GPS Disciplined Oscillator Time & Frequency Reference

Features

- <1x10^{-12} frequency accuracy
- No Drift
- ±30ns 1PPS accuracy to UTC
- Sine wave or CMOS/TTL output

Description

The E8-X provides a stable and accurate calibration free GPS time & frequency with multiple outputs signal formats is a cost-effective solution for applications require frequency reference. This reference maintains high time and frequency accuracy required for demanding applications.
The E8-X provides low noise, traceable, calibration free time & frequency reference. These time & frequency standards maintain high time & frequency accuracy required for demanding applications. The E8-X may be considered as a primary reference clock.

Applications

- Synchronization & mobile
- Broad casting
- 3G/4G/5G
- National & International traceable reference
- Time and frequency standard for calibration & RF laboratories

Related frequency reference products

- **E8000**: Low Noise 1U 19" rack mount GPS disciplined OCXO up to 12 output, 1 to 100MHz
- **E8010**: Low Noise 1U 19" rack mount GPS disciplined rubidium up to 12 output, 1 to 100MHz
- **E80-GPS**: Low cost and Low Noise Desktop GPS disciplined OCXO 1 to 4 outputs
- **E8-Y**: Low cost Desktop GPS disciplined TCXO 1 to 4 outputs

E8-X Specification

Outputs *See options*	
10MHz	+9dBm (±2dBm) into 50 Ohms, 0.56V_{rms} (Specify for 75Ω load)
Connector	BNC standard (SMA available)
No. outputs	1-8
Standard outputs	1 x 10MHz, 1 x 1PPS

Frequency Stability *Allan Deviation*	Options A	Options B
Frequency	**10MHz**	**10MHz**
τ =1s	≤1x10^{-11}	≤3x10^{-12}
τ =10s	≤5x10^{-11}	≤7x10^{-12}
τ =100s	≤2x10^{-11}	≤6x10^{-12}

Phase Noise (SSB)	Options 1	Options 2
Frequency	**10MHz**	**10MHz**
1Hz	-90 dBc	-105 dBc
10Hz	-120 dBc	-130 dBc
100Hz	-145 dBc	-150 dBc
1 kHz	-150 dBc	-155 dBc
10KHz	-155 dBc	-158 dBc

Frequency accuracy		
10MHz	<1x10^{-12}	
Harmonics	**Standard**	**Options C**
	<-30dBc	<-45dBc
Spurious		
100 KHz BW	<-100dBc	<-100dBc
1PPS Output		
Accuracy	<±30ns	
Pulse Width	10 millisecond	
Output level	CMOS 0-3.3V	
Timing accuracy at Holdover		
Per 24 hours	50µ sec.	
Frequency aging at Holdover mode		
Per day	2x10^{-10}	No GPS lock[1]
Per month	20x10^{-10}	
Warm-up time		

<15 minutes, time to lock at room temperature 25°C

1. In the event of GPS signal loss the E8-X will automatically switch to holdover mode.

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

Environmental		
Temperature :	Operating	-20°C +70°C
	Storage	-40°C +90°C
Temp stability :	-20°C +70°C	0.1x10^{-9}
Relative humidity :	92% non-condensing	
Magnetic Field sensitivity :	2x10^{-11} Gauss	
Atmospheric pressure :	1x10^{-13} Per mbar	
Approximate MTBF :	100,000 Hrs, Stationary	
Dimensions without cover	122 x 105 x 38mm LWH	
Weight:	Without battery	400gms
	With internal battery	650gms

Power supply	
External DC supply:	+12 to 15
Power consumption:	8W Max at start (25°C) 3W at steady state

Data output & monitoring	Options D	
RS232, 9600 baud rate	USB	Ethernet

NMEA output: configured on USB, RS232 or Ethernet.

GPS interface on USB.

Built-in options

Option 02: Output 2048kHz
Option 03: Output 1544kHz
Option 04: 13MHz Output
Option 05: CMOS/TTL Output
Option 07: 10.24MHz Output
Option 08: 10.23MHz Output
Option 09: Add 6 Output Distribution Card
Option 10: 26MHz Output
Option 11: 1MHz Output
Option 12: 5MHz Output
Option 18: Extended warranty to 3 years
Option 20: Discipline to external GPS 1PPS or 10MHz input
Option 42: Low noise floor -170dBc at 10KHz
Option 51: Rack Mount 19" 1U
Option 62: AC Input 110V
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.

Typical configuration

The E8-X can be configured to frequencies 1 to 100MHz of your preferred signal format. Standard connectors are BNC and SMA, other connectors are available.

Examples of rear panel configuration.

Standard accessories supplied with E8-X

All Quartzlock GPS frequency references are supplied with power supply, standard GPS Antenna, Manual, Test sheet, Calibration certificate and Certificate of conformance.

Power supply

Standard GPS antenna with 5 meters of RG-174 cable.

Optional upgrade

The High Gain GPS Antenna is designed for stationary application, all weather and harsh environment to provide a strong signal. This antenna is also a high-quality solution for adding GPS RF signals to marine GPS navigation systems. The high gain GPS antenna can be setup with up to 70 meters of cable. The high gain GPS antenna is supplied with stainless steel antenna mount.

High Gain GPS antenna

High Gain GPS Antenna specifications:
Waterproof, weatherproof
Operating Temp -40°C to +85°C
Gain: 35dB ±3dB
Voltage: +5V
Connector: TNC
L1 GPS, 1575.42MHz ±1.023MHz
ROHS compliant

Antenna mount & coaxial cable

MADE IN UK

ISO 9001 Registered