



## GSP-730 GRF-1300/1300A

### FEATURES

#### GSP-730 Spectrum Analyzer

- Frequency Range : 150kHz ~ 3GHz
- Autoset Function
- Noise level :  $\leq -100\text{dBm}$
- RBW Range : 30kHz, 100kHz, 300kHz, 1MHz
- ACPR/CHPW/OCBW Measurement
- 3 Traces in Different Colors
- Split Window Function
- Limit Line Function
- Remote Control Software
- Presentation Material for Training Courses
- Support Interface : USB Device/Host, RS-232C
- 5.6" TFT LCD with VGA Output

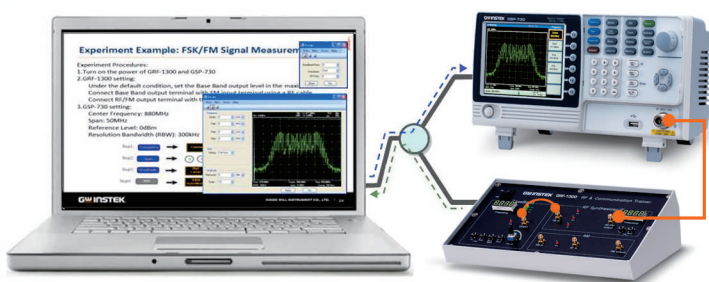
#### GRF-1300/1300A RF and Communication Trainer

- Waveform Support :  
Sine Wave : 0.1 ~ 3MHz  
Square Wave : 0.1 ~ 3MHz  
Triangle Wave : 0.1 ~ 3MHz
- RF Frequency : 870 ~ 920MHz
- AM Modulation & FM Modulation
- 5 On/Off Switches and 5 Test Points to Simulate 8 Failure Conditions for Learning Outcome Test
- USB Interface to Provide Remote Control
- Mixer & 2.4GHz Bandpass Filter (Only GRF-1300A)

## Turn-key Solution for RF and Communication Experiment Courses

GW Instek GSP-730 is a 3 GHz Spectrum Analyzer developed mainly to fulfill the demands of RF Communications education. Budget constraint and inadequate teaching tools are normally the two hurdles for schools to provide high-quality courses for RF communications experiments. GSP-730, a spectrum analyzer of full functions, combines with the GRF-1300/1300A training kit to provide customer an economical turn-key solution for 3GHz RF and Communications Experiment Courses.

Properly connect GSP-730 Spectrum Analyzer, GRF-1300/1300A RF and Communications Trainer and a PC to perform ongoing experiments while the lecture is being given. Using a PC, teacher can present teaching material with Power Point slides and simultaneously control GSP-730 and GRF-1300/1300A to perform experiments and get spectrum displays parameter readings on the PC screen. GSP-730 and GRF-1300/1300A easily transfer the current teaching materials including the PowerPoint slides, textbook and the remote control software into electronic-teaching system.



**Fully-electronic RF Training System**

The combination of GSP-730 and GRF-1300/1300A forms a fundamental training system for RF communications and telecommunications classes in the universities, colleges, vocational schools and the training center in military as well as the private companies. Instead of the tremendous cost of the installation of new training system, the conjunction of GSP-730 and GRF-1300/1300A provides an economical solution to eliminate two obstacles, budget constraint and insufficiency of teaching tools.

### APPLICATIONS

- Education, Training
- Fourier Theory Investigation
- Motherboard Circuit Measurement
- Wireless Communication Signal Measurements
  - GSM, 3G, 4G Mobile Phone
  - Bluetooth, Zigbee, Wi-Fi
  - AM/FM Modulation
- Remote Controller Maintenance

## SPECIFICATIONS

### GSP-730

|                     |                            |                                                                                      |                                                                            |
|---------------------|----------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| FREQUENCY           | Frequency Range            | Setting Range                                                                        | 150kHz ~ 3GHz                                                              |
|                     | Center Frequency           | Setting Resolution                                                                   | 0.1MHz                                                                     |
|                     | Frequency Span             | Accuracy                                                                             | within $\pm 50$ kHz (frequency span : 0.3GHz ~ 2.6GHz, 20 $\pm 5^\circ$ C) |
|                     | Resolution Bandwidth       | Setting range                                                                        | 1MHz ~ 3GHz                                                                |
|                     | SSB Phase Noise            | Accuracy                                                                             | within $\pm 3\%$ (frequency span : 0.3GHz ~ 2.6GHz, 20 $\pm 5^\circ$ C)    |
|                     | Inherent Spurious Response | Setting Range                                                                        | 30KHz, 100KHz, 300KHz, 1MHz                                                |
| AMPLITUDE           | Reference Level            | -85dBc/Hz (typical, 500kHz offset, RBW : 30kHz, Sweep time : 1.5s, Span : 1MHz@1GHz) |                                                                            |
|                     | Average Noise Level        | Input Range                                                                          | +20 ~ -40dBm                                                               |
|                     | Frequency Characteristic   | Accuracy                                                                             | Within $\pm 2$ dB (1GHz) ; SPAN : 5MHz                                     |
|                     | Input                      | Unit                                                                                 | dBm, dBV, dB $\mu$ V                                                       |
| SWEEP               | Sweep Time                 | Input Impedance                                                                      | 50 $\Omega$                                                                |
|                     |                            | Input VSWR                                                                           | less than 2.0@input att $\geq 10$ dB                                       |
| GENERAL             | Display                    | Input damage level                                                                   | +30dBm (CW average power), 25VDC                                           |
|                     | Communication Interface    | Input connector                                                                      | N connector                                                                |
|                     | VGA Output                 | Setting Range                                                                        | 300ms ~ 8.4s, auto (not adjustable)                                        |
|                     | Power Source               | Accuracy                                                                             | within $\pm 2\%$ (frequency span : full span)                              |
| OTHER               | Operating Temperature      | 640 x 480 RGB color LCD                                                              |                                                                            |
|                     | Operating Humidity         | RS-232C                                                                              | Sub-D female-D 9 pins                                                      |
| DIMENSIONS & WEIGHT | Storage Temperature        | USB Connector                                                                        | USB Host/Device full speed supported                                       |
|                     |                            | Sub-D female 15 pins                                                                 |                                                                            |
|                     |                            | AC 100~240V, 50/60Hz                                                                 |                                                                            |
|                     |                            | 5 ~ 45 $^\circ$ C (Guaranteed at 25 $\pm 5^\circ$ C, without soft carrying case)     |                                                                            |
|                     |                            | Less than 45 $^\circ$ C / 90%RH                                                      |                                                                            |
|                     |                            | -20 ~ 60 $^\circ$ C, less than 60 $^\circ$ C / 70%RH                                 |                                                                            |
|                     |                            | 296(L) x 153(W) x 105(H) mm/11.6(L) x 6(W) x 4.1(H) in, Approx. 2.2kg/4.9lb          |                                                                            |

### GRF-1300/1300A

|                     |                          | GRF-1300A                                                                 | GRF-1300                                   |
|---------------------|--------------------------|---------------------------------------------------------------------------|--------------------------------------------|
| BASE BAND           | Waveforms                | Sine, Square, Triangle                                                    | Sine, Square, Triangle                     |
|                     | Frequency Range          | 0.1~3MHz, Step : 10kHz                                                    | 0.1~3MHz, Step : 10kHz                     |
|                     | Amplitude                | $\geq 1.5$ Vpp                                                            | $\geq 1.5$ Vpp                             |
|                     | Harmonic Distortion      | $\geq 0.75$ Vpp into 50 Ohm                                               | $\leq -30$ dBc                             |
| RF/FM ANALYSIS      | Frequency Accuracy       | $\pm 0.15$ MHz                                                            | $\pm 0.15$ MHz                             |
|                     | Adjustable Range         | $\geq 45$ MHz (870M ~ 920MHz), Step : 1MHz                                | $\geq 45$ MHz (870M ~ 920MHz), Step : 1MHz |
| FM                  | Power Range              | $\geq -15$ dBm                                                            | $\geq -15$ dBm                             |
|                     | Max Frequency Deviation  | >3MHz                                                                     | >3MHz                                      |
| AM                  | Peak Difference          | $\geq -18$ dBm                                                            | $\geq -18$ dBm                             |
| MIXER               | LO + IF                  | $\geq -35$ dBm                                                            | -                                          |
|                     | LO - IF                  | $\geq -35$ dBm                                                            | -                                          |
| MIXER + MODULATION  |                          | $\geq -60$ dBm                                                            | -                                          |
| BANDPASS FILTER     | Frequency Centre: 2.4GHz | Bandwidth: $\pm 20$ MHz                                                   | -                                          |
| INTERFACE           | USB Device               | USB Type B                                                                |                                            |
| DIMENSIONS & WEIGHT |                          | 165(W) x 155(H) x 90(D)mm/6.5(W) x 6.1(H) x 3.5(D)in, Approx. 1.2kg/2.6lb |                                            |

Specifications subject to change without notice. SP-730GD1DH

## ORDERING INFORMATION

**GSP-730** 3GHz Spectrum Analyzer  
**GRF-1300/1300A** RF and Communications Trainer

## ACCESSORIES

**GSP-730** : Quick start manual x 1, User manual CD x 1, Power cord x 1  
**GRF-1300/1300A** : Experiment text book of student version, Power point file and remote control software CD, GRF-1300 : RF cable x 3, Antenna x 1/  
 GRF-1300A : RF cable x 6, Antenna x 2, N to SMA adaptor connector x 1, Power cord x 1

## OPTION

**GBK-001** GRF-1300 Experiment text book of teacher version  
**GBK-002** GRF-1300A Experiment text book of teacher version

## FREE DOWNLOAD

**PC Software** Training system remote control software

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