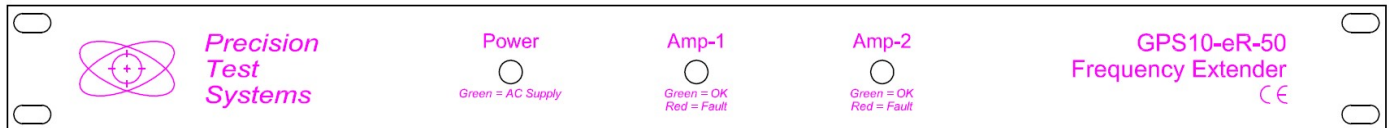




Precision Test Systems

GPS10eR-50 Frequency Reference



Key Features

- 10 MHz Reference
- Industry leading ultra-low phase noise
- -115 dBc @ 1 Hz with < -175 dBc noise floor
- Oven Controlled Crystal Oscillator
- Low Aging of 2×10^{-10} / day
- Can be locked to external 10 MHz Reference
- Low 1 second Allan Deviation
- 19" Rack mount Case, 1U

Optional Features

- Optional 100 MHz output in addition to 10 MHz
- Optional built in distribution amplifier
- Example five outputs at 10 MHz and five outputs at 100 MHz. Or ten outputs at 10 or 100 MHz.
- Optional increase output level to +19 dBm
- Option 12 VDC back up power supply

General Description

The GPS10eR-50 frequency reference was originally designed to be an option for our GPS10eR frequency standard.

After a year of research and development, it has now been introduced as a standalone unit.

The GPS10eR-50 is a 10 MHz and/or 100 MHz frequency reference which offers excellent performance for virtually any frequency or timing application. It can be externally locked to a reference 10 MHz signal (such as the output of our GPS10eR frequency standard). It has ultra-low phase noise. Refer to the typical plots on the next page. It is ideal for instrumentation and communication systems which require a precise frequency reference. The GPS10eR-50 is supplied in a 19" rack mount case and is powered from a 100 to 240 VAC supply (usable 90 – 260 VAC).

Applications

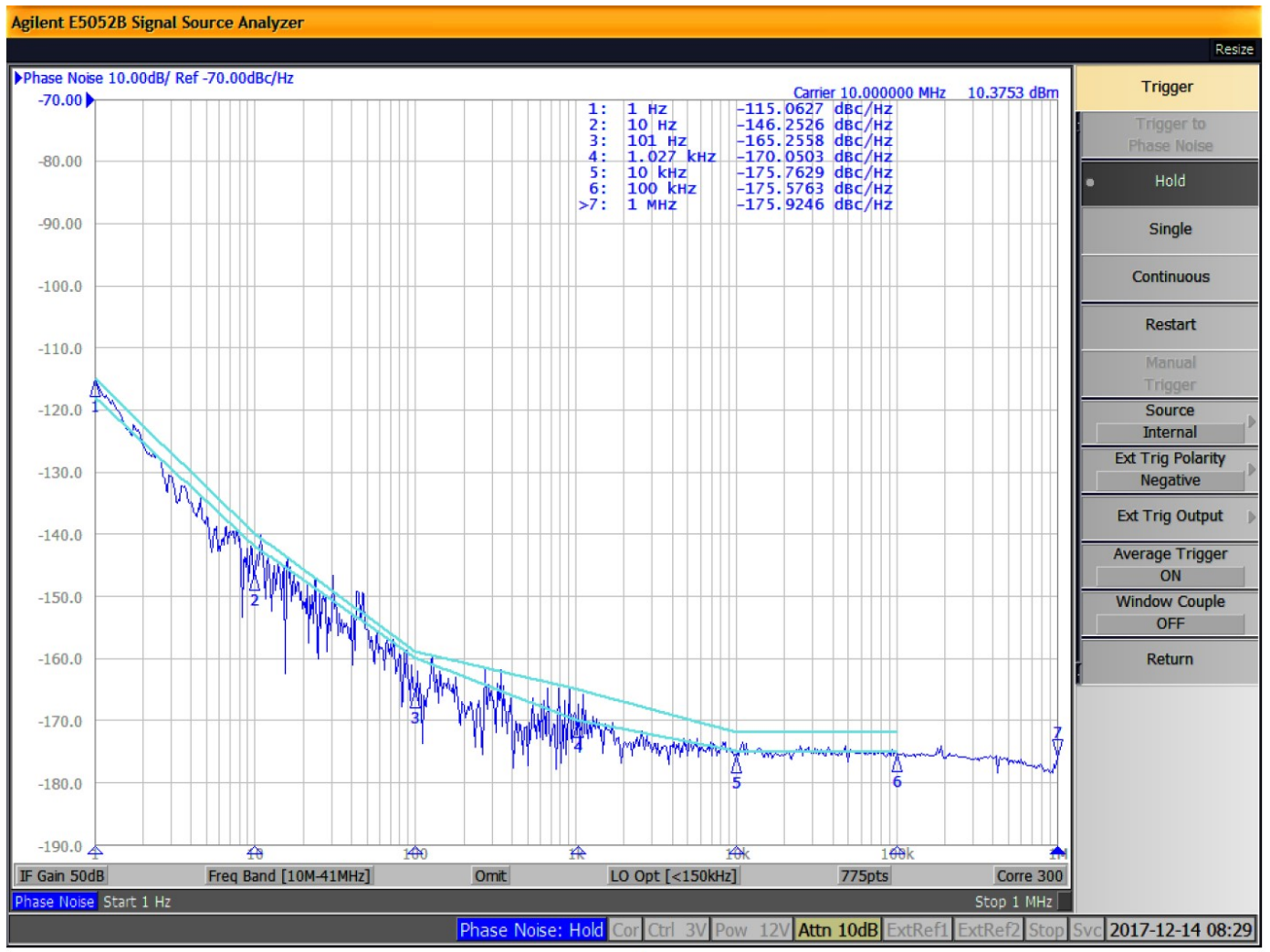
The CFS10B is being used by leading telecommunications companies to synchronize their automatic satellite communication system.

Phase Noise and Allan Deviation plots of Ultra Low Phase Noise Option

There are various oscillator options available for the GPS10eR-50, depending upon phase noise and Allan Deviation requirements.

Below are two plots from a GPS10eR-50 with option 01B1 (ultra-low phase noise 10 MHz and 100 MHz).

Typical Phase Noise at 10 MHz (Single output at + 10 dBm)



Typical Phase Noise at 100 MHz (Single output at + 8 dBm)



External Locking

Both the 10 MHz outputs and 100 MHz outputs (if fitted) can be locked to an external 10 MHz reference. The frequency accuracy of all the outputs will then be similar to the reference. Note; to achieve the above phase noise plots, the external reference should also have good close in phase noise, typically < -105 dBc/Hz @ 1 Hz offset. The far out noise of the external reference is less important.

Miscellaneous Information

The GPS10eR-50 is a highly reliable unit. It is housed in a fully screened aluminum 19-inch case aluminum case and operates from a 100 - 240 VAC supply. The GPS10eR-50 is CE marked for sale within the EU.

Product Options and Part Numbers

- GPS10eR-50: Basic Unit. Needs oscillator option.
- Option 01B1: 100 MHz ultra-low phase noise single output
- Option 01B: 100 MHz average phase noise single output
- Option 12: Additional five sinewave outputs (state frequency)
- Option 12C: Additional ten sinewave outputs (state frequency)
- Option 26C: 10 MHz ultra-low phase noise single output

SPECIFICATIONS

Specification Parameter	GPS10eR-50 Specification					
Frequency	10 MHz standard. Optional addition of a 100 MHz output					
Number of Outputs	One as standard. Can be increased to five.					
Output level (single output)	+10 dBm into 50 Ω @ 10 MHz and +8.5 dBm @ 100 MHz					
Output level (via distribution amps)	+ 10 dBm standard. But can be set to any level from 0 dBm to +13 dBm					
Output Level Option	Outputs can be increased to +19 dBm					
Output Waveform / 2 nd Harmonic	Sinewave. Harmonics -40 dBc @ 10 MHz and -28 dBc @ 100 MHz					
Other Harmonics / Spurious	-60 dBc / -80 dBc (typically < -100 dBc)					
Accuracy at shipment	$\pm 2.5 \times 10^{-8}$					
Frequency Stability (10 to 45 °C)	$\pm 5 \times 10^{-9}$					
Aging (per day after 30 days use)	< 2×10^{-10} / day					
Allan Deviation (1s typical)	To be advised					
Phase Noise (dBc/Hz) (Typical)	@ 1 Hz	@ 10 Hz	@ 100 Hz	@ 1 kHz	@ 10 kHz	@ 100 kHz
10 MHz single output	-115	-145	-164	-170	-175	-175
10 MHz via Distribution Amplifier	-115	-145	-162	-164	-166	-167
Option 01B – 100 MHz – via Dist. Amp	-70	-100	-125	-150	-162	-166
Option 01B1- 100 MHz – single output	-93	-120	-136	-163	-175	-180
Option 01B1- 100 MHz via Dist. Amp	-93	-120	-136	-159	-165	-166
Power (AC)	100 to 240 VAC (useable 90-260 VAC)					
Size / Weight	483 mm x 280 mm x 44 mm. Width x Depth x Height. Weight 3 kg (standard unit)					
Ambient Operating Temperature	10°C to +45 °C					

United Kingdom	South Africa	USA
Precision Test Systems LTD The Studio, Whitehouse Farm New Hall Lane, Mundon Maldon Essex, CM9 6PJ, UK Tel: +44 (0) 870 368 9608 Fax: +44 (0) 1245 330030 Email: uksales@ptsyst.com Web: www.ptsyst.com	Precision Test Systems cc Randburg Gauteng Fax: 08651 58198 Email: sasales@ptsyst.com Web: www.ptsyst.com	Precision Test Systems L.L.C 304 S. Jones Blvd Suite #807 Las Vegas, NV, 89107 Tel: 1 888 876 4804 Fax: 1 832 201 6564 Email: usasales@ptsyst.com Web: www.ptsyst.com

Full specifications available from www.ptsyst.com. Specifications and features subject to change without notice 141217)