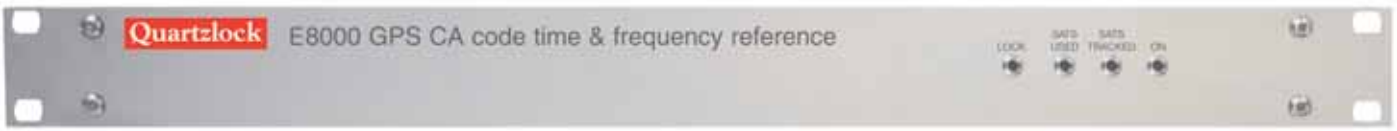
Quartzlock E8000

GPS Master Clock Very Low Noise

Frequency & Timing Primary Reference Source

- Phase Noise is -110dBc/Hz@1Hz offset as standard
- Stability (AVAR) is $8x10^{-13/s}$ typically
- Accuracy 25us, 100us/day holdover



The Quartzlock E8000 represents a breakthrough in very low noise, traceable, calibration-free GPS frequency & time standards. These very cost effective references maintain the high frequency and time accuracy required for demanding applications. Low distortion 10MHz Sine & 1PPS outputs. Ultra low noise options are available.

Considerably enhanced surveillance, wired and wireless communications are possible with E8000's much lower noise levels

Features

- $1x10^{-12}$ accuracy
- No Drift
- Highest Stability available
- 1 Year Warranty
- Lowest Cost Available
- Very long production life & support

Benefits

- No calibration required
- Traceable Reference, nationally & internationally
- External & Internal BBU options
- Many options available including NTP Clock Reference Output
- ULN options: -115dBc/Hz @ 1Hz offset & -170dBc/Hz @ 100kHz
  5MHz option has -123dBc/Hz @ 1Hz offset Phase Noise
  $5x10^{-13}$/s AVAR short term stability

Applications

- Frequency Reference for: Satellite Communication Ground Stations, VHF, UHF & PMR TX, CDMA, Tetra, DTV & DAB, Wired & Wireless network synch
- Network Time Protocol use in Financial, Utilities, Security & Communications Timing
- OEM
- Frequency Standard for: Calibration Labs, Radio Workshops, RF Labs & Production Test
- Calibration of: Counters, Frequency Meters, Spectrum & Network/VNA Analysers, Synthesizers & Communication Analysers

Specification

E8000 VERY LOW NOISE **10MHz**		
Outputs	a) Sinewave	10MHz, 12dBm +/- 2dBm into 50 Ohms
	Harmonics Spurii	< -30dBc <-80dBc
	b) TTL 3.3VCMOS	1pulse per second (4ns std dev)
Frequency Accuracy	$1x10^{-12}$ Long Term	
Hold over	100 us/24hrs	
Short Term Stability	tau	Allan Variance
	1s 10s 100s 1000s 10,000s	$<2x10^{-12}$ $<4x10^{-13}$ $<5x10^{-12}$ $<2x10^{-12}$ $<8x10^{-13}$
Phase Noise (typ)	1Hz 10Hz 100Hz 1kHz 10kHz	-110 dBc/Hz -136 dBc/Hz -145 dBc/Hz -155 dBc/Hz -157 dBc/Hz
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	<30 minutes to specified accuracy	
Power Supply	100 ... 240V ac (External 12Vdc Battery Back Up seamless switching option) (Internal 12Vdc Lithium Ion battery with charger > 1 hour holdover option)	
Current Consumption	250mA typical	
Size	19" x 1¾" 1U Rack Mount 483 x 44 x 230mm excl connectors 560 x 340 x 100mm packed	
GPS Antenna	5m cable and connector supplied	
Option	High gain antenna with 20m cable	

E8000 ULTRA LOW NOISE **5MHz** OPTION		
Outputs	a) Sinewave	10MHz, 12dBm +/- 2dBm into 50 Ohms
	Harmonics Spurii	< -30dBc <-80dBc
	b) TTL 3.3VCMOS	1pulse per second (4ns std dev)
Frequency Accuracy	$1x10^{-12}$ Long Term	
Hold over	100 us/24hrs	
Short Term Stability	tau	Allan Variance
	1s 10s 100s 1000s 10,000s	$<5x10^{-13}$ $<4x10^{-13}$ $<5x10^{-13}$ $<2x10^{-12}$ $<8x10^{-13}$
Phase Noise (typ)	1Hz 10Hz 100Hz 1kHz 10kHz	-123 dBc/Hz -140 dBc/Hz -150 dBc/Hz -155 dBc/Hz -158 dBc/Hz
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	<30 minutes to specified accuracy	
Power Supply	100 ... 240V ac (External 12Vdc Battery Back Up seamless switching option) (Internal 12Vdc Lithium Ion battery with charger > 1 hour holdover option)	
Current Consumption	250mA typical	
Size	19" x 1¾" 1U Rack Mount 483 x 44 x 230mm excl connectors 560 x 340 x 100mm packed	
GPS Antenna	Supplied with 5m cable and connector	
Option	High gain antenna with 20m cable	

Interface

GPS	9.6kbaud, Motorola binary format RS232 PC compatible (8bits no parity, no handshake) or NTP Clock Reference Output option
DPLL Tracking	5mHz to 500mHz typical in 8 binary Bandwidths increments default 20mHz
Option 9	See Quartzlock E5-X Specification on page 12 Outputs: 6 x10MHz low distortion, sinewave, isolated, +13dBm 1V rms 50 Ohms

→