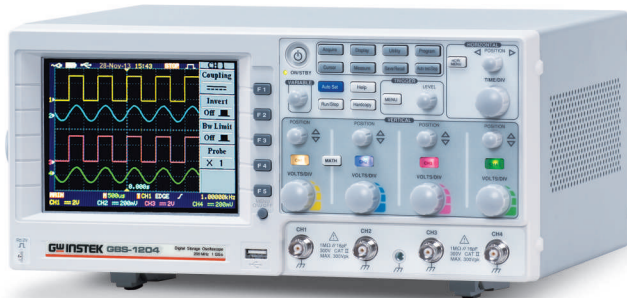


## GBS-1000 Series



### FEATURES

- 200/100/70 MHz Bandwidth
- 4 Input Channels
- 1GSa/s Real-Time and 25GS/s Equivalent-Time Sampling
- 25k Points Record Length Maximum
- 5.7-in TFT Color Display
- 27 Automatic Measurements
- Math Functions Including "+", "-", "x", "FFT", "FFTms"
- Multi-Language Support
- USB Host : Support Flash Drive Storage and PictBridge-compatible Printer
- USB Device : PC Remote Control
- Data Logger



### Summary of Features

Wide selections of bandwidth, 200/100/70MHz, 4channels, suitable for major applications in laboratories, production lines, or field services. 1GSa/s real-time high sampling rate and 25k points deep memory give much detailed view into the target waveforms and maintain a high sampling rate. USB host and device connection allow data storage and recalling, screen image printout, and remote control. TFT color LCD display with wide viewing angle eliminates obscurity in any situation.

### Signal Detection

The GBS-1000 series, with 1GSa/s real time, 25GSa/s equivalent time sampling rate and 3 types of acquisition modes including normal, peak detect, and average, picks up signals even in the most extreme cases. 25k points deep memory collects more information of a given waveform providing users with further signal details. 3 types of flexible triggers including edge, video (NTSC, PAL, SECAM) with line selection and pulse-width augment the signal capturing flexibility

### Complete Vertical and Horizontal Expansion Function

Users, via the GBS-1000 Series, can either select GND or the center of the signal to execute vertical expansion. Either the center of the signal or the vertical trigger point can be selected to carry out horizontal expansion. A sound signal expansion selection facilitates users to expand required signals for a detailed observation of signal trigger points.

### Measurement Functions

A variety of measurement shortcuts reduce repetitive manual operations and save your precious time. Autoset automatically configures the horizontal scale, the vertical scale, and the trigger, giving an instant view of almost any signal. 27 automatic measurements include voltage, frequency(time), and delay. Once the cursor function is on, the measurement target will be the signal within the cursor. Users can measure any desired signal based upon the application requirements. The GBS-1000 Series runs and updates results of all the relevant measurements in real time. You can view the results independently, or together in a single display view. Add, subtract and multiple math operation and with 4 types of FFT, FFTrms including flattop, blackman, hanning, and rectangular are also provided.

### DATA Log

Data logger can continue monitoring input signals and storing their waveform data or image in a USB flash drive when trigger conditions are met. This functionality will save users' effort in tracking signals manually and allowing them to analyze and observe waveform data afterwards.

### Go/NoGo Test Function

Go/NoGo test function detects a user-defined incoming waveform shape, and can also send a signal to external devices for monitoring. Program and play feature automatically runs predefined sequence and setup, boosting productivity in routine measurements like production line inspection.

### Data Transfer and Printout

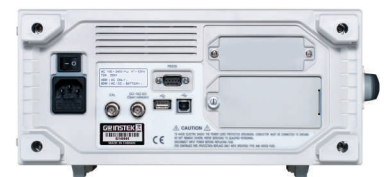
USB host connector transfers data quickly and easily between USB flash drive and the oscilloscope, which greatly expands memory via a USB. The internal storage includes 4 sets of reference waveform and 20 sets of general-use memory area. The GBS-1000 Series handles three types of data : display image (\*.bmp) for viewing waveform shape and pasting into documents and presentations, panel setting for saving and restoring system setup, and waveform configuration (\*.csv) for further analysis of signal information. Printout of display Image, color or grayscale, is available through the PictBridge-compatible Printer connected to the USB host port. You can set the printout or data saving preference to allow a single-press on Hardcopy during the consecutive works.

### Setup Recovery and Transfer

The last panel setting is internally stored in nonvolatile memory, ready to be recovered on the next power up. If the measurement environment has been frequently changed or users want to transfer the setup to another GBS-1000 Series, switching between multiple system settings can be done by saving and recalling setup files using a USB flash drive. When the setup gets complicated, you can always recover the default system setting in a simple two-step operation.



Front



Rear Panel

### APPLICATIONS

- Education Lab and Training Institution
- Production Test and Quality Inspection
- Repair and After-Service
- Circuit Design and Debugging

## SPECIFICATIONS

|                         |  | GBS-1074   | GBS-1104                                 | GBS-1204                                  |
|-------------------------|--|--|--|---|
| VERTICAL                | Channels<br>Bandwidth<br>Rise Time   | 4<br>DC ~ 70MHz (-3dB)<br>5ns Approx.  | 4<br>DC ~ 100MHz (-3dB)<br>3.5ns Approx. | 4<br>DC ~ 200MHz (-3dB)<br>1.75ns Approx. |
|                         | Sensitivity<br>Accuracy<br>Input Coupling<br>Input<br>Polarity<br>Maximum Input<br>Waveform Signal Process<br>Offset Range<br>Bandwidth  | 2mV/div ~ 5V/div (1-2-5 increments)<br>± (3% x  Readout  + 0.05 div x Volts/div + 0.8mV)<br>AC, DC & Ground<br>1MΩ ± 2%, ~16pF<br>Normal & Invert<br>300V (DC+AC peak), CATII<br>+, -, x, FFT, FFTrms<br>2mV/div ~ 20mV/div : ±0.5V ; 50mV/div ~ 200mV/div : ±5V ; 500mV/div ~ 2V/div : ±50V ; 5V/div : ±300V<br>20MHz (-3dB)  |  |   |
| TRIGGER                 | Sources<br>Type<br>Modes<br>Video Trigger Standard<br>Coupling<br>Sensitivity  | CH1, CH2, CH3, CH4, Line<br>Edge, Video, Pulse<br>Auto-level, Auto, Normal, Single<br>SECAM, PAL, NTSC<br>AC, DC, LF rej., HF rej., Noise rej.<br>DC ~ 25MHz : Approx. 0.5div or 5mV ; 25MHz ~ 70/100/200MHz : Approx. 1div or 10mV  |  |   |
| HORIZONTAL              | Range<br>Modes<br>Accuracy<br>Pre-Trigger<br>Post-Trigger  | 1ns/div ~ 10s/div (1-2-5-5 increments); ROLL : 250ms/div ~ 10s/div<br>Main, Window, Window Zoom, Roll, Scan, X-Y<br>±0.01%<br>20 div maximum<br>1000 div   |  |   |
| X-Y MODE                | X-Axis Input<br>Y-Axis Input<br>Phase Shift  | Channel 1<br>Channel 2, Channel 3, Channel 4<br>±3° at 100kHz  |  |   |
| SIGNAL ACQUISITION      | Real-Time Sample Rate<br>Equivalent Sample Rate<br>Vertical Resolution<br>Record Length<br>Acquisition Mode<br>Peak Detection<br>Average | 1GSa/s maximum<br>25GSa/s maximum<br>8 Bits<br>25K Dots maximum<br>Normal, Peak Detect, Average<br>10ns<br>2, 4, 8, 16, 32, 64, 128, 256   |  |   |
| CURSORS AND MEASUREMENT | Voltage Measurement<br>Time Measurement<br>Delay Measurement<br>Cursors Measurement<br>Auto Counter                                      | V <sub>pp</sub> , V <sub>amp</sub> , V <sub>avg</sub> , V <sub>rms</sub> , V <sub>hi</sub> , V <sub>lo</sub> , V <sub>max</sub> , V <sub>min</sub> , Rise Preshoot/Overshoot, Fall Preshoot/Overshoot<br>Freq, Period, Rise Time, Fall Time, Positive Width, Negative Width, Duty Cycle<br>Eight different delay measurement<br>Voltage difference between cursors (ΔV) Time difference between cursors (ΔT)<br>Resolution : 6 digits; Accuracy : ±2%; Signal Source: All available trigger source except the Video trigger mode |  |   |
| CONTROL PANEL FUNCTION  | Autoset<br>Save Setup<br>Save  | Automatically Adjust Vertical VOLT/DIV, Horizontal TIME/DIV, and Trigger level<br>Up to 20 sets of measurement conditions<br>24 sets of waveform   |  |   |
| DISPLAY                 | TFT LCD Type<br>Display Resolution<br>Display Graticule<br>Display Brightness  | 5.7 inch<br>234 (Vertically) x 320 (Horizontally) Dots<br>8 x 10 divisions ; 8 x 12 divisions (menu off)<br>Adjustable   |  |   |
| INTERFACE               | Go/NoGo Output<br>RS-232 Interface<br>USB  | 5V Maximum/10mA TTL Open Collector Output<br>DB 9-pin male DTE RS-232 interface<br>USB Host/Device 2.0 full speed supported  |  |   |
| POWER SOURCE            | Line Voltage Range   | AC 100V ~ 240V, 48Hz ~ 63Hz, Auto selection  |  |   |
| MISCELLANEOUS           | Multi-Language Menu<br>Online Help<br>Data Log<br>Time Clock   | Available<br>Available<br>Available<br>Time and Date, Provide the Date/Time for saved data   |  |   |
| DIMENSIONS & WEIGHT     | 310(W)×142(H)×310(D)mm, Approx. 4.3kg  |  |  |   |

Specifications subject to change without notice. BS-1000GD1DH

## ORDERING INFORMATION

**GBS-1074** 70MHz, 4-channel, Digital Storage Oscilloscope

**GBS-1104** 100MHz, 4-channel, Digital Storage Oscilloscope

**GBS-1204** 200MHz, 4-channel, Digital Storage Oscilloscope

## ACCESSORIES

Quick start guide, User manual CD x 1, Power cord x 1

Probe-GTP-070A-4 : 70MHz ( 10 : 1/1 : 1 ) Switchable Passive Probe for GBS-1074 (one per channel)

Probe-GTP-100A-4 : 100MHz ( 10 : 1/1 : 1 ) Switchable Passive Probe for GBS-1104 (one per channel)

Probe-GTP-250A-2 : 250MHz ( 10 : 1/1 : 1 ) Switchable Passive Probe for GBS-1204 (one per channel)

## OPTIONAL ACCESSORIES

**GRA-405** Rack Mounting, 19" 4U Type

**GSC-005** Soft Carrying Case

**GTC-001** Instrument Cart, 450(W) x 430(D) mm (120V Input Socket)

**GTC-002** Instrument Cart, 330(W) x 430(D) mm (120V Input Socket)

**GTL-110** Test Lead, BNC-BNC Heads

**GTL-232** RS-232C Cable, 9-pin Female to 9-pin Female, Null Modem for Computer

**GTL-246** USB Cable, USB 2.0 A-B TYPE CABLE, 4P

## FREE DOWNLOAD

**PC Software** FreeWave software

**Driver** USB driver ; LabView Driver

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