I. Main features

GL240 Compact size data logger

All channel Isolated/Universal input, Standalone Multi-Channel

Its compact size contains an isolated input system which ensures that signals are not corrupted by inputs to other channels, thus eliminating wiring concerns. The GL240s multi-type inputs are suitable for voltage, temperature, humidity, pulse, and logic signals, enabling combined measurements of different phenomena like temperature/humidity and voltage.

Voltage	20mV - 100V , 1-5 V/F.S.
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)
Pulse	4ch Rotation count (RPM), Accumulating count, Instant count
Logic	4ch

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.

Sampling Interval		10ms	20ms	50ms	100ms	200ms	500ms	1s	2s
Number of channel		1	2	5	10	20	50	100	200
Measuring	Voltage	●	●	●	●	●	●	●	●
	Temperature	-	-	-	●	●	●	●	●

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

New GL240 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.

the captured data can be stored in GBD(Graphtec binary data) or CSV file format.

Sampling	10ms	50ms	100ms	200ms	500ms	1s	10s
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	Over 365

**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)

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.

Useful functions

Alarm output function

 Based on set conditions for each channels, alarm signal can be placed using the four channel alrm out put ports.*
*Input/Output cable(B-513 option) is required to connect the alrm 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.

Easy-to-read 4.3-inch wide color LCD

Carries a clear 4.3-inch wide TFT color LCD screen （WQVGA：480×272 dot）for the GL240. Monitoring data are displayed in waveform or digital form option. Parameter settings can be displayed on the screen.

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 enviroment using the available WLAN ports for above functions.

II. 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	Accumulates the number of pulses from the start of measurement

Item		Description
	count	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	SD memory card (Support SDHC, up to 32 GB), supports 2 slots *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

Item		Description
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 ºC, 5 to 85 % RH (non condensed) (When operating with battery pack 0 to 40 ºC, charging battery 15 to 35 ºC)
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-517): 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

*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.

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

Item		Description
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

Item	Description
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 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

Item	Description
	GL240: 1 unit of the GL100-WL

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 ºC	± 5.2 ºC
			100 < TS ≤ 300 ºC	± 3.0 ºC
			300 < TS ≤ 1600 ºC	± (0.05% of rdg. + 2.0 ºC)
		S	0 ≤ TS ≤ 100 ºC	± 5.2 ºC
			100 < TS ≤ 300 ºC	± 3.0 ºC
			300 < TS ≤ 1760 ºC	± (0.05% of rdg. + 2.0 ºC)
		B	400 ≤ TS ≤ 600 ºC	± 3.5 ºC
			600 < TS ≤ 1820 ºC	± (0.05% of rdg. + 2.0 ºC)

Item			Description	
		K	-200 ≤ TS ≤ -100 ºC	± (0.05% of rdg. + 2.0 ºC)
			-100 < TS ≤ 1370 ºC	± (0.05% of rdg. + 1.0 ºC)
		E	-200 ≤ TS ≤ -100 ºC	± (0.05% of rdg. + 2.0 ºC)
			-100 < TS ≤ 800 ºC	± (0.05% of rdg. + 1.0 ºC)
		T	-200 ≤ TS ≤ -100 ºC	± (0.1% of rdg. + 1.5 ºC)
			-100 < TS ≤ 400 ºC	± (0.1% of rdg. + 0.5 ºC)
		J	-200 ≤ TS ≤ -100 ºC	± 2.7 ºC
			-100 < TS ≤ 100 ºC	± 1.7 ºC
			100 < TS ≤ 1100 ºC	± (0.05% of rdg. + 1.0 ºC)
		N	-200 ≤ TS < 0 ºC	± (0.1% of rdg. + 2.0 ºC)
			0 ≤ TS ≤ 1300 ºC	± (0.1% of rdg. + 1.0 ºC)
		W	0 ≤ TS ≤ 2000 ºC	± (0.1% of rdg. + 1.5 ºC)
		R.J.C.		± 0.5 ºC
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	

Item		Description
	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)

*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 oC ± 5 oC.
- 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.

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")

Item	Model number	Description
AC power adapter	ACADP-20	Input: 100 to 240 V AC, Output: 24 V DC