

Wideband Frequency Synthesizers

GENERAL DESCRIPTION

The frequency synthesizers series consist of low phase-noise devices operating up to 40 GHz. The modules have a mHz frequency resolution. The internal high-stability reference can be phase-locked to an external programmable reference. The modules have USB and LAN interfaces and can be controlled using SCPI 1999 command set. Operated with an external DC supply, they consume less than 10 W power. Single- and multi-channel (phase-coherent) configurations are available.



APSYN140/420/APUASYN20



APSYN140-X/APUASYN20-X

COMPARISON/SPECIFICATIONS

Models	Single-channel			Single- and multi-channel	
	APSYN420	APMSYN22	APMSYN40	APSYN140(-X)	APUASYN20(-X)
# of channels	1			1, 2, 3, 4	
Frequency Range	10 MHz to 20 GHz	100 kHz to 22 GHz	1 MHz to 40 GHz	8 kHz to 43.5 GHz	8 kHz to 20 GHz
Resolution	0.001 Hz	0.01 Hz	0.001 Hz	0.001 Hz	0.01 Hz
Accuracy	0.1 ppm	0.1 ppm	0.5 ppm	0.03 ppm	0.1 ppm
Power Range	+23 dBm	-20 to +25 dBm	-10 to +23 dBm	-10 to +25 dBm	0 to +18 dBm
Switching Speed	180 μs (25 μs with FS)	500 μs (<10 μs with FS)	500 μs (50 μs with FS)	500 μs (20 μs with FS)	500 μs (10 μs with FS)
Phase Noise at 1 GHz (in dBc/Hz)	at 10 Hz: -82 at 1 kHz: -118 at 100 kHz: -128 at 10 MHz: -150	at 10 Hz: -87 at 1 kHz: -122 at 100 kHz: -132 at 10 MHz: -155	at 10 Hz: -80 at 1 kHz: -125 at 100 kHz: -140 at 10 MHz: -150	at 10 Hz: -100 at 1 kHz: -127 at 100 kHz: -144 at 10 MHz: -155	at 10 Hz: -85 at 1 kHz: -115 at 20 kHz: -125 at 10 MHz: -155
Remote Control	Ethernet, USB			Ethernet, GPIB, USB	
Modulation	FM, PM, Pulse, Chirp	Pulse	Pulse	FM, PM, Pulse	Pulse
Sweeps	List, Frequency				
Dimensions (W x L x H), Weight	105 x 210 x 60 mm [4.13 x 8.27 x 2.36 in], < 1.0 kg [< 2.2 lbs]	130 x 95 x 25 mm [5.12 x 3.74 x 0.98], < 0.6 kg [< 1.3 lbs]	60 x 150 x 26 mm [2.36 x 5.9 x 1.02 in], 0.6 kg [1.3 lbs]	Single: 105 x 270 x 60 mm [4.13 x 10.63 x 2.36 in], < 1.0 kg [< 2.2 lbs] Multi: 430 x 460 x 43 mm [16.93 x 18.11 x 1.69 in], < 10 kg [< 22 lbs]	Single: 105 x 270 x 60 mm [4.13 x 10.63 x 2.36 in], < 1.0 kg [< 2.2 lbs] Multi: 430 x 460 x 43 mm [16.93 x 18.11 x 1.69 in], < 10 kg [< 22 lbs]

HIGH QUALITY INSTRUMENTS

- Ultra-compact, portable, battery operatable
- Flexibly configurable and customizable
- Traceable and accredited calibrations
- Low cost of ownership

SIGNAL GENERATORS

- 1 kHz up to 54 GHz, analog and digital
- Single- and multi-channel models
- <1 μs switching speed
- Low phase noise: -139 dBc/Hz at 10 GHz and 20 kHz offset
- Best-in-class phase coherence
- Battery-driven for field applications

WIDEBAND FREQUENCY SYNTHESIZERS

- 8 kHz up to 43.5 GHz
- Single- and multi-channel models
- Low phase noise: -130 dBc/Hz at 10 GHz and 20 kHz offset
- Fast switching 5 μs, fast control port
- Flange- and rack-mount, desktop forms

PHASE NOISE ANALYZERS

- 1 MHz to 7/20/26/40/50/65 GHz
- Phase Noise Sensitivity -190 dBc/Hz
- Fast measurement time
- CW / pulsed signals, absolute / additive noise measurements
- Allan deviation testing
- Spectrum and transient analyses
- VCO testing

Scan for our datasheets and product info:



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Accurate
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Affordable

of Switzerland



Analog & Vector Signal Generators



Wideband Frequency Synthesizers



Phase Noise Analyzers

TEST & MEASUREMENT
INSTRUMENTS UP TO 65 GHz
MADE IN SWITZERLAND

Analog Signal Generators Single-channel

GENERAL DESCRIPTION

With the APSIN, APULN and APMQS series, available in various form factors and configurations, AnaPico signal generators offer unique features such as good signal purity, ultra-low phase noise, fast switching, battery operation, etc. They are the ideal choice for antenna measurements, LO applications, radar receiver and transmitter testing, as well as CHIRP and pulse modulation applications.



Option 1URM: 19" rack-mountable form factor



Option RM: 3HU 19" rack-mount kit mounting 2 portable units



APULN



APMQS20

COMPARISON/SPECIFICATIONS

Models	RF		Microwave	
	APSI6G	APSI	APULN	APMQS20
Frequency Range	9 kHz to 6 GHz	9 kHz to 2, 4, 6.1, 12, 20 or 26.5 GHz	8 kHz to 12.75, 20, 26, or 40 GHz	8 kHz to 20 GHz
Resolution	0.001 Hz	0.001 Hz	0.001 Hz	0.001 Hz
Power Range	-20 to +25 dBm (-120 to +25 dBm with PE3)	-30 to +18 dBm (-120 to +25 dBm optionally)	-20 to +25 dBm (-120 to +25 dBm optionally)	-20 to +15 dBm
Resolution	0.01 dB	0.01 dB	0.01 dB	0.01 dB
Switching Speed	300 μs (<30 μs with FS)	400 μs (<30 μs with FS)	500 μs (30 μs with FS)	500 μs (20 μs with FS)
Phase Noise at 1 GHz (in dBc/Hz)	at 10 Hz: -80 at 1 kHz: -117 at 100 kHz: -128 at 10 MHz: -150	at 10 Hz: -80 at 1 kHz: -117 at 100 kHz: -130 at 10 MHz: -150	at 10 Hz: -87 (-98 with LN) at 1 kHz: -130 at 20 kHz: -144 at 100 kHz: -148	at 10 Hz: -85 at 1 kHz: -133 at 20 kHz: -145 at 10 MHz: -155
Harmonics	-30 dBc (-50 dBc with option FILT)		-30 dBc (-48 dBc with option FILT)	-40 dBc
Remote Control	Ethernet, USB, GPIB (SCPI v1999)			Ethernet, USB
Modulation	AM, FM, PM, PULSE, Chirp, AVIO (ILS, VOR)	AM, FM, PM, PULSE, Chirp, AVIO, N-Pulse	PULSE, AM, FM, PM, Pulsed Chirp	PULSE
Sweeps	List, Frequency, Power			
Dimensions (W x L x H), Weight	173.6 x 261.7 x 116.9 mm [6.83 x 10.30 x 4.60 in], 2.5 kg [5.5 lbs]	19" 1HU enclosure or 173.6 x 270.7 x 116.9 mm [6.83 x 10.66 x 4.60 in], 2.5 kg [5.5 lbs]	174 x 290 x 113 mm [6.85 x 11.42 x 4.45 in], 2.5 kg [5.5 lbs]	177.8 x 127 x 25.4 [7.0 x 5.0 x 1.0 in], < 1.0 kg [< 2.2 lbs]

Analog Signal Generators Single- and multi-channel

GENERAL DESCRIPTION

The APHSPXX(-X) series sets new standards with extremely low phase noise (10 GHz at 20 kHz -139 dBc/Hz), combined with an ultra-fast switching speed of 5 μs and a frequency range from 10 MHz (1 kHz with option 1K) to 12.75, 20, 40, and 51 GHz. The outstanding phase noise is complemented by very good spurious and harmonics rejection performance.

The APLCXX(-X) is an agile ultra-low phase noise signal generator from 10 MHz (9 kHz with option 9K) to 12.75, 20, 40 or 54 GHz with excellent harmonic and spurious performance.



APL / APHSP



APLC-X / APHSP-X



APMSXXG

COMPARISON/SPECIFICATIONS

Models	Single- and multi-channel		Multi-channel
	APLCXX(-X)	APHSPXX(-X)	APMSXXG
# of channels	1, 2, 3, 4		
Frequency Range	9 kHz to 12.75, 20, 40, 54 GHz	1 kHz to 12.75, 20, 40, 51 GHz	300 kHz to 6, 12, 20, 33, 40 GHz
Resolution	<0.001 Hz	<0.001 Hz	<0.001 Hz
Power Range	-20 to +20 dBm (-120 to +20 dBm with PE2)	-20 to +20 dBm (-120 to +20 dBm with PE2)	-20 to +25 dBm (-60 to +23 dBm PE4)
Switching Speed	500 μs (15 μs with option FS)	100 μs (5 μs with option FS)	500 μs (25 μs with option FS)
Phase Noise at 1 GHz (in dBc/Hz)	at 10 Hz: -85 (-105 with option LN(+)) at 1 kHz: -137 at 20 kHz: -150 at 100 kHz: -153	at 10 Hz: -85 (-103 with option LN(+)) at 1 kHz: -145 at 20 kHz: -153 at 100 kHz: -152	at 10 Hz: -87 (-100 with option LN) at 1 kHz: -130 at 20 kHz: -145 at 100 kHz: -150
Harmonics	-50 dBc		
Remote Control	Ethernet, USB, GPIB		
Modulation	AM, FM, PM, PULSE		
Sweeps	List, Frequency, Power, Phase		
Dimensions (W x L x H), Weight	Single-Channel: 232 x 393 x 96.75 mm [9.1 x 15.5 x 3.8 in], ≤10 kg [≤22 lbs] Multi-Channel: 19" 2HU enclosure: 444 x 594 x 88 mm [17.5 x 23.4 x 3.5 in], 18 kg [39.7 lbs]	19" 1HU enclosure: 440 x 470 x 44 mm [17.3 x 18.5 x 1.7 in], 10 kg [22 lbs]	

Vector Signal Generators Single- and multi-channel



SPECIFICATIONS

Models	APVSGXX & APVSGXX-X	
# of channels	1, 2, 3, 4	
Frequency Range; Resolution	100 kHz to 4, 6, 12, 20, 40 GHz; 0.001 Hz	
Power Range	-20 to +18 dBm (-120 to +15 dBm with option PE2)	
Switching Speed	500 μs (≥2 μs with option UFS)	
I/Q Modulation Bandwidth	400 MHz Internal BB generator	
Phase Noise at 1 GHz (in dBc/Hz)	at 10 Hz: -87 (-100 with option LN) at 20 kHz: -145	at 1 kHz: -130 at 100 kHz: -150
Harmonics	-50 dBc	
Remote Control	Ethernet, USB, GPIB, FCP	
Modulation	Digital I/Q, AM, PM, FM, PULSE, AVIO, AWGN	
Sweeps	Complex lists, Frequency, Power	
Dimensions (W x L x H), Weight	Single-Channel: 182 x 301 x 124 mm [7.17 x 11.85 x 4.88 in], approx. 4 kg [8.8 lbs] Multi-Channel: 19" 2HU enclosure: 444 x 572 x 86 mm [17.5 x 22.5 x 3.4 in], 18 kg [39.7 lbs]	

Phase Noise Analyzers

GENERAL DESCRIPTION

The APPH and APNA offer an indispensable set of measurement functions for evaluating signal sources ranging from VHF to microwave frequencies but also active and passive non self oscillating devices like amplifiers, or frequency dividers. A mixed-signal system architecture with a FPGA cross-spectrum engine enables very fast signal processing and ultra-low phase noise sensitivity of -190 dBc/Hz.

COMPARISON/SPECIFICATIONS

Models	APPH	APNA
Frequency Range	1 MHz to 7, 26 or 40 GHz	1 MHz to 20, 50 or 65 GHz
Input Power Range	-15 to +20 dBm	
Phase Noise Sensitivity	-190 dBc/Hz	
Analysis Range	0.01 Hz to 100 MHz	
Measurements	Phase noise (absolute & additive, CW & pulsed), amplitude noise (CW & pulsed), ADEV, transients, spectrum monitoring, VCO test bench	Phase noise (absolute & additive, CW & pulsed), amplitude noise (CW & pulsed), ADEV, transients
Dimensions (W x L x H), Weight	468.0 x 341.0 x 152.5 [18.4 x 13.5 x 6.0 in] without handle, 11 kg [24.3 lbs]	