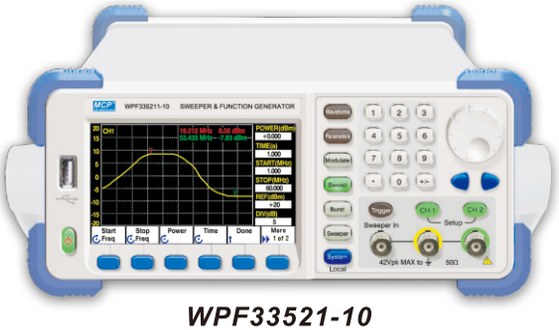
FREQUENCY RESPONSE ANALYZER & FUNCTION GENERATOR

WPF33521-06/ WPF33521-10/ WPF33521-30/ WPF33521-60

Features

. FRA and function generator
. Wide sweep frequency up to 60MHz
. 150 MSa/s sampling rate and 14-bit vertical resolution per channel
. Dual channels function/arbitrary waveform generation
. Channel independence, coupling, track working mode
. Output of 6 standard waveforms, built-in 50 kinds of arbitrary waveform
. 1uHz~ 6M/10M/30M/60M frequency range for main waveform
. 10Hz ~ 250 MHz equal-accuracy frequency counter
. Multi modulation function: AM, DSSC - AM, FM, PM, FSK, ASK, BPSK and logarithm/linear sweep
. Standard USB (H), USB (D), LAN and optional GPIB interface
. Various input and output: sweep output & input ,waveform output, synchronous signal output, external modulation input, counter input, 10 MHz clock input, external trigger input, power signal output/power meter input



WPF33521-10

Technical Data		WPF33521-06	WPF33521-10	WPF33521-30	WPF33521-60
CH1,CH2	Output frequency	Sine: 1 μHz~6MHz Square: 1 μHz~6MHz Ramp:1 μHz~1MHz Pulse: 1 μHz~6MHz	Sine: 1 μHz~10MHz Square: 1 μHz~10MHz Ramp:1 μHz~1MHz Pulse: 1 μHz~10MHz	Sine: 1 μHz~30MHz Square: 1 μHz~15MHz Ramp:1 μHz~1MHz Pulse: 1 μHz~15MHz	Sine: 1 μHz~60MHz Square: 1 μHz~15MHz Ramp:1 μHz~1MHz Pulse: 1 μHz~15MHz
	Output amplitude	2mVpp~20Vpp (High Z) ≤20MHz (CH1) 2mVpp~10Vpp (High Z) ≤60MHz (CH1) 1mVpp~10Vpp (50Ω) ≤20MHz (CH1) 1mVpp~5Vpp (50Ω) ≤60MHz (CH1)		2mVpp~6Vpp (High Z) ≤60MHz (CH2) 1mVpp~ 3Vpp (50Ω) ≤60MHz (CH2)	
	Output impendence	50Ω (BNC)			
	Output wave	sine, square, ramp, pulse, triangle, noise, DC, arbitrary 50 kinds			
	Output modulation (CH1)	AM, DSSC - AM, FM, PM, FSK, ASK, PWM			
	Frequency resolution	1 μHz			
	Frequency stability	≤ ±1×10^{-5}			
	Amplitude resolution	four effective digits			
	Amplitude accuracy	1%+1mVp-p (1 kHz)			
	Offset range	±(10 VDC - AC peak/2) (High Z / CH1) ±(5 VDC - AC peak/2) (50 Ω/ CH1)		±(3 VDC - AC peak/2) (>378.6mVpp High Z / CH2) ±(1.5 VDC - AC peak/2) (>378.6mVpp 50 Ω/ CH2) ±(189.3mVDC - AC peak/2) (≤378.6mVpp High Z / CH2) ±(94.7mVDC - AC peak/2) (≤378.6mVpp 50 Ω / CH2)	
	Offset accuracy	CH1: ±1%±0.25% amplitude ±2mV		CH2: ±1%±0.25% amplitude ±6mV	
Sweeper	Frequency range	1KHz ~ 60MHz max. frequency (sine)			
	Frequency resolution	±1uHz			
	Dynamic range	+15dBm~ -60dBm(CH1), +13dBm~ -60dBm(CH2)			
	Accuracy	±1dB			
	Sweep time	100ms~10s			
	Frequency cursor	2 pcs			
	Input impedance	50 Ω or high Z			
Waveform feature	Sine wave	Harmonic distortion (0dB)	< -70dBc(<20kHz) < -50dBc (20kHz ~ 1MHz)	< -40dBc (1MHz ~ 30MHz) < -30dBc (30MHz ~ 60MHz)	
		Distortion factor（0dBm）	≤0.2%(20Hz ≤ f ≤100 kHz)		
		Phase noise	≤-108 dBc/Hz		
		Spurious signal	≤-70dBc		
	Square wave	Rise and fall time	18ns		
		Duty ratio	0.1% ~ 99.9%, 0.1% resolution		
		Overshoot (50Ω)	≤ 2% (CH1)		
		Jitter	≤200ps rms		
	Ramp	Symmetry	0.0% ~ 100.0%, 0.1% resolution		
		Non-linear?distortion	0.1% ~ 99.9%, 0.1% resolution		
	Pulse	Rise and fall time	18ns		
		Duty ratio	0.1% ~ 99.9%, 0.1% resolution		
		Overshoot (50Ω)	≤ 2% (CH1)		
		Jitter	≤200ps rms		
	Noise	Symmetry	30 MHz band width white noise (-3 dB)		
		Non-linear distortion	Cycle ≥ 50 years		
	Arbitrary	Sampling rate	1 μSa/s ~ 50 MSa/s, 1 μSa/s resolution		
		Waveform length	8~16384 dots (CH1), 8~2048 dots (CH2)		
		Vertical resolution	14 bits		

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AM modulation (CH1)	Type	FC AM, DSSC AM			
	Carrier wave	sine, square, ramp, noise, arbitrary			
	Modulation waveform	sine, square, ramp, triangle, noise, arbitrary			
	Modulation frequency	internal: 1 μHz ~ 100 kHz , 1 μHz resolution 1 μSa/s ~ 50 MSa/s (Arb), 1 μSa/s resolution external: 1 μHz ~100 kHz (-3dB)			
	Modulation depth	0.0%~ 120.0%, 0.1% resolution, ±1.0% accuracy			
FM modulation (CH1)	Carrier wave	sine, square, ramp, pulse			
	Modulation waveform	sine, square, ramp, triangle, noise, arbitrary			
	Modulation frequency	internal: 1 μHz ~ 100 kHz , 1 μHz resolution 1 μSa/s ~ 50 MSa/s (Arb), 1 μSa/s resolution external: 1 μHz ~100 kHz (-3dB)			
	Modulation deviation	Max.50%, 10u Hz resolution			
PM modulation (CH1)	Carrier wave	sine, square, ramp, pulse			
	Modulation waveform	sine, square, ramp, triangle, noise, arbitrary			
	Modulation frequency	internal: 1 μHz ~ 100 kHz , 1 μHz resolution 1 μSa/s ~ 50 MSa/s (Arb), 1 μSa/s resolution external: 1 μHz ~100 kHz (-3dB)			
	Modulation range	0.0^0~360.0^0, 0.1^0 resolution			
FSK (CH1)	Carrier wave	sine, square, ramp, pulse			
	Jump frequency	1 μHz ~ max. frequency (sine) 1 μHz ~ 15 MHz (square, pulse)		1 μHz ~ 1 MHz (ramp) 1 μHz resolution	
	Switching rate	1 μHz ~1 MHz, 1 μHz resolution			
BPSK (CH1)	Carrier wave	sine, square, ramp, pulse, arbitrary			
	Jump phase	0.00^0~360.00^0, 0.10^0 resolution			
	Switching rate	1 μHz ~1 MHz, 1 μHz resolution			
ASK (CH1)	Carrier wave	sine, square, ramp, pulse, arbitrary, noise			
	Jump amplitude	2mVpp~ 20Vpp (High Z)			
	Switching rate	1 μHz ~1MHz, 1 μHz resolution			
Sweep (CH1)	Wave form	sine, square, ramp, pulse			
	Starting frequency	1 μHz ~ max. frequency (sine) 1 μHz ~ 15 MHz (square, pulse) 1 μHz ~ 1 MHz (ramp) 1 μHz resolution			
	Ending Frequency	1 μHz ~ max. frequency (sine) 1 μHz ~ 15 MHz (square, pulse) 1 μHz ~ 1 MHz (ramp) 1 μHz resolution			
	Sweep mode	Linear/Log			
	Sweep time	0.001S ~ 1000S, 1mS resolution			
	Retention time	0.001S ~ 1000S, 1mS resolution			
	Fly back time	0.001S ~ 1000S, 1mS resolution			
Burst (CH1)	Carrier wave	sine, square, ramp, pulse, arbitrary			
	Burst mode	N Cycle/Gated			
	Starting phase	0.0 ~ 360.0° , 0.1° resolution			
	Burst number	1 ~ 1000000, 1 resolution			
	Interval time	1 μS ~ 1000S, 1 μS resolution			
Counter	Measuring function	frequency, period, count			
	Frequency input range	10Hz ~ 250 MHz AC coupling			
	Input voltage range	200mVrms ~ 1.5Vrms ≤200MHz			
	Gate time	50ms ~ 10s			
	Counter capacity	40 bits			
	Frequency accuracy	6 digits/s			

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Power Meter (option)	Frequency range	1KHz ~ 100MHz (sine)			
	Dynamic range	+15dBm～ -60dBm (RMS simultaneous display)			
	Accuracy	±1dB			
	Input impedance	50 Ω			
Power output (option)	Output wave	sine, square, ramp, pulse, arbitrary			
	Bandwidth	10Hz ~ 200 kHz			
	Output power	8W (sina,8Ω)			
	Output impedance	2 Ω			
	Accuracy	±1%，1kHz			
	Protection	Over load			
Power supply		100~240 V AC, 47Hz ~ 63Hz, CAT II, 30VA			
Dimensions(W × H × D)		262 × 108 × 284mm			
Weight		2.5 kg			