



## GPS10E: GPS Disciplined Frequency Standard



### Key Features

- 10 MHz Sine & Square Outputs
- 1 pps Output aligned to UTC
- All outputs locked to GPS Satellites
- Accuracy to parts in  $10^{-12}$  (1 week)
- Low Price and High Quality Construction
- Optional 5 or 10 extra outputs with built-in distribution amplifier
- Many Options Available

### General Description

The GPS10E is a low cost 10 MHz, GPS disciplined, frequency standard. The above picture shows the 19" rack mount version, but a smaller bench mount case is also available. The GPS10E uses the Global Positioning Service (GPS) set of satellites to discipline a TXCO or OXCO crystal oscillator. Long-term frequency accuracy of parts in  $10^{-12}$  is achieved.

### Outputs

There is a 10 MHz, sinewave outputs, a 10 MHz CMOS squarewave output and a 1 pps (pulse per second) output. The 1 pps output is aligned to UTC time within  $\pm 30$  ns (typical). Options to increase the outputs to 10 are available.

### RS232 and USB Interface

A RS232 interface allows interrogation of the GPS10E. An optional USB adapter allows the GPS10E to be controlled via the USB port of the PC.

### Options

- Antenna Amplifier allowing the GPS antenna to be placed up to 350 m away from the GPS10E.
- Five or ten fully isolated sinewave outputs.
- Fixed or variables frequency outputs, up to 10 GHz. E.g. 0 – 1640 MHz in 0.01 Hz steps.
- USB Interfaces, Ethernet Interface and Alarm Relay Output.
- Redundancy. Two units operate together with automatic switchover if one unit fails.
- Higher stability oscillators. TXCO is standard. OXCO or rubidium is optional.
- External 12V input. Can be used as a backup supply.
- External 1 pps or 10 MHz locking Input Connector.

## GPS 10E Specifications

Description	Specification	Remarks
<b>Outputs</b>		
Sinewave Output Frequency	10 MHz	Other frequencies optionally available Other frequencies optionally available Aligned to UTC time $\pm$ 30 ns
Squarewave Output Frequency 1	10 MHz	
Squarewave Output Frequency 2	1 pps	
<b>Allan Variance when locked to GPS Satellites (typical)</b>		
Observation Time 1 seconds	$< 1 \times 10^{-10}$	GPS10E in full lock for > 1 week. > 3 satellites in view. Ambient temperature 0 °C to +50 °C. Temperature change less than 1 °C per hour
Observation Time 10 seconds	$< 8 \times 10^{-11}$	
Observation Time 100 seconds	$< 3 \times 10^{-11}$	
Observation Time 1 week	$< 1 \times 10^{-12}$	
<b>Output Drift when GPS10E NOT Locked to GPS Satellites (Holdover)</b>		
Drift due to aging	$< 1 \times 10^{-6}$ per day	Optional to $5 \times 10^{-10}$ /day available
<b>GPS Receiver</b>		
Number of Channels / Frequency	12 parallel @ 1575.42 MHz	Simultaneous operation. L1 Frequency With current position / time data. No SA Measured at active antenna input Powered by GPS10E. Waterproof
Acquisition Time / Positioning Accuracy	< 50 s typical / < 25 m	
Jamming Immunity	-79 dBm @ 1575.42 MHz	
Antenna	Active micro strip patch	
Datum	WGS-84	
<b>Miscellaneous</b>		
Operating Temperature	0 °C to +40 °C	Battery backup optionally available 19" Rack Mount Case, 1U height
Storage Temperature	-20 °C to +60°C	
AC Power Inlet (fused)	IEC320 power cord	
AC Voltage Range	100 – 240 VAC @ 40 Watts Maximum.	
Dimensions (rack mount version)	483 mm wide x 300 mm deep x 44 mm high	
Supplied Accessories	Antenna, Power Cord, Instruction Manual	
<b>Options</b>		
Option 01:	19" Rack Mount Case	
Option 02A / 02B	Five / ten sinewave outputs	
Option 03:	Redundancy	

Consult Precision Test Systems for further details of other options. Not all options can be fitted at the same time.

Head Office - UK	South Africa	USA
Precision Test Systems LTD 40 Holkham Avenue, South Woodham Ferrers Essex, CM3 7AU, England Tel: +44 (0) 870 368 9608 Fax: +44 (0) 1245 330030 Email: <a href="mailto:uksales@ptsyst.com">uksales@ptsyst.com</a> Web: <a href="http://www.ptsyst.com">www.ptsyst.com</a>	Precision Test Systems cc P.O Box 2300 Rivonia 2128 Gaunteng South Africa Fax: 08651 58198 Email: <a href="mailto:sasales@ptsyst.com">sasales@ptsyst.com</a> Web: <a href="http://www.ptsyst.com">www.ptsyst.com</a>	Precision Test Systems 14781 Memorial Dr. Suite # 981 Houston, TX 77079 Tel: 1 888 876 4804 Fax: 1 832 201 6564 Email: <a href="mailto:usasales@ptsyst.com">usasales@ptsyst.com</a> Web: <a href="http://www.ptsyst.com">www.ptsyst.com</a>

Full specifications available from [www.ptsyst.com](http://www.ptsyst.com). Specifications and features subject to change without notice (121109)