GSP-8000 Series

8.0GHz/3.8GHz/1.8GHz Spectrum Analyzer

CE USB LAN PC Software

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-Mail 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 also provides two options, namely TG and EMI Filter. Customers need to decide the TG function when placing an order. Other options can be activated through the corresponding software authorization (Soft-Key), which greatly improves usage efficiency.

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: Tracking Generator, EMI Filter

Model	GSP-8180	GSP-8380	GSP-8800
TG Option	V	V	X
EMI Option	V	V	V

Noet : Open via software

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.

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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
					6GHz ~ 8GHz	-129dBm (typical), <-119dBm
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
					6GHz ~ 8GHz	-149dBm (typical), <-139dBm
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℃ to 30℃: ≤ 95% ; 30℃ to 40℃: ≤ 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℃~+30℃.

Specifications subject to change without notice. GSP-8000_E_D1DH

ORDERING INFORMATION

GSP-8800	**8.0GHz Spectrum Analyzer**
GSP-8800(TG)	**8.0GHz Spectrum Analyzer with TG**
GSP-8380(TG)	**3.8GHz Spectrum Analyzer with TG**
GSP-8180(TG)	**3.8GHz Spectrum Analyzer with TG**

ACCESSORIES

Power Cord, Safety Guide, USB Cable

OPTIONAL ACCESSORIES

GSP-8800E1	EMI Activation Option for GSP-8800
GSP-8380E1	EMI Activation Option for GSP-8380
GSP-8380E1	EMI Activation Option for GSP-8180

ADP-001	N(M)-BNC(F) Adapter
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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