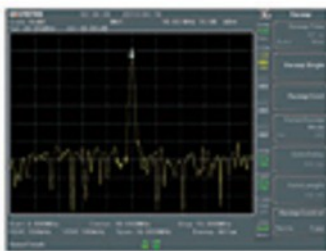




- Frekvencia tartomány: 9kHz - 3GHz
- Nagy frekvencia stabilitás:: 0.025ppm
- 3dB RBW: 1Hz ~ 1MHz
- 6dB EMI szűrő: 200Hz, 9kHz, 120kHz, 1MHz
- Fázis-zaj: -88 dBc/Hz @ 1GHz, 10kHz eltolás
- Beépített mérési funkciók: 2 FSK analízis, AM/FM/ASK/FSK demoduláció és analízis, EMC Pre-test, P1dB pont, harmonikus, csatorna teljesítmény, N-dB sávszélesség, OCBW, ACPR, SEM, TOI, CNR, CTB, CSO, zaj marker, frekvenciamérő, Time domain teljesítmény, kapuzott sweep
- Beépített spektrogram és topográfikus kijelzési módok
- 886MHz-es IF kimenet felhasználói alkalmazásokhoz
- Távvezérlő interfészek: LAN, USB, RS-232, GPIB (opció)
- Beépített előerősítő, 50dB-es osztó és szekvencia funkció
- Opcionális 6GHz-es teljesítmény érzékelő, tracking (követő generátor), tartalék akkumulátor

GSP-9300 is a light, compact and high C/P ratio 3GHz spectrum analyzer. The GSP-9300 frequency range stretches from 9kHz to 3GHz and features many functions such as radio frequency and power measurement, 2FSK digital communications analysis, EMC pretest, and active component P1dB point measurement, etc. It can support the fast sweep speed up to 307us. It is the ideal instrument for various application fields such as the basic operation of R&D, research and school lecture, engineering maintenance and test for mass production. This light and compact spectrum analyzer is also suitable for automatic test systems and vehicle mounted operation.

GW Instek understands that high quality is very important consideration for users who are selecting economical spectrum analyzers. GSP-9300, with the built-in preamplifier and the highest sensitivity of -152 dBm (1Hz), is capable of measuring very feeble signals. To obtain the accurate results, the low power measurement uncertainty of GSP-9300 is less than 1.5dB.



**Fast Sweep Mode**

The built-in measurement functions of GSP-9300 spectrum analyzer include 2FSK digital communications analysis, AM/FM/ASK/FSK signal demodulation & analysis, EMC pretest mode, Harmonic Distortion, TOI, Channel Power, OCBW, ACPR, SEM, Phase Jitter, N-dB Bandwidth, Noise Marker, Frequency Counter and Time Domain power measurement for burst signal, etc.



**EMC Pretest Mode**

GSP-9300 spectrum analyzer is very user-friendly. All frequently used functions can be applied quickly through function keys and five languages (English, Russian, Traditional Chinese, Simplified Chinese and Japanese) are available for user interface.



**P1dB Point Measurement**

Tracking generator, an option for GSP-9300 spectrum analyzer, provides supplementary functions such as measuring the insertion loss of RF cable and identifying the frequency response of antenna, filter or amplifier. The P1dB measurement function supports power sweep and P1dB compression point of active component. It supports 6.2GHz power sensor PWS-06. User, via the power meter mode, can conduct related measurement applications without using an independent power meter.



**FSK Signal Demodulation & Analysis**

Users can use the external software SpectrumShot for EMI test report management and assessment, remote control and waveform data recording for long periods of time. SpectrumShot can be applied to spectrum monitoring for detecting any abnormal radio signals. The software will send out e-mail to inform users if any abnormal situation occurs.

To summarize, GSP-9300 spectrum analyzer is a perfect, light, compact and economical measurement instrument. With height of 210mm and width of 350mm, GSP-9300 is suitable for automatic test systems. It can be mounted on the 19 inches 6U rack. The light and compact design is ideal for vehicle mounted operation to carry out field strength measurement such as monitoring satellite communications signals.

Frequency			
Frequency	Range	9 kHz to 3.0 GHz	
	Resolution	1 Hz	
	Accuracy	±[(period since last adjustment X aging rate) + stability over temperature + supply voltage stability]	
Frequency Reference	Aging Rate	±2 ppm max.	1 year after last adjustment
	Frequency Stability over Temperature	±0.025 ppm	0 to 50 °C
	Supply Voltage Stability	±0.02 ppm	
Frequency Readout Accuracy	Start, Stop, Center, Marker	±(marker frequency indication X frequency reference accuracy + 10% x RBW + frequency resolution*1)	
	Sweep points	601	Span >= 100 Hz
	Resolution	6 to 601	Span = 0 Hz
Marker Frequency Counter	Resolution	1 Hz, 10 Hz, 100 Hz, 1 kHz	
	Accuracy	±(marker frequency indication X frequency reference accuracy + counter resolution)	RBW/Span >=0.02 ;Mkr level to DNL>30 dB
	Range	0 Hz (zero span), 100 Hz to 3 GHz	
Frequency Span	Resolution	1 Hz	
	Accuracy	± frequency resolution*1	
	Offset from Carrier	Fc =1 GHz; RBW = 1 kHz, VBW = 10 Hz;Average ≥ 40	
Phase Noise	10 kHz	<-88 dBc/Hz	Typical <sup>2</sup>
	100 kHz	<-95 dBc/Hz	Typical
	1 MHz	<-113 dBc/Hz	Typical
Resolution Bandwidth (RBW) Filter	Filter Bandwidth	1 Hz to 1 MHz in 1-3-10 sequence	-3dB bandwidth
		200 Hz, 9 kHz, 120 kHz, 1 MHz	-6dB bandwidth
	Accuracy	± 8%, RBW = 1 MHz	Nominal <sup>3</sup>
Video Bandwidth (VBW) Filter		± 5%, RBW < 1 MHz	Nominal
	Shape Factor	< 4.5:1	Normal Bandwidth ratio: -60dB:-3dB
	Filter Bandwidth	1 Hz to 1 MHz in 1-3-10 sequence -3dB bandwidth	
<p>[1] Frequency Resolution = Span/(Sweep points - 1)</p> <p>[2] Typical specifications in this datasheet mean that the performance can be exhibited in 80% of the units with a 95% confidence level over the temperature range 20 to 30 °C. They are not covered by the product warranty.</p> <p>[3] Nominal values indicate expected performance. They are not covered by the product warranty.</p>			
Amplitude			
Amplitude Range	Measurement Range	100 kHz to 1 MHz	Displayed Average Noise Level (DANL) to 18 dBm
		1 MHz to 10 MHz	DANL to 21 dBm
		10 MHz to 3 GHz	DANL to 30 dBm
Attenuator	Input Attenuator Range	0 to 50 dB, in 1 dB step	
	Average Total Power	<= 33 dBm	
Maximum Safe Input Level	DC Voltage	± 50 V	
	Total Power at 1st Mixer	> 0 dBm	Typical;Fc ≥50 MHz; preamp. off
1 dB Gain Compression	Total Power at the Preamp	> -22 dBm	
		mixer power level (dBm)= input power (dBm)-attenuation (dB)	
		0 dB attenuation; RF Input is terminated with a 50 Ohm load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60dBm; trace average ≥ 40	
Displayed Average Noise Level (DANL)*4	Preamp off	9 kHz to 100 kHz, < -93 dBm	
		100 kHz to 1 MHz, < -90 dBm - 3 x (f/100 kHz) dB	Nominal
		1 MHz to 10 MHz, < -122 dBm	
	Preamp on	10 MHz to 3 GHz, < -122 dBm	
		0 dB attenuation; RF Input is terminated with a 50 Ohm load. RBW 10 Hz; VBW 10 Hz; span 500 Hz; reference level = -60dBm; trace average ≥ 40	
		100 kHz to 1 MHz, < -108 dBm - 3 x (f/100 kHz) dB	
		1 MHz to 10 MHz, < -142 dBm	Nominal
		10 MHz to 3 GHz, < -142 dBm + 3 x (f/1 GHz) dB	

[4] DANL spec shall exclude the Spurious Response				
	Scales	Log, Linear		
	Units	dBm, dBmV, dBuV, V, W		
	Marker Level Readout	0.01 dB	Log scale	
Level Display Range		0.01 % of reference level	Linear scale	
	Level Display Modes	Trace, Topographic, Spectrogram		
	Number of Traces	4 Ft		
	Detector	Positive-peak, negative-peak, sample, normal, RMS(not Video)	Can be setup for each trace separately	
	Trace Functions	Clear & Write, Max/Min Hold, View, Blank, Average		
Absolute Amplitude Accuracy	Absolute Point	Center=160 MHz ; RBW 10 kHz; VBW 1 kHz; span 100 kHz; log scale; 1 dB/div; peak detector; 20 to 30°C; signal 0 dBm		
	Preamp off	± 0.3 dB	Ref level 0 dBm; 10 dB RF attenuation	
	Preamp on	± 0.4 dB	Ref level -30 dBm; 0 dB RF attenuation	
	Preamp off	Attenuation: 10 dB; Reference: 160 MHz; 20 to 30°C		
Frequency Response		100 kHz to 2.0 GHz	± 0.5 dB	
		2.0GHz to 3.0 GHz	± 0.7 dB	
	Preamp on	Attenuation: 0 dB; Reference: 160 MHz; 20 to 30°C		
		1 MHz to 2.0 GHz	± 0.6 dB	
		2.0GHz to 3.0 GHz	± 0.8 dB	
Attenuation Switching Uncertainty	Attenuator setting	0 to 50 dB in 1 dB step		
	Uncertainty	± 0.25 dB	reference: 160 MHz, 10dB attenuation	
RBW Filter Switching Uncertainty	1 Hz to 1 MHz	± 0.25 dB	reference : 10 kHz RBW	
Level Measurement Uncertainty	Overall Amplitude Accuracy	± 1.5 dB	20 to 30°C; frequency > 1 MHz; Signal input 0 to -50 dBm; Reference level 0 to -50 dBm; Input attenuation 10 dB; RBW 1 kHz; VBW 1 kHz; after cal; Preamp Off	
		± 0.5 dB	Typical	
		Preamp off; signal input -30dBm; 0 dB attenuation		
	Second Harmonic Intercept	+35 dBm	Typical; 10 MHz < fc < 775 MHz	
		+60 dBm	Typical; 775 MHz ≤ fc < 1.5 GHz	
Spurious Response	Third-order Intercept	Preamp off; signal input -30dBm; 0 dB attenuation		
		> 1dBm	300 MHz to 3 GHz	
	Input Related Spurious	< -60 dBC	Input signal level -30 dBm, Att. mode, Att=0 dB; 20-30 degree C	
	Residual Response (inherent)	<-90 dBm	Input terminated; 0 dB attenuation; Preamp off	

<b>Sweep</b>			
Sweep Time	Range	22ms to 1000s	Span >= 100 Hz
		50us to 1000s	Span=0 Hz; Min resolution=10 us
	Sweep Mode	Continuous; Single	
	Trigger Source	Free run; Video; External	
	Trigger Slope	Positive or negative edge	
<b>RF Preamplifier</b>			
	Frequency Range	1 MHz to 3 GHz	
	Gain	18 dB	Nominal(installed as standard)

**Front Panel Input/Output**

RF Input	Connector Type	N-type female	
	Impedance	50 ohm, nominal	
	VSWR	<1.6 :1	300 kHz to 3 GHz; Input attenuator ≥ 10 dB
Power for Option	Connector Type	SMB male	
	Voltage/Current	DC +7V / 500 mA max	With short-circuit protection
USB Host	Connector Type	A plug	
	Protocol	Version 2.0	Supports Full/High/Low speed
MicroSD Socket	Protocol	SD 1.1	
	Supported Cards	MicroSD, MicroSDHC	Up to 32GB capacity

**Rear Panel Input/Output**

Reference Output	Connector Type	BNC female	
	Output Frequency	10 MHz	
	Output Amplitude	3.3V CMOS	
	Output Impedance	50 ohm	
Reference Input	Connector Type	BNC female	
	Input Reference Frequency	10 MHz	
	Input Amplitude	-5 dBm to +10 dBm	
Alarm Output	Frequency Lock Range	Within ± 5 ppm of the input reference frequency	
	Connector Type	BNC female; Open-collector	
Trigger Input/ Gated Sweep Input	Connector Type	BNC female	
	Input Amplitude	3.3V CMOS	
LAN TCP/IP Interface	Switch	Auto selection by function	
	Connector Type	RJ-45	
	Base	10Base-T; 100Base-Tx; Auto-MDIX	
USB Device	Connector Type	B plug	For remote control only; supports USB TMC
	Protocol	Version 2.0	Supports Full/High speed
IF Output	Connector Type	SMA female	
	Impedance	50 ohm	Nominal
	IF Frequency	886 MHz	Nominal
Earphone Output	Output level	-25 dBm	10 dB attenuation; RF input: 0 dBm @ 1 GHz;
	Connector Type	DVI-I ( integrated analog and digital) , Single Link	
RS232 Interface	Connector Type	D-sub 9-pin female	
GPIB Interface (Optional)	Connector Type	IEEE-488 bus connector	
AC Power Input	Power Source	AC 100 V to 240 V, 50 / 60 Hz	Auto range selection
	Battery pack	6 cells, Li-Ion rechargeable, 3S2P	With UN38.3 Certification
Battery Pack (Optional)	Voltage	DC 10.8 V	
	Capacity	5200 mAh / 56Wh	

**General**

	Internal Data storage	16 MB nominal		
	Power Consumption	<65 W		
	Warm-up Time	< 30 minutes		
	Temperature Range	+5 °C to +45 °C	Operating	
		-20 °C to + 70 °C	Storage	
	Weight	4.5 kg (9.9 lb)	Inc. all options (Basic+TG+GPIB+Battery)	
	Dimensions	210 x 350 x 100 (mm)	Approximately	
8.3 x 13.8 x 3.9 (in)				

### Tracking Generator\*5 (Optional)

Frequency Range	100 kHz to 3 GHz	
Output Power	-50 dBm to 0 dBm in 0.5 dB steps	
Absolute Accuracy	± 0.5 dB	@160 MHz, -10 dBm, Source attenuation 10 dB, 20 to 30°C
	Referenced to 160 MHz, -10 dBm	
Output Flatness	100 kHz to 2 GHz	± 1.5 dB
	2 GHz to 3 GHz	± 2.0 dB
Output Level Switching Uncertainty	± 0.8 dB	Referenced to -10 dBm
Harmonics	< -30 dBc	Typical, output level = -10 dBm
Reverse Power	+30 dBm max.	
Connector type	N-type female	
Impedance	50 ohm	Nominal
Output VSWR	< 1.6:1	300 kHz to 3 GHz, source attenuation ≥ 12 dB

[5] The minimum RBW filter is 10 kHz when the TG output is ON.

### USB Power Sensor (Optional)

Type	Average power sensor	Model: PWS-06
Interface to Meter	USB cable to GSP930 Front-Panel USB Host	
Connector Type	N-type male, 50 ohm nominal	
Input VSWR	1.1: 1	Typical
	1.3: 1	Max
Input Frequency	1 to 6200 MHz	
Sensing Level	-32 to +20 dBm	
Max. Input Damage Power	<= 27 dBm	
	-30 dBm to +5 dBm:	
	1 MHz to 3GHz: ±0.10 dB typical	±0.30 dB max.
	3 GHz to 6 GHz: ±0.15 dB typical	±0.30 dB max.
	+5 dBm to +12 dBm:	
	1 MHz to 3GHz: ±0.15 dB typical	±0.30 dB max.
	3 GHz to 6 GHz: ±0.15 dB typical	±0.30 dB max.
	+12 dBm to +20 dBm:	
	1 MHz to 3GHz: ±0.20 dB typical	±0.40 dB max.
	3 GHz to 6 GHz: ±0.20 dB typical	±0.40 dB max.
	-30 dBm to +5 dBm:	
	1 MHz to 3GHz: ±0.25 dB typical	
	3 GHz to 6 GHz: ±0.25 dB typical	
	+5 dBm to +12 dBm:	
	1 MHz to 3GHz: ±0.20 dB typical	
	3 GHz to 6 GHz: ±0.20 dB typical	
	+12 dBm to +20 dBm:	
	1 MHz to 3GHz: ±0.35 dB typical	
	3 GHz to 6 GHz: ±0.30 dB typical	
Power Measurement Uncertainty @ 25 °C		
Power Measurement Uncertainty @ 0 to 25 °C		
Linearity @ 25 °C	±3 %	
Measurement Speed	100 ms for Low Noise Mode	Typical
	30 ms for Fast Mode	

Note : The specifications apply when GSP-930 is powered on for at least 30 minutes to warm-up to a temperature of 20°C–30°C, unless specified otherwise. Need to Collocate the Optional Accessories.

Specifications subject to change without notice.

SP-9300GD1DH

### ORDERING INFORMATION

**GSP-9300** 3GHz Spectrum Analyzer

#### ACCESSORIES :

Power Cord, Quick Start Guide, Certificate of Calibration, CD-ROM (with User Manual, Programming Manual, SpectrumShot Software, SpectrumShot Quick Start Guide & IVI Driver)

#### OPTION

Opt. 01 Tracking Generator    Opt. 02 Battery Pack  
Opt. 03 GPIB Interface

### OPTIONAL ACCESSORIES

<b>PWS-06</b> 6.2GHz USB Power Sensor	<b>ADB-006</b> DC Block N-TYPE 50Ω 10MHz~6GHz
<b>GSC-009</b> Soft Carrying Case	<b>ADB-008</b> DC Block SMA 50Ω 0.1MHz~8GHz
<b>GRA-415</b> Rack Adapter Panel	<b>ADP-001</b> BNC to N-TYPE Adaptor
<b>ADB-002</b> DC Block BNC 50Ω 10MHz~2.2GHz	<b>ADP-002</b> SMA to N-TYPE Adaptor

### FREE DOWNLOAD

SpectrumShot PC Software for Windows System (available on GW Instek website)  
GSP-9300 Remote Control APP for Android System (available on Google play)  
IVI Driver Supports LabVIEW/LabWindows/CVI Programming (available on NI website)

## 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](mailto:marketing@goodwill.com.tw)

## RAPAS kft.

1184 Budapest, Üllői út 315.  
Tel.: 06 1 294 2900

Internet: [www.rapas.hu](http://www.rapas.hu) E-amil: [rapas@t-online.hu](mailto:rapas@t-online.hu)