

High speed 1 MS/s Datalogger with Voltage and Temperature Measurements

NEW

Isolated simultaneous 8 channel data logger **midi LOGGER GL980**

Multifunction input on 8 isolated channels including true-RMS value measurement

| | | | |
|-----------------|---|--------------|--|
| Voltage | 20 mV to 500 V DC, 1-5 V DC 10 mV to 250 V rms | Pulse | 4 channels (*1) Accumulating, instant or RPM |
| Temp | Thermocouples: K, J, E, T, R, S, B, N, W (WRc5-26) | Logic | 4 channels (*1) |
| Humidity | 0 to 100% (the B-530 option is required) | | |

Safer input terminal

Isolated BNC and screw terminal for each channel.



Available input signal cable



*1: Select either Pulse input or Logic input, and use the optional input/output cable for GL (B-513 option).
 *2: Used with RIC-143.
 *3: Numbers are approximate and under the following conditions.
 - Using 8 channels of analog input only and data is saved as a GBD file.
 - External memory device is set to SD flash memory card or USB flash memory with 8 GB or more data capacity.
 - File size of captured data is up to 4GB.



Additional memory function

- Long term recording capability**
4 M sample/ch built-in RAM and 4 GB built-in Flash memory. Continuous measurement supports up to 4 GB per file.

| Memory type (*3) | 1MS/s (1μs) | 100k/s (10μs) | 1k/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 | 2 days 6 hrs | Over 1 year |
| External memory (SD/USB Flash memory) | N/A | N/A | 2 days 11 hrs | Over 1 year |

- Large built-in RAM (4 million samples per channel)**
Built-in RAM can divide into 1, 2, 4, or 8 blocks supporting continuous high-speed recording measurement with auto backup on the internal Flash memory or USB.
- Dual external recording available through USB and SD Card Flash memory**
Both the USB Flash memory device and the SD Flash memory card can be used as external storage device for captured data.

High performance and easy to use software for PC

Standard software: GL980_2000-APS

- Easy connection made possible with automatic search function for connected device.
- Multiple display format using Y-T graph, X-Y graph and digital values.
- Supports real time data transfer up to 1 ms sampling interval. Captured data from the built-in RAM can also be displayed.
- Captured data saved in binary format can convert to CSV format.

Functions

- Configure GL unit
- Control GL unit
- Real-time data display
- Replay saved data
- Data format conversion



| Main unit specifications | | |
|-------------------------------------|--|---|
| Item | Description | |
| Number of analog input channels | 8 channels | |
| External input/output | Input (*1) | Logic or Pulse (4 channels), Trigger or Sampling (1 channel) |
| | Output (*2) | Alarm (4 channels) or Trigger (1 channel) with Alarm (3 channels) |
| Trigger function | Trigger action | Start or stop capturing data by triggering |
| | Repeat action | Off, On (Re-armed automatically) |
| | Trigger source | Start/Stop: Off, Measured signal, Alarm, External, Scheduled time, Scheduled day, Elapsed time |
| | Combination | Level OR, Level AND, Edge OR, Edge AND |
| Alarm function | Threshold | High or Low in level mode, Rising or Falling in edge mode, Window-in (*3), Window-out (*3) |
| | Alarm action | Display and outputs a signal when alarm is detected |
| | Combination | OR (Source channel can be assigned with OR condition to output port) |
| Calculation function | Threshold | • Analog input : High, Low, Window-in, Window-out • Logic input : H or L • Pulse input : High/Rising, Low/Falling, Window-in, Window-out |
| | Between channels | Addition, subtraction, multiplication and division for two analog inputs (only in GBD format) |
| | Statistical | Real-time or between cursors in replay captured data • Function : Max., Min., Peak-to-Peak, Average, RMS (only for replay) |
| Scaling (Engineering unit) function | Measured value can be converted to the specified engineering unit | |
| Storage device(*4) | Built-in RAM | Four million samples for each channel (Memory partition: 4 M samples x 1 bank, 2 M sample x 2 banks, 1 M samples x 4 banks, 512 k samples x 8 banks) |
| | Built-in Flash | 4 GB (for capacity of data: approx. 3.9 GB) |
| | External USB | Support USB Flash memory device (*5) by USB2.0 Type A port, No memory capacity limit (*6) |
| | External SD card | Support SDHC memory card (up to 32 GB) by SD Card slot (*6) |
| Capturing mode | Mode | Off (Normal), Ring, Relay |
| | Off (Normal) | Save data between start to stop |
| | Ring | Save most recent data of specified number • Destination : Built-in RAM, Built-in Flash, USB or SD • Number of capturing data: 1000 to 10000000 points (*7) • Sampling : 1 MS/s (interval 1 μs) in built-in RAM, 1 kS/s (interval 1 ms) with GBD format in other device, 100 S/s (interval 10 ms) with CSV format in other device |
| | Relay | Save data to multiple files with specified capturing time or file size (up to 4 GB) until recording data is stopped • Destination of data : Built-in Flash, USB or SD • Sampling : 1 kS/s (interval 1 ms) with GBD format, 100 S/s (interval 10 ms) with CSV format |
| Data backup | Interval | Off, 1, 2, 6, 12, 24 hrs., specific time, or any time with key operation |
| | Data destination | Built-in Flash memory, USB memory device, SD Flash memory card |
| | Hot-swapping | USB Flash memory device or SD Flash memory with key operation |
| Display (LCD) | Size | 7-inch TFT color LCD (WVGA: 800 x 480 dots) |
| | Information | Waveform in Y-T with digital values, Enlarged waveforms, Digital values and statistics values, X-Y graph |
| Interface to PC | Type | Ethernet (10 BASE-T/100 BASE-TX), USB2.0 |
| | Ethernet functions | Web server function, FTP server function, NTP client function, DHCP client function, Email send function |
| | USB function | USB mode (File transfer and deletion from internal GL980 memory) |
| Operating environment | 0 to 40 °C when driven by AC adapter or battery, 5 to 85 % RH (non condensed) | |
| Power source | AC adapter : 100 to 240 V AC, 50/60 Hz DC power : 8.5 to 24 V DC Battery pack : Mountable two battery packs (*8) | |
| Power consumption | Approx. 66 VA (using the AC adapter at 240 V, with LCD display on, and battery packs being charged) | |
| External dimensions [W×H×D] | Approx. 260 x 161 x 83 mm (with the cover) | |
| Weight | Approx. 1.7 kg (the cover is attached, AC adapter and batteries are not included) | |
| Vibration resistance | Compatible with JIS Vibration test method for automobile Type 1 Class A (Vibration durability test: 5 m/s ²) | |

- *1: Select either Logic input (4 channels) or Pulse input (4 channels), select either external Trigger input or Sampling input. Required Input/Output cable for GL series (B-513) option for connecting signal.
- *2: Select either Trigger output (1 channel) or Alarm output (1 channel). Available 3 channels Alarm output always. Required Input/Output cable for GL series (B-513) option for connecting signal.
- *3: Not available with logic input.
- *4: Saved contents in built-in RAM: Captured data Saved contents in built-in Flash, USB memory or SD memory card. Captured data, Setting conditions, Screen copy
- *5: Standard USB memory devices are required.
- *6: File size of aptured data is upto 4 GB.
- *7: When using built-in RAM, 10 to 4000000 points
- *8: Required two batteries (B-569) packs when in battery mode.
- *9: Connections can be made individually to BNC terminal or M3.5 screw terminal. Those are connected to the same channel.
- *10: When using built-in Flash, SD memory card and USB memory, sampling is 1 kS/s to 1 S/m (1 ms to 60 s). When using the External, required Input/Output cable for GL series (B-513) option for connecting signal.
- *11: Measures the accumulated value of the DC and AC components in effective value, that is a true-RMS.
- *12: Graphtec does not support software/driver used with operating systems that have become obsolete and are no longer supported by the OS developer.
In the Windows 7, edition of Ultimate, Enterprise, Professional and Home Premium are supported.

- Due to the possibility of equipment or PC failure, the data files on the instrument are not guaranteed to hold memory. Please make a backup of data whenever possible to avoid data loss.
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- Specifications and details are subject to change without notice. For additional information, please check our web site or contact your local representative.

| Analog input specifications | | |
|---------------------------------|--|---|
| Item | Description | |
| Type of input terminal | Isolated BNC connector and Screw terminal (M3.5 screw) (*9) | |
| Input method | All channels isolated unbalanced input, Simultaneous sampling | |
| Sampling speed (interval) (*10) | 1 M Samples/s to 1 Sample/min (1 μs to 1 min) and External | |
| Frequency response | DC to 200 kHz (within +1/-4 dB) | |
| Measurement range | Voltage (DC) | 20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50, 100, 200, 500 V, and 1-5V F.S. |
| | Voltage (DC-RMS) (*11) | 10, 25, 50, 100, 250, 500 mV rms, 1, 2.5, 5, 10, 25, 50, 100, 250 V rms F.S. • Crest Factor: up to 2 |
| | Temperature | Thermocouple: K, J, E, T, R, S, B, N, W (WRe5-26) |
| | Humidity | 0 to 100 % RH - using the humidity sensor (option B-530) |
| Filter (Low pass) | Off, Line (1.5 Hz), 5, 50, 500 Hz, 5, 50 kHz (at -3dB, -6dB/oct) | |
| A/D converter | 16-bit (effective resolution: 1/40000 of the measuring full range) | |
| Maximum input voltage | (+) to (-) terminal | 20 mv to 2 V range: ± 30 V, 5 V to 500 V range: ± 500 V |
| | Between channels | 60 Vp-p |
| Maximum voltage (withstand) | channel - GND | 60 Vp-p |
| | Between channels | 1000 Vp-p (1 minute) |
| channel - GND | 1000 Vp-p (1 minute) | |

| External input/output specifications | | |
|--|--|--|
| Item | Description | |
| Input signal specification for Logic/Pulse and | Voltage range : +5 to +30 V (common ground) In Logic/Pulse, Threshold : Approx. +2.5 V In Trigger/Sampling, Threshold : Approx. +1.9 V | |
| Logic measurement | Measures the status (H or L) of the signal input to each channel | |
| Pulse measurement | Measurement | Counts pulse signals input to each channel |
| | Max. pulse input | Max. input frequency : 100 kHz, Maxi. count number : 15 M count |
| | Count detection | 10 μs to 1 hr. (Set separately from analog signal sampling interval) |
| Measurement mode | Measurement mode | • Rotation : Counts pulses and converts to rotation in rms, span is up to 500 M rpm |
| | | • Accumulating : Accumulates pules counts from the start, span is up to 20 M count (it is set automatically) |
| | | • Instant : Coups pulses per detectioncycle, spanis up to 20 M count |
| External trigger input (*10) | Executes specified trigger action | |
| External sampling input (*10) | Executes sampling of measurement signal with each external sampling signal, max. input frequency is 100 kHz | |
| Output signal | Alarm output | Open collector (pull-up to 5 V with 10 kΩ resistor), maximum load is the 24 V and 100 mA |
| | Trigger output | When a trigger is detected, 500 μs width pulse is released |

| Software specifications | | |
|--------------------------------------|--|--|
| Item | Description | |
| Model name | GL980_2000-APS | |
| Supported OS (*12) | Windows10, 8.1, 8, 7 (SP1 or later) | |
| Functions | Control the GL series, Real-time data capture, Replay data, and Data format conversion | |
| Supported device | 1 unit of GL980 or GL2000 | |
| Settings control | Input condition, Capturing condition, Trigger/Alarm condition, etc. | |
| Transfer of captured data from GL980 | In memory capturing | Transfer the captured data to a PC sequentially while data is being saved in built-in RAM, sampling interval is 1 μs to 60 s |
| | In real time capturing | Transfer the captured data to a PC while data is being saved in built-in flash memory, SD memory card or USB memory In GBD and CSV format, sampling interval is 1 ms to 60 s |
| Displayed information | Analog, Logic, Pulse count waveform, and Digital value | |
| Display mode | Y-T waveform, Digital values, X-Y graph | |
| File operation | Converting data format to CSV from GBD binary with data between cursors or all data | |
| Past data screen function | Displays the current data or past part of data by switching. Available at sampling speed 1 kS/s to 1 S/m (1 ms to 1 min sampling interval) | |
| Statistical calculation | Max., Min., Average and Pack-to-Peak value during data capturing | |

Standard accessories

- AC adapter with power cable • Quick Start Guide and Safety Guide
- CD-ROM (PC application software, User manual) • Cover (attached to the main body)
- Tilt standset • Screws (M3.5) for input terminal • Ferrite core (attach to cable)

| Options and Accessories | | |
|-------------------------------|-----------|--|
| Item | Model No. | Description |
| Input/Output cable for GL | B-513 | 2 m long (no clip on end of cable) |
| DC drive cable | B-514 | 2 m long (no clip on end of cable) |
| Humidity sensor | B-530 | With 3 m long signal cable (with power plug) |
| Shunt resistor | B-551 | 250 ohms (Converts signal from "4-20mA" to "1-5V".) |
| Battery pack | B-569 | Rechargeable Lithium-ion battery (7.2 V, 2900mAh) |
| Bracket for DIN rail | B-570 | Bracket for DIN rail (GL980 main body), Build-to-order |
| Carrying case | B-581 | Used with GL980, GL2000 (Comming soon) |
| Input cable, Safe probe - BNC | RIC-141A | Insulated, 1:1 (42pf), 1.2 m long, 300 V DC, CAT II |
| Input cable, BNC - BNC | RIC-142 | Insulated, 1.5 m long, 1000 V DC, CAT II |
| Input cable, Banana - BNC | RIC-143 | Insulated, 1.6 m long, 600 V DC, CAT II |
| Clip, Alligator (small size) | RIC-144A | For RIC-143,147 Aperture 11 mm, 300 V DC, CAT II, Max. 15 A |
| Clip, Alligator (middle size) | RIC-145 | For RIC-143,147 Aperture 20 mm, 1000 V DC, CAT II, Max. 32 A |
| Clip, Grabber | RIC-146 | For RIC-143,147 Aperture 5 mm, 1000 V DC, CAT III, Max. 1 A |
| Input cable, Banana - BNC | RIC-147 | Insulated, 1.6 m long, 1000 V DC, CAT II |
| Input terminal adapter | SMA-102 | Banana (receptacle) to BNC (plug), Insulated |
| AC Adapter | ACADP-90 | Input: 100 - 240 V AC, Output: 24 V DC |

 Use equipment correctly and safely!

• Use only in accordance with product's user manual.

• To avoid malfunction or an electric shock by current leakage or voltage, please ensure ground connection and use according to the specifications.

GRAPHTEC

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