Isolated/Universal Input, Standalone Multi-Channel Datalogger

midi LOGGER
GL840-M / GL840-WV / GL240

Flexible input system for wide array of applications
Wireless LAN capability for remote monitoring and remote datalogging system
Extended memory capacity using SD memory card
Maximum sampling interval of up to 10ms

NEW Multi-Input Model
midi LOGGER GL840-M

NEW High Voltage Withstand Model
midi LOGGER GL840-WV

NEW 10-Channel Portable Model
midi LOGGER GL240

www.graphtecamerica.com
**Setting New Industry Standards for It’s Class**

**Accommodates a wide variety of measurements**

- **Multifunction analog input ports**
  - Contains a highly isolated input mechanism which ensures that signals are not corrupted by noise from other channels. The GL840/240’s inputs are suitable for combined measurements from voltage, temperature, humidity, logic, and pulse signals.

- **4 channels of Logic/Pulse inputs**
  - Supports 4-channel logic or pulse signal inputs. Pulse mode allows cumulative, instant, or proportional values for industrial measurement capability with speed and flow.

**Large easy-to-read 7-inch wide color LCD (4.3-inch in the GL240)**

Carries a clear 7-inch wide TFT color LCD screen (WVGA: 800 x 480 dots) for the GL840, and 4.3-inch wide LCD screen (WQVGA: 480 x 272 dots) for the GL240. Monitoring data can be displayed in waveform or digital form. Parameter settings can be displayed on the screen.

![Waveform display (Analog + Digital)](image1)

![Digital display](image2)

![Dual display (Current + Past)](image3)

![Bar chart (Integrated data in a stacked bar chart)](image4)

**Useful functions**

- **Displays the data by a bar chart**
  - The integrated data that is measured by the digital sensors can be displayed by a bar chart in the GL840 series. Multiple bar chart types are available. Data can also be displayed as a line chart when the GS-TH (Temp/Humidity), GS-DPA-A/C with GS-ACxxx (AC current/power) or GS-LXUV (Luminance/Uv) digital sensor is used. The digital sensor can be connected to the GL840 or GL100-WL. The GL100-WL is used combining with the GL840/GL240. * Firmware v1.10 or later.

- **Alarm output function**
  - Alarm signals can be placed using the four channel alarm output ports based on set conditions for each channel. *
  * Input/output cable (B-513 option) is required to connect the alarm output ports to external buzzer/light mechanism.

- **USB drive mode**
  - USB drive mode function enables data to be transferred to the PC from GL840/GL240 by drag & drop feature.

**Maximum sampling interval of up to 10ms**

Provides faster sampling rates for voltage measurements. Up to 10ms sampling speed is achievable when limiting the number of channels in use.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sampling Interval</th>
<th>10ms</th>
<th>20ms</th>
<th>50ms</th>
<th>100ms</th>
<th>200ms</th>
<th>500ms</th>
<th>1s</th>
<th>10s</th>
</tr>
</thead>
<tbody>
<tr>
<td>GL840</td>
<td>Measuring Voltage</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>GL240</td>
<td>Measuring Voltage</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* This chart is applicable when the captured data is saved in the GBD (Graphtec Binary Data) format. Limited sampling speed is available when digital sensors and GL100-WL are used as a remote monitoring device.

**Built-in 4GB Flash memory with SD card support**

The new GL series enables reliable long-term measurement with its built-in 4GB flash memory and SD card slot for external storage devices. The SD card slot supports an SDHC memory card of up to 32GB.

**Capturing time**

- When all 20 or 10 analog channels are being used with Logic/Pulse inputs turned off:
  - GL840: 5 days, 20 days, 60 days, 90 days, 180 days
  - GL240: 3 days, 11 days, 26 days, 52 days

* Figures are approximate. File size of captured data is 20B in GBD or CSV file format on this chart. Sampling interval is limited by the number of channels in use. (10ms: 1ch, 50ms: 5ch, 100ms: 10ch)

**Ring capture function**

The most recent data is saved when the memory is configured in ring memory mode. (Number of capturing data is 1000 to 20000000 points)

**Relay capture function**

Data is continuously saved to multiple files up to 2GB without losing any data until capturing is stopped when the memory is configured in the relay mode.

**Hot-swapping the SD memory card**

SD card can be replaced during data capturing when the sampling interval is 100ms or slower.

* When the wireless sensor (GL100-WL) is connected, the sample interval among 10, 20, and 50ms cannot be replaced during recording.

**Navigation function**

Simple to use navigation screen allows setting operation for measurement and wireless LAN adapter in GL840.

**3 Types of Power Source**

Choose from AC power supply, DC supply* or the rechargeable battery pack.*

* DC power drive cable (B-514) and battery pack (B-569) are optional accessories.

**Networking features**

- **Web & FTP server function**
  - GL840/GL240 can be controlled externally via a network on the WEB browser, which also supports monitoring and transfer of signals and captured data.
- **FTP client function**
  - Captured data is periodically transferred to the FTP server for backup.
- **NTP client function**
  - The clock on the GL840/GL240 is periodically synchronized with the NTP server. The GL840/GL240 needs to be connected to a LAN environment using the available Ethernet/WLAN ports.
GL840 series & GL240

Useful functions

Parameter settings can be displayed on the screen. for the GL840, and 4.3-inch wide LCD screen (WQVGA: 480 x 272 dots) for LCD (4.3-inch in the GL240)

Accommodates a wide variety of
0 to 100%RH - using optional sensor (B-530)
Humidity

Setting New Industry Standards for Its Class

RTD types (for GL840 only): Pt100, Pt1000, JPt100

Pulse
4 channels*
Built-in 4GB Flash memory

Monitoring device.

* This chart is applicable when the captured data is saved in the GBD binary file format.

* The GL840/GL240 needs to be connected to a LAN environment using the available

Captured data is periodically transferred to the FTP server for backup.

Web & FTP server function

GBD format
31 days 77 days 95 days 108 days 270 days over 365 over 365

CSV format
1 2 5 10 20 50 100 200

Temperature
± 1.55 ºC

Maximum voltage and accuracy rating for the setup will be limited to the rating of the B-564.

* Input terminal blocks for the B-564 and B-565 can be mixed together for combined configurations. However, the maximum voltage and accuracy rating for the setup will be limited to the rating of the B-564.

Configuration for additional channels

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>20 channels</th>
<th>40 channels</th>
<th>100 channels</th>
<th>200 channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>GL840 unit (GL840-M or GL840-WV)</td>
<td>1 set</td>
<td>1 set</td>
<td>1 set</td>
<td>1 set</td>
</tr>
<tr>
<td>Connection cable (B-567)</td>
<td>N/A</td>
<td>1 pc</td>
<td>1 pc</td>
<td>1 pc</td>
</tr>
<tr>
<td>Terminal base (B-566)</td>
<td>N/A</td>
<td>2 sets</td>
<td>5 sets</td>
<td>10 sets</td>
</tr>
<tr>
<td>Input terminal (B-564 or -565)</td>
<td>N/A</td>
<td>1 set</td>
<td>4 sets</td>
<td>9 sets</td>
</tr>
</tbody>
</table>

* Input terminal blocks for the B-594 and B-955 can be mixed together for combined configurations. However, the maximum voltage and accuracy rating for the setup will be limited to the rating of the B-594.

Offers longer cable for the input terminals

Input terminal blocks can be connected directly (in daisy chain), or using the B-565 cable(s). This allows the input terminals to be placed in separate locations according to the need of the application.

The input terminal and the GL840 main body can be extended by using an extended connection cable.

* If the signal is affected by noise, it may be required to use a slower sampling.

Expandable up to 200 channels

Standard configuration has 20 analog input channels. It is expandable to 200 channels by adding the optional 20 channel extension terminal base unit (B-566) and input terminal units (B-564 or B-565).

The following shows how a standard configuration is expanded to a 40 channel configuration.

1. Terminal unit is removed from the main body of the GL840.
2. Extension terminal base unit (B-566) connects to the GL840 using the external cable (B-567).
3. Terminal unit snaps onto the extension terminal base unit (B-566).
4. The combined extension terminal base set (B-566) and additional input terminal units (B-564 or -565) are daisy chained together.

Support digital sensors

Digital sensors and input terminal/adapters for the GL100 connect to the GL840 directly.

Temperature/ Humidity

Thermistor

Accelerometer/

Carbon Dioxide

Illuminance/ UV

Voltage/Temperature

GS-TH

Exercise/ Temp

GS-3AT

GS-CO2

GS-LXUV

GS-4VT

* Supports up to two AC current sensors.
** Allows only one extension cable per port.

Dual port adapter connects up to two sensors for simultaneous interface

- Temp/Humidity & Illuminance/UV
- Temp/Humidity & Carbon Dioxide

Illuminance/UV & Carbon Dioxide

High performance software with useful functions for the PC (GL100_240_840-APS)

GL840, GL240, GL100

Up to 10 units of GL840, GL240 and GL100 can be connected to 1 PC simultaneously. Up to 1000 channels are supported.

Controls settings for GL840, GL240, GL100

Various measurement screen

Displays data in Y-T waveform, digital monitoring, statistical calculation result, bar chart*.

* Software ver.1.10 or later.

The direct-Excel function enables captured data to be written directly to an Excel file.

File operation

Data captured in multiple files can be merged into a single file. Using the combine function, data can be imported as a new channel overlaying on top of each other. The bind function connects the data in a time axis. When using the relay capture mode, the bind feature will append multiple files together into one large, continuous file.

Useful functions

Scheduling function

Create a schedule for your monitoring to start and stop at selected time, and set an automatic measurement schedule.

Group function

Multiple units can be managed, such as controlling start or stop simultaneously. Data captured by each unit is saved in a single file.

Data format conversion

Converts the GBD (Graphical Binary Data) format to CSV format. The file size is reduced using the compression function saving a value at particular time point of a specified interval. Or, it will save the average, maximum, or minimum values from the specified time interval as the highlighted values.
Wireless Measurement Using WLAN (option)

Wireless LAN option enables the wireless communication with other devices. Connects to the GL100-WL wireless unit remotely when set as an access point. When set as a station, PC and smart devices will be able to access the WLAN unit directly.

Combining GL100-WL and GL240/GL840
GL100-WL can now be connected to the GL840 or GL240 as a remote sensor using the WLAN feature. You can expand your measurement variety by adding the sensors available on the GL100-WL unit. The measured value will then appear in a single file along with the measurement values from the GL840/GL240 main inputs. GL840/GL240 will now take in direct information from the GL100-WL units.

Communication with PC or Smart device
GL840 and GL240 units can be connected to a LAN (Local Area Network) via a WLAN access point. Measured data can be monitored and controlled via a PC or a smart device using the application software. Configuration of GL840/GL240 can be set via the network. Available functions vary by the network configuration.

High quality performance and measurement software with useful functions for PC & smart devices

For PC (GL100_240_840-APS)
Software for the PC is included as a standard accessory.
- Monitor and save captured data remotely
- Control the GL840/GL240
- Additional functions
  - Scheduling function
  - Group function
  - Data format conversion
  - File operation
  - And more!

For Smart device (GL-Connect)
Apps for the smart devices are available on the Android OS and iOS platforms. Download them free from the individual stores.

- Monitoring captured data
  Real time captured data can be displayed as digital values in real time on the smart device apps. The saved data on the GL840/GL240 main body can also be displayed in waveform display format.
  * Captured data will not be saved on the smart device.

- Set and control simple functions
  Dedicated control features allow remote start and stop, setting the sampling interval, and setting the alarm conditions.

- Control the settings remotely
  Web server function of the GL840/GL240 allows remote control and monitoring using this application.
**GL840 Main unit specifications**

- **Model**: GL840-M (input terminal B-564), GL840-W, input terminal B-569
- **Input**: All channels isolated (balanced/grounded) (11). See channels for sampling
- **Type of input terminal**: Screw terminal (grounded terminal), standard config.
- **Measurement range**: 
  - **Thermocouple**: 
    - Type K, J, E, R, S, B, N, W (W365-25)
    - Range: 50 to 1500 °C (95 to 2602 °F).
  - **RTD**: 
    - Resistance Temperature Detector (RTD)
    - Range: 100 to 500 °C (212 to 932 °F).

**Software specifications for Smart device**

- **Item**: 
  - Model name: GL840_240_840-APS
  - GL840 (USB, Ethernet, WLAN), GL240 (USB, WLAN), GL100 (USB, WLAN)

**Software specifications for Smart device**

- **Item**: 
  - Model name: GL840 Analog input specifications
  - Model number: GL840-W, input terminal B-569

**Error handling**

- **Error message**: 
  - When 30 minutes or more has elapsed after power has turned on, 
  - If input drifts out of the last measured data

**Power supply**

- **Item**: GL840 Analog input specifications
  - **Input voltage**: 
    - GL840 (USB, Ethernet, WLAN): 24 V DC
    - GL240 (USB, WLAN): 24 V DC
    - GL100 (USB, WLAN): 24 V DC

**Input method**

- **Item**: GL840 Analog input specifications
  - **Model number**: GL840-M, Input terminal B-564
  - **Input terminal B-564**: 
    - 20ch input terminal, multi-input type
    - Sampling interval: Up to 30 min (depending on the type of sensor)
  - **Input terminal B-563**: 
    - 100ch input terminal, multi-input type
    - Sampling interval: Up to 10 min

**Temperature**

- **Item**: GL840 Analog input specifications
  - **Input voltage**: 4.05% of F.S. (Full Scale)
  - **Temperature (ThERMOCOUPLE)**: 
    - ± 0.5% of F.S. (Full Scale)

**Frequency**

- **Item**: GL840 Analog input specifications
  - **Input voltage**: 0.05% of F.S. (Full Scale)
  - **Temperature (ThERMOCOUPLE)**: ± 0.5% of F.S. (Full Scale)
### GL420 Analog Input Specifications

**Item** | **Description**
--- | ---
Input method | All channels isolated balanced input (I2C), voltage channels for sampling
Type of input terminal | Screw terminal (I2C)
Measurement range | 2V, 50, 100, 200, 500 mV, 1, 5, 10, 20, 50, 100 V and 1-9 V F.S. (Full Scale)
Temperature accuracy | Type: 0.5% or less (±0.5°C)
Humidity | 0 to 100% RH — using the humidity sensor (option B-535)
Filter | R, C, 2, 10, 30, 40 (moving average in selected order)
Measurement accuracy | ±1.2% of F.S. (Full Scale)

**Item** | **Description**
--- | ---
Input voltage | Up to 1000 channels total, Up to 4 groups (number of units is limited by model)
Input range | 0 to 20 V for analog inputs
Output range | 0 V to 10 V
Output port | Can be specified in each input channel.
Alarm function | Maximum sampling interval of up to 10ms
Display data | Saved to the SD memory card
- **Saving data in between cursors**
- **Voltage range:** Up to 24V (common ground)
- **Threshold:** Approx. 2.5 V (Hysteresis: Approx. 0.5V to 3V)
- **Output signal:** Open collector (pull-up to 5V to 12Vmax)
- **Communication distance:** Approx. 40m (depending on the conditions of radio communication)

**Item** | **Description**
--- | ---
Supported units & channels | 10 units
Wired communication | Connect multiple GL840s to communicate with GL100 as a master.
Wireless communication | Connect multiple GL840s to communicate with GL100 as a master.

**Software specifications for Smart device**

**Item** | **Description**
--- | ---
Model name | GL-Connect
Supported OS | Android 4.1 to 4.4, iOS 7.x
Supported device | Windows 10, iOS, Android
Functions | Control the GL series, Display measured data in waveform or digital value
Supported units | Up to 100 units
Settings control | Start/auto, Sampling interval
Capturing data | Saved captured data in the GL main body data can be saved in the smart device
Displayed data | Saved captured real-time data to digital value. Display data saved to the GL body to the waveform

**Software specifications for Smart device**

**Item** | **Description**
--- | ---
Model name | GL-Connect
Supported OS | Android 4.1 to 4.4, iOS 7.x
Supported device | Windows 10, iOS, Android
Functions | Control the GL series, Display measured data in waveform or digital value
Supported units | Up to 100 units
Settings control | Start/auto, Sampling interval
Capturing data | Saved captured data in the GL main body data can be saved in the smart device
Displayed data | Saved captured real-time data to digital value. Display data saved to the GL body to the waveform

**Options and Accessories**

**Item** | **Description**
--- | ---
Wireless LAN unit | PW8: Push button on the method
Supported LAN unit | Security protocols: WEP64, WEP128, WPA-PSK/WPA2-PSK, WPA2AES
Communication method | Secure protocols: WEP64, WEP128, WPA-PSK/WPA2-PSK, WPA2AES
Wireless communication | Communication using radio waves in the 2.4GHz band
Supported wireless system | IEEE802.11b/g/n

**Specifications for PC**

**Item** | **Description**
--- | ---
Model name | GL100_240, 240-APF
Supported OS | Windows 10, iOS, Android
Supported device | GLUSB, Ethernet, WiLAN, GL100 (USB, WiLAN)
Functions | Control the GL series, Real-time data capture, Replay data, and Data format conversion
Supported units & channels | Up to 1000 channels total, Up to 4 groups (number of units is limited by model)
Settings control | Input condition, Capturing condition, Trigger/Arcp condition, Report, etc.
Capturing data | Saved captured data in real-time data (in GBD binary or CSV format)
Displayed information | Saved to the SD memory card (in GBD binary or CSV format)
File operation | Copy, Cut, Paste, Delete, Rename, and Save to SD memory card
Warning function | Send e-mail to the specified address when the alarms occur
Statistical calculation | Maximum, Minimum, and Average during data capturing
Report function | Generate the daily or monthly report automatically

**For using equipment in correctly and safely**

- To avoid malfunction or an electric shock by current leakage or voltage, please ensure a ground connection and use according to the specification.
- Before using it, please read the user manual and then please use it according to the description.
- Due to the possibility of equipment or PC failure, the data files on the instrument will not be guaranteed to be held on the memory. Please make a backup of data whenever possible to avoid data loss.
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