GRAPHTEC

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Specfication & Accessory

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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: 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) 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	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 capturing data: 1000 to 2000000 points) *7 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	Size	7-inch TFT color LCD (WVGA: 800 x 480 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 ℃, 5 to 85 % RH (non condensed) (When operating with battery pack 0 to 40 ℃, charging battery 15 to 35 ℃)
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-517): 7.2V DC, 2900mAh)
Power consumption *9		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 *10		Approx. 1010 g	Approx. 1035 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(s) being charged.

*10   Excludes AC adapter and battery pack.

Software specifications for PC

Item		Description
Supported OS		Windows 8.1, 8, 7, Vista (32/64-bit edition)
Supported device		GL840 (USB, Ethernet, 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, 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), 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
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 * 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) Station mode: Communicate with PC or Smart device (control GL840 and transfer the data from GL840)
Connected number of GL100-WL	GL840: Up to 5 units 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 *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, W (WRe5-26) Range: 100, 500, 2000 ℃ *12	
	RTD (Resistance Temperature Detector)	Type: Pt100, JPt100 (JIS), Pt1000 (IEC751) Range: 100, 500, 2000 ℃ *12	
	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)	± (0.05% of F.S. + 10 μV)

Temperature (Thermocouple) *14

Type	Measurement range (TS: Temp Sense)	Measurement accuracy	Measurement accuracy
R	0 ≤ TS ≤ 100 ℃	± 5.2 ℃	± 4.5 ℃
	100 < TS ≤ 300 ℃	± 3.0 ℃	± 3.0 ℃
	300 < TS ≤ 1600 ℃	± (0.05% of rdg. + 2.0 ℃)	± 2.2 ℃
S	0 ≤ TS ≤ 100 ℃	± 5.2 ℃	± 4.5 ℃
	100 < TS ≤ 300 ℃	± 3.0 ℃	± 3.0 ℃
	300 < TS ≤ 1760 ℃	± (0.05% of rdg. + 2.0 ℃)	± 2.2 ℃
B	400 ≤ TS ≤ 600 ℃	± 3.5 ℃	± 3.5 ℃
	600 < TS ≤ 1820 ℃	± (0.05% of rdg. + 2.0 ℃)	± 2.5 ℃
K	−200 ≤ TS ≤ −100 ℃	± (0.05% of rdg. + 2.0 ℃)	± 1.5 ℃

	−100 < TS ≤ 1370 ℃	± (0.05% of rdg. + 1.0 ℃)	± 0.8 ℃
E	−200 ≤ TS ≤ −100 ℃	± (0.05% of rdg. + 2.0 ℃)	± 1.0 ℃
	−100 < TS ≤ 800 ℃	± (0.05% of rdg. + 1.0 ℃)	± 0.8 ℃
T	−200 ≤ TS ≤ −100 ℃	± (0.1% of rdg. + 1.5 ℃)	± 1.5 ℃
	−100 < TS ≤ 400 ℃	± (0.1% of rdg. + 0.5 ℃)	± 0.6 ℃
J	−200 ≤ TS ≤ −100 ℃	± 2.7 ℃	± 1.0 ℃
	−100 < TS ≤ 100 ℃	± 1.7 ℃	± 0.8 ℃
	100 < TS ≤ 1100 ℃	± (0.05% of rdg. + 1.0 ℃)	± 0.6 ℃
N	−200 ≤ TS < 0 ℃	± (0.1% of rdg. + 2.0 ℃)	± 2.2 ℃
	0 ≤ TS ≤ 1300 ℃	± (0.1% of rdg. + 1.0 ℃)	± 1.0 ℃
W	0 ≤ TS ≤ 2000 ℃	± (0.1% of rdg. + 1.5 ℃)	± 1.8 ℃
R.J.C.		± 0.5 ℃	± 0.3 ℃

Temperature (RTD) *15

Type	Measurement range (TS: Temp Sense)	Accuracy	Accuracy
Pt100	−200 ≤ TS ≤ 100 ℃	± 1.0 ℃	± 0.6 ℃
	100 < TS ≤ 500 ℃		± 0.8 ℃
	500 < TS ≤ 850 ℃		± 1.0 ℃
JPt100	−200 ≤ TS ≤ 100 ℃	± 0.8 ℃	± 0.6 ℃
	100 < TS ≤ 500 ℃		± 0.8 ℃
Pt1000	−200 ≤ TS ≤ 100 ℃	± 0.8 ℃	± 0.6 ℃
	100 < TS ≤ 500 ℃		± 0.8 ℃

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)

*11   The terminal ″b″ for using the RTD is connected each other across all channels.

*12   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.

*13   Subject to the following conditions:
   - Room temperature is 23 oC ± 5 oC.
   - 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.

*14   Wire size of thermocouple used is 0.32mm diameter in the T type and 0.65mm diameter in other types.

*15   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, IEEE802.11 b / 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 ℃), 3m long, 4pcs/set
Thermistor sensor (Ultrathin type)	GS-103JT-4P	Temperature sensor (-40 to 120 ℃), 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