

GSP-8000 Series

8.0GHz/3.8GHz/1.8GHz Spectrum Analyzer



FEATURES

- * Frequency Range
 - GSP-8800 : 9kHz ~ 8.0GHz
 - GSP-8380 : 9kHz ~ 3.8GHz
 - GSP-8180 : 9kHz ~ 1.8GHz
- * RBW: 1Hz ~ 1MHz in 1-3-5-10 steps
- * VBW: 10Hz ~ 3MHz in 1-3-5-10 steps
- * Phase Noise: -104 dBc/Hz
- * Sensitivity: -160dBm/Hz Typical @PreAmp On
- * Built-in AM/FM Demodulation
- * Built-in Time Spec Function
- * Measurement Function: ACPR/OCBW/CHPW, NdB BW, Pass-Fail, Freq. Counter, Noise Marker
- * Built-in 20dB Preamplifier
- * Communication Interface: LAN, USB Host/Device
- * Display: 10.4" XGA Output (1024*768)
- * Options: EMI Filter

APPLICATIONS

- * Checking and Analysis of Spectrum Characteristics
- * Monitor the Signal Uploaded by SNG Vehicle
- * Analyze AM and FM Signal Characteristics
- * For a Compact RF Test System
- * Measuring the Frequency Response of RF Components
- * Cables, Attenuators, Filters and Amplifiers...etc.

The GSP-8000 series, brand new general spectrum analyzers from GW Instek, features three frequency ranges, namely 8.0GHz, 3.8GHz and 1.8GHz. The series is suitable for teaching research, R&D verification, and the test requirements of radio frequency products during production and development stages. The series provides 1Hz ~ 1MHz resolution bandwidth (RBW), 10Hz ~ 3MHz video bandwidth (VBW), -104dBc/Hz phase noise, a 20dB preamplifier, and the lowest noise floor of -160dBm/Hz (typical).

With respect to measurement applications, GSP-8000 has built-in Time Spec function, AM/FM signal demodulation function, channel test (Channel Power Measurement) function, Pass-Fail function, etc. The Time Spec function can simultaneously observe and display the correlation between power, frequency and time. ACPR/OCBW/CHPW tests can be used to test adjacent channels, power occupation bandwidth ratio, and channel power. The Pass-Fail function can be used to determine whether the signal is within the set range. Users can use these functions to conduct a wide range of measurement applications.

GSP-8000 utilizes a 10.4-inch TFT LCD large-size screen with XGA (1024*768) resolution to allow an easy observation of test signals. For communication interface, GSP-8000 provides two interfaces: USB and LAN. Through the USB Host, users can quickly retrieve the files stored after measurements, while USB Device and LAN interface allow users to control the instrument through dedicated PC software, or use the corresponding command set to design the required program.

GSP-8000 provides EMI filter option. Customers can be activated through the corresponding software authorization (Soft-Key), which greatly improves usage efficiency.



Website



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SPECIFICATIONS							
Mode	GSP-8180			GSP-8380		GSP-8800	
FREQUENCY							
FREQUENCY							
Range	9 kHz ~ 1.8 GHz			9 kHz ~ 3.8 GHz		9 kHz ~ 8.0 GHz	
Resolution	1 Hz						
FREQUENCY SPAN							
Frequency Range	0 Hz, 100 Hz to max. frequency of instrument						
Span Uncertainty	±span / (sweep points-1)						
INTERNAL FREQUENCY REFERENCE							
Frequency Range	10.000000 MHz						
Reference Frequency Accuracy	±[(days from last calibrate × freq aging rate) + temperature stability + initial accuracy]						
Temperature Stability	<1ppm, 15°C ~ 35°C						
Aging Rate	<1ppm/year						
Initial Accuracy	< 1ppm						
SSB PHASE NOISE							
Offset From Carrier	fc = 1 GHz, RBW = 1 kHz, VBW = 1kHz, 20°C ~ 30°C, average ≥ 40						
10 kHz	< -104 dBc/Hz						
100 kHz	< -106 dBc/Hz, Typical						
1 MHz	< -115 dBc/Hz, Typical						
BANDWIDTH							
Resolution Bandwidth	1Hz to 1MHz (1-3-5-10 steps by sequence) ; EMI Filter(6dB): 200Hz, 9kHz, 120kHz, 1MHz (Optional)						
RBW Uncertainty	< 5%, Typical, RBW ≤ 1 MHz						
Resolution Filter Shape Factor (60 dB: 3	< 5: 1, Typical, digital and close to Gaussian shape						
Video Bandwidth (VBW)	10 Hz ~ 3 MHz						
AMPLITUDE							
AMPLITUDE AND LEVEL							
Amplitude Measurement Range	DANL ~ +10 dBm	100 kHz ~ 1 MHz, Preamp Off	DANL ~ +10 dBm	100 kHz ~ 1 MHz, Preamp Off	DANL ~ +10 dBm	100 kHz ~ 10 MHz, Preamp Off	
	DANL ~ +20 dBm	1 MHz ~ 1.8 GHz, Preamp Off	DANL ~ +20 dBm	1 MHz ~ 3.8 GHz, Preamp Off	DANL ~ +20 dBm	10 MHz ~ 8 GHz, Preamp Off	
Reference Level	-80 dBm ~ +30 dBm, 0.01dB by step						
Preamp	20 dB, 100 kHz ~ Max. Frequency Range						
Input Attenuation	0 ~ 40 dB, in 1 dB step						
Max Input DC Voltage	50 VDC						
Max Continuous Power	+30dBm, Average continuous power						
Displayed Average Noise Level (DANL)							
Preamp Off	Input Attenuation = 0 dB, ref. level ≥ -60dBm, trace average ≥ 40, RBW normalizes to 1Hz, DETECTOR = SAMPLE, RBW = 100Hz, VBW = 100Hz						
	9 kHz ~ 1MHz	<-95 dBm (typical), <-88dBm	9 kHz ~ 1MHz	<-95 dBm (typical), <-88dBm	9 kHz ~ 1MHz	-95dBm (typical), <-88 dBm	
	1 MHz ~ 1 GHz	<-140dBm (typical), <-130 dBm	1 MHz ~ 1 GHz	<-140dBm (typical), <-130 dBm	1 MHz ~ 500MHz	-140dBm (typical), <-130 dBm	
	1 GHz ~ 1.8 GHz	<-138dBm (typical), <-128 dBm	1 GHz ~ 3.8 GHz	<-138dBm (typical), <-128 dBm	500MHz ~ 3GHz	-138dBm (typical), <-128 dBm	
					3GHz ~ 6GHz	-134dBm (typical), <-124 dBm	
Preamp On	Input Attenuation = 0 dB, ref. level ≥ -60dBm, trace average ≥ 40, RBW normalizes to 1Hz, DETECTOR = SAMPLE, RBW = 100Hz, VBW = 100Hz						
	100 kHz ~ 1MHz	<-135 dBm (typical), <-128dBm	100 kHz ~ 1MHz	<-135 dBm (typical), <-128dBm	100 kHz ~ 1MHz	-135dBm (typical), <-128 dBm	
	1 MHz ~ 1 GHz	<-160dBm (typical), <-150 dBm	1 MHz ~ 1 GHz	<-160dBm (typical), <-150 dBm	1 MHz ~ 500MHz	-160dBm (typical), <-150 dBm	
	1 GHz ~ 1.8 GHz	<-160dBm (typical), <-150 dBm	1 GHz ~ 3.8 GHz	<-160dBm (typical), <-150 dBm	500MHz ~ 3GHz	-160dBm (typical), <-150 dBm	
					3GHz ~ 6GHz	-154dBm (typical), <-144 dBm	
FREQUENCY RESPONSE							
Filter Bandwidth	20°C to 30°C, 30% to 70% relative humidity, input attenuation = 10 dB, reference frequency = 50 MHz, SPAN = 200KHz, RBW = 10KHz, VBW = 10KHz						
Preamp Off, fc ≥100 kHz	±0.8 dB, 100K ~ Max. Frequency Range						
Preamp On, fc ≥1MHz	±0.9 dB, 100K ~ Max. Frequency Range						
UNCERTAINTY AND ACCURACY							
RBW Switch Uncertainty	Reference: 10 kHz RBW at Frequency Center is 50 MHz ; ±0.2 dB, Log resolution						
Input Attenuation Uncertainty	20°C ~ 30°C, fc = 50 MHz, Preamplifier Off, 10 dB RF attenuation, RBW = 10K ; 1 ~ 40 dB ±0.5 dB						
Absolute Amplitude Uncertainty	20°C to 30°C, fc = 50 MHz, Span = 200 kHz, RBW = 10 kHz, VBW=10 kHz, peak detector, 10 dB RF attenuation, average ≥ 20, 2db/div, 95% confidence level						
Preamp Off	±0.4 dB, input signal level -20 dBm						
Preamp On	±0.5 dB, input signal level -40 dBm						
Uncertainty	20°C to 30°C, fc ≥ 1MHz, signal input range 0 ~ -50dBm, Ref Level range 0 ~ -50dBm, 10 dB RF attenuation, RBW = 1kHz, VBW = 1kHz, Preamp Off						
	±1.5 dB(typical)						
VSWR	<1.5, Nominal, Input 10 dB RF attenuation, 1MHz ~ 1.8GHz / 3.8GHz			<1.8, Nominal, Input 20 dB RF attenuation, 1MHz ~ 8GHz			
DISTORTION AND SPURIOUS RESPONSE							
Second Harmonic Distortion	fc ≥ 50 MHz, Preamp off, signal input -20 dBm, 0 dB RF attenuation, 20°C ~ 30°C ; -65 dBc						
Third-order Intermodulation	fc ≥ 50 MHz, Input double tone level -20 dBm, frequency interval 100 kHz, input attenuation 0 dB, preamplifier off, 20°C ~ 30°C ; ±10 dBm						
1 dB Gain Compression	Nominal, fc ≥ 50 MHz, 0 dB RF attenuation, Preamp off, 20°C ~ 30°C ; > -2 dBm						
Residual Response	Connect 50 Ω load at input port, 0 dB input attenuation, 20°C to 30°C, average ≥ 40, RBW = 300Hz, VBW = 3kHz, SPAN = 2M						
	<-85 dBm, from 1 MHz ~ Max. Frequency Range						
Input Related Spurious	<-60 dBc, -30 dBm signal at input mixer, 20°C ~ 30°C						
SWEEP							
Sweep Time							
Range	10 ms ~ 3000 s, None-zero Span ; 1 ms ~ 3000 s, Zero Span						
Sweep Mode	Continuous; Single						
TRACKING GENERATOR (OPTION 01)							
Tracking Generator Output							
Frequency Range	100 kHz ~ Max. Frequency Range						
Output Power Level Range	-40 dBm ~ 0 dBm						
Output Power Level Resolution	1 dB						
Output Flatness	± 3 dB						
Maximum Safe Reverse Level	Average total power: +30 dBm, DC : ±50 VDC						
Impedance	50 Ω, Nominal						
Connector	N Type Female						
FREQUENCY COUNTER							
Frequency Counter							
Resolution	1Hz, 10Hz, 100Hz, 1kHz						
Accuracy	±[(frequency indication × frequency reference accuracy) + counter resolution						
INPUTS AND OUTPUTS							
RF Input							
Impedance	50 Ω, Nominal						
Connector	N Type Female						
Reference Input							
Connector	BNC Female						
10MHz Reference Amplitude	0 dBm to +10 dBm						
Trigger Input							
Impedance	1 kΩ						
10MHz Reference Amplitude	BNC Female						
USB							
USB Host	Connector: A Plug, Protocol: USB 2.0 (Host End)						
USB Device	Connector: B Plug, Protocol: 2.0 Version						
GENERAL							
Display	10.4" TFT LCD, Resolution: 1024*768, Color: 65,536 colors						
Remote Control	USB Device: B Plug, supports USB TMC ; LAN TCP/IP Interface : RJ-45, supports 10Base-T/100Base-Tx						
Mass Memory	Internal Memory: 256M Bytes						
Temperature	Operating Temperature: 0 °C to 40°C ; Storage Temperature: -20°C to 70°C						
Relative Humidity	0 °C to 30 °C : ≤ 95% ; 30 °C to 40 °C : ≤ 75%						
Power Consumption	28W						
Dimensions & Weight	421(W) × 221(H) × 115(D) mm; Approx. 5.0 kg (without package)						
AC Power Socket	100V ~ 240V, 50/60Hz						

The specifications apply when the function generator is powered on for at least 30 minutes under +20°C~+30°C.

Specifications subject to change without notice.

GSP-8000_E_D1DH

ORDERING INFORMATION		OPTIONAL ACCESSORIES	
GSP-8800	8.0GHz Spectrum Analyzer	GSP-8800E1	EMI Activation Option for GSP-8800
GSP-8800(TG)	8.0GHz Spectrum Analyzer with TG	GSP-8380E1	EMI Activation Option for GSP-8380
GSP-8380(TG)	3.8GHz Spectrum Analyzer with TG	GSP-8180E1	EMI Activation Option for GSP-8180
GSP-8180(TG)	1.8GHz Spectrum Analyzer with TG		
ACCESSORIES		ADP-001	N(M)-BNC(F) Adapter
Power Cord, Safety Guide, USB Cable		ADP-002	N(M)-SMA(F) Adapter
		GTL-301	N(M)-N(M) RF Cable
		GTL-303	SMA(M)-SMA(M) RF Cable

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