GRAPHTEC

New

midi LOGGER GL240
Compact, Standalone 10-Channel Datalogger

☑ **Wireless LAN capability | remote monitoring & datalogging**

☑ **Flexible input system for wide array of applications**

☑ **Ability to access additional (GL100) sensors & adapters**

☑ **Extended memory capacity using SD memory card**

☑ **Max sampling interval up to 10ms**

☑ **Smartphone access** Download on the App Store ANDROID APP ON Google play

Communication with PC or Smart Device using optional Wireless LAN Unit B-568

(WLAN Unit B-568)

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 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, JPt100, Pt1000		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.	

4.3-inch color LCD

GL240 has a 4.3-inch wide LCD screen (WQVGA: 480 x 272 dots) for monitoring data. Data can be displayed in waveform or digital form option. Parameter settings can be displayed on the screen.

Waveform display (Analog + Digital)

Digital display
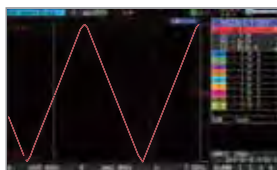
Dual display (Current + Past)

Waveform display (Analog only)

Useful functions

■ Alarm output function

Based on set conditions for each channels, alarm signals can be placed using the four channel alarm output ports.*
* 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 GL240 by drag & drop feature.

■ Navigation function

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

Maximum sampling interval of up to 10ms

Provides faster sampling rates for voltage measurements. You are able to achieve up to 10ms sampling speed 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
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.

Supports large-size SD memory card for reliable long term measurement

New GL series carries two SD memory card slots for storage device. The SDHC type SD memory card is supported up to 32GB. 4GB SD memory card comes as a standard accessory installed in the first slot.

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
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.

■ 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
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 GL240 is periodically synchronized with the NTP server.
* The GL240 needs to be connected to a LAN environment using the available Ethernet/WLAN ports.

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

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

GL240

Ethernet or USB

PC (Software)

■ 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
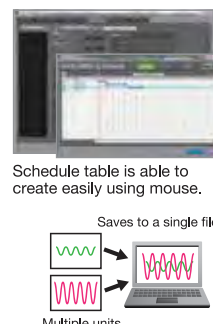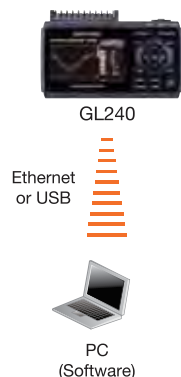
■ Useful functions

Scheduling function
Create a schedule for your monitoring to start and stop at selected time, and set an automatic measurement schedule.
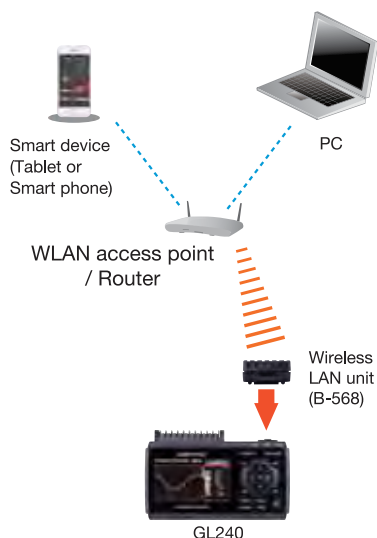
Group function
Multiple units can be managed, such as controlling start or stop simultaneously. Data captured by each unit is saved in a single file.

Schedule table is able to create easily using mouse.

Saves to a single file

Multiple units

■ 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

High quality performance and measurement software with useful functions for the PC & smart device environment

Smart device
(Tablet or
Smart phone)

PC

WLAN access point
/ Router

Wireless
LAN unit
(B-568)

GL240

For PC (GL100_240_840-APS)

Software for the PC is included as a standard accessory.

■ **Monitor and save captured data remotely**

■ **Control the 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**

ANDROID APP 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 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 GL240 allows remote control and monitoring using this application.

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**
GL100-WL can now be connected to the 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 GL240 main inputs. GL240 will now take in direct information from the GL100-WL units.
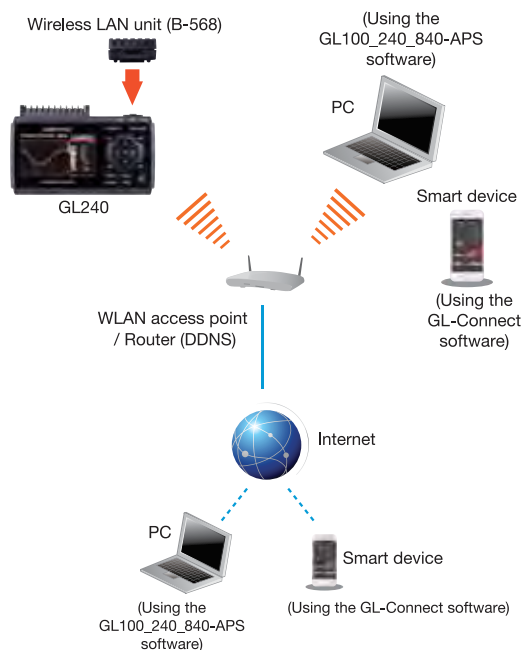
■ **Communication with the PC or Smart device**
GL240 units can be connected to a LAN (Local Area Network) via an WLAN access point. Measured data can be monitored and controlled via a PC or a smart device using the application software. Configuration can be set via the network.

Sensors and input terminals/adapters for the GL100

GL100-WL

Wireless LAN unit (B-568)

GL100-WL

GL240

Average communication
distance: approx. 40m
(varies by condition)

Ethernet (LAN)
or USB

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

PC

(Using the

Wireless LAN unit (B-568)

(Using the
GL100_240_840-APS
software)

PC

GL240

Smart device

WLAN access point
/ Router (DDNS)

(Using the
GL-Connect
software)

Internet

PC

Smart device

(Using the
GL100_240_840-APS
software)

(Using the GL-Connect software)

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	Media	Internal 4GB memory with optional SD card slot (support SDHC, up to 32GB)*6
	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) *7
		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	Size	4.3-inch TFT color LCD (WQVGA: 480 x 272 dots)
	Language	English, French, German, Chinese, Korean, Russian, Spanish, Japanese
	Information *8	Waveform in Y-T with digital values, Waveform only, Digital value, Digital values and statistics values
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 *9		Max. 36 VA
External dimensions (W x D x H)		Approx.188 x 117 x 42 mm (Excluding projections)
Weight *10		500 g

Software specifications for PC

Item		Description
Model name		GL100_240_840-APS
Supported OS		Windows 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 reply only), Two displays for the current and past data, and Statistical calculation
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 *11, 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 *12	Voltage	± 0.1% of F.S. (Full Scale)		
	Temperature (Thermocouple)*13	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	Attached to the SD CARD slot number 2 on the GL840/GL240 * When the wireless LAN unit is installed, the SD memory card cannot be used in slot number 2
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. 4GB SD memory card is installed to slot 1 as standard accessory.
*7. Size of the capture data will be limited to 1/3 of available memory.
*8. 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.
*9. Rating under maximum power consumption using the AC adapter, with LCD display on, and battery pack being charged.
*10. Excludes AC adapter and battery pack.
*11. The terminal "b" for using the RTD is connected each other across all channels.
*12. 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.
*13. Wire size of thermocouple used is 0.32mm diameter in the T type and 0.65mm diameter in other types.

⚠️ **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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