



# GL2000

## SPECIAL FEATURE

midi LOGGER HV GL2000

High-speed High-Voltage Isolated 4 channel Data Logger

**SPECIAL  
FEATURE**



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# MODEL SUPPORTING HIGH VOLTAGE MEASUREMENT



CAT III 600 V measure power line voltage	High speed 1 MS/s simultaneous sampling with isolated input	Simple operation and large 7-inch color LCD	Large built-in RAM and Flash allows long term recording
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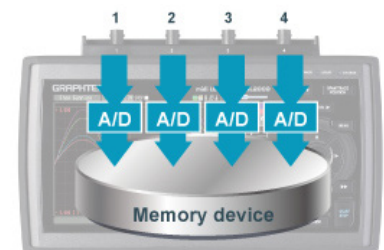
## HIGH SPEED 1 MS/S SIMULTANEOUS SAMPLING WITH ISOLATED INPUT

GL2000 is equipped with an isolated input mechanism to protect signals from interferences caused by noise from other channels. 16-bit A/D converter adopted to achieve hi-speed and hi-resolution measurement.

### SIMULTANEOUS SAMPLING

GL2000 utilizes simultaneous sampling to eliminate slowdown in sampling rate by using multiple A/D converters in simultaneous sampling method. Four individual A/D converters in each channel sustains the maximum sampling speed for all four channels to measure high speed rapid voltage fluctuation and multi-channel vibration measurement.

*Sampling interval: 1  $\mu$ s to 1 min (in steps of 1, 2, 5)*



### EXTERNAL SAMPLING FUNCTION

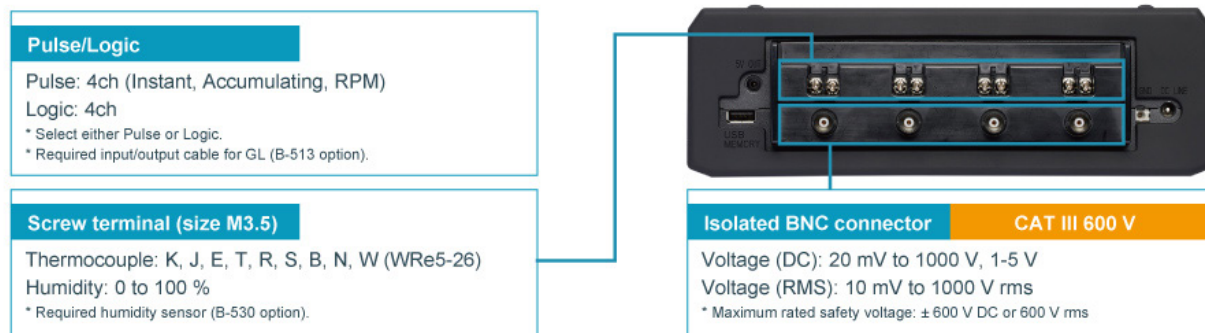
Sampling of the logger is performed in sync with an external device using an external signal input.

*Maximum input frequency: 100 kHz*

*\* B-513 Input/Output cable for GL is required.*

## MULTIFUNCTION INPUT WITH CAT III MEASUREMENT CATEGORY

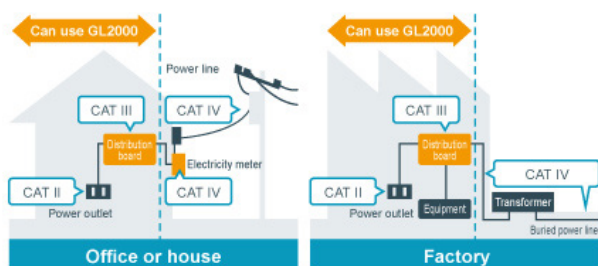
Voltage, temperature, humidity, logic and pulse measurements can all be taken simultaneously in high speed.



\* Connection can be made individually to BNC or screw terminal. BNC and screw terminal are connected to the same channel.

**CAT III 600 V IS COMPATIBLE WITH MEASURING POWER SUPPLY CIRCUIT IN AN EQUIPMENT THAT CAPTURES POWER DIRECTLY FROM THE DISTRIBUTION PANEL.**

**MEASURES ABNORMALITIES IN A REPEATED WAVEFORM BY EFFECTIVELY MEASURING THE CORRESPONDING RMS VALUE**

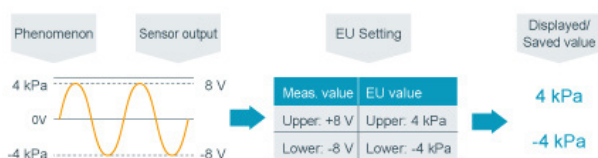


In 1000 Vrms range, Crest Factor is up to 1.41  
 \* Maximum rated safety voltage: 600 V rms, Peak voltage: 850V  
 In other range, Crest Factor is up to 2.0



### SCALING (ENGINEERING UNIT) FUNCTION

Measured voltage value can be converted to a specified engineering unit. The value can be displayed with the physical measurement value of the sensor and be saved into the data file with the converted values.



### CALCULATION FUNCTION BETWEEN CHANNELS

Four arithmetic operations (Addition, subtraction, multiplication and division) are available using two analog input channels.

\* Data can be saved only in GBD file format.

#### Example

$$CH2 = CH3 * CH1$$

(CH2 is a value obtained by multiplying the values of CH3 and CH1)

\* Value of calculated results are displayed and saved into data file.

## TRIGGER FUNCTION

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The trigger in this unit has multiple functions including level trigger of input signal value for each channel.

### Trigger action

Start or stop capturing data by triggering

### Trigger source

Off, Measured signal level, Alarm, External, Scheduled time, Scheduled day, Elapsed time

\* When trigger is used for starting action, level of measured signal can be set for each channel.

### Threshold

Analog input: High or Rising, Low or Falling, Window-in, Window-out

Logic input: H or L (4-channel signal pattern)

Pulse input: High or Rising, Low or Falling, Window-in, Window-out

Combination: Level OR, Level AND, Edge OR, Edge AND

## ALARM FUNCTION & SIGNAL OUTPUT

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Threshold of an alarm can be set for each channel. When an alarm occurs, notification is sent by following methods.

### Alarm threshold

Analog input: High, Low, Window-in, Window-out

Logic input: H or L (signal in each channel)

Pulse input: High or Rising, Low or Falling, Window-in, Window-out

### When alarm is detected

Display to screen (Digital value of alarm's origin channel is displayed in red)

Save alarm information to measurement data file

Output alarm signal

Number of channel: 4 channels (Output channel can be arranged to each source channel in OR condition.)

Signal type: Open collector (pull-up to 5 V with 10 kΩ resistor), maximum load is the 24 V and 100 mA.

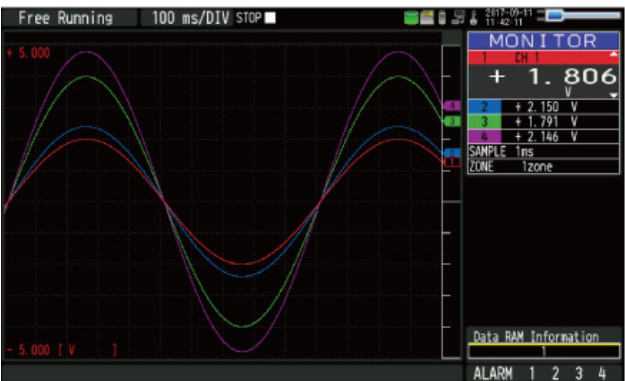
\* Requires Input/Output cable for GL series (B-513 Option).

# LARGE EASY-TO-READ 7-INCH LCD

Monitor data in multiple methods in addition to digital value display and full waveform display screen.

## SCALING (ENGINEERING UNIT) FUNCTION

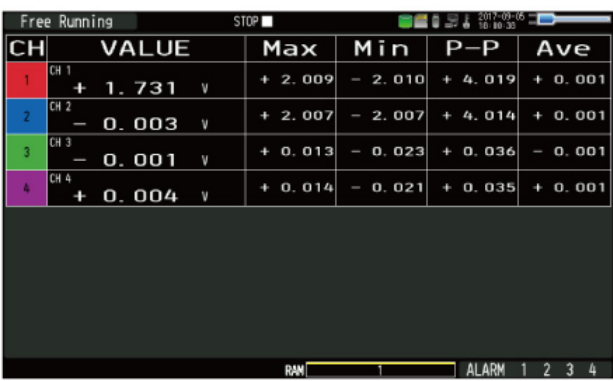
Displays data with analog waveform and digital value. Screen can also be split into 1, 2, 4 or 8 zones to display the channels in different zones.



## CALCULATION FUNCTION BETWEEN CHANNELS

Displays current data in digital value and results of real time statistical calculation. (Function: Maximum, Minimum, Peak-to-peak, and Average)

When displays only current data, it can be shown in 1, 2, 4 or 8 zones.



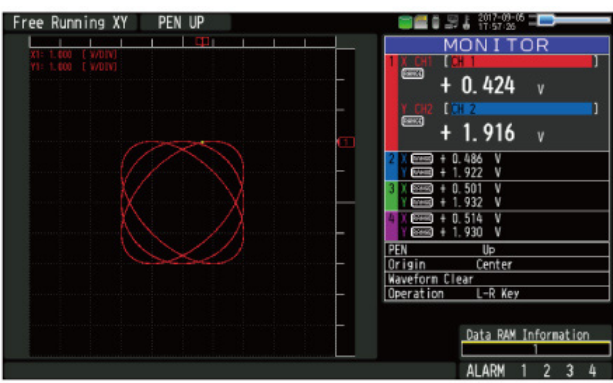
## PAST WAVEFORM MONITOR SCREEN

Display the past part of the data while capturing data. Execute without stopping measurement and also scroll past data. Data screen can be switched with past and current.



## XY GRAPH MONITOR SCREEN

Emulates the classic XY chart recorder. Also supports features for pen up/down and position movement.



## QUICK AND EASY SET UP PROCESS

Simple operation with cursor and enter keys, and menu-driven operation with six pre-set menu screens: AMP, DATA, DISP, TRIG, I/F (Interface) and OTHER.



## OTHER HELPFUL FUNCTIONS

Delivers reliable measurements out at a location with unstable power supply.

Equipped with three types of options for power source, AC adapter, DC input, and battery pack. With a battery pack, GL2000 runs continuously for approximately 3 hours. If an AC power failure occurs, it will automatically switch from the AC adapter to the battery pack. Additionally, when the voltage of the battery pack reaches low, measurement is automatically stopped after saving the data file preserving the accumulated data. (Requires two battery packs (B-569 option) installed.)

**Instrument is in compliance with JIS Vibration Test Method for Automobile Type 1 Class A.  
(Vibration durability test: 5 m/s<sup>2</sup>)**

### STORAGE CASE / TK-MIDI-6



Portable case to store  
GL2000 and signal

input cables for easy handling.

\* The case is not to protect from hard impact.

### COVER



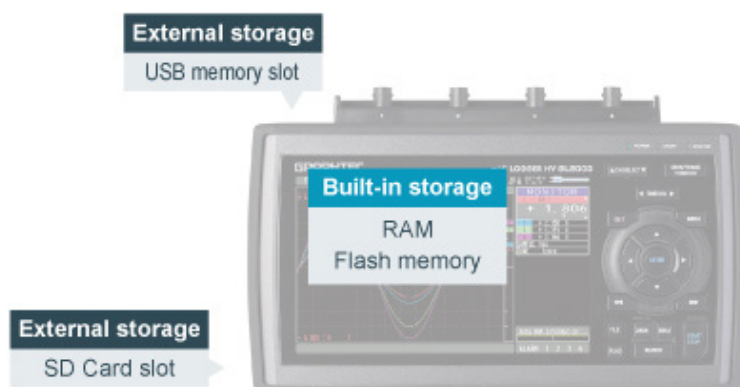
Protect the main body  
from cosmetic

damages and minor impacts. GL2000 is shipped  
with cover attached.

\* The cover is not to protect from hard impact.



## SUPPORTS LARGE BUILT-IN RAM (4MS/CH) AND BUILT-IN FLASH (4 GB)



Long term recording is made possible with 4 M samples/ch built-in

RAM and 4 GB built-in Flash memory. It supports both USB Flash memory and SD Card memory to be used as external storage devices for recorded data for certain sampling intervals.

### APPROXIMATE RECORDING TIME

■ 4 channels of analog input. ■ Data is saved as a GBD file.

Memory type	Data capacity	1MS/s (1μs)	100kS/s (10μs)	1kS/s (1ms)	1S/s (1s)
Built-in RAM	4 M samples/ch	4 seconds	40 seconds	66 minutes	46 days
Built-in Flash memory	3.9 GB	N/A	N/A	3 days 19 hrs.	Over 1 year
External memory (SD/USB Flash memory)*	4 GB	N/A	N/A	4 days 3 hrs.	Over 1 year

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Built-in RAM	4 M samples/ch	4 seconds	40 seconds	66 minutes	46 days
Built-in Flash memory	3.9 GB	N/A	N/A	1 days 12 hrs.	Over 1 year
External memory (SD/USB Flash memory)*	4 GB	N/A	N/A	1 days 15 hrs.	Over 1 year

\* When using 8 GB or larger memory, the size of data file will be up to 4 GB. The Relay mode enables extended recording time.

# QUICK AND EASY SET UP PROCESS

## MEMORY DIVISION FUNCTION



Built-in RAM can be divided into 1, 2, 4, or 8 blocks with multiple high-speed recording measurement using the trigger function.

### Single block

When multiple measurements are executed, the captured data is overwritten in memory block 1.



### Divided into 8 blocks

When multiple measurements are executed, recorded data is stored in the next memory block.



## RING MODE

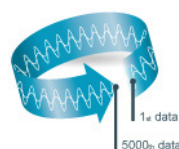


Saves most recent data of specified number after recording stops.

### Number of capturing data

1000 to 10000000 data

\* When using built-in RAM, 10 to 4000000 data

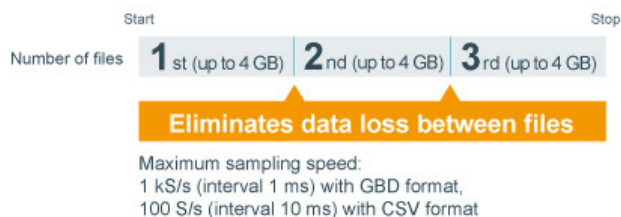


Example: Number of capturing data: set to 5000 points  
**Always save the recent 5000 data**  
(The oldest data is overwritten by the new data.)  
Maximum sampling speed:  
1 MS/s (interval 1  $\mu$ s) in built-in RAM,  
1 kS/s (interval 1 ms) with GBD format in another device,  
100 S/s (interval 10 ms) with CSV format in another device

## RELAY MODE



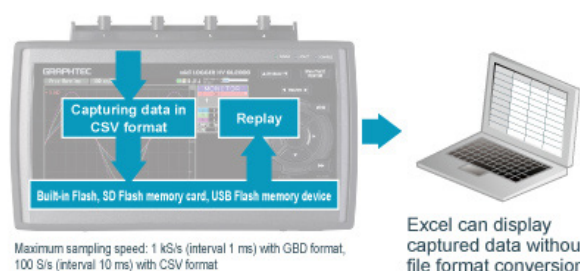
Save data to multiple files with specified capturing time or file size (up to 4 GB) until recording data is stopped.



## SAVE & REPLAY DATA IN CSV FORMAT



Captured data can be saved with GBD (binary) and CSV (text) format. CSV format file can be played on GL2000 and opened with spreadsheet software.

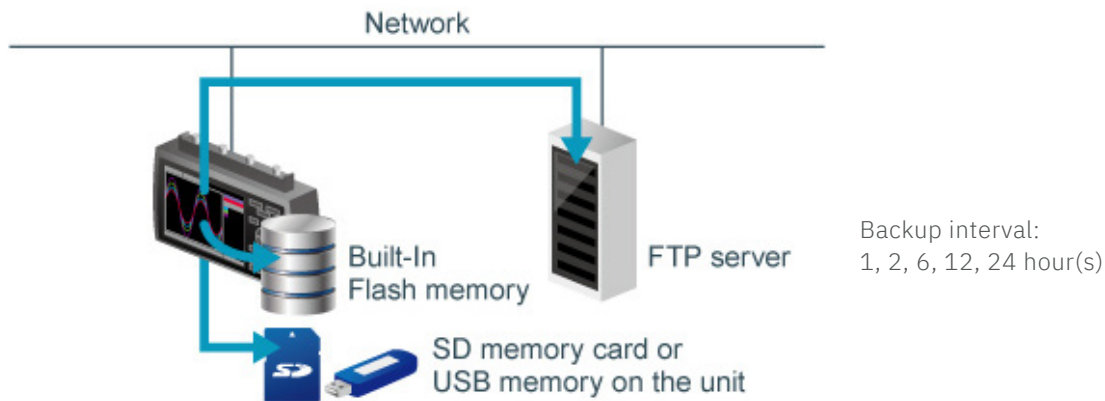




## DATA BACKUP AND HOT SWAPS



The data file can be created periodically for purpose of backing up data while recording it, and the file is automatically transferred to another storage device on the unit or FTP server on the network.



Backup file destination: Built-In Flash memory, SD memory card, USB memory device, FTP server

Data file format: GBD (binary) or CSV (text)

\* The CSV format and FTP server are available with firmware version 1.14 or later.

- Available sampling speed is the 100 ms or slower when using the CSV format.
- When the RING mode or external pulse synchronization sampling is selected for recording, the backup function is not available.
- The storage device specified as the recording destination of the measurement data can not be set as the transfer destination of the backup file.
- When backup is enabled and data file format is specified with CSV format, SD memory card exchange (hot-swapping) and RELAY recording are not available.

## AUTO SAVE FUNCTION



Recorded data saved in a built-in RAM is automatically copied as data file to a built-in Flash memory, SD Flash memory card or USB Flash memory with auto save function. An SD Flash memory card or a USB Flash memory can be used as a backup location when using the built-in RAM. The process will prevent losing any data captured in the built-in RAM by any overwrite or power cycles.

## SEARCH FUNCTION



The search function can locate a specific value within the captured data as well as finding abnormal values within data of a long-recorded file.

### Search content

Search for analog signal levels, logic signal pattern, pulse signal levels or alarm point in captured data.

Analog signal channel: Signal levels in each channel

• **Search mode:** raising, falling, window-in, window-out

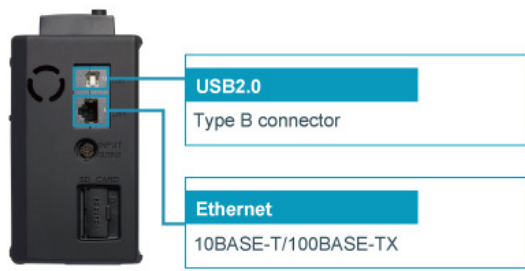
Logic signal channel: Signal level (H or L) in each channel

Pulse signal channel: Signal levels in each channel

• **Search mode:** raising, falling, window-in, window-out

**Alarm:** Alarm detected point on selected alarm signal output channel

# EQUIPPED WITH ETHERNET (LAN) AND USB INTERFACE TO COMMUNICATE WITH PC



\* This interface is for connecting directly to PC only.

Measurement method	Data file format in PC (*)	Available sampling speed
Real time measurement Transfer data captured with GL2000 to PC.	Binary or CSV format	1 ms to 1 min
Memory measurement Transfers data to PC after completed capturing data to built-in RAM with GL2000.	Binary format	1 $\mu$ s to 1 min

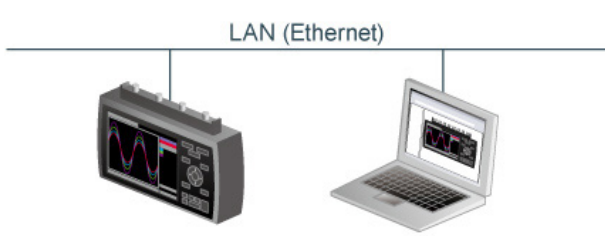
\* Captured data can be saved with storage device on GL2000 and PC simultaneously.

## CONVENIENT FUNCTION WITH LAN (ETHERNET INTERFACE) CAPABILITY

When GL2000 is connected to LAN using the Ethernet interface, networked computer can monitor real-time measured value, transfer files, and change set ups without using application software (GL980\_2000-APS software).

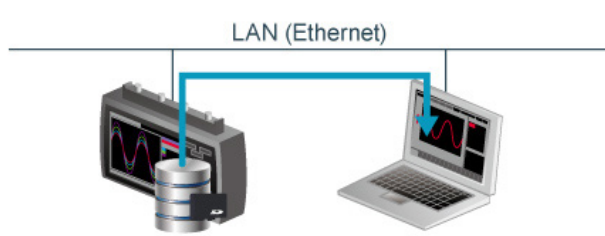
### WEB SERVER FUNCTION

GL2000 can be controlled externally via a network on the WEB browser, which also supports real-time monitoring and ability to use the menu buttons.



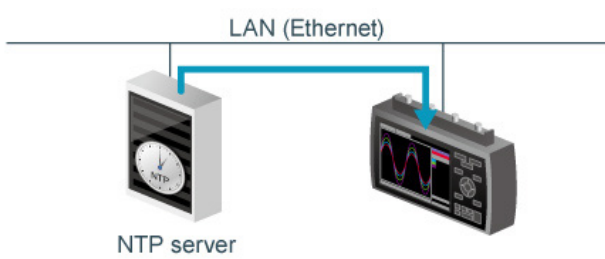
### FTP SERVER FUNCTION

File in available storage device on GL2000 except built-in RAM can be transferred or deleted from the PC.



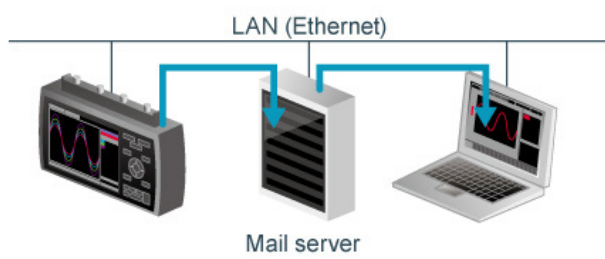
### NTP CLIENT FUNCTION

The clock on the GL2000 is periodically synchronized with the NTP server.



### EMAIL SENDING FUNCTION

Send information when alarm occurs, or when battery is low, or when communication speed drops, or to notify when the space becomes limited on the storage device by an e-mail to specified address. Information can also be sent periodically by settings.



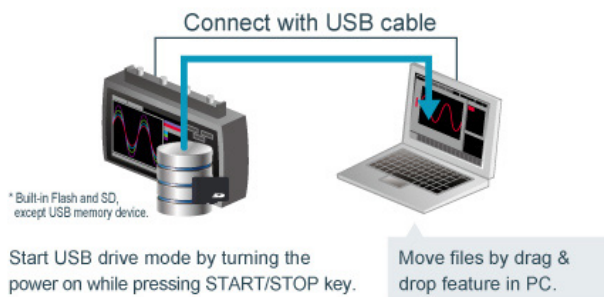
## USB DRIVE MODE TO EASILY TRANSFER FILES TO PC

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### USB DRIVE MODE

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The USB drive mode function allows simple data transfer to the PC from built-in Flash memory and SD Flash memory card which acts as USB Flash drive on GL2000. It also allows to add, remove, and delete files from storage device on GL2000 from PC file browsing explorer.





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