GL800 Main Unit Specifications

Item			Description
Number of analog input terminal units			1unit (20 ch) or Extension unit (max. 200 ch)
			Maximum 10 units or 200 ch when using with a PC
Sampling interval *1			100 ms (10 ch) to 1 h
Trigger function	Type	Start	(Data capture starts when a trigger is generated)
		Stop	(Data capture stops when a trigger is generated)
	Condition	Start	Off, Level, Alarm, Scheduled time, External
		Stop	Off, Level, Alarm, Scheduled time, Elasped time, External
Alarm function	Type		Analog, Logic, Pulse (AND and OR operation available)
	Condition	Analog	H, L, Window In, Window Out
		Logic	H, L at each channel
		Pulse	H, L, Window In, Window Out
Pulse / Logic input *2 *5			Selectable between Pulse and Logic, Number of channels : 4
Pulse input range	Count mode		50 C, 500 C, 5 kC, 50 kC, 500 kC, 5 MC, 50 MC, 500 MC/F.S. (max. 50 k/sampling interval)
	Inst. Mode		50 C, 500 C, 5 kC, 50 kC, 500 kC, 5 MC, 50 MC, 500 MC/F.S. (max. 50 k/sampling interval)
	RPM mode		50 rpm, 500 rpm, 5 krpm, 50 krpm, 500 krpm, 5 Mrpm, 50 Mrpm, 500 Mrpm/F.S. (max. 50 k/sec)
Alarm output *5	No. of channels		4
	Output format		Open collector output (5V pull-up resistance 10 k ohm),5 to 24V (100 mA or less)
	Output conditions		Level judgement, Window judgement, Logic pattern judgement, Pulse judgement
External trigger input *2 *5			1 ch
Interface to PC			Ethernet (10BASE-T / 100BASE-TX), USB (Compatible with high speed)
Data storage function	Measured data		Internal flash memory or USB memory directly
	Other		Setting conditions and Screen hard copy can be saved into the internal memory or the USB memory
Internal storage device			Internal flash memory : 12 Mbyte
USB memory slot (Full speed)			Provided as standard
Calculation function	Statistics calculation		Average, Peak, maximum, Minimum, RMS
	Number of calculations		2 calculations can be set simultaneously
Searching function			Searching the necessary point from captured data. Type : Level, Alarm, Logic, Pulse
Display	Size		5.7 inch TFT color LCD
	Displayed items		Waveforms + Digital values, Waveforms only, Digital values only
Operating environment			Temperature : 0 to 45 °C (15 to 40 °C when operating by battery), Humidity : 5 to 85 % R.H.
Power supply			AC adapter : 100 to 240V AC, 50/60 Hz
			DC input : 8 to 24 V DC *3
			Battery pack : Max. 2 batteries installable, 9 hours operation (when using under Graphtec specified condition) *3
Power consumption			28 VA or lower (when operating with AC power)
External dimensions (W x D x H) (approx.)			232 mm x 152 mm x 50 mm
Weight (approx.)			990 g including a 20 channel input terminal unit *4
Vibration resistance			Compatible with JIS Vibration testing methods for automobile Type 1 Class A-equivalent
Certifications			CE, RoHS, China RoHS

GL800 Input Terminal Unit Specifications

Item				Description	
Number of input channels				20 (maximum 200 channels by the expansion terminal unit)	
Type of input terminal				M3 screw type terminal	
Method				Scan	
				All channels isolated, Non balanced input	
Measurement range	Voltage			20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50V, 1-5 V F.S.	
	Temperature			Thermocouple : K, J, E, T, R, S, B, N, W (WRe5-26)	
				RTD : Pt100, JPt100, Pt1000 (IEC751)	
	Humidity			0 to 100 % RH (Voltage 0 to 1 V conversion, when using optional B-530 humidity sensor is used)	
Input filter				Off, 2, 5, 10, 20, 40 (Moving average)	
Measurement accuracy	Voltage			± 0.1 % of F.S.	
	Temperature			Measurement range	Accuracy
(23°C ± 5°C)	Thermo-couple	R/S		0 ≤ TS ≤ 100 °C	± 5.2 °C
· When 30minutes or more have elapsed after power was switched on				00 < TS ≤ 300 °C	± 3.0 °C
				R : 300 < TS ≤ 1600 °C	± (0.05 % of rdg + 2.0 °C)
				S : 300 < TS ≤ 1760 °C	± (0.05 % of rdg + 2.0 °C)
· Sampling 1s/20ch		B		400 ≤ TS ≤ 600 °C	± 3.5 °C
· Filter ON(10)				600 < TS ≤ 1820 °C	± (0.05 % of rdg + 2.0 °C)
· GND connected		K		−200 ≤ TS ≤ −100 °C	± (0.05 % of rdg + 2.0 °C)
				−100 < TS ≤1370 °C	± (0.05 % of rdg + 1.0 °C)
		E		−200 ≤ TS ≤ −100 °C	± (0.05 % of rdg + 2.0 °C)
				−100 < TS ≤ 800 °C	± (0.05 % of rdg + 1.0 °C)
		T		−200 ≤ TS ≤ −100 °C	± (0.1 % of rdg + 1.5 °C)
				−100 < TS ≤ 400 °C	± (0.1 % of rdg + 0.5 °C)
		J		−200 ≤ TS ≤ −100 °C	± 2.7 °C
				−100 ≤ TS ≤ 100 °C	± 1.7 °C
				100 < TS ≤ 1100 °C	± (0.05 % of rdg + 1.0 °C)
		N		0 ≤ TS ≤ 1300 °C	± (0.1 % of rdg + 1.0 °C)
		W		0 ≤ TS ≤ 2315 °C	± (0.1 % of rdg + 1.5 °C)
				* If the reference junction compensation is internal, add ± 0.5 °C to each of the above values.	
	RTD	Pt100		−200 to 850 °C (FS = 1050 °C)	± 1.0 °C
		JPt100		−200 to 500 °C (FS = 700 °C)	± 0.8 °C
		Pt1000		−200 to 500 °C (FS = 700 °C)	± 0.8 °C
A/D converter				16 bit (out of which 14 are internally acknowledged)	
Maximum input voltage				60 Vp-p (Between ±)	
				60 Vp-p (Between input terminals)	
				60 Vp-p (Between input terminal and chassis)	
Withstand voltage				350 Vp-p (between input terminal and GND) 1 minute	

*1 The available number of channels varies according to the sampling interval.
*2 Max. input voltage : 24 V, Input threshold voltage : approx. 2.5 V, Hysteresis approx. 0.5 V (+2.5 to 3 V)
*3 Option
*4 Excluding the battery and AC adapter
*5 Logic/Alarm cable (B-513) is required

GL500A Main Unit Specifications

Basic Specifications			GL500A
Number of analog input terminal units			2
Sampling interval*1	Current		1 ms - 1 h
	Event		2µs (per channel) - 1 s
Trigger	Current	Type:	Start (Data capture starts when a trigger is generated)
			Stop (Data capture stops when a trigger is generated)
		Condition:	Start: Level, Scheduled Time, External, Off
			Stop: Level, Scheduled Time, External, Elapsed Time, Event Full (two channels can be specified), Off
	Event	Type:	Start (Data capture starts when a trigger is generated)
			Stop (Data capture stops when a trigger is generated)
		Condition:	Start: Level, External, Off
			Stop:Level, External, Off
Alarm	Type		Analog, Logic, Pulse (AND and OR operations available)
	Condition	Analog:	H, L, Window In, Window Out
		Logic:	4-ch pattern
		Pulse:	H, L, Window In, Window Out
Pulse/Logic input			Either Pulse or Logic can be selected. Number of channels: 4
Pulse input range	Count mode		5 c, 50 c, 500 c, 5 kc, 50 kc/f.s. (max. 50 k/sampling interval)
	Inst. mode		5 c, 50 c, 500 c, 5 kc, 50 kc/f.s. (max. 50 k/sampling interval)
	RPM mode		5 rpm, 50 rpm, 500 rpm, 5 krpm, 50 krpm/f.s. (max. 50k/sec)
Alarm output	Number of channels		4 ch
	Output format		Open collector output (100 kΩ pull-up resistance)
	Output conditions		Level judgment, Window judgment, Logic Pattern judgment, Pulse judgment
External trigger input*2			1 ch
Interface to PC			Ethernet (10BASE-T/100BASE-TX), USB2.0
Internal memory			Current: 4 MByte (2M words)
			Event: 32 MByte (16M words)
PCMCIA slot			Type 2 compatible
Display	Size		4.7-inch STN color LCD
	Displayed items		Waveforms + digital values, waveforms only, digital values only
	Functions		Expanded/compressed waveform displays, scaling, statistical calculations, four arithmetic operations, etc.
Operating environment			Temperature: 0 - 40°C, Humidity 30 - 80% RH
Withstand voltage			1 minute at 500 Vp-p (between each input channel and main unit chassis)
Power supply			AC adapter (100 to 240 VAC, 50/60Hz)
			DC power (8.5 to 24 VDC) *3, battery pack *3
Power consumption			26 VA or lower (AC power)
External dimensions (W x D x H, approx.)			212 x 162 x 45 mm
Weight (approx.)			800g *4

*1 Sampling speed depends on available number of channels
*2 Maximum input voltage: + 24 V, input threshold voltage: approx. +2.5V, hysteresis: approx. 1V (+2 to +3V)
*3 Optional
*4 GL500AVF: excluding the battery and AC adapter"

GL500A Terminal Unit Specifications

| Item			4VF	4MF	8MS
Number of input channels			4	4	8
Type of input terminal			BNC	Screw type terminal	Screw type terminal
Method			Scan	Scan	Scan
			All channels isolated	All channels isolated	Channels not isolated
			Non-balanced input	Non-balanced input	Balanced input
Measurement ranges	Voltage		±100,500 mV	±100,500 mV	±100,500 mV
			±1,5,10,50,100 V	±1,5,10,50,100 V	±1,5,10 V
	Temperature		K, J, E, T, R, S, B, N, W	K, J, E, T, R, S, B, N, W	K, J, E, T, R, S, B, N, W
Type of input filter	Type		Line (1.5 Hz), 5 Hz, 50 Hz, 500 Hz		
Frequency response			DC - 20 kHz (+1/-3 dB Typ)		DC-20 kHz (+1/-4.5 dB Typ)
Measurement precision* (23°C ±5°C) 30 min after power-on Line filter: ON Data stored in current memory * Thermocouple diameters: T:0.32φ, others: 0.65φ	Voltage		±0.3 % of F.S.		
	Temperature			Thermo-couple	Measurement range	Accuracy
				K, J, E	−200≤ TS <0 °C	± (1 % of rdg +3.5 °C)
					K:0≤ TS ≤1370 °C	± (0.2 % of rdg +3.5 °C)
					J:0≤ TS ≤1100 °C	± (0.2 % of rdg +3.5 °C)
					E:0≤ TS ≤800 °C	± (0.2 % of rdg +3.5 °C)
				T	−200≤ TS <0 °C	± (0.8 % of rdg +3.0 °C)
					0≤ TS ≤400 °C	± (0.2 % of rdg +3.0 °C)
				R/S	0≤ TS <200 °C	± 9.5 °C
					200≤ TS <800 °C	± 6.5 °C
					R :800≤ TS ≤1600 °C	± (0.2 % of rdg +4.5 °C)
					S :800≤ TS ≤1760 °C	± (0.2 % of rdg +4.5 °C)
				B	600≤ TS ≤700 °C	± 9.5 °C
					700< TS ≤1820 °C	± (0.2 % of rdg +5.5 °C)
				N	0≤ TS ≤1300 °C	± (0.2 % of rdg +3.5 °C)
				W	0≤ TS ≤2315 °C	± (0.2 % of rdg +4.0 °C)
				Including the reference junction compensation		
A/D converter			14 bit (Out of which 12 are internally acknowledged)		
Maximum input voltage	Between +/-		100 mV - 10 V range: 30 V		100 mV -10 V range: 10 V
			50 V - 100 V range: 100 V		
	Between input terminal/chassis		AC33 Vr.m.s (60 VDC)		Non-isolated
Withstand voltage			Between input terminal and GND 1 minute at 500 VAC		Non-isolated

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GRAPHTEC

Graphtec Corporation

MLG200705203000S Printed in Japan

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Powerful Things Come In Small Packages

midi LOGGER
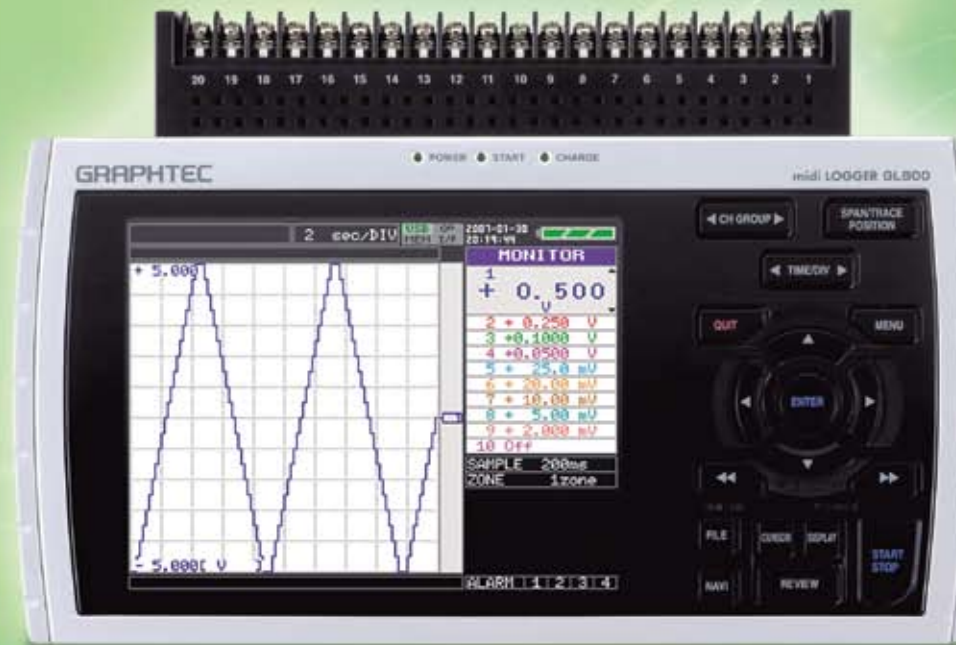
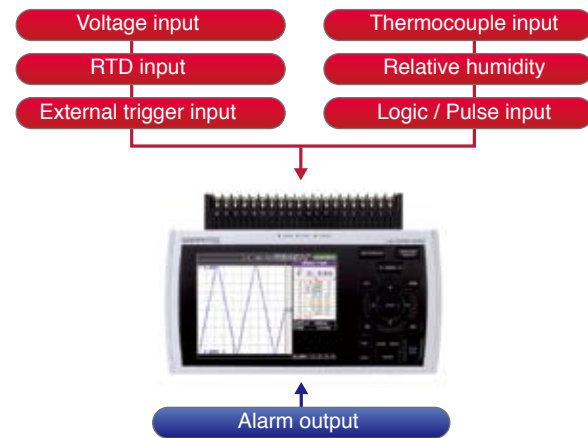Multi-channel measurement anytime, anywhere

midi LOGGER
GL800

Simultaneous Data Collection at Both Low and High Speeds

midi LOGGER dual
GL500A

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midi LOGGER Entry model — GL200

Max. 100ms Sampling	Temperature Humidity, Voltage Pulse, Logic	Maximum 10 ch	USB USB memory

Hard disk LOGGER Top-end model — GL1000/1100
Built-in 40GB hard disk

Max. 40MS/s Sampling	Temperature Voltage, Strain Frequency, Logic	Maximum 16 ch	LAN USB PC card

Expandable from the standard 20-channel configuration to a maximum of 200 channels
All channels feature insulated and multi-function inputs

The GL800 is a compact data logger, with an A5 footprint, providing excellent portability. All channels are isolated channel-to-channel and channel-to-ground. It has the ability to perform simultaneous measurement of voltage , temperature and humidity. It also supports such inputs as pulse (e.g. power, rpm and flow) and logic, in addition to voltage and temperature.

- Voltage input
- RTD input
- External trigger input
- Thermocouple input
- Relative humidity
- Logic / Pulse input

Alarm output

Record directly to USB memory

The new LOGGER is compatible with high-capacity USB memory devices and also features 12 MB of internal flash memory.

Large TFT display

The 5.7-inch TFT display is bright and easy to read, with a choice of three screens to suit the measurement application. The settings screen shows the input signal waveform in order to illustrate the impact of each modification in real time.

Settings

Digital value + calculation

Waveform only

Waveform + digital value
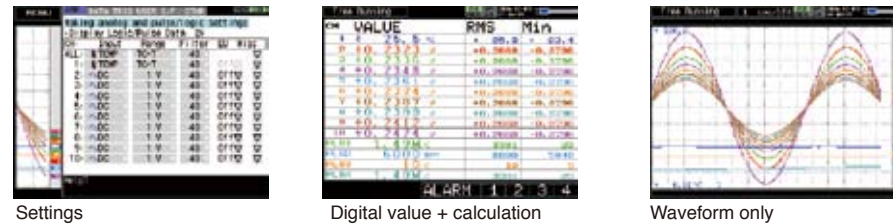
The LOGGER operates on both AC and DC, as well as on battery power supplied via twin on- board batteries designed to allow nine hours of continu ous operation.*2

The LOGGER has been designed to provide maximum protection for important measurement data, by switching automatically to battery back-up in the event of an interruption to the AC power supply, and stopping measurement and closing all files when the battery power is low.

*2 Actual time may vary depending on settings and operating conditions.

Twin batteries

Comes with convenient storage case
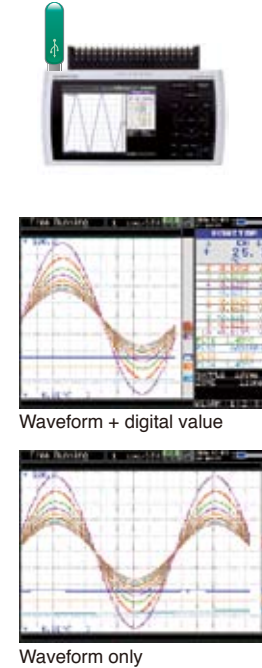
Transfer data easily via USB or Ethernet; use Ethernet web server and FTP features for remote monitoring

LOGGER is equipped with a user-friendly USB interface for simple connection to an external computer and Ethernet for remote monitoring.

USB connection (using supplied software)

LAN connection (Ethernet)

LAN connection (Ethernet)

USB drive mode is a fast and easy way to transfer data from internal memory to an external computer

Use Internet Explorer to change settings and controls and perform data monitoring and acquisition

The FTP feature enables access to data within the GL800
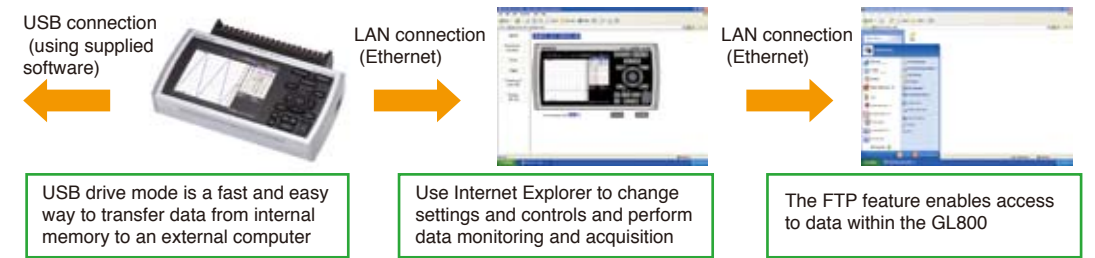
Fast and easy connection to external computer

USB 2.0 makes it easy to connect to a computer for real-time transfer of sampling data at up to 100 ms, while LAN connectivity supports remote monitoring applications and USB memory supports offline data transfer.

USB2.0 Easy connection
LAN Remote monitoring
USB memory
Offline data transfer
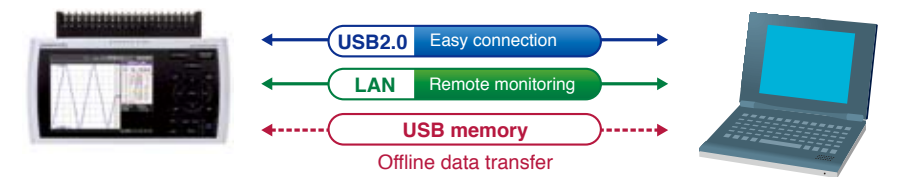
Safe and simple

Key lock and password authentication
The key lock feature has been supplemented with password authentication to prevent operational errors, particularly in applications where the system may be unattended for extended periods.

Hold down the left and right arrow keys and the ENTER key together to bring up the password screen, which can be used to set the four-digit password.

Enter New Password

Suitable for automobile parts vibration testing
LOGGER has been designed for use in vibration tests, realizing an anti-vibration level satisfying ISO 2041 and IEC Pub 68-2-6, the standards for on-board instrumentation and car navigation devices.

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midi LOGGER with the highest number of channels
midi LOGGER GL800 NEW

Terminal units are standardized to 20 channels per unit (expandable to a maximum of 200 channels), with insulated and multi-function inputs on all channels. In addition, further expansion to up to 500 channels is possible by connecting multiple LOGGER units to a computer via USB/LAN connections.

■ Sample analog 10 channel measurement

Recording interval (sampling speed)	100 ms	200 ms	500 ms	1 s	10 s
12 MB internal flash memory	Approx. 13 hours	Approx. One day + 3 hours	Approx. Two days + 21 hours	Approx. Five days	Approx. 58 days
256 MB USB memory	Approx. 12 days	25 days	Approx. 62 days	Approx. 125 days	Approx. 1,256 days

* USB memory must be standard type without fingerprint recognition or other features.

■ Channel expansion guide

	20 ch	40 ch	100 ch	200 ch
GL800	One	One	One	One
Expansion terminal base kit (B-537)	—	One	One	One
20-channel expansion terminal set (B-538)	—	One	Four	Nine

Various enhanced features realize multi-channel measurement anytime, anywhere
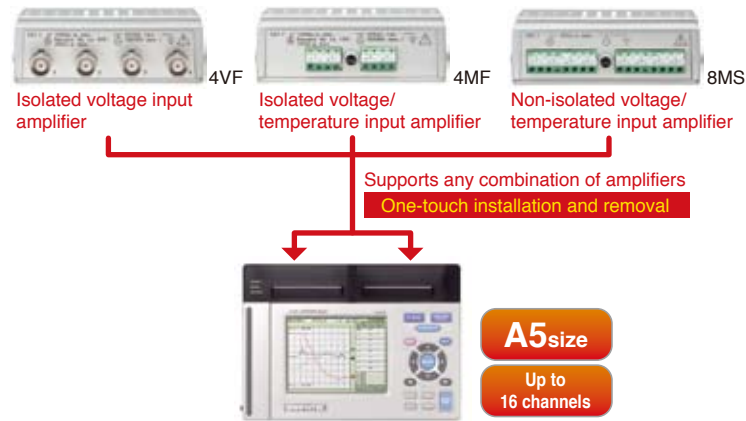
Expansion terminal base kit (B-537)

20ch expansion terminal set (B-538)
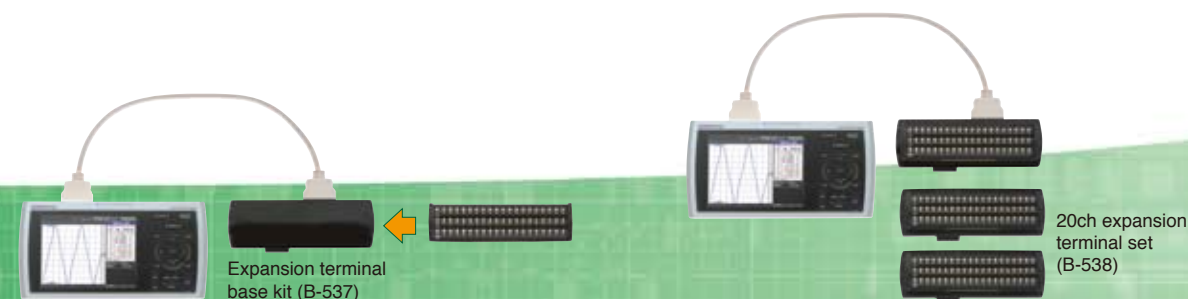
NEW

GL800

A5 size with multifunction input capability, supporting both isolated and non-isolated inputs

The GL500A is a compact recorder, with an A5 footprint, providing excellent portability. Three types of amplifiers: isolated voltage, isolated voltage/temperature and non-isolated voltage/temperature are supported and any combination of these can be selected to fit user's application. Input terminal units can be easily installed and removed by one-touch operation, and can be combined to increase the number of channels up to 16. GL500A can handle both logic and pulse signals. Alarm output terminals are also provided.

4VF — Isolated voltage input amplifier
4MF — Isolated voltage/temperature input amplifier
8MS — Non-isolated voltage/temperature input amplifier

Supports any combination of amplifiers
One-touch installation and removal

A5size
Up to 16 channels

4 pulse/logic inputs are standard

Four pulse inputs are interchangeable with logic inputs and support Count, Inst. and RPM modes (requires optional B-513 input cable).

Event data can be displayed with current data

When an event occurs during measurement, it is displayed along the time axis of current data as a bar chart. Each captured event is represented in its corresponding memory block of a different color.

Bar chart showing event data
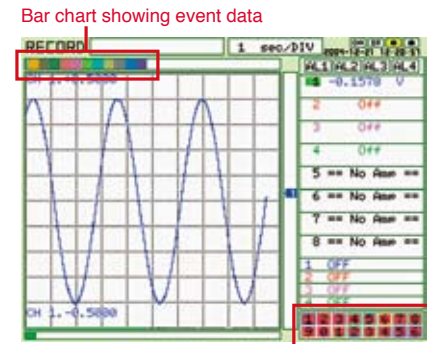
Memory blocks indicating each captured event (blocks displayed in different colors for easy identification)

After measurement, event data can be viewed alongside with current data. Current data is displayed in the upper, and event data in the lower section.
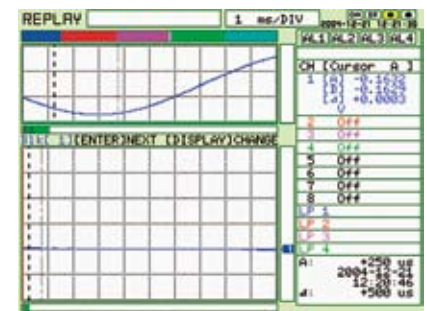
※ **Event data:**
data captured using high-speed sampling mode when an abnormal event, e.g. voltage transient, occurs.
Current data:
data captured using normal, low-speed sampling mode

Pursuing the ultimate ease-of-use

Control panel has a very user-friendly layout utilizing navigation keys resembling a mobile phone. Even first-time users can easily perform setups and display measurement data using intuitive step-by-step menu. Captured events can be viewed after the measurement. Captured data can be monitored in both waveform and digital forms during measurement.
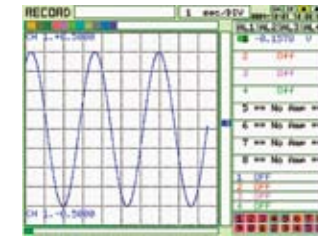
Digital + Analog screen
Both analog waveforms and digital values are visible.
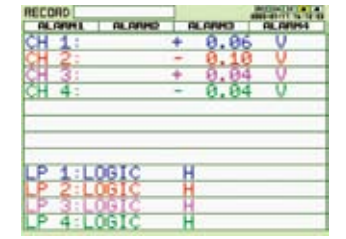
Digital screen
Measurement values can be viewed in digital format.

Easy navigation using arrow keys

Excellent operability similar to that of a mobile phone
Easy, user-friendly operation at fingertips

As easy as cell phone

Worry-free battery charging during operation

Battery charging is available even during measurement.* Backup battery will protect your data from possible data loss due to power outage.

* Only possible when using the AC adapter or in 24V DC operation. Battery charging may not be available depending on the operating conditions of the main unit.

Easy connection to PC

The GL500A support USB2.0, allowing for easy connection to PC. Data will be transferred at a high speed of 1ms. The GL500A also support remote measurement sessions via LAN, and data transfer using a PCMCIA card. The configuration of the GL500A can be easily done from a PC, and data is clearly displayed on the monitor. Current data is displayed in real time on PC monitor at maximum sampling rate of 1 ms. A portion of current data can be expanded for examination by specifying the start and end points with a cursor. Moreover the 500A can act as USB Memory Storage device, and transfer recorded data to a PC using Windows Explorer.

USB2.0 — Easy connection
LAN — Remote measurement
PCMCIA card
Offline Data transfer
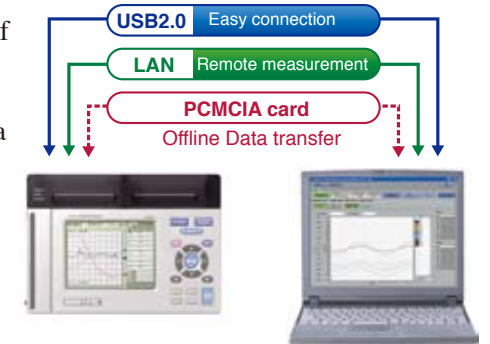
High and Low Speed Dual Sampling
midi LOGGER dual GL500A

The GL500A provides the ability to precisely measure abnormal events that occur during low-speed sampling (max. 1ms) triggering high-speed sampling mode (max. 2μs). It incorporates 4MB of memory for data from low-speed sampling, and 32MB of built-in memory for data from high-speed sampling. In addition, it has a PCMCIA-card slot, enabling storage of large amounts of data to various PCMCIA media.

Catch a high-speed phenomenon with 500KS/s

Catch an abnormal phenomenon with a high-speed sampling during a low-speed sampling measurement

Measure the voltage with 1ms sampling for a long time

Low-speed data sampling

High-speed data sampling

■ Capture time: low-speed sampling with 8ch (approx. values)

	1ms	100ms	10s
Stored in 4MB memory or PCMCIA media. 4MB memory	3 minutes	5 hours	23 days
256MB PCMCIA card	4 hours	17 days	1725 days
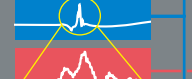
■ Capture time: high-speed sampling (approx. values)

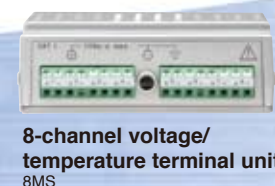|	2μs	5μs	10μs	20μs	1ms
Stored in 32MB memory 1 channel used.	6.4 sec	16 sec	32 sec	1 min.	53 min.
2 channels used.		13 sec	26 sec	53 sec	44 min.
4 channels used.			20 sec	40 sec	33 min.
8 channels used.				26 sec	22 min.

Simultaneous low and high speed sampling sessions
Capability of accurately capturing burst events
that occur during measurement

Standalone models

GL500AVF
4-channel isolated voltage measurement

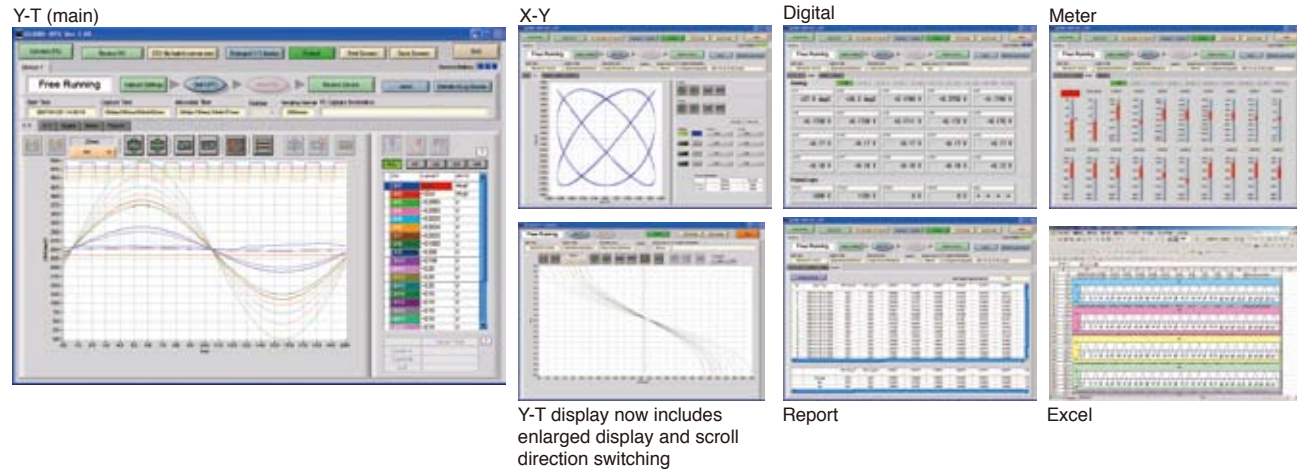## GL500AMF
4-channel isolated voltage/temperature measurement

GL500AMS
8-channel voltage/temperature measurement
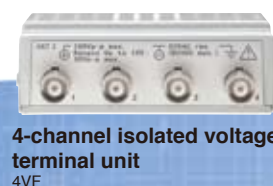
4-channel isolated voltage terminal unit
4VF
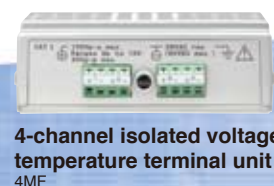
4-channel isolated voltage/temperature terminal unit
4MF

8-channel voltage/temperature terminal unit
8MS

GL800 Application Software

Choice of screens

A wide variety of screen configurations are provided: Y-T, X-Y, digital, metering and report display.

Y-T (main)   X-Y   Digital   Meter

Y-T display now includes enlarged display and scroll direction switching

Report   Excel

User-friendly interface

The interface employs intuitive icons to suit all ability levels

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

① Shrinks the time axis
③ Expands the Y axis of the selected channel
⑤ Moves up the position of the selected channel
⑦ Displays plot marks at the sample points of a waveform

② Expands the time axis
④ Shrinks the Y axis of the selected channel
⑥ Moves down the position of the selected channel
⑧ Opens a sub-screen to: ・Switch the scroll direction
・Set the scale axis
・Reset the Y axis operation, and
・Perform calculations

⑨ Displays Cursor A in the waveform display
⑪ Input comments. Up to 20 comments can be entered
⑬ Displays the level value for Cursor B in the digital value area

⑩ Displays Cursor B in the waveform display
⑫ Displays the level value for Cursor A in the digital value area
⑭ Displays the level value for Cursor A-B in the digital value area

Simple settings procedures

There are now only five settings screens. The input waveform is displayed on all screens to illustrate the impact of each modification in real time.

Amp

Trigger start conditions
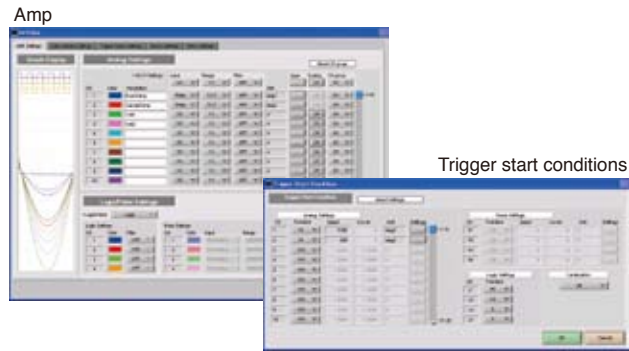
Three replay screens

Choose from three replay screens: Y-T, X-Y, and digital.

Replay main

Digital
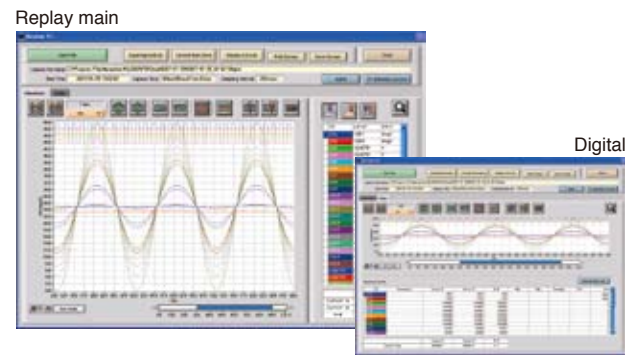
Multi-channel measurement

Up to ten LOGGER units can be connected to an external computer, supporting up to 500 channels. Measurement channels can be classified into four different display groups in any desired configuration.

Separate group settings for each channel can be entered on the Amp settings screen
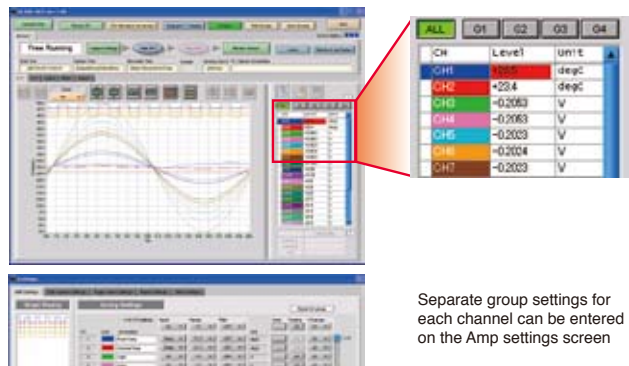
User-friendly features

LOGGER is equipped with helpful features such as logic alarm status display during measurement and password protection to prevent unauthorized access. In addition, features such as the batch CSV conversion screen and search functions appear automatically after replaying stored data.
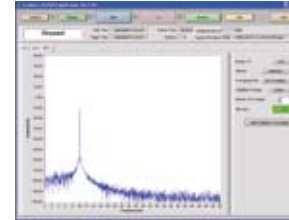
GL500A Application Software

Connection settings

Allows you to configure USB/TCP-IP connections

Main screen

This area displays current data.

Measurement modes

Available measurement modes are: Y-T, X-Y, and FFT.

Screens for settings

Separate screens are available for each of the settings.

Amplifier setting screen
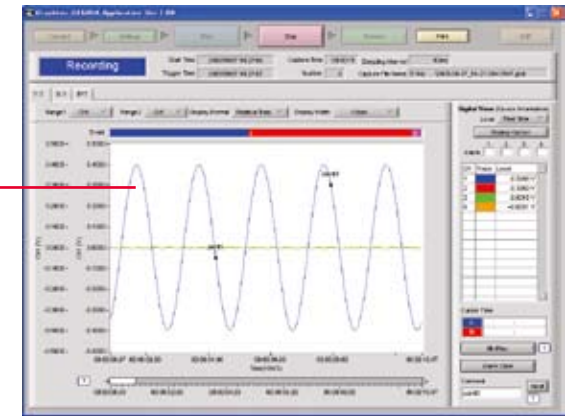
Direct Excel transfer

Direct Excel transfer can be enabled as a report function

Transfer the measurement data directly to Excel. Not only transferring data to Excel, but also preparing the convenient reference template. Therefore, you can measure it soon.

X-Y view mode

Review screen

This screen allows for loading captured data. After data has been loaded, it can be saved to a CSV file, or printed.
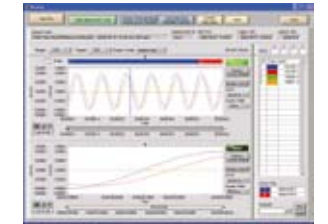
Various Accessories

Probe and cables

RIC-141 Safe probe (1:1,42pF)
RIC-141

BNC-BNC cable (1.5m)
RIC-112

BNC-Banana cable (1.5m)
RIC-113

BNC-Alligator Clip cable (1.5m)
RIC-114

Common options

Battery pack
B-517

Logic alarm cable (2m)
B-513

DC power cable (2m)
B-514

Storage case
B-536

Sensors

Humidity sensor (3m)
B-530 *for GL800

Rod-shaped thermocouple K type
RIC-410

Thermocouple K type for static surface
RIC-420

L-shaped thermocouple K type for static surface
RIC-430

System Requirements

OS :	Windows 2000, XP	HDD (GL800) :	20MB additional space required for installing the application software
CPU :	Pentium 4, 1.7GHz or higher	HDD (GL500A) :	100 MB (1 GB recommended) additional space required for installing the application software
Memory :	256MB or more	Other :	TCP-IP port, USB port, CD-ROM drive (for installing from CD)
			USB 2.0 required for high-speed applications