Specifications

Important: As a highly innovative company, we continuously refine our products. Please check our homepage www.smart.rohde-schwarz.com for new applications and features.

Channels

Number of channels	2
Phase	
Setting range	–180 ° to +180 °
Resolution	0.01 °
Operating modes	CH1, CH2, CH1+CH2

Waveforms

Standard	sine, triangle, ramp, square, pulse, exponential rise, exponential fall, noise
Arbitrary	
Waveform length	16 to 262144 (256k) points per channel
Level resolution	14 bit

Modulation

Modulation modes	AM, FM, φM, FSK, PSK

Frequency

Sine	10 µHz to 35 MHz
Triangle, ramp, square, exponential	10 µHz to 500 kHz
Low-jitter square[1)]	10 µHz to 50 MHz
Noise	35 MHz bandwidth
Pulse	10 µHz to 16.667 MHz
Arbitrary	
Repetition rate	max. 6.25 MHz (16 points)
Sampling rate	10 µHz to 100 MHz
Resolution	10 µHz

Output parameters

Output voltage (into 50 Ω)	
Setting range	1 mV to 10 V (V_{pp}); with AM: 1 mV to 5 V (V_{pp})
Resolution	0.1 mV (4 digits)
Uncertainty	±2%
Frequency response (relative to 10 kHz sinewave)	
10 µHz ≤ f ≤ 30 MHz	±0.1 dB
30 MHz < f ≤ 35 MHz	±0.25 dB
Units	V (V_{pp}), dBm

Spectral purity (sinewave)

Harmonic distortion	<3 V (V_{pp})	≥3 V (V_{pp})	(output voltage)
20 Hz ≤ f ≤ 1 MHz	<–65 dBc	<–60 dBc	
1 MHz < f ≤ 5 MHz	<–55 dBc	<–55 dBc	
5 MHz < f ≤ 35 MHz	<–40 dBc	<–35 dBc	
Nonharmonic distortion			
10 µHz ≤ f ≤ 5 MHz	<–60 dBc	typ. (–70 dBc)	
5 MHz < f ≤ 25 MHz	<–45 dBc	typ. (–55 dBc)	
25 MHz < f ≤ 35 MHz	<–40 dBc	typ. (–50 dBc)	
SSB phase noise (10 kHz offset from carrier)			
10 MHz	–118 dBc (1 Hz)		
35 MHz	–117 dBc (1 Hz)		

Signal characteristics

Square	
Duty cycle	
≤500 kHz	1% to 99% (selectable)
10 µHz to 50 MHz	50% (fixed)
Rise/fall time	
10 µHz ≤ f ≤ 10 MHz	<10 ns
10 MHz < f ≤ 50 MHz	<5 ns
Overshoot	<5%
Pulse	
Period	70 ns to 9999 s
Pulse width	20 ns to 9999 s
Rise time	<10 ns
Overshoot	<5%
Ramp/triangle	
Symmetry	0% to 100%
Linearity	±0.1% (f < 10 kHz)
Exponential	
Type	rise or fall
Arbitrary	
Rise time	<10 ns
Linearity	±0.1% (f < 10 kHz)
Loading time via USB	16 s (binary, 256k points)

Output characteristics

DC offset (into 50 Ω)	
Setting range	±5 V, |signal level + offset| ≤ 5 V
Uncertainty	±1% of setting ± 2 mV + 0.5% of signal level
Signal output	
Impedance	50 Ω nominal
Protection	short-circuit-protected
Filters	
Internal	
Operating modes	manual, automatic
Cutoff frequencies of lowpass filters	35 MHz, 37 MHz, 75 MHz
Filter types	9th order Bessel, 9th order Cauer
External filter connector	
Impedance (output and input)	50 Ω nominal
Output voltage	2 V (V_{pp})

Modulation[2)]

AM	
Carrier waveforms	sine, triangle, ramp, square, exponential, pulse, arbitrary
Modulation waveforms	sine, square, triangle, ramp, exponential, noise
Modulation frequency	10 mHz to 100 kHz
Modulation depth	0% to 100%
Resolution	0.1%
Source	internal
FM	
Carrier waveforms	sine, triangle, ramp, square, exponential, arbitrary
Modulation waveforms	sine, square, triangle, ramp, exponential, noise
Modulation frequency	10 mHz to 100 kHz
Frequency deviation	100 mHz to 17.5 MHz
Source	internal
φM	
Carrier waveforms	sine, triangle, ramp, square, exponential, arbitrary
Modulation waveforms	sine, square, triangle, ramp, exponential, noise
Modulation frequency	10 mHz to 100 kHz
Phase deviation	–180 ° to +180 °
Source	internal
FSK	
Carrier waveforms	sine, triangle, ramp, square, exponential, arbitrary
Modulation waveform	square
Modulation frequency	0.1 mHz to 2 MHz
Frequency deviation	10 µHz to 500 kHz (sine: 35 MHz)
Source	internal, external
PSK	
Carrier waveforms	sine, triangle, ramp, square, exponential, arbitrary
Modulation waveform	square
Modulation frequency	0.1 mHz to 2 MHz
Phase deviation	–180 ° to + 180 °
Source	internal, external

Gate/burst

Waveforms	sine, triangle, ramp, square, exponential, arbitrary
Gate settings	block end, sample & hold, burst
Number of cycles per burst	1 to 65535
Start phase	–180 ° to +180 °
Gate length (internal)	100 ns to 9999 s
Gate source	internal, external

Sweep

Waveforms	sine, triangle, ramp, square, exponential, arbitrary
Type	linear, logarithmic
Direction	upward
Start/stop frequency	10 mHz to max. signal frequency (sine: 35 MHz)
Sweep time	1 ms to 999 s
Marker	frequency marker

Trigger

Source	manual, internal, external
Delay	
Setting range	0 ns or 150 ns to 9999 s
Resolution	10 ns
Internal trigger	
Repetition cycle	500 ns to 9901 s (2 MHz to 101 µHz)
Resolution	10 ns
External trigger input	
Input voltage	TTL-compatible
Edge	rising or falling, selectable
Pulse width	>100 ns
Input impedance	>1 kΩ (DC-coupled)
Latency (burst, sweep)	typ. 100 ns
Sync outputs	
Number of outputs	2
Voltage	TTL-compatible
Pulse width	≥50 ns
Polarity	selectable
Impedance	50 Ω
Sources	comparator, phase accumulators, marker, triggers

Reference

Reference oscillator (internal)	
Frequency	10 MHz
Stability	<1 ppm
Aging	<1 ppm/year
Reference input	
Frequency	10 MHz, 5 MHz, 2 MHz
Frequency error	$<5 \times 10^{-6}$
Input voltage	0.5 V to 2 V (50 Ω)
Input impedance	50 Ω
Reference output	
Frequency	10 MHz
Output voltage	>0.5 V (50 Ω)
Impedance	50 Ω

Interfaces

USB host	
Connector	B plug
Protocol	version 1.1
Command set	device-specific, remote control
USB device	
Connector	A plug
Protocol	version 1.1
Additional memory	USB memory stick[3)]

Power supply

Input voltage range	100 V to 240 V AC (autoranging), 50 Hz to 60 Hz
Power consumption	<35 VA

[1)] Sampling on edge of square, therefore low jitter, fixed duty cycle of 50%.

[2)] Modulation possible only in coupled-frequency mode, i.e. frequency CH1 = frequency CH2.

[3)] Not supplied as standard.

General data

Display	
Type	5.4" active colour TFT display
Number of pixels	320 x 240
Memory locations	
Device setups	8
Ambient conditions	
Operating temperature range	+5 °C to +45 °C, meets DIN EN 60068-2-1/2
Storage temperature range	–20 °C to +70 °C
Relative humidity	95% at +40 °C, meets DIN EN 60068-2-3 (no moisture condensation)
Mechanical resistance	
Vibration, sinusoidal	5 Hz to 150 Hz, max. 2 g at 55 Hz, meets DIN EN 60068-2-6;
	55 Hz to 150 Hz, 0.5 g constant, meets DIN EN 61010-1 and MIL-T-28800D class 5
Vibration, random	10 Hz to 500 Hz, 1.9 g, meets DIN EN 60068-2-64
Shock	shock spectrum, meets DIN EN 60068-2-27 and MIL-STD-810
Electromagnetic compatibility	meets EN 55011 class B and EN 61326 (EMC Directive 89/336/EEC)
EMI field strength	<10 V/m
Protection class	DIN EN 61010-1 / IEC61010-1 UL3111-1; CSA22.2 No:1010.1
Dimensions (W x H x D)	219 mm x 147 mm x 350 mm
Weight	6.2 kg

Ordering information

Dual-Channel Arbitrary/Function Generator R&S®AM300

Designation	Type	Order No.
Dual-Channel Arbitrary/Function Generator		
(including PC software R&S®AM300-K1)	R&S®AM300	1147.1998.03
Waveform Composer (software, licensed for 5 instruments)	R&S®AM300-K2	1147.2013.02
Rack Adapter	R&S®ZZA-300	1147.1281.00

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