

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Resolution	1 mV or 4 digits				

Output impedance	50 Ω
Load impedance setting	Selectable: 50 Ω, 1 Ω to 10.0 kΩ, High Z (Adjusts displayed amplitude according to selected load impedance)
Isolation	42 Vpk maximum to earth ground
Short-circuit protection	Signal outputs are robust against permanent shorts against floating ground
Overcurrent protection	When incoming current is greater than 250 mA, the output channels are protected with relays that disconnect the AFG from the device under test. Connection can be resumed by user after removing the incoming current

General characteristics - Basic mode

Basic (AFG)

Run modes	Continuous, Modulation, Sweep and Burst
Standard waveforms	Sine, Square, Pulse, Ramp, More (Noise, DC, Sin(x)/x, Gaussian, Lorentz, Exponential Rise, Exponential Decay, Haversine)
Arbitrary waveforms	Sampling clock: 250 MSa/s, 1 GSa/s or 2 GSa/s (model and waveform length apply) Vertical resolution: 14 bits Waveform length: 2 to 131,072 points

Sine

Frequency range

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Continuous mode	1 μHz to 25 MHz	1 μHz to 50 MHz	1 μHz to 100 MHz	1 μHz to 150 MHz	1 μHz to 250 MHz
Burst mode	1 μHz to 12.5 MHz	1 μHz to 25 MHz	1 μHz to 50 MHz	1 μHz to 75 MHz	1 μHz to 125 MHz

Effective maximum frequency out

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
25 MHz	50 MHz	100 MHz	150 MHz	250 MHz

Amplitude flatness (1 V_{p-p}, relative to 1 kHz)

Frequency range	AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252
< 5 MHz	±0.2 dB	±0.2dB
≥ 5 MHz to 25 MHz	-----	±0.3 dB
≥ 5 MHz to 100 MHz	±0.3 dB	-----
> 25 MHz to 100 MHz	-----	±0.5 dB

Table continued...

Frequency range	AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252
> 100 MHz to 200 MHz	-----	±1.0 dB
> 200 MHz to 250 MHz	-----	±2.0 dB

Amplitude flatness (1 V_{p-p}, relative to 1 kHz), typical

AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102, AFG31151, AFG31152	AFG31251 / AFG31252
±0.1 dB	≤ 150 MHz: ±0.1 dB > 150 MHz to 250 MHz: ±0.3 dB

Harmonic distortion (1 V_{p-p}), typical

Frequency range	AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102
10 Hz to <20 kHz	< -77 dBc
≥20 kHz to <1 MHz	< -72 dBc
≥1 MHz to <5 MHz	< -65 dBc
≥5 MHz to ≤100 MHz	< -56 dBc

Frequency range	AFG31151, AFG31152, AFG31251, AFG31252
10 Hz to < 1 MHz	< -72 dBc
≥ 1 MHz to < 5 MHz	< -74 dBc
≥ 5 MHz to < 25 MHz	< -69 dBc
≥ 25 MHz to ≤ 250 MHz	< -37 dBc

THD, typical

≤ 0.04%, 10 Hz to 20 kHz, 1 V_{p-p}

Spurious noise (1 V_{p-p}), typical

Frequency range	AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102
≥ 10 Hz to < 1 MHz	< -78 dBc
≥ 1 MHz to < 25 MHz	< -73 dBc
≥ 25 MHz to ≤ 100 MHz	< -78 dBc

Frequency range	AFG31151, AFG31152, AFG31251, AFG31252
10 Hz to < 1 MHz	< -80 dBc
≥ 1 MHz to < 25 MHz	< -75 dBc
≥ 25 MHz to ≤ 250 MHz	< -75 dBc + 6 dBc/octave

Phase noise, typical < -125 dBc/Hz at 20 MHz, 10 kHz offset, 1 V_{p,p}

Residual clock noise, all models -63 dBm

Square

Frequency range

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
1 μHz to 20 MHz	1 μHz to 40 MHz	1 μHz to 80 MHz	1 μHz to 120 MHz	1 μHz to 160 MHz

Rise/fall time, typical

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Amplitude ≤ 5 V _{pp}	≤ 7.0 ns	≤ 5.0 ns	≤ 3.5 ns	≤ 3.0 ns	≤ 2.0 ns
Amplitude > 5 V _{pp}	≤ 8.0 ns	≤ 6.0 ns	≤ 4.2 ns	-----	-----

Overshoot, typical < 3%

Jitter (RMS), typical 2.5 ps

Ramp

Frequency range

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
1 μHz to 500 kHz	1 μHz to 800 kHz	1 μHz to 1 MHz	1 μHz to 1.5 MHz	1 μHz to 2.5 MHz

Linearity, typical (1 kHz, 1 V_{p,p}, 100% symmetry)

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
≤ 0.1% of peak output	≤ 0.1% of peak output	≤ 0.15% of peak output	≤ 0.2% of peak output	≤ 0.2% of peak output

Symmetry 0% to 100%

Pulse

Frequency range

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
1 mHz to 20 MHz	1 mHz to 40 MHz	1 mHz to 80 MHz	1 mHz to 120 MHz	1 mHz to 160 MHz

Pulse width

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
16 ns to 999.99 s	10 ns to 999.99 s	6 ns to 999.99 s	4 ns to 999.99 s	3 ns to 999.99 s

Pulse width resolution 10 ps or 5 digits

Pulse Duty 0.001% to 99.999% (limitations of pulse width apply)

Edge transition time

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
8 ns to 0.625 * Pulse Period	6 ns to 0.625 * Pulse Period	4 ns to 0.625 * Pulse Period	3 ns to 0.625 * Pulse Period	2 ns to 0.625 * Pulse Period

Edge transition time resolution 10 ps or 4 digits

Lead delay range

Mode	Characteristic
Continuous	0 ps to Period
Burst	0 ps to Period – [Pulse Width + 0.8 * (Leading Edge Time + Trailing Edge Time)]

Lead delay resolution 10 ps or 8 digits

Overshoot, typical < 2%

Jitter (RMS), typical 2.5 ps

DC
Range (into 50 Ω)

AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252
-5 V to 5 V	-2.5 V to 2.5 V

Resolution (into 50 Ω) 1 mV or 4 digits

Accuracy ± (1% of |setting| + 1mV)

Noise
Bandwidth (-3 dB)

AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252
150 MHz	360 MHz

Noise type

White Gaussian

Internal noise

	Characteristic
Add	When activated, output signal amplitude is reduced to 50%
Level	0.0% to 50% of amplitude ($V_{p,p}$) setting
Resolution	1%

Other waveforms
Frequency range

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
1 μHz to 500 kHz	1 μHz to 800 kHz	1 μHz to 1 MHz	1 μHz to 1.5 MHz	1 μHz to 2.5 MHz

Arbitrary waveforms

Frequency range

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Normal	1 mHz to 12.5 MHz	1 mHz to 25 MHz	1 mHz to 50 MHz	1 mHz to 75 MHz	1 mHz to 125 MHz
Burst mode	1 mHz to 6.25 MHz	1 mHz to 12.5 MHz	1 mHz to 25 MHz	1 mHz to 37.5 MHz	1 mHz to 62.5 MHz

Effective analog bandwidth (-3 dB)

AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252
150 MHz	360 MHz

Waveform length

2 to 131,072

Sample rate

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Waveform length ≤ 16,384	250 MSa/s	1 GSa/s	1 GSa/s	2 GSa/s	2 GSa/s
Waveform length > 16,384	250 MSa/s	250 MSa/s	250 MSa/s	250 MSa/s	250 MSa/s

Vertical resolution

14 bit

Rise/fall time, typical

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Amplitude ≤ 5Vpp	≤ 3.5 ns	≤ 3.5 ns	≤ 3.5 ns	≤ 2 ns	≤ 2 ns
Amplitude > 5Vpp	≤ 4.2 ns	≤ 4.2 ns	≤ 4.2 ns	-----	-----

Jitter (RMS), typical

2.5 ps

Modulation

AM, FM, PM

Specification	Characteristic
Carrier	All except pulse, noise, DC
Source	Internal or external
Internal modulating waveform	Sine, Square, Ramp, Noise, ARB (maximum waveform length: AM 4,096 pts; FM/PM/PWM 2,048 pts)
Internal modulating frequency	1 mHz to 1 MHz

AM modulation depth 0.0 % to 120 %

AM modulation resolution 0.1%

Minimum FM peak deviation DC

Maximum FM peak deviation

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Sine	12.5 MHz	25 MHz	50 MHz	75 MHz	125 MHz
Square,	10 MHz	20 MHz	40 MHz	60 MHz	80 MHz
Arb	6.25 MHz	12.5 MHz	25 MHz	37.5 MHz	62.5 MHz
Others	250 kHz	400 kHz	500 kHz	750 kHz	1.25 MHz

PM phase deviation range 0° to 180°

PM phase resolution 0.1°

FSK

Specification	Characteristic
Carrier	All except pulse, noise, DC
Source	Internal or external
Number of keys	2
Internal key rate	1 MHz to 1 MHz

PWM

Specification	Characteristic
Carrier	Pulse
Source	Internal or external
Internal modulating waveform	Sine, Square, Ramp, Noise, ARB (maximum waveform length: 2,048 pts)
Internal modulating frequency	1 MHz to 1 MHz
Deviation range	0% to 50.0% of pulse period

Sweep

Type Linear, Logarithmic
Waveforms All, except Pulse, Noise, DC
Sweep time 1 ms to 500 s
Hold/return time 0 s to 500 s
Maximum total sweep time 500 s Accuracy, typical: ≤ 0.4%
Minimum start/stop frequency All except ARB: 1 μHz ARB: 1 MHz

Maximum start/stop frequency

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Sine	25 MHz	50 MHz	75 MHz	125 MHz	250 MHz
Square	20 MHz	40 MHz	80 MHz	120 MHz	160 MHz
Arb	12.5 MHz	25 MHz	50 MHz	75 MHz	125 MHz
Others	500 kHz	800 kHz	1 MHz	1 MHz	2.5 MHz

Burst

Waveform	All except Noise, DC
Type	Triggered, gated
Burst count	1 to 1,000,000 cycles or Infinite
Internal trigger rate	1 μ s to 500.0 s
Gate and trigger sources	Internal, external, remote interface

InstaView™

Waveforms	All except noise				
Cable (channel output to load)	50 Ω BNC to BNC				
Run mode	Continuous in Basic mode				
Maximum measurement range (DC + peak AC voltage)	<table border="1"> <tr> <td>AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102</td> <td>AFG31151, AFG31152, AFG31251, AFG31252</td> </tr> <tr> <td>-10 V to 10 V</td> <td>-5 V to 5 V</td> </tr> </table>	AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252	-10 V to 10 V	-5 V to 5 V
AFG31021, AFG31022, AFG31051, AFG31052, AFG31101, AFG31102	AFG31151, AFG31152, AFG31251, AFG31252				
-10 V to 10 V	-5 V to 5 V				

DC level measurement

Specification	Characteristic
Accuracy (into 50 Ω), typical	\pm (2 % of setting + 20 mVpp)
Resolution	1 mV or 4 digits

Amplitude measurement

Specification	Characteristic
Accuracy (sine, 1 kHz, 1 V _{P-P} , into 50 Ω , typical)	\pm (2 % of setting + 20 mV)
Resolution	1 mV or 4 digits

Bandwidth (-3 dB)

500 MHz

Flatness, sine, 1 V_{P-P}, into 50 ohm, relative to 1 kHz, typical

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
0 to 100 MHz: \pm 1 dB			0 to 200 MHz: \pm 1 dB	
200 MHz to 250 MHz: \pm 2 dB				

Cable propagation delay measurement, typical

Specification	Characteristic
Range	0 to 20 ns (approximately 4 m/13 feet in length)
Accuracy, typical	\pm 500 ps

General characteristics - Advanced mode

Waveform memory size 16 Mpts (128 Mpts optional) each channel

Run mode Standard: Continuous

Optional: Sequence, Triggered, Gated

Number of waveform entries Continuous, Triggered, Gated: 1
 Sequence: 1 to 256

Minimum waveform length 168 pts

Waveform granularity 1 pt

Vertical resolution 14 bits

Jump/trigger events External trigger (rising or falling edge), manual trigger, timer, SCPI commands

Repeat count 1 to 1,000,000 or infinite

Timer range 2 μ S to 3600 S

Timer resolution 4 ns or 8 digits

Variable sample rate

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Range	1 μ Sa/s to 250 MSa/s	1 μ Sa/s to 500 MSa/s	1 μ Sa/s to 1 GSa/s	1 μ Sa/s to 2 GSa/s	1 μ Sa/s to 2 GSa/s
Accuracy	10^{-6} Sa/s				
Resolution	1 μ Sa/s or 12 digits				

Rise/Fall time, typical

	AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
Amplitude $\geq 5 V_{p,p}$: ≤ 4.2 ns				≤ 3.0 ns	≤ 2.0 ns
Amplitude $< 5 V_{p,p}$: ≤ 3.5 ns					

Overshoot, typical < 2%

Level flatness, typical (sine, 1 $V_{p,p}$,
 relative to 1 kHz)

Frequency range	All models
< 5MHz	± 0.3 dB
≥ 5 MHz to 25 MHz	± 0.5 dB
Table continued...	

Frequency range	All models
≥ 25 MHz to 50 MHz	±0.6 dB
≥ 50 MHz to 100 MHz	±1.0 dB
≥ 100 MHz to 150 MHz	±1.5 dB
≥ 150 MHz to 250 MHz	±2.3 dB

Harmonic distortion, typical (sine with 64 pts/cycle, 1 V_{p,p})

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
< -76 dBc at 250 MSa/S or 3.90625 MHz	< -67 dBc at 500 MSa/S or 7.8125 MHz	< -61 dBc at 1 GSa/S or 15.625 MHz	< -63 dBc at 2 GSa/S or 31.25 MHz	< -63 dBc at 2 GSa/S or 31.25 MHz

Spurious, typical (sine with 64 pts/cycle, 1 V_{p,p})

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
< -81 dBc at 250 MSa/S or 3.90625 MHz	< -74 dBc at 500 MSa/S or 7.8125 MHz	< -75 dBc at 1 GSa/S or 15.625 MHz	< -64 dBc at 2 GSa/S or 31.25 MHz	< -64 dBc at 2 GSa/S or 31.25 MHz

Spurious free dynamic range, typical (sine with 64 pts/cycle, 1 V_{p,p})

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
< -76 dBc at 250 MSa/S or 3.90625 MHz	< -67 dBc at 500 MSa/S or 7.8125 MHz	< -61 dBc at 1 GSa/S or 15.625 MHz	< -63 dBc at 2 GSa/S or 31.25 MHz	< -63 dBc at 2 GSa/S or 31.25 MHz

Phase noise, typical (sine with 64 pts/cycle, 1 V_{p,p}, at 10³ kHz offset)

AFG31021 / AFG31022	AFG31051 / AFG31052	AFG31101 / AFG31102	AFG31151 / AFG31152	AFG31251 / AFG31252
< -132 dBc at 250 MSa/S or 3.90625 MHz	< -130 dBc at 500 MSa/S or 7.8125 MHz	< -125 dBc at 1 GSa/S or 15.625 MHz	< -113 dBc at 2 GSa/S or 31.25 MHz	< -113 dBc at 2 GSa/S or 31.25 MHz

Skew control

Range	-320 ns to 320 ns (channel 1 to channel 2 on dual channel models, at maximum sample rate)
Resolution	100 ps or 4 digits
Accuracy, typical	±(1% of setting + 500 ps)

Initial skew, typical < 500 ps

System characteristics

Output Frequency Resolution

Frequency accuracy $\pm 10^{-6}$ of setting (all except ARB), 0°C to 50°C (32 °F to 122 °F)

$\pm 10^{-6}$ of setting $\pm 1 \mu\text{Hz}$ (ARB), 0°C to 50°C (32 °F to 122 °F)

Aging $\pm 1.0 \times 10^{-6}$ per year

Phase

Range -180° to +180°

Resolution 0.01° (sine)

0.1° (other waveforms)

Remote program interface

GPIB, Ethernet 10BASE-T / 100BASE-TX / 1000BASE-T, USB 2.0

Maximum configuration times, typical

	USB	LAN	GPIB
Function change	61 ms	61 ms	63 ms
Frequency change (except Pulse)	3 ms	4 ms	6 ms
Frequency change (Pulse)	2.5 ms	3 ms	8 ms
Amplitude change	65 ms	66 ms	77 ms
Select user ARB (4k points from USB Memory)	43 ms	40 ms	53 ms
Select user ARB (128k points from USB Memory)	86 ms	92 ms	92 ms
Data download time for 4k points	36 ms	21 ms	21 ms

Power source

Source 100-240 V, 47-63 Hz 115 V, 360-440 Hz

Consumption 120 W

Warm up time, typical 20 minutes minimum

Power on self diagnosis time < 24 s

Acoustic noise < 50 dBA

Display 9-inch capacitive touch screen with 800 * 480 resolution

User interface and Help languages English, French, German, Japanese, Korean, Simplified and Traditional Chinese, Russian (user selectable)

Auxiliary input characteristics

External modulation input, channel 1 and channel 2

Input range		Characteristic
	AM, FM, PM, PWM	±1 V full range
	FSK	3.3 V logic level
Input impedance	5.2 kΩ	
Frequency range	125 kHz (1 MSa/s)	

External Trigger input

Level	TTL compatible
Impedance	10 kΩ
Minimum pulse width	100 ns
Slope	Positive or negative selectable
Trigger delay range	0 ns to 85 s
Trigger delay resolution	100 ps or 5 digits
Trigger latency, typical	390 ns (trigger input to signal output, , 1.5 μs for Advanced mode)
Jitter (RMS), typical	100 ps (signal output, with external trigger input in burst mode)

10 MHz reference clock input

Impedance	1 kΩ
Input coupling	AC
Required input voltage swing	100 mV _{P-P} to 5 V _{P-P}
Lock range	10 MHz ±35 kHz

Channel 1 external add input

Impedance	50 Ω
Input range	-1 V to +1 V (DC + peak AC)
Bandwidth	DC to 10 MHz (-3 dB) at 1 V _{P-P}

Auxiliary output characteristics

Channel 1 trigger output

Level	Positive TTL level pulse into 1 kΩ
Impedance	50 Ω
Jitter, RMS, typical	10 ps for all models
Output frequency	

	Characteristic
Waveform frequency < 4.9 MHz	Same as the waveform frequency
Waveform frequency ≥ 4.9 MHz < 50 MHz	A fraction of the waveform frequency
Table continued...	

	Characteristic
Waveform frequency \geq 50 MHz	No output

10 MHz reference clock out

Impedance 50 Ω , AC coupled
Amplitude 1.2 V_{P-P} into 50 Ω load

Impedance 50 Ω , AC coupled
Amplitude 1.2 V_{P-P} into 50 Ω load

Physical characteristics
Dimensions

Height 191.8 mm (7.55 in.)
Width 412.8 mm (16.25 in.)
Depth 143.3 mm (5.64 in.)

Weight

Net 4.7 kg (10.4 lb.)
Shipping 7.0 kg (15.4 lb.)

EMC, environment, and safety
Temperature

Operating 0 °C to +50 °C (32 °F to 122 °F)
Nonoperating -30 °C to +70 °C (-22 °F to 158 °F)

Humidity

Operating \leq 80%, 0 °C to 40 °C (32 °F to 104 °F)
 \leq 60%, > 40 °C to 50 °C (104 °F to 122 °F), noncondensing
Nonoperating 5% to 90%, < 40 °C (< 104 °F), noncondensing
 5% to 80%, \geq 40 °C to 60 °C (\geq 104 °F to 140 °F), noncondensing
 5% to 40%, > 60 °C to 70 °C (> 140 °F to 158 °F), noncondensing

Altitude

Operating Up to 3,000 m (9,842 ft.)
Nonoperating Up to 12,000 m (39,370 ft.)

EMC compliance

EN61326-1:2013, EN 61326-2-1:2013

European Union

EU Council Directive 2004/108/EC

Safety

UL 61010-1:2004

CAN/CSA C22.2 No. 61010-1:2004

IEC 61010-1:2001

Over-temperature protection

Instrument is protected from over-temperature by turning off outputs

Ordering Information

Models

AFG31021	1 μ Hz to 25 MHz sine wave, 1-channel arbitrary function generator
AFG31022	1 μ Hz to 25 MHz sine wave, 2-channel arbitrary function generator
AFG31051	1 μ Hz to 50 MHz sine wave, 1-channel arbitrary function generator
AFG31052	1 μ Hz to 50 MHz sine wave, 2-channel arbitrary function generator
AFG31101	1 μ Hz to 100 MHz sine wave, 1-channel arbitrary function generator
AFG31102	1 μ Hz to 100 MHz sine wave, 2-channel arbitrary function generator
AFG31151	1 μ Hz to 150 MHz sine wave, 1-channel arbitrary function generator
AFG31152	1 μ Hz to 150 MHz sine wave, 2-channel arbitrary function generator
AFG31251	1 μ Hz to 250 MHz sine wave, 1-channel arbitrary function generator
AFG31252	1 μ Hz to 250 MHz sine wave, 2-channel arbitrary function generator

Options

Factory options

MEM	Extends arbitrary waveform memory to 128 Mpts/ch in Advanced mode
SEQ	Enables Sequence, Triggered and Gated modes in Advanced mode

Feature upgrade after purchase

The AFG31000 products offer several ways to easily add functionality after the initial purchase.

Description (node locked licenses)	For one channel instruments	For two channel instruments
Enables Sequence, Triggered, and Gated modes in Advanced mode	AUP-AFG3SEQ-1	AUP-AFG3SEQ-2
Extends arb memory to 128 Mpts/ch in Advanced mode	AUP-AFG3MEM-1	AUP-AFG3MEM-2
Bandwidth extension from 25 MHz to 50 MHz	AUP-AFG3BW25T50-1	AUP-AFG3BW25T50-2
Bandwidth extension from 25 MHz to 100 MHz	AUP-AFG3BW25T100-1	AUP-AFG3BW25T100-2
Bandwidth extension from 50 MHz to 100 MHz	AUP-AFG3BW50T100-1	AUP-AFG3BW50T100-2

Table continued...

Description (node locked licenses)	For one channel instruments	For two channel instruments
Bandwidth extension from 150 MHz to 250 MHz	AUP-AFG3BW150T250-1	AUP-AFG3BW150T250-2

Power plug options

Opt. A0	North America power plug (115 V, 60 Hz)
Opt. A1	Universal Euro power plug (220 V, 50 Hz)
Opt. A2	United Kingdom power plug (240 V, 50 Hz)
Opt. A3	Australia power plug (240 V, 50 Hz)
Opt. A5	Switzerland power plug (220 V, 50 Hz)
Opt. A6	Japan power plug (100 V, 50/60 Hz)
Opt. A10	China power plug (50 Hz)
Opt. A11	India power plug (50 Hz)
Opt. A12	Brazil power plug (60 Hz)
Opt. A99	No power cord

Language options

Opt. L0	English front panel overlay (default)
Opt. L1	French front panel overlay
Opt. L2	Italian front panel overlay
Opt. L3	German front panel overlay
Opt. L4	Spanish front panel overlay
Opt. L5	Japanese front panel overlay
Opt. L6	Portuguese front panel overlay
Opt. L7	Simplified Chinese front panel overlay
Opt. L8	Traditional Chinese front panel overlay
Opt. L9	Korean front panel overlay
Opt. L10	Russian front panel overlay
Opt. L99	No front panel overlay

Service options

Opt. C3	Calibration Service 3 Years
Opt. C5	Calibration Service 5 Years
Opt. D1	Calibration Data Report
Opt. D3	Calibration Data Report 3 Years (with Opt. C3)
Opt. D5	Calibration Data Report 5 Years (with Opt. C5)
Opt. R5	Repair Service 5 Years (including warranty)
Opt. T3	Three Year Total Protection Plan, includes repair or replacement coverage from wear and tear, accidental damage, ESD or EOS plus preventative maintenance. Including a 5 day turnaround time and priority access to customer support

Opt. T5 Five Year Total Protection Plan, includes repair or replacement coverage from wear and tear, accidental damage, ESD or EOS plus preventative maintenance. Including a 5 day turnaround time and priority access to customer support

Accessories are not covered by the instrument warranty and Service Offerings.

Accessories

Standard accessories

-----	AFG31000 Series Arbitrary Function Generator Compliance, Installation, and Safety Instructions
012-1732-xx	BNC cable shielded, 3 ft.
174-4401-xx	USB cable, A to B, 3 ft.
-----	Power cord
-----	NIST-traceable calibration certificate

Recommended accessories

012-1732-xx	BNC cable shielded, 3 ft.
012-0991-xx	GPIB cable, double shielded
011-0049-02	50 Ω BNC terminator
ACD4000B	Soft transit case
HCTEK54	Hard transit case (requires ACD4000B)
AFG31000-RMK	Rack-mount kit

Warranty

Product warranty	Three-year warranty on parts and labor
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Tektronix is ISO 14001:2015 and ISO 9001:2015 certified by DEKRA.




Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.



Product Area Assessed: The planning, design/development and manufacture of electronic Test and Measurement instruments.

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