GRAPHTEC

Isolated/Universal Input, Standalone Multi-Channel Datalogger

midi LOGGER

GL840-M / GL840-WV / GL240

Setting New Heights
in Data Recording

- 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.graphteccorp.com

midi LOGGER
GL840series & GL240

GL840 series

GL240

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

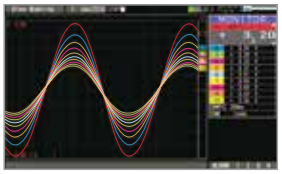
Supports 4-channel logic or pulse signal inputs. Pulse mode allows cumulative, instant, or rotational values for industrial measurement capability with speed and flow.

Voltage	Ranges from 20mV to 100V	Pulse	4 channels* Accumulating, Instant or RPM
Temp	Thermocouple type: R, S, B, K, E, T, J, N, W RTD types (for GL840 only): Pt100, Pt1000, JPt100	Logic	4 channels*
Humidity	0 to 100%RH - using optional sensor (B-530)		

* Requires optional input/output cable (B-513). Select either Pulse or Logic input.

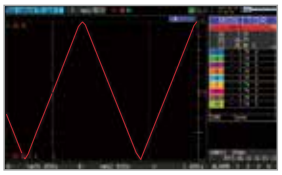
Large easy-to-read 7-inch wide color LCD(4.3-inch in the GL240)

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)

Digital display



Dual display (Current + Past)

Bar chart (Integrated data in a stacked bar chart)

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-AC with GS-ACxxx (AC current/power) or GS-LXUV (Illuminance/UV) digital sensor is used. The digital sensor can be connected to the GL840 or the GL100-WL. The GL100-WL is used combining with the GL840/GL240. * Firmware ver.1.10 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.

Model	Sampling interval		10ms	20ms	50ms	100ms	200ms	500ms	1s	2s
	Number of channel		1	2	5	10	20	50	100	200
GL840	Measuring	Voltage	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Temperature	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes
GL240	Measuring	Voltage	Yes	Yes	Yes	Yes	Yes(10ch)	Yes(10ch)	Yes(10ch)	Yes(10ch)
		Temperature	N/A	N/A	N/A	Yes	Yes(10ch)	Yes(10ch)	Yes(10ch)	Yes(10ch)

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

Model	Sampling	10ms	50ms	100ms	200ms	500ms	1s	10s
GL840 (20ch)	GBD format	31 days	77 days	95 days	108 days	270 days	over 365	over 365
	CSV format	3 days	11 days	16 days	21 days	54 days	109 days	over 365
GL240 (10ch)	GBD format	41 days	88 days	103 days	207 days	over 365	over 365	over 365
	CSV format	3 days	11 days	16 days	36 days	91 days	182 days	365 days

* Figures are approximate. File size of captured data is 2GB 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)
Limited sampling speed is available when digital sensors and GL100-WL are used as a remote monitoring device.

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 2000000 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 expands to two models for application specific use

Multi-Input Model
midi LOGGER GL840-M

Suitable for temperature measurement with multiple channels.

High Voltage Withstand Model
midi LOGGER GL840-WV

Suitable for stacked high voltage battery application, or high-precision temperature measurement.

Withstand voltage & Accuracy		Multi-input type (B-564)	Withstand-voltage type (B-565)
Voltage	Input voltage range	20 mV to 100 V	20 mV to 100 V
	Max. voltage (Input - GND)	60 Vp-p	300 Vp-p
Temp	Thermocouple	R, S, B, K, E, T, J, N, W (WRe5-26)	
	RTD (Resistance Temp Detector)	Pt100 (IEC751), Pt1000 (IEC751), JPt100 (JIS)	
Accuracy	Voltage	± 0.1% of F.S.	±(0.05% of FS + 10µV)
	Temperature*	± 1.55 °C	± 1.1 °C

* Accuracy rating for K-type thermocouple at 100°C includes reference junction compensation. Accuracy varies by temperature levels and thermocouple types.

Expandable up to 200 channels

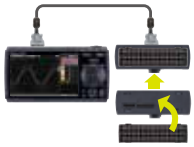
Standard configuration has 20 analog input channels. It is expandable to 200 channels by adding the optional 20 channel extension terminal base unit (B-566) and input terminal units (B-564 or B-565).
The following shows how a standard configuration is expanded to a 40 channel configuration.

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 terminals (B-564 or -565) are daisy chained together.



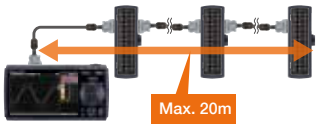
Configuration for additional channels

Number of channels	20 channels	40 channels	100 channels	200 channels
GL840 unit (GL840-M or GL840-WV)	1 set	1 set	1 set	1 set
Connection cable (B-567-05 or -20)	N/A	1 pc	1 pc	1 pc
Terminal base (B-566)	N/A	2 sets	5 sets	10 sets
Input terminal (B-564 or B-565)	N/A	1 set	4 sets	9 sets

* 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.

Offers longer cable for the input terminals

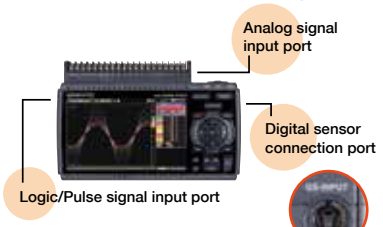
Input terminal blocks can be connected directly (in daisy chain), or using the B-565 cable(s). This allows the input terminals to be placed in separate locations according to the need of the application.
The input terminal and the GL840 main body can be extended by using an extended connection cable.



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

Three types of input systems enable measurement of various signals

Along with the basic analog signal, Logic/Pulse, and digital sensors can be all connected to monitor a variety of measurements.



Support digital sensors

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

Temp/Humidity GS-TH

Acceleration/ Temp GS-3AT

Carbon Dioxide GS-CO2

Illuminance/ UV GS-LXUV

Voltage/Temp GS-4VT

Thermistor adapter GS-4TSR

Thermistor

AC current sensor adapter GS-DPA-AC*

AC current sensor

Extension cable**

* 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

Dual port adapter
GS-DPA

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

GL840 series

GL240

WLAN, Ethernet or USB

PC (Software)

Supports 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

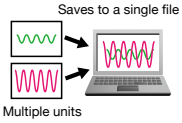
Scheduling function

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.

Easily creatable schedule table using only a mouse.



Data format conversion

Converts the GBD (Graphtec 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.

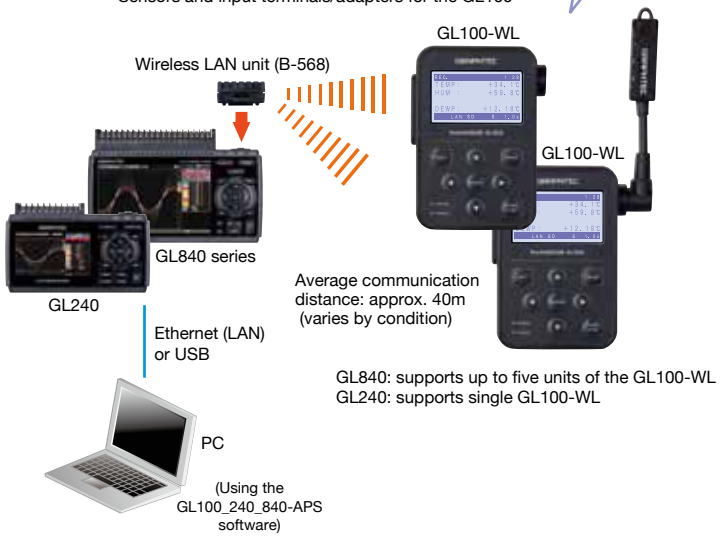
Wireless Measurement Using WLAN (option)

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.

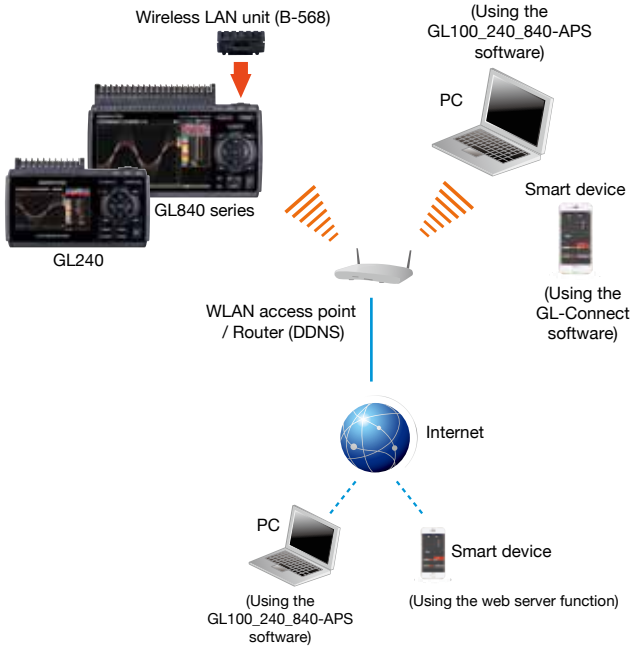
Sensors and input terminals/adapters for the GL100



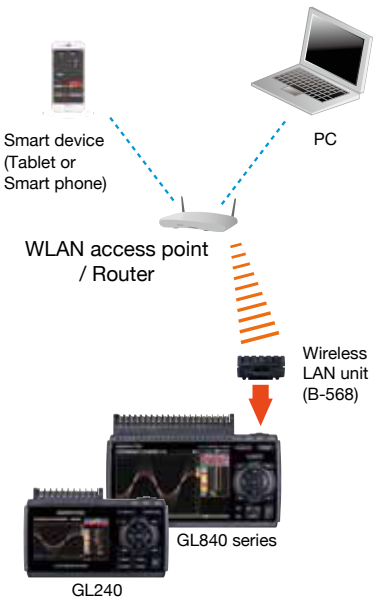
GL840: supports up to five units of the GL100-WL
GL240: supports single GL100-WL

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.

Download on the App Store

GET IT ON Google play

* Please type "graphtec" to search for the app.

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

Item		Description	
Model number		GL840-M	GL840-WV
Number of analog input channels		20 channels in standard configuration, Expandable up to 200 channels	
Number of analog input terminals		Up to 10 terminals (20 channels / terminal), standard config:1	
Type of analog input terminal		Multi-input type, Withstand-voltage type	
Port for digital sensor		1 port for the sensor/input terminal/adapter of the GL100	
External input/ output (*1)	Input (*2)	Trigger or Sampling (1 channel), Logic/Pulse (4 channels)	
	Output (*3)	Alarm (4 channels)	
Sampling interval		10 ms to 1 hour (10ms to 50ms: voltage only) (*4), External signal	
Time scale of waveform display		1 sec. to 24 hour /division	
Trigger, Alarm function	Trigger action	Start or stop capturing data by the trigger	
	Repeat action	Off, On (auto rearmed)	
	Trigger source	Start: Off, Measured signal, Alarm, External, Clock, Week or Time Stop: Off, Measured signal, Alarm, External, Clock, Week or Time	
	Condition Setting	Combination: AND / OR Analog signal: Rising (High), Falling (Low), Window-in, Window-out Logic signal: Pattern (combination of each input signal in high or low) Pulse (number of count): Rising (High), Falling (Low), Window-in, Window-out	
	Alarm output	Outputs a signal when alarm condition occurs in the input signal (*5)	
Pulse input function	Rotation count (RPM) mode	Counts the number of pulses per sampling interval and converts to rpm (rotations per minute), Number of pulses for one rotation can be set to 50, 500, 5000, 50k, 500k, 5M, 50M, 500M rpm/F.S. (rpm./Full Scale)	
	Accumulating count mode	Accumulates the number of pulses from the start of measurement 50, 500, 5000, 50k, 500k, 5M, 50M, 500M C/F.S. (Counts/Full Scale)	
	Instant count mode	Counts the number of pulses per sampling interval 50, 500, 5000, 50k, 500k, 5M, 50M, 500M C/F.S. (Counts/Full Scale)	
Calculation function	Between channels	Addition, Subtraction, Multiplication, and Division for analog input	
	Statistical	Select two calculations from Average, Peak, Maximum, Minimum, RMS	
Search function		Search for analog signal levels, values of logic or pulse or alarm point in captured data	
Interface to PC		Ethernet (10 BASE-T/100 BASE-TX), USB (Hi-speed), WLAN (using B-568 option)	
Storage device	Internal	Built-in 4GB Flash Memory (*6)	
	External	One SD card slot (Supports SDHC memory card, up to 32GB) (*7)	
	Saved contents	Captured data, Setting conditions, Screen copy	
Capturing mode		Mode: Normal, Ring, Relay Ring: Saves most recent data (Number of capturing data: 1000 to 2000000 points) (*8) Relay: Saves data to multiple files without losing data until dada capturing is stopped	
Replay data		Replays captured data that was saved in the GL840 (in GBD or CSV format)	
Scaling (Engineering unit) function		Measured value can be converted to specified engineering unit • Analog voltage: Converts using four reference points (gain, offset) • Temperature: Converts using two reference points (offset) • Pulse count: Converts using two reference points (gain)	
Action during data capture		• Displaying past data (using dual display mode (Current + Past data)) • Hot-swapping the SD memory card • Saving data in between cursors	
Display (LCD)	Size	7-inch TFT color LCD (WVGA: 800 x 480 dots)	
	Language	English, French, German, Chinese, Korean, Russian, Spanish, Japanese	
	Information (*9)	Waveform in Y-T with digital values, Waveform only, Digital value, Digital values and statistics values, Bar chart	
Operating environment		0 to 45 °C, 5 to 85 % RH (non condensed) (When operating with battery pack 0 to 40 °C, charging battery 15 to 35 °C)	
Power source	AC adapter	100 to 240 V AC, 50/60 Hz (1 pc of adapter is attached as standard accessory)	
	DC power	8.5 to 24 V DC (DC drive cable (option B-514) is required)	
	Battery pack	Mountable two battery packs (battery pack (option B-569): 7.2V DC, 2900mAh)	
Power consumption (*10)		Max. 38 VA	
External dimensions (W x D x H in mm, Excluding projections)		Approx. 240 x 158 x 52.5	Approx. 240 x 166 x 52.5
Weight (*11)		Approx. 1010 g	Approx. 1035 g

Software specifications for PC

Item		Description
Model name		GL100_240_840-APS
Supported OS		Windows 10, 8.1, 8, 7, Vista (32/64-bit edition)
Supported device		GL840 (USB, Ethernet, WLAN), GL240 (USB, WLAN), GL100 (USB, WLAN)
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/Alarm condition, Report, etc.
Capturing data	Saved to PC	Saves captured data in real time (in GBD binary or CSV format)
	Saved to GL unit	Saves to the SD memory card (in GBD binary or CSV format)
Displayed information		Y-T waveform, Digital values, Report, X-Y graph (specified period of data, data reply only), Two displays for the current and past data, Statistical calculation, and Integrated value in a bar chart
File operation		Converting data format to CSV from GBD binary, merge multiple data files in the time axis or as an additional channel
Warning function		Send e-mail to the specified address when the alarms occur
Statistical calculation		Maximum, Minimum, and Avarage during data capturing
Report function		Creates the daily or monthly report automatically

Software specifications for Smart device

Item	Description
Model name	GL-Connect
Supported OS	Android 4.1 to 4.4, iOS 7/8
Supported device	GL840 (WLAN), GL240 (WLAN), GL100 (WLAN)
Functions	Control the GL series, Display measured data in waveform or digital value
Supported units	Up to 10 units
Settings control	Start/Stop, Sampling interval
Capturing data	Saves captured data in the GL main body (data cannot be saved in the smart device)
Displayed information	Data captured in real time by digital value, Replay the data stored in the GL body by the waveform

Wireless LAN unit (option) specifications

Item	Description
Model number	B-568
Supported device	GL840, GL240
Communication method	Wireless communication (using radio waves in the 2.4GHz band)
Supported WLAN system	IEEE802.11b/g/n WPS: Push button or PIN method Security protocols: WEP64, WEP128, WPA-PSK/WPA2-PSK, AKIP/AES Communication distance: Approx. 40m (depending on the conditions of radio communication)
Installed location	Attaches to the SD card slot on the GL840/GL240 (*7)
Function	Access Point mode: Communicate with the GL100-WL as a remote sensor (captured data in the GL100-WL is transferred to GL840/GL240) Station mode: Communicate with PC or Smart device (control GL840/GL240 and transfer the data from GL840/GL240)
Connected number of GL100-WL	GL840: Up to 5 units of the GL100-WL GL240: 1 unit of the GL100-WL

GL840 Analog input specifications

Item			Description	
Model number			GL840-M, Input terminal B-564	GL840-WV, Input terminal B-565
Input method			All channels isolated balanced input (*12), Scans channels for sampling	
Type of input terminal			Screw terminal (M3 screw)	
Measurement range	Voltage		20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50, 100 V, and 1-5V F.S. (Full Scale)	
	Thermocouple		Type: K, J, E, T, R, S, B, N, W (WRe5-26) Range: 100, 500, 2000 °C (*13)	
	RTD (Resistance Temperature Detector)		Type: Pt100 (IEC751), Pt1000 (IEC751), JPt100 (JIS) Range: 100, 500, 2000 °C (*13)	
	Humidity		0 to 100 % RH - using the humidity sensor (option B-530)	
Filter			Off, 2, 5, 10, 20, 40 (moving average in selected number)	
Measurement accuracy (*14)				
Voltage			± 0.1% of F.S. (Full Scale)	± (0.05% of F.S. + 10µV)
Temperature (Thermocouple) (*15)				
	Type	Measurement range (TS: Temp Sense)	Measurement accuracy	Measurement accuracy
	R	0 ≤ TS ≤ 100 °C	± 5.2 °C	± 4.5 °C
		100 < TS ≤ 300 °C	± 3.0 °C	± 3.0 °C
		300 < TS ≤ 1600 °C	± (0.05% of rdg. + 2.0 °C)	± 2.2 °C
	S	0 ≤ TS ≤ 100 °C	± 5.2 °C	± 4.5 °C
		100 < TS ≤ 300 °C	± 3.0 °C	± 3.0 °C
		300 < TS ≤ 1760 °C	± (0.05% of rdg. + 2.0 °C)	± 2.2 °C
	B	400 ≤ TS ≤ 600 °C	± 3.5 °C	± 3.5 °C
		600 < TS ≤ 1820 °C	± (0.05% of rdg. + 2.0 °C)	± 2.5 °C
	K	-200 ≤ TS ≤ -100 °C	± (0.05% of rdg. + 2.0 °C)	± 1.5 °C
		-100 < TS ≤ 1370 °C	± (0.05% of rdg. + 1.0 °C)	± 0.8 °C
	E	-200 ≤ TS ≤ -100 °C	± (0.05% of rdg. + 2.0 °C)	± 1.0 °C
		-100 < TS ≤ 800 °C	± (0.05% of rdg. + 1.0 °C)	± 0.8 °C
	T	-200 ≤ TS ≤ -100 °C	± (0.1% of rdg. + 1.5 °C)	± 1.5 °C
		-100 < TS ≤ 400 °C	± (0.1% of rdg. + 0.5 °C)	± 0.6 °C
	J	-200 ≤ TS ≤ -100 °C	± 2.7 °C	± 1.0 °C
		-100 < TS ≤ 100 °C	± 1.7 °C	± 0.8 °C
		100 < TS ≤ 1100 °C	± (0.05% of rdg. + 1.0 °C)	± 0.6 °C
	N	-200 ≤ TS < 0 °C	± (0.1% of rdg. + 2.0 °C)	± 2.2 °C
		0 ≤ TS ≤ 1300 °C	± (0.1% of rdg. + 1.0 °C)	± 1.0 °C
	W	0 ≤ TS ≤ 2000 °C	± (0.1% of rdg. + 1.5 °C)	± 1.8 °C
	R.J.C.		± 0.5 °C	± 0.3 °C
Temperature (RTD) (*16)				
	Type	Measurement range (TS: Temp Sense)	Measurement accuracy	Measurement accuracy
	Pt100	-200 ≤ TS ≤ 100 °C	± 1.0 °C	± 0.6 °C
		100 < TS ≤ 500 °C		± 0.8 °C
		500 < TS ≤ 850 °C		± 1.0 °C
	Pt1000	-200 ≤ TS ≤ 100 °C	± 0.8 °C	± 0.6 °C
		100 < TS ≤ 500 °C		± 0.8 °C
	JPt100	-200 ≤ TS ≤ 100 °C	± 0.8 °C	± 0.6 °C
		100 < TS ≤ 500 °C		± 0.8 °C
A/D converter			Sigma-Delta type, 16 bits (effective resolution: 1/40000 of the measuring full range)	
Maximum input voltage	Between (+) / (-) terminal		20 mV to 2 V range: 60 Vp-p, 5 V to 100 V range: 110 Vp-p	
	Channels ((-) / (-))		60 Vp-p	600 Vp-p
	Channel / GND		60 Vp-p	300 Vp-p
Max. voltage (withstand)	Between channels		350 Vp-p (1 minute)	600 Vp-p
	Channel / GND		350 Vp-p (1 minute)	2300 Vrms AC (1 minute)

*1. Input/Output cable for GL (option B-513) is required to connect the signal.
*2. Input signal;
• Voltage range: Up to 24V (common ground)
• Signal type: Voltage, Open collector, Contact (relay)
• Threshold: Approx. + 2.5 V (Hysteresis: Approx. 0.5V (2.5V to 3V))
*3. Output signal: Open collector (pull-up to 5V by 10kΩ resistor)
<Maximum rating of the output transistor>
• Voltage: Max. 30V, • Current: Max. 0.5A, • Collector dissipation: Max. 0.2W
*4. Minimum interval varies by number of channels used.
*5. Output port can be specified in each input channel.
*6. The built-in Flash memory is available for units with serial numbers C604xxxxx or later.
Please refer to the website for more information.
*7. SD memory card cannot be used on the second slot while the wireless LAN unit (option B-568) is used.
*8. Size of the capture data will be limited to 1/3 of available memory.
*9. Display mode is switched every time the dedicated key is pressed. In magnified digital value mode, the displayed channel number can be specified. In the waveform display mode, the changing of the time scale will be effective from the point of the next displayed data.
*10. Rating under maximum power consumption using the AC adapter, with LCD display on, and battery pack(s) being charged.
*11. Excludes AC adapter and battery pack.
*12. The terminal "b" for using the RTD is connected each other across all channels.
*13. If the specifications of the temperature sensor is lesser or greater than the selected measurement range, GL840 can measure up to the specifications of the sensor.
*14. Subject to the following conditions:
• Room temperature is 23 °C ± 5 °C.
• When 30 minutes or more have elapsed after power has turned on.
• Filter is set to 10.
• Sampling rate is set to 1 sec, using 20-channel in GL840-M and 10-channel in GL840-WV.
• GND terminal is connected to ground.
*15. Wire size of thermocouple used is 0.32mm diameter in the T or K type and 0.65mm diameter in other types.
*16. Supports 3-wire type sensor.

Options and Accessories

Item	Model number	Description
Input terminal (Multi-inputs)	B-564	20ch input terminal, multi-input type
Input terminal (Withstand voltage)	B-565	20ch input terminal, withstand-high-voltage type
Base unit for input terminal	B-566	Base unit for input terminal (B-564 or 566)
Connection cable for extension terminal	B-567-05	Cable to connect GL840 and B-566, 50 cm long
	B-567-20	Cable to connect GL840 and B-566, 2 m long
Wireless LAN unit	B-568	WLAN adapter, IEEE802.11b/g/n
Battery pack	B-569	Rechargeable Lithium-ion battery (7.2 V, 2900mAh)
Bracket for DIN rale (GL840 main body)	B-570	Bracket for DIN rail (GL840 main body), Build-to-order
Bracket for DIN rail (extension terminal)	B-540	Bracket for DIN rail (Input terminal), Build-to-order
Input/Output cable for GL series	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-551-10	250 ohms (it converts the signal to the "1-5V" from the "4-20mA".)
AC power adapter	ACADP-20	Input: 100 to 240 V AC, Output: 24 V DC
Temp & Humidity sensor	GS-TH	Temperature and humidity measurement
Illuminance & UV sensor	GS-LXUV	Illuminance and UV intensity measurement, cable 20cm long
Carbon Dioxide (CO2) sensor	GS-CO2	CO2 measurement, cable 20cm long
Acceleration & Temp sensor	GS-3AT	Acceleration and temperature measurement, cable 20cm long
Thermistor input terminal	GS-4TSR	Temp measurement (using a Thermistor), cable 20cm long
Thermistor sensor (Normal type)	GS-103AT-4P	Temperature sensor (-40 to 105 °C), 3m long, 4pcs/set
Thermistor sensor (Ultrathin type)	GS-103JT-4P	Temperature sensor (-40 to 120 °C), 3m long, 4pcs/set
AC current sensor adapter	GS-DPA-AC	Current measurement (using a CT), cable 20cm long
AC current sensor (50A)	GS-AC50A	Current sensor (CT) 50A, cable 20cm long
AC current sensor (100A)	GS-AC100A	Current sensor (CT) 100A, cable 20cm long
AC current sensor (200A)	GS-AC200A	Current sensor (CT) 200A, cable 20cm long
Voltage & Temp input terminal	GS-4VT	Voltage or Temperature (using a thermocouple), cable 20cm long
Module extension cable	GS-EXC	Extension cable for the sensor/terminal/adapter module, 1.5m long
Dual port adapter	GS-DPA	Connect up to 2 sensor modules

GL240 Main unit specifications

Item		Description
Number of analog input channels		10 channels
External input/ output (*1)	Input (*2)	Trigger or Sampling (1 channel), Logic/Pulse (4 channels)
	Output (*3)	Alarm (4 channels)
Sampling interval		10 ms to 1 hour (10ms to 50ms: voltage only) (*4), External signal
Time scale of waveform display		1sec. to 24 hour /division
Trigger, Alarm function	Trigger action	Start or stop capturing data by the trigger
	Repeat action	Off, On (auto rearmed)
	Trigger source	Start: Off, Measured signal, Alarm, External, Clock, Week or Time Stop: Off, Measured signal, Alarm, External, Clock, Week or Time
	Condition Setting	Combination: OR or AND Analog signal: Rising (High), Falling (Low), Window-in, Window-out Logic signal: Pattern (combination of each input signal in high or low) Pulse (number of count): Rising (High), Falling (Low), Window-in, Window-out
	Alarm output	Outputs a signal when alarm condition occurs in the input signal (*5)
Pulse input function	Rotation count (RPM)	Counts the number of pulses per sampling interval and converts to rpm (rotations per minute), Number of pulses for one rotation may be set to 50, 500, 5000, 50k, 500k, 5M, 50M, 500M rpm/F.S. (rpm./Full Scale)
	Accumulating count	Accumulates the number of pulses from the start of measurement 50, 500, 5000, 50k, 500k, 5M, 50M, 500M C/F.S. (Counts/Full Scale)
	Instant count	Counts the number of pulses per sampling interval 50, 500, 5000, 50k, 500k, 5M, 50M, 500M C/F.S. (Counts/Full Scale)
Calculation function	Between channels	Addition, Subtraction, Multiplication, and Division for analog input
	Statistical	Select two calculations from Average, Peak, Maximum, Minimum, RMS
Search function		Search for analog signal levels, values of logic or pulse or alarm point in captured data
Interface to PC		USB (Hi-speed), WLAN (using B-568 option)
Storage device	Internal	Built-in 4GB Flash Memory (*6)
	External	One SD card slot (Supports SDHC memory card, up to 32 GB) (*7)
	Saved contents	Captured data, Setting conditions, Screen copy
Capturing mode		Mode: Normal, Ring, Relay Ring: Saves most recent data (Number of captured data: 1000 to 2000000 points) (*8) Relay: Saves data to multiple files without losing data until data capturing is stopped
Replay Data		Replays captured data that was saved in the GL240 (in BGD or CSV format)
Scaling (Engineering unit) function		Measured value can be converted to the specified engineering unit • Analog voltage: Converts using four reference points (gain, offset) • Temperature: Converts using two reference points (offset) • Pulse count: Converts using two reference points (gain)
Action during data capture		• Displaying parst data (using dual display mode (Current + Past data)) • Hot-swapping the SD memory card • Saving data in between cursors
Display (LCD)	Size	4.3-inch TFT color LCD (WQVGA: 480 x 272 dots)
	Language	English, French, German, Chinese, Korean, Russian, Spanish, Japanese
	Information (*9)	Waveform in Y-T with digital values, Waveform only, Digital value, Digital values and statistics values, Bar chart
Operating environment		0 to 45 °C, 5 to 85 % RH (non condensed) (When operating with battery pack 0 to 40 °C, charging battery 15 to 35 °C)
Power source	AC adapter	100 to 240 V AC, 50/60 Hz (1 pc of adapter is attached as standard accessory)
	DC power	8.5 to 24 V DC (DC drive cable (option B-514) is required)
	Battery pack	Mountable battery pack (battery pack (option B-569): 7.2V DC, 2900mAh)
Power consumption (*10)		Max. 36 VA
External dimensions (W x D x H)		Approx.188 x 117 x 42 mm (Excluding projections)
Weight (*11)		500 g

Software specifications for PC

Item		Description
Model name		GL100_240_840-APS
Supported OS		Windows 10, 8.1, 8, 7, Vista (32/64-bit edition)
Supported device		GL840 (USB, Ethernet, WLAN), GL240 (USB, WLAN), GL100 (USB, WLAN)
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, Captuering condition, Trigger/Alarm condition, Report, etc.
Capturing data	Saved to PC	Saves captured data in real time (in GBD binary or CSV format)
	Saved to GL unit	Saves to the SD memory card (in GBD binary or CSV format)
Displayed information		Y-T waveform, Digital values, Report, X-Y graph (specified period of data, data replay only), Two display for the current and past, Statistical calculation, and Integrated value in a bar chart
File operation		Converting data format to CSV from GBD binary, merge multiple data files in the time axis or as an additional channel
Warning function		Send e-mail to the specified address when the alarms occur
Statistical calculation		Maximum, Minimum, and Avarage during data capturing
Report function		Creates the daily or monthly report automatically

Software specifications for Smart device

Item	Description
Model name	GL-Connect
Supported OS	Android 4.1 to 4.4, iOS 7/8
Supported device	GL840 (WLAN), GL240 (WLAN), GL100 (WLAN)
Functions	Control the GL series, Display measured data in waveform or digital value
Supported units	Up to 10 units
Settings control	Start/Stop, Sampling interval
Capturing data	Saves captured data in the GL main body (data cannot be saved in the smart device)
Displayed information	Data captured in real time by digital value, Replay the data stored in the GL body by the waveform

Options and Accessories

Item	Model number	Description
Wireless LAN unit	B-568	WLAN adapter, IEEE802.11b/g/n
Battery pack	B-569	Rechargeable Lithium-ion battery (7.2 V, 2900mAh)
Input/Output cable for GL series	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-551-10	250 ohms (it converts the signal to the "1-5V" from the "4-20mA")
AC power adapter	ACADP-20	Input: 100 to 240 V AC, Output: 24 V DC

GL240 Analog input specifications

Item		Description		
Input method		All channels isolated balanced input(*12), Scans channels for sampling		
Type of input terminal		Screw terminal (M3 screw)		
Measurement range	Voltage	20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50, 100 V, and 1-5V F.S. (Full Scale)		
	Thermocouple	Type: K, J, E, T, R, S, B, N, and W (WRe5-26)		
	Humidity	0 to 100 % RH - using the humidity sensor (option B-530)		
Filter		Off, 2, 5, 10, 20, 40 (moving average in selected number)		
Measurement accuracy (*13)	Voltage	± 0.1% of F.S. (Full Scale)		
	Temperature (Thermocouple) (*14)	Type	Measurement range (TS: Temp Sense)	Measurement accuracy
		R	0 ≤ TS ≤ 100 °C	± 5.2 °C
			100 < TS ≤ 300 °C	± 3.0 °C
			300 < TS ≤ 1600 °C	± (0.05% of rdg. + 2.0 °C)
		S	0 ≤ TS ≤ 100 °C	± 5.2 °C
			100 < TS ≤ 300 °C	± 3.0 °C
			300 < TS ≤ 1760 °C	± (0.05% of rdg. + 2.0 °C)
		B	400 ≤ TS ≤ 600 °C	± 3.5 °C
			600 < TS ≤ 1820 °C	± (0.05% of rdg. + 2.0 °C)
		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	-200 ≤ TS < 0 °C	± (0.1% of rdg. + 2.0 °C)
			0 ≤ TS ≤ 1300 °C	± (0.1% of rdg. + 1.0 °C)
		W	0 ≤ TS ≤ 2000 °C	± (0.1% of rdg. + 1.5 °C)
		R.J.C.		± 0.5 °C
A/D converter		Sigma-Delta type, 16 bits (effective resolution: 1/40000 of the measuring full range)		
Maximum input voltage	Between (+) / (-) terminal	20 mV to 1 V range: 60 Vp-p, 2 V to 100 V range: 110 Vp-p		
	Channels ((-) / (-))	60 Vp-p		
	Channel / GND	60 Vp-p		
Max. voltage (withstand)	Between channels	350 Vp-p (1 minute)		
	Channel / GND	350 Vp-p (1 minute)		

Wireless LAN unit (option) specifications

Item	Description
Model number	B-568
Supported GL series	GL840, GL240
Communication method	Wireless communication (using radio waves in the 2.4GHz band)
Supported WLAN system	IEEE802.11b/g/n WPS: Push button or PIN method Security protocols: WEP64, WEP128, WPA-PSK/WPA2-PSK, AKIP/AES Communication distance: Approx. 40m (depending on the conditions of radio communication)
Installed location	Attaches to the SD card slot on the GL840/GL240 (*7)
Function	Access Point mode: Communicate with the GL100-WL as a remote sensor (captured data in the GL100-WL is transferred to GL840/GL240) Station mode: Communicate with PC or Smart device (control GL840/GL240 and transfer the data from GL840/GL240)
Connected number of GL100-WL	GL840: Up to 5 units of the GL100-WL GL240: 1 unit of the GL100-WL

*1. Input/Output cable for GL (option B-513) is required to connect the signal.
*2. Input signal;
  • Voltage range: Up to 24V (common ground)
  • Signal type: Voltage, Open collector, Contact (relay)
  • Threshold: Approx. + 2.5 V (Hysteresis: Approx. 0.5V (2.5V to 3V))
*3. Output signal: Open collector (pull-up to 5V by 10kΩ resistor)
  <Maximum rating of the output transistor>
  • Voltage: Max. 30V, • Current: Max. 0.5A, • Collector dissipation: Max. 0.2W
*4. Minimum interval varies by number of channels used.
*5. Output port can be specified in each input channel.
*6. The built-in Flash memory is available for units with serial numbers C604xxxxx or later. Please refer to the website for more information.
*7. SD memory card cannot be used on the second slot while the wireless LAN unit (option B-568) is used.
*8. Size of the capture data will be limited to 1/3 of available memory.
*9. Display mode is switched every time the dedicated key is pressed. In magnified digital value mode, the displayed channel number can be specified. In the waveform display mode, the changing of the time scale will be effective from the point of the next displayed data.
*10. Rating under maximum power consumption using the AC adapter, with LCD display on, and battery pack being charged.
*11. Excludes AC adapter and battery pack.
*12. The terminal "b" for using the RTD is connected each other across all channels.
*13. Subject to the following conditions:
  • Room temperature is 23 °C ± 5 °C.
  • When 30 minutes or more have elapsed after power was turned on.
  • Filter is set to 10.
  • Sampling rate is set to 1 sec, using 10-channel.
  • GND terminal is connected to ground.
*14. Wire size of thermocouple used is 0.32mm diameter in the T or K type and 0.65mm diameter in other types.

• 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.

• Specifications are subject to change without notice. For more information about product, please check the web site or contact your local representative.

⚠ For using equipment in correctly and safely
• Before using it, please read the user manual and then please use it properly in accordance with the description.
• To avoid malfunction or an electric shock by current leakage or voltage, please ensure a ground connection and use according to the specification.

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