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NTP-FG9001R

Function Generator

• High Stability • Industrial Grade • Rack Mount

Features

- Covers a **broad frequency range from 1 µHz up to 25 MHz**, supporting both **sine and square waveforms**
- Provides **fine frequency resolution of 1 µHz across the entire operating range**
- Built-in **arbitrary waveform generator** with **120 MSa/s sampling rate, 10-bit vertical resolution, and 4K point memory**, available on **both output channels**
- **True dual-channel architecture**, where **CH2 delivers identical performance and specifications as CH1**
- Supports **channel coupling, tracking, and phase control** for synchronized dual-channel operation
- Allows **square wave duty cycle adjustment from 1% to 99%**
- Features a **high-resolution color TFT LCD** with an intuitive and user-friendly interface
- Offers **multiple waveform editing modes** for convenient and flexible arbitrary waveform creation
- Includes standard **modulation and signal functions**, such as **AM, FM, PM, FSK, SUM, Sweep, and Burst**, **Frequency counter**
- Equipped with **USB host and device ports** for remote control, data transfer, and waveform editing
- Supports **Interface data communication** for measurement data export and integration with external information systems

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Technical Specifications

The s ly when the **NTP-FG9001R** is powered on for at least 30 minutes under +20°C~+30°C.

		CH1	CH2
Waveforms		Sine, Square, Ramp, Pulse, Noise, ARB	
Arbitrary Functions			
	Sample Rate	120 MSa/s	
	Repetition Rate	60 MHz	
	Waveform Length	4k points	
	Amplitude Resolution	10 bits	
	Non-Volatile Memory	4k points	
Frequency Characteristics			
Range	Sine, Square	1μHz ~ 25 MHz	
	Ramp	1MHz	
Resolution		1μHz	
Accuracy	Stability	±20 ppm	
	Aging	±1 ppm, per 1 year	
	Tolerance	≤1 mHz	
Output Characteristics			
Amplitude	Range	1mVpp to 10 Vpp (Into 50Ω) 2mVpp to 20 Vpp (open-circuit) 1mVpp to 5 Vpp (Into 50Ω) for 20MHz–25MHz 2mVpp to 10 Vpp (open-circuit) for 20MHz–25MHz	
	Accuracy	±2% of setting ±1 mVpp (at 1 kHz / into50Ω without DC offset)	
	Resolution	1mV or 3 digits	
	Flatness	±1% (0.1 dB) ≤100kHz ±3% (0.3 dB) ≤5MHz ±5% (0.4 dB) ≤12MHz ±10% (0.9 dB) ≤25MHz (sine wave relative to 1kHz/Into 50Ω)	
	Units	Vpp, Vrms, dBm	
Offset	Range	±5Vpk ac + dc (Into 50Ω) ±10Vpk ac + dc (Open-circuit) ±2.5Vpk ac + dc (Into 50Ω) for 20MHz–25 MHz ±5Vpk ac + dc (Open-circuit) for 20MHz –25MHz	

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	Accuracy	2% of setting + 20mV + 0.5% of amplitude	
Waveform Output	Impedance	50Ω typical (fixed) >10MΩ (output disabled)	
	Protection	Short-circuit protected Overload relay automatically disables main output	
Sine Wave Characteristics			
	Harmonic distortion	≤-55 dBc DC ~ 200kHz, Ampl > 0.1Vpp ≤-50 dBc 200kHz ~ 1MHz, Ampl > 0.1Vpp ≤-35 dBc 1MHz ~ 5MHz, Ampl > 0.1Vpp ≤-30 dBc 5MHz ~ 25MHz, Ampl > 0.1Vpp	
Square Wave Characteristics			
	Rise/Fall Time	≤25ns at maximum output. (into 50 Ω load)	
	Overshoot	5%	
	Asymmetry	1% of period +5 ns	
	Variable Duty Cycle	1.0% to 99.0% ≤100kHz 10% to 90% ≤1MHz 50% ≤25MHz	
Ramp Characteristics			
	Linearity	< 0.1% of peak output	
	Variable Symmetry	0% to 100% (0.1% Resolution)	
Pulse Characteristics			
	Period	40ns ~ 2000s	
	Pulse Width	20ns ~ 1999.9s	
	Overshoot	<5%	
	Jitter	20ppm + 10ns	
AM Modulation			
	Carrier Waveforms	Sine, Square, Ramp, Pulse, Arb	Sine, Square, Ramp, Pulse, Arb
	Modulating Waveforms	Sine, Square, Triangle, Upramp, Dnramp	Sine, Square, Triangle, Upramp, Dnramp
	Modulating Frequency	2mHz to 20kHz (Int) DC to 20kHz (Ext)	2mHz to 20kHz (Int) DC to 20kHz (Ext)
	Depth	0% to 120.0%	0% to 120.0%
	Source	Internal / External	Internal / External
FM Modulation			
	Carrier Waveforms	Sine, Square, Ramp	Sine, Square, Ramp

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	Modulating Waveforms	Sine, Square, Triangle, Upramp, Dnramp	Sine, Square, Triangle, Upramp, Dnramp
	Modulating Frequency	2mHz to 20kHz (Int) DC to 20kHz (Ext)	2mHz to 20kHz (Int) DC to 20kHz (Ext)
	Peak Deviation	DC to Max Frequency	DC to Max Frequency
	Source	Internal / External	Internal / External
Sweep			
	Waveforms	Sine, Square, Ramp	Sine, Square, Ramp
	Type	Linear or Logarithmic	Linear or Logarithmic
	Start/Stop Freq	1uHz to Max Frequency	1uHz to Max Frequency
	Sweep Time	1ms to 500s	1ms to 500s
	Source	Internal / External / Manual	Internal / External / Manual
FSK			
	Carrier Waveforms	Sine, Square, Ramp, Pulse	Sine, Square, Ramp, Pulse
	Modulating Waveforms	50% duty cycle square	50% duty cycle square
	Modulation Rate	2mHz to 100 kHz (INT) DC to 100 kHz (EXT)	2mHz to 100 kHz (INT) DC to 100 kHz (EXT)
	Frequency Range	1uHz to Max Frequency	1uHz to Max Frequency
	Source	Internal / External	Internal / External
PM			
	Carrier Waveforms	Sine, Square, Ramp	Sine, Square, Ramp
	Modulating Waveforms	Sine, Square, Triangle, Upramp, Dnramp	Sine, Square, Triangle, Upramp, Dnramp
	Modulation Frequency	2mHz to 20kHz (Int) DC to 20kHz (Ext)	2mHz to 20kHz (Int) DC to 20kHz (Ext)
	Phase Deviation	0° to 360°	0° to 360°
	Source	Internal / External	Internal / External
SUM			
	Carrier Waveforms	Sine, Square, Ramp, Pulse, Noise	Sine, Square, Ramp, Pulse, Noise
	Modulating Waveforms	Sine, Square, Triangle, Upramp, Dnramp	Sine, Square, Triangle, Upramp, Dnramp

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	Modulation Frequency	2mHz to 20kHz (Int) DC to 20kHz (Ext)	2mHz to 20kHz (Int) DC to 20kHz (Ext)
	SUM Depth	0% to 100.0%	0% to 100.0%
	Source	Internal / External	Internal / External
External Trigger Input			
	Type	For FSK, Burst, Sweep	
	Input Level	TTL Compatibility	
	Slope	Rising or Falling (Selectable)	
	Pulse Width	>100ns	
	Input Impedance	10kΩ , DC coupled	
External Modulation Input			
	Type	For AM, FM, PM, SUM	
	Voltage Range	±5V full scale	
	Input Impedance	10kΩ	
	Frequency	DC to 20kHz	
Trigger Output			
	Type	For Burst, Sweep, Arb	
	Level	TTL Compatible into 50Ω	
	Pulse Width	>450ns	
	Maximum Rate	1MHz	
	Fan-out	≥4 TTL Load	
	Impedance	50Ω Typical	
Dual Channel Function			
	Phase	-180° ~ 180°	-180° ~ 180°
		Synchronize phase	Synchronize phase
	Track	CH2=CH1	CH1=CH2
	Coupling	Frequency (Ratio or Difference)	Frequency (Ratio or Difference)
		Amplitude & DC Offset	Amplitude & DC Offset
	DSOlink	√	√
Burst			
	Waveforms	Sine, Square, Ramp	Sine, Square, Ramp
	Frequency	1uHz~15MHz (Sine, Square); 1uHz~1MHz (Ramp)	1uHz~15MHz (Sine, Square); 1uHz~1MHz (Ramp)
	Burst Count	1 to 65535 cycles or Infinite	1 to 65535 cycles or Infinite
	Start/Stop Phase	-360 to +360	-360 to +360

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	Internal Period	1ms to 500s	1ms to 500s
	Gate Source	External Trigger	External Trigger
	Trigger Source	Single, External or Internal Rate	Single, External or Internal Rate
Trigger Delay	N-Cycle, Infinite	0s to 655350ns	0s to 655350ns
Frequency Counter			
	Range	5Hz to 150MHz	
	Accuracy	Time Base accuracy ±1count	
	Time Base	±20ppm (23℃ ±5℃) after 30 minutes warm up	
	Resolution	The maximum resolution is: 100nHz for 1Hz, 0.1Hz for 100MHz.	
	Input Impedance	1kΩ /1pf	
	Sensitivity	35mVrms ~ 30Vms (5Hz to 150MHz)	
Save / Recall			
		10 Groups of Setting Memories	
Interface			
		USB (Host & Device)	
Display			
		3.5” TFT LCD	
General Specifications			
	Power Source	AC100~240V, 50~60Hz	
	Power Consumption	25 W (Max)	
	Operating Environment	Temperature to satisfy the specification: 18 ~ 28℃ Operating temperature: 0 ~ 40℃ Relative Humidity: < 80%, 0 ~ 40℃ Installation category: CAT II	
	Operating Altitude	2000 Meters	
	Storage Temperature	-10~70℃, Humidity: ≤70%	
	Dimensions (WxHxD)	266(W) x 107(H) x 293(D) mm	
	Weight	Approx. 2.5kg	
	Accessories	GTL-101 × 2	

		Quick Start Guide ×1 CD (user manual + software) ×1 Power cord ×1