

## Product Brief

# 10 MHz to 20 GHz Signal Generator **APSIN20G**

The APSIN20G is a low-noise and fast-switching microwave signal generator covering a frequency range from 10 MHz up to 20 GHz.

The APSIN20G provides a micro-Hz frequency resolution, a wide and accurately levelled output power range, and low spurious levels. It is targeted for applications where a high-quality CW microwave source with analog modulation is required.

The APSIN20G includes AM; DC-coupled wideband-FM, PM, FSK and PSK, frequency chirp, and pulse modulation as standard.

The APSIN20G operates with an ultra-stable temperature compensated 100 MHz reference (OCXO) and can be phase-locked to an external reference.

It offers a reliable alternative to expensive high-end microwave signal generators, where small size and excellent microwave performance at an attractive cost is required.



## Key Features

- Only 200  $\mu$ s frequency switching time
- Very low SSB phase noise: -108 dBc/Hz at 10 GHz and 20 kHz offset
- Comprehensive AM, low-distortion, wideband DCFM, and high speed pulse modulation for testing all types of receivers
- LAN/USB/GPIB (optional) remote control with SCPI 1999 command set
- Input for USB power sensor
- Powerful trigger and sweeping modes

## Applications

- R&D low noise signal source
- Production testing (industry-leading switching times; high dynamic range)
- Service and maintenance
- Signal simulation (Radar, WiMax, UWB)
- Aerospace & Defence (Pulse modulator, Chirps)

## Key Specifications

Parameter	Value	Notes
Frequency range	10 MHz – 20 GHz	operating up to 21 GHz
resolution	0.1 mHz	
Phase resolution	0.1 deg	
Settling time	0.2 ms	
SSB Phase noise		
at 20 kHz from carrier	-108 dBc/Hz	10 GHz carrier
wideband noise	-150 dBc/Hz	
Power level		
Range	-20 – +14 dBm -90 – +13 dBm	Standard Option PE
Resolution	0.01 dB	
Level uncertainty	< 1 dB	
Output impedance	50 $\Omega$	
VSWR	1.5 typical	
Spectral purity		at +10 dBm
output harmonics	< -30 dBc	
non-harmonic spurious	< -60 dBc	
Sweeps & Trigger		
Dwell time	> 50 $\mu$ s	
Time resolution	10 $\mu$ s	
List size	20'000	
Trigger	Auto, external, bus, gated	
Frequency Modulation		
Modulation rate	DC to 800 kHz	
Maximum deviation	> 7 % of $f$	
Distortion	0.1 %	$f_{mod} = 1$ kHz & $f_{dev} = 10$ MHz
Amplitude Modulation		
Rate	0.1 Hz – 20 kHz	sine, pulse, triangle
Depth	0 to 95 %	
Pulse Modulation		
Rate	DC – 10 MHz	
On/OFF Ratio	> 50 dB	
Pulse width	> 50 ns	
Rise/Fall times	10 ns	
Internal reference frequency	100 MHz	
Temperature stability	$\pm 100$ ppb	0 to 50 $^{\circ}$ C