



SG1640 1640 MHz Signal Generator



Key Features

- 10 μ Hz to 1640 MHz continuous coverage
- Frequency Steps: 10 μ Hz
- Internal GPS Synchronized Frequency Standard with UTC aligned 1 pps output
- Frequency Accuracy better than 1×10^{-10}
- -40 dBm to +10 dBm 50 Ω RF Output (2-1640 MHz)
- DC to 398 MHz, 3.3 / 5V CMOS Outputs
- 10 MHz to 1.6 GHz LVDS Output
- Low Phase Noise and low spurious outputs
- RS232 Interface
- Frequency either CW or frequency sweep
- Broadband Mixer Included

General Description

The SG1640 is a 10 μ Hz to 1640 MHz signal generator with outstanding frequency accuracy. The SG1640 has a built in GPS Disciplined frequency standard as its main frequency reference. Frequency coverage is in three bands; DC to 400 MHz, 400 to 800 MHz and 800 to 1640 MHz. The frequency can be set with 10 μ Hz frequency resolution. Frequency accuracy, when locked to a GPS satellite signal, is typically $1 \times 10E^{-10}$ short term and better than 1×10^{-12} long term. Thus the SG1640 never requires calibration as it is locked to the GPS satellite service.

Outputs

There are multiple outputs. The RF output is a 50 Ω , 2 MHz to 1640 MHz output. This output can be adjusted in amplitude from +10 dBm to -40 dBm. Logic outputs include a DC – 398 MHz CMOS output that can be set to either 3V3 or 5V output levels. Dual LVDS/PECL outputs give > 300 mV p-p output level from 10 MHz to 1640 MHz.

Frequency Standard for Free!

The SG1640 has its own GPS synchronized frequency standard (requires GPS antenna – supplied). This GPS Synchronized timebase is available as a 10 MHz output on the rear panel. This output can act as a laboratory's frequency reference since it is locked to the global positioning service's set of satellites. Accuracy is 1×10^{-10} in the short time (< 1 sec) and as good as 1×10^{-12} in the long term

(> 1 week). This 10 MHz output can be connected to the PTS50 or DA series of distribution amplifiers to synchronize a complete workshop or factory. Thus all the instruments in an entire factory can be synchronized by the SG1640.

Other Features

The SG1640 also has a general purpose, non-dedicated mixer available via BNC front-panel connectors. RF and LO inputs are from 4.5 MHz to 2 GHz. Filtered IF output bandwidth is 4.5 MHz to >350 MHz, with -20dBm RF input and -10 to 5dBm LO input sensitivity. The conversion gain is 0 to -3.5 dBm conversion gain with +14 dBm damage level.

Front Panel Control and Serial Communication

The unit can be controlled via front panel keys with readout on a 20 x 4 character LCD display. The unit can also be controlled by a RS232 interface (USB optional). The internal GPS receiver also has its own RS232 interface allowing monitoring of all its settings and functions, such as the number of satellites tracked, etc.

SG1640 SPECIFICATIONS

Specification Parameter	Specification	Comments
Outputs		
Frequency	10 μ Hz to 1640 MHz	10 μ Hz Frequency setting resolution.
Output Level (50 Ω)	+10 dBm to -40 dBm	2 - 1640 MHz
Output Level Accuracy	\pm 2 dB	
Phase Noise	-130 dBc @ 100 Hz, -145 dBc floor	10 MHz carrier, typical
Spurious / Harmonic Outputs	-67 dBc typical / -35 dBc typical	
CMOS Output	3V3 or 5V switchable	DC to 398 MHz
LVDS/PECL Output	> 300 mV p-p from 10 to 1640 MHz	Dual SMA connectors
UTC synchronized 1 pps	Synchronized to UTC time \pm 20 ns	Requires GPS Antenna (supplied)
Main Timebase		
Frequency	10 MHz	Available on rear panel
Frequency Accuracy	1 x 10 ⁻¹⁰ (1 sec), 1 x 10 ⁻¹² (> one week)	When locked to GPS satellites
Output	10 MHz, 3V3 CMOS output	Multiple outputs optionally available
Phase Noise @ Hz offset	-120 dBc at 10 Hz, -145 dBc @ 100 kHz	Sinewave Output @ 10 MHz
Set-up and monitoring of timebase	Separate RS232 interface for GPS receiver	Allows set up and monitoring
General		
Keyboard	5 button keyboard	
Display	20 character x 4 line LCD display	
Communication Interface	RS232 (USB optional)	
Size and weight	276 x 212 x 102 mm and 2.5 kg	Width x Depth x Height
Environmental	0°C to +40 °C	<1°C/24 hr for optimum performance
Power Supply	100 - 240 VAC	Usable 90 - 260 VAC
Options		
Option 01	19" Rack Mount case	
Option 02	Extra 10 sinewave outputs of freq. ref	Includes separate distribution amp
Option 03	Higher Stability OXCO	Improves Allan Deviation

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Full specifications available from www.ptsyst.com. Specifications and features subject to change without notice (240812)