

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



Website



Facebook



LinkedIn

SPECIFICATIONS						
Mode	GSP-8180		GSP-8380		GSP-8800	
<b>FREQUENCY</b>						
<b>FREQUENCY</b>						
Range	9 kHz ~ 1.8 GHz		9 kHz ~ 3.8 GHz		9 kHz ~ 8.0 GHz	
Resolution	1 Hz					
<b>FREQUENCY SPAN</b>						
Frequency Range	0 Hz, 100 Hz to max. frequency of instrument					
Span Uncertainty	±span / (sweep points-1)					
<b>INTERNAL FREQUENCY REFERENCE</b>						
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					
<b>SSB PHASE NOISE</b>						
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					
<b>BANDWIDTH</b>						
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					
<b>AMPLITUDE</b>						
<b>AMPLITUDE AND LEVEL</b>						
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
Reference Level	-80 dBm ~ +30 dBm, 0.01dB by step		DANL ~ +20 dBm		10 MHz ~ 8 GHz, Preamp Off	
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					
<b>Displayed Average Noise Level (DANL)</b>						
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
Preamp On	Input Attenuation = 0 dB, ref. level ≥ -60dBm, trace average ≥ 40, RBW normalizes to 1Hz, DETECTOR = SAMPLE, RBW = 100Hz, VBW = 100Hz					
	9 kHz ~ 1MHz	<-135 dBm (typical), <-128dBm	9 kHz ~ 1MHz	<-135 dBm (typical), <-128dBm	9 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
<b>FREQUENCY RESPONSE</b>						
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					
<b>UNCERTAINTY AND ACCURACY</b>						
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					
VSUR	±1.5 dB(typical)					
<b>DISTORTION AND SPURIOUS RESPONSE</b>						
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					
Input Related Spurious	<-85 dBm, from 1 MHz ~ Max. Frequency Range					
<b>SWEEP</b>						
<b>SWEEP</b>						
Sweep Time	10 ms ~ 3000 s, None-zero Span ; 1 ms ~ 3000 s, Zero Span					
Range	10 ms ~ 3000 s, None-zero Span ; 1 ms ~ 3000 s, Zero Span					
Sweep Mode	Continuous; Single					
<b>TRACKING GENERATOR (OPTION 01)</b>						
<b>Tracking Generator Output</b>						
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					
<b>FREQUENCY COUNTER</b>						
<b>Frequency Counter</b>						
Resolution	1Hz, 10Hz, 100Hz, 1kHz					
Accuracy	±[(frequency indication × frequency reference accuracy) + counter resolution]					
<b>INPUTS AND OUTPUTS</b>						
<b>RF Input</b>						
Impedance	50 Ω, Nominal					
Connector	N Type Female					
<b>Reference Input</b>						
Connector	BNC Female					
10MHz Reference Amplitude	0 dBm to +10 dBm					
<b>Trigger Input</b>						
Impedance	1 kΩ					
10MHz Reference Amplitude	BNC Female					
<b>USB</b>						
USB Host	Connector: A Plug, Protocol: USB 2.0 (Host End)					
USB Device	Connector: B Plug, Protocol: 2.0 Version					
<b>GENERAL</b>						
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

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)	1.8GHz Spectrum Analyzer with TG

### ACCESSORIES

Power Cord, Safety Guide, USB Cable

### OPTIONAL ACCESSORIES

GSP-8800E1	EMI Activation Option for GSP-8800	ADP-001	N(M)-BNC(F) Adapter
GSP-8380E1	EMI Activation Option for GSP-8380	ADP-002	N(M)-SMA(F) Adapter
GSP-8180E1	EMI Activation Option for GSP-8180	GTL-301	N(M)-N(M) RF Cable
		GTL-303	SMA(M)-SMA(M) RF Cable

## GOOD WILL INSTRUMENT CO., LTD.

No.7-1, Jhongsing Road, Tucheng Dist., New Taipei City 236, Taiwan  
T +886-2-2268-0389 F +886-2-2268-0639  
E-mail: marketing@goodwill.com.tw

**GW INSTEK**  
Simply Reliable