GL820 midi Logger

Built-in 5.7" TFT LCD Color Display

Stand-alone or PC-connected operation

20 Analog Channels Standard, Expandable to 200

Input-to-output and channel-to-channel Isolation

**USB and Ethernet PC Interfaces**

With its color monitor and internal memory the GL820 is a compact, lightweight, multi-channel data logger that provides 20 standard analog measurement channels, expandable to 200. The GL820 is equipped with a large internal flash memory to allow the direct capture of acquired data, and its built-in USB port may be used to connect any standard USB flash drive for incremental capacity. Alternatively, the USB or the integral Ethernet port may be connected to a PC to allow data upload in real time or from memory, as well as local or remote configuration and real time data acquisition. The Ethernet feature includes WEB and FTP server functions, which allows monitoring from a remote location as well as data transfer.

Wide Voltage Measurement Range
Each GL820 analog channel can measure from 20 mV to 50 VFS across eleven programmable measurement ranges.

Full Electrical Isolation Per Channel
Each analog GL820 channel is electrically isolated from all others and from instrument ground to allow accurate and safe measurements in industrial applications where ground potential differences are common.
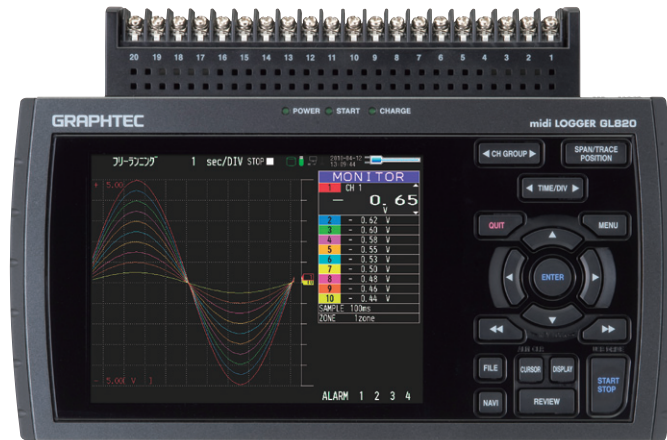
Features

Voltage, Current, and Temperature Measurement Functions
Use the GL820 to measure voltages, currents, 4-20 mA process currents, as well as thermocouple- and RTD-based temperatures.

Four Unique 'Pulse' Inputs for Discrete Measurements
The GL820 provides discrete input channels that can be used for counting and rotational speed measurement applications. Or program the discrete inputs as simple logic level input channels.

Four Alarm Outputs
Program the GL820 to trigger its open-collector outputs as a function of analog input signal level judgment, pulse judgment, or logic pattern.

Wide Sample Interval Selections
Sample intervals can be programmed to be one of sixteen values ranging from 10 ms to one hour.

Bright TFT LCD Color Display
The focal point of the GL820 is its built-in 5.7-inch color display that allows real time trending, data review, and complete instrument configuration.

Engineering Units Scaling
Each GL820 channel allows up to four break points to be programmed for accurate scaling into meaningful units like psi, grams, newtons, gallons per minute, etc.

Flexible Triggering Options
The GL820 allows data capture to be started or stopped based upon signal level, an external event, date/time, alarm, duration, or Boolean channel combinations. Analog signal triggers can be programmed based upon level and window tests: above threshold, below threshold, inside window, or outside window.

Real Time and Post-recorded Calculations
The GL820 may be programmed to calculate average value, peak value, minimum value, rms, and arithmetic operations (+,-,×,/) between channels.

Flexible Power Requirements
Power the GL820 from its provided international AC adaptor, from an optional built-in battery pack, or from any 9 to 24 VDC source using an optional cable.
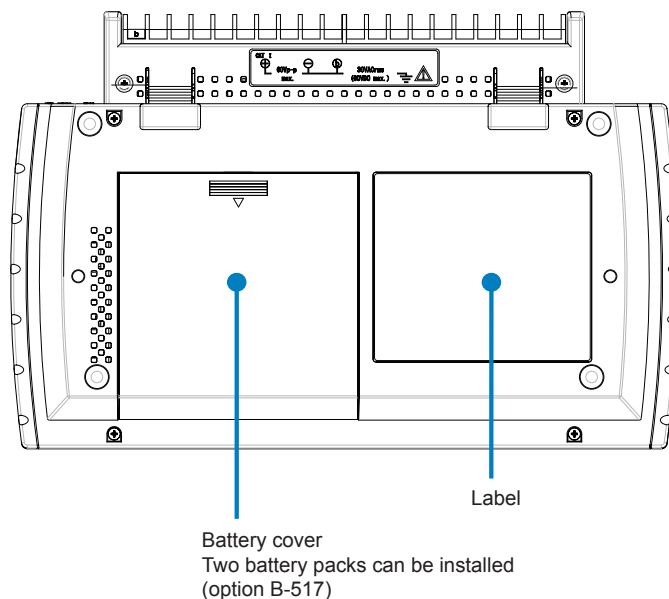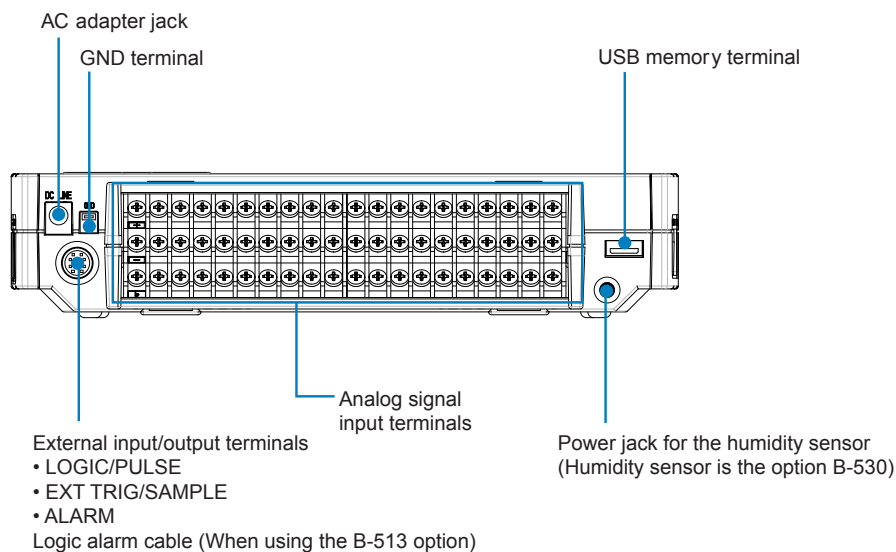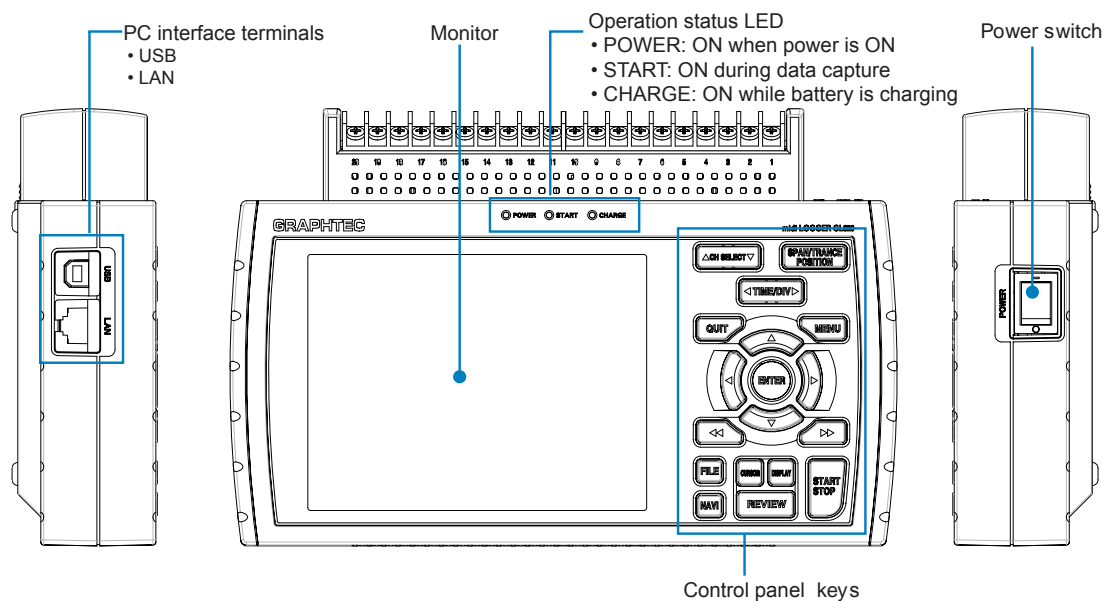
PC Connectivity via USB or Ethernet
Allows data transfer to the PC either in real time or from the GL820's memory. Also allows complete configuration of the GL820.

PC Software Bundle Included
The GL820 includes a Windows application for direct capture, measurement, and monitoring of GL820 data. In addition to waveform and data value capture and display, the application can export data to an Excel file for further analysis and report creation. The software includes built-in help for quick reference.

GL820 Display, I/O, and Control Overview

PC interface terminals
• USB
• LAN

Monitor

Operation status LED
• POWER: ON when power is ON
• START: ON during data capture
• CHARGE: ON while battery is charging

Power switch

Control panel keys

AC adapter jack

GND terminal

USB memory terminal

Analog signal
input terminals

External input/output terminals
• LOGIC/PULSE
• EXT TRIG/SAMPLE
• ALARM
Logic alarm cable (When using the B-513 option)

Power jack for the humidity sensor
(Humidity sensor is the option B-530)

Label

Battery cover
Two battery packs can be installed
(option B-517)

GL820 Analog Input Circuit and Measurement Ranges

Each GL820 analog input channel features electrical isolation using a photo MOS relay switching method to maintain safe and accurate measurements in demanding industrial environments.
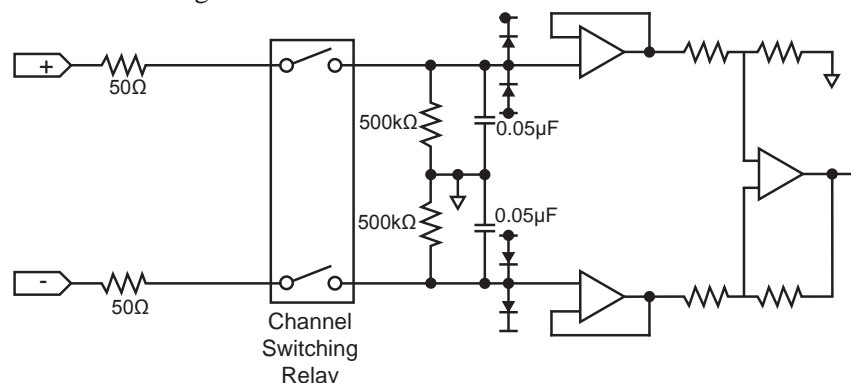
Voltage Measurement Ranges per Channel

Range	Maximum SPAN	Minimum SPAN	Minimum Resolution
20mV	-22.000 to +22.000mV	0.200mV	0.001mV
50mV	-55.00 to +55.00mV	0.50mV	0.01mV
100mV	-110.00 to +110.00mV	1.00mV	0.01mV
200mV	-220.00 to +220.00mV	2.00mV	0.01mV
500mV	-550.0 to +550.0mV	5.0mV	0.1mV
1V	-1.1000 to +1.1000V	0.0100V	0.0001V
2V	-2.2000 to +2.2000V	0.0200V	0.0001V
5V	-5.500 to +5.500V	0.050V	0.001V
10V	-11.000 to +11.000V	0.100V	0.001V
20V	-22.000 to +22.000V	0.200V	0.001V
50V	-55.00 to +55.00V	0.50V	0.01V

Process Current Measurement (with model R250 resistor)

Range	Maximum SPAN	Minimum SPAN	Minimum Resolution
1-5 V	-5.500 to +5.500V	0.050V	0.001V

Temperature Measurement Ranges per Channel

Range	Maximum SPAN	Minimum SPAN	Measurement Range	Minimum Resolution
K	-270 to +2000°C	50°C	-200 to +1370°C	0.1°C
J			-200 to +1100°C	
T			-200 to +400°C	
R			0 to +1600°C	
E			-200 to +900°C	
B			+600 to +1920°C	
S			0 to +1760°C	
N			0 to +1300°C	
W			0 to +2315°C	
PT100			-200 to +850°C	
JPT100			-200 to +500°C	
PT1000			-200 to +500°C	

Optional Humidity Measurement Range

Range	Maximum SPAN	Minimum SPAN	Minimum Resolution
0 to 100%	0 to +110%	1.0%	0.1%

Typical GL820 Analog Signal Connections

Terminal Configuration

CH1 .... CH20
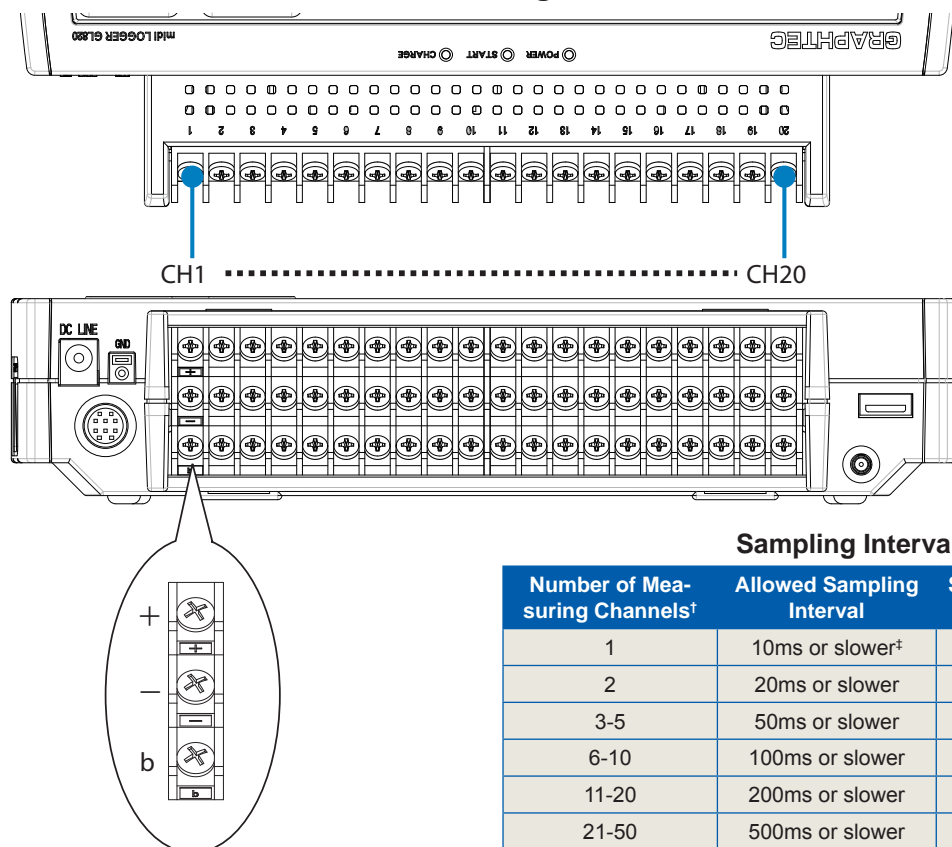
Sampling Intervals

Number of Measuring Channels[†]	Allowed Sampling Interval	Sampling Interval which enables Digital Filter
1	10ms or slower[‡]	50ms or slower
2	20ms or slower	125ms or slower
3-5	50ms or slower	250ms or slower
6-10	100ms or slower	500ms or slower
11-20	200ms or slower	1s or slower
21-50	500ms or slower	2s or slower
51-100	1s or slower	5s or slower
101-200	2s or slower	10s or slower

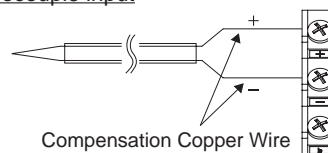[†]"Number of Measuring Channels" is the number of channels in which input settings are NOT set to "OFF".

[‡]The temperature setting is not available for sampling intervals of 10, 20, and 50 ms
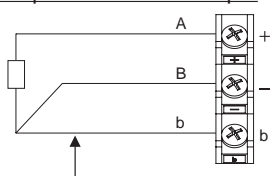
Signal Types and Typical Connections

DC voltage input

+
Voltage Input
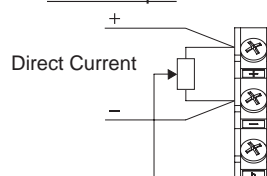−

Thermocouple input

Compensation Copper Wire
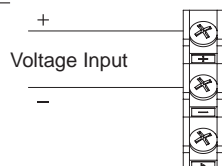
Resistance temperature detector input

A
B
b

Lead wire resistance should be 10Ω or less per wire, three wires need to be same length.

Current input


+
Direct Current
−

Shunt Resister
Ex: The current is converted to the voltage in the shunt resister.
For 4-20mA current input, installing 250 ohms (0.1%) resister for converting 1-5V.
250Ω resister is model R250.

+ .... High -voltage terminal (terminal for high voltage signals)

- .... Low-voltage terminal (terminal for low-voltage input signals)

b .... Dedicated terminal when connection resistance temperature detector

GL820 Logic, Pulse, Alarm, and External Trigger Connections

The Logic Alarm Cable model B-513 provides access to the GL820's discrete and pulse inputs, external trigger input, and alarm outputs. The cable is two meters in length, and is purchased separately.

Logic alarm cable (B-513)
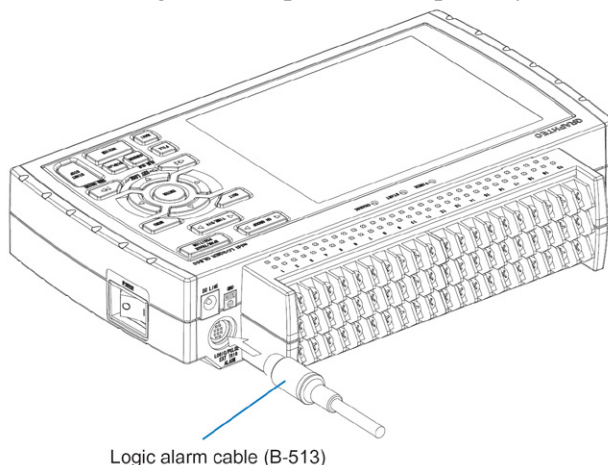
Logic/Pulse Specifications

Item	Description
Number of input channels	4
Input voltage range	0 to +24V max (single-ended ground input)
Threshold level	Approx. +2.5V
Hysteresis	Approx. 0.5V (+2.5 to +3 V)

Trigger Input Specifications

| Item	Description
Number of input channels	1
Input voltage range	0 to +24V max (single-ended ground input)
Threshold level	Approx. +2.5V
Hysteresis	Approx. 0.5V (+2.5 to +3 V)

Alarm Output Specifications

Item	Description
Number of output channels	4
Output format	Open collector output +5V, 10KΩ pull-up resistance Contact capacity 5 V to 24 V, 100mA or below

Circuit Example of Relay Drive by Alarm Output

This relay turns ON when alarm is generated
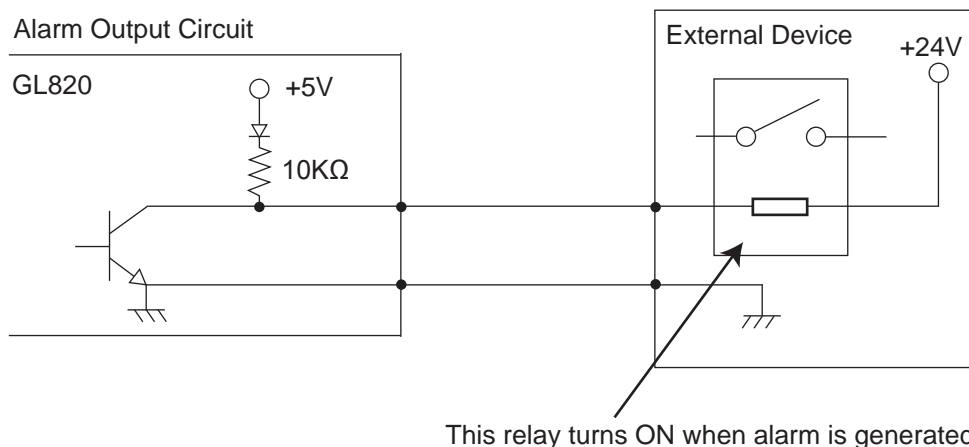
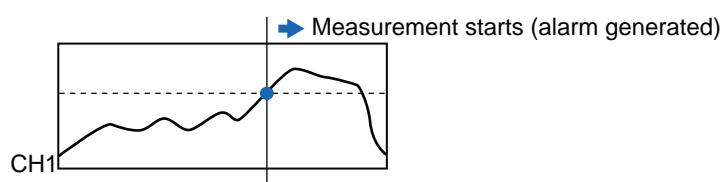# Program the GL820 for Real-World Trigger Conditions

The GL820 can adapt to just about any trigger condition you might encounter. Data recording can be stopped or started as a function of analog signal level, a definable alarm condition, an external event, or specific date and time. Beyond initiating a data capture cycle, the GL820 can also be programmed to set a digital output to flag an external alarm condition. And after a trigger condition is executed you can program the GL820 to automatically rearm itself to wait for another trigger event, or stop entirely. You can even program the GL820 to detect and alarm on a thermocouple burnout condition. Here's a summary of the GL820's trigger and alarm features:
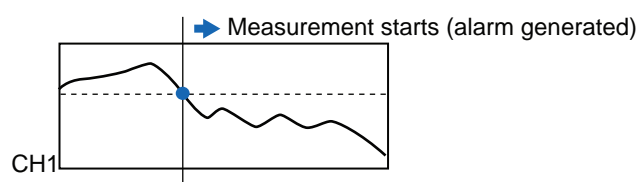
GL820 Trigger and Alarm Overview

Setting			Selections Available
Start side source setting			Off, Level, Alarm, External Input, Time, Day, Duration
	[Level]	Mode	Analog: Off, ↑H, ↓L, Window In, Window Out; Logic: Off, ↑H, ↓L; Pulse: Off, ↑H, ↓L, Window In, Window Out
		Combination	Level OR, Level AND, Edge OR, Edge AND
		Level	Set numeric value
	[Alarm]	Alarm port #	1•2•3•4
	[Date]	Date	From 2005.1.1 to 2035.12.31
		Time	From 0:0:0 to 23:59:59
	[Weekly]	Day of week	Off or On setting for each of Sunday through Saturday
		Time	From 0:0:0 to 23:59:59
	[Time]		From 0:0:1 to 9999:59:59
Stop side source setting	[Level]	Mode	Analog: Off, ↑H, ↓L, Window In, Window Out; Logic: Off, ↑H, ↓L; Pulse: Off, ↑H, ↓L, Window In, Window Out
		Combination	Level OR, Level AND, Edge OR, Edge AND
		Level	Set numeric value
	[Alarm]	Alarm port #	1•2•3•4
	[Date]	Date	From 2005.1.1 to 2035.12.31
		Time	From 0:0:0 to 23:59:59
	[Weekly]	Day of week	Off or On setting for each of Sunday through Saturday
		Time	From 0:0:0 to 23:59:59
	[Time]		From 0:0:1 to 9999:59:59
Repeated capturing			Off, On
Alarm level settings	Mode		Analog: Off, ↑H, ↓L, Window In, Window Out; Logic: Off, ↑H, ↓L; Pulse: Off, ↑H, ↓L, Window In, Window Out
	Level		Set numeric value
	Output		1•2•3•4
	Detection Method		Level, Edge
	Alarm Hold		On, Off
	Send Burnout Alarm		On, Off

GL820 Trigger Modes

Above Threshold

→ Measurement starts (alarm generated)

CH1

Below Threshold

→ Measurement starts (alarm generated)

CH1

Inside Window

→ Measurement starts (alarm generated)

CH1

Outside Window

→ Measurement starts (alarm generated)

CH1
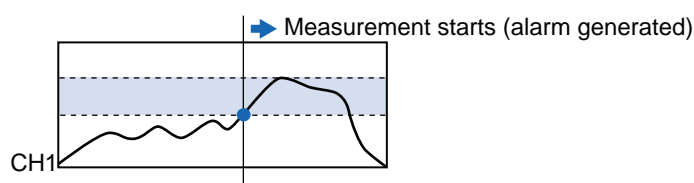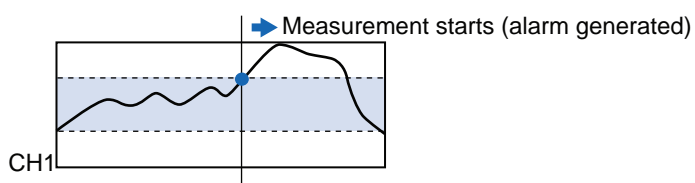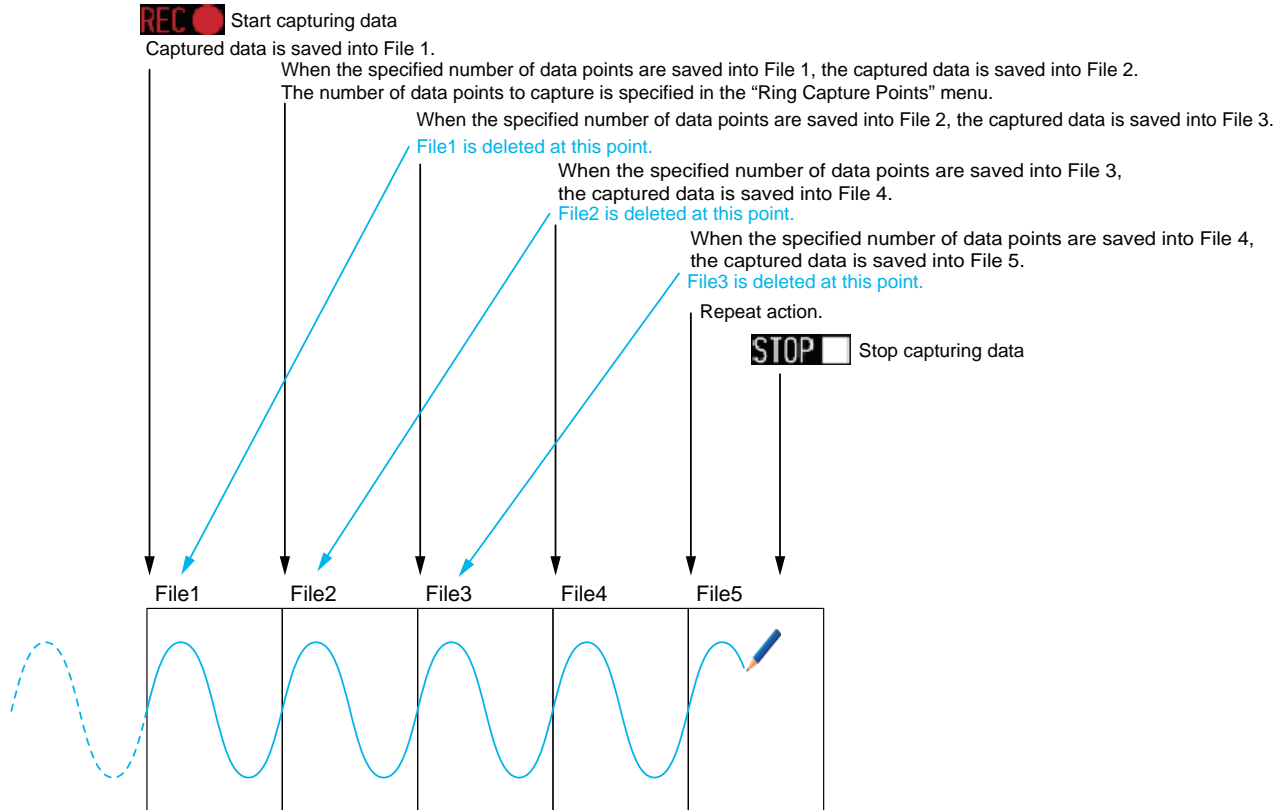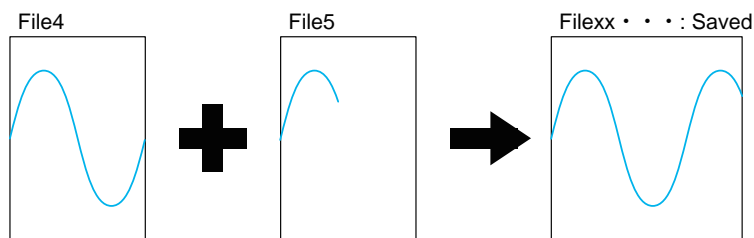
GL820 "Ring Capture" and External Sampling

The GL820's ring capture feature provides a continuous recording solution for measurement situations where events need to be recorded, but their occurrence is separated by long and unpredictable time intervals. Ring capture employs a ping-pong memory approach to data recording with a definable memory length, which may be adjusted to ensure that a recorded event is retained long enough for manual intervention to stop recording and allow data retrieval. External sampling allows the GL820 to be marginally synchronized to an external trigger signal.
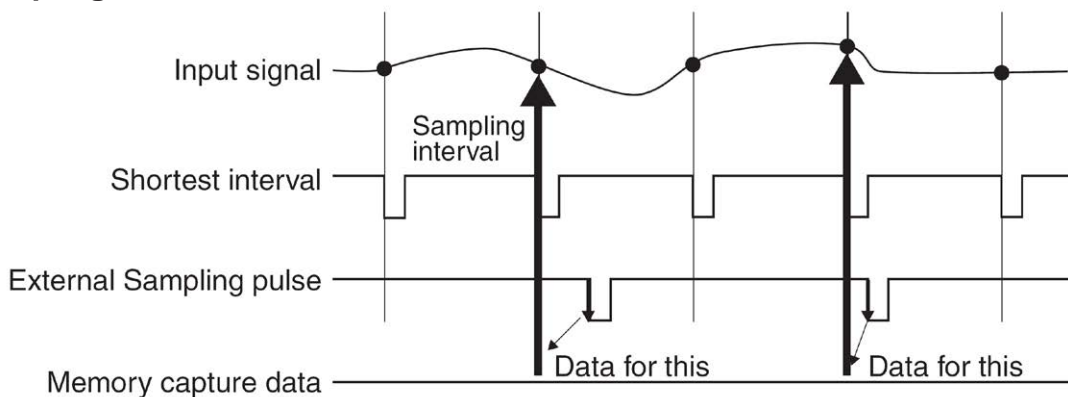
The Ring Capture Concept

REC ● Start capturing data

Captured data is saved into File 1.

When the specified number of data points are saved into File 1, the captured data is saved into File 2.
The number of data points to capture is specified in the "Ring Capture Points" menu.

When the specified number of data points are saved into File 2, the captured data is saved into File 3.
File1 is deleted at this point.

When the specified number of data points are saved into File 3, the captured data is saved into File 4.
File2 is deleted at this point.

When the specified number of data points are saved into File 4, the captured data is saved into File 5.
File3 is deleted at this point.

Repeat action.

STOP Stop capturing data

File1   File2   File3   File4   File5

When capturing is stopped at the STOP POINT above, File4 and File 5 remain.
These files are consolidated into one file and it is saved. The "ring capture" is complete.

File4   +   File5   →   Filexx・・・: Saved

External Sampling

Input signal

Sampling interval

Shortest interval

External Sampling pulse

Memory capture data — Data for this — Data for this

Flexible Computer Interfaces, and an Optional Battery Pack

The GL820 provides the added benefit of PC connectivity to either a USB or Ethernet port. Both interfaces are standard, and the USB port doubles as a method to expand the GL-800's internal 12 MB memory to a maximum 2 GB capacity using standard USB flash memory. When either interface is connected to a PC you can upload measurement protocols to the GL820, monitor acquired data in real time, or download previously acquired data. The GL820's Ethernet interface offers the advantage of allowing the GL820 to function as a Web server, allowing the GL820 to be manipulated from any web browser such as Firefox or Internet Explorer. Finally, an optional battery pack may be added to the GL820 to allow power-independent data recording whenever and wherever it's required.
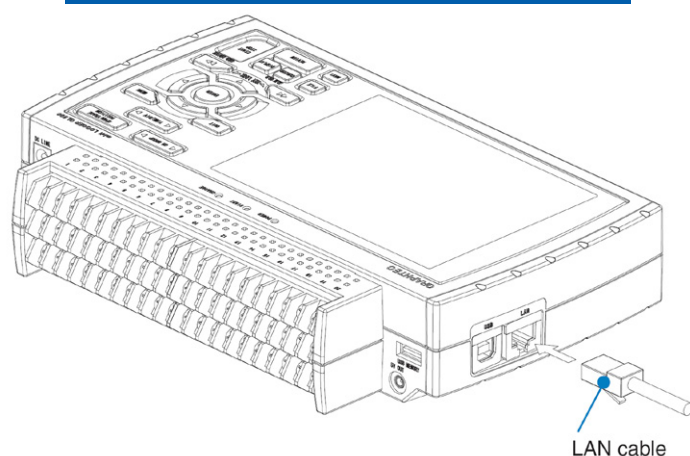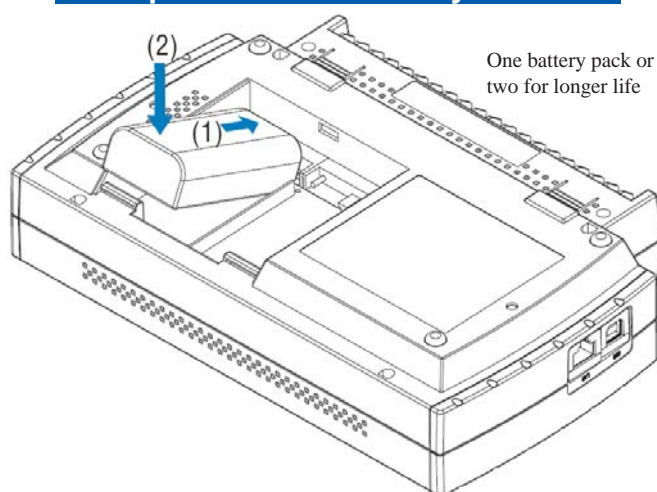
USB Flash Drive Memory Expansion

USB Memory
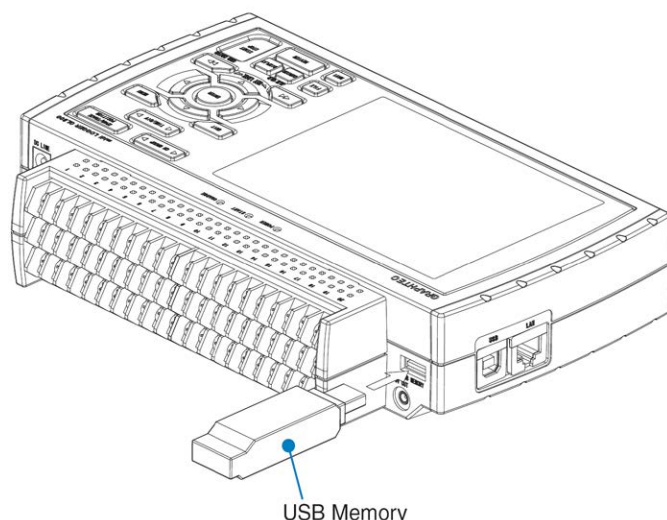
USB-to-PC Interface Connection

USB cable
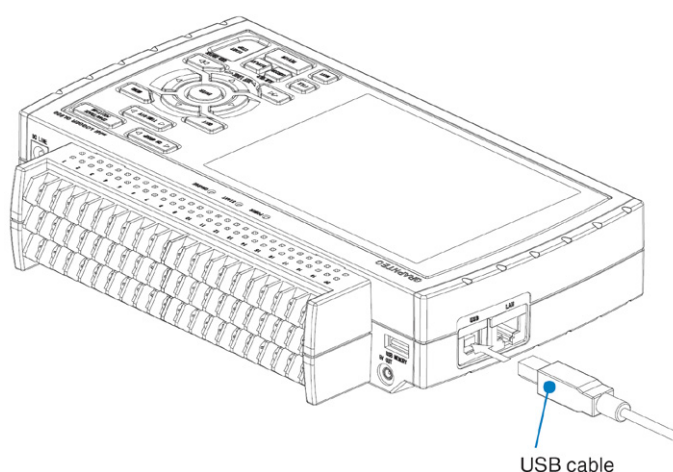
Ethernet Interface Connection

LAN cable

Optional B-517 Battery Pack
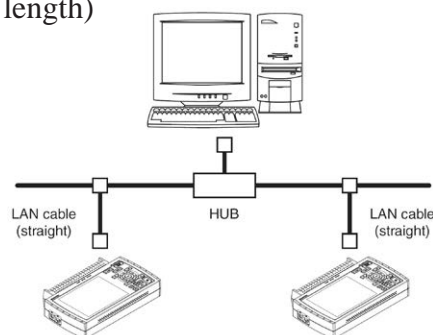
One battery pack or two for longer life

Ethernet Deployment Examples

Directly to a PC using a cross-over cable (100 meter maximum length)

LAN cable (crossing)
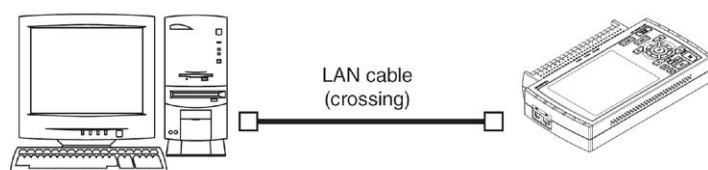
Over a local area network (LAN) using hubs or switches (unlimited length)

LAN cable (straight)   HUB   LAN cable (straight)

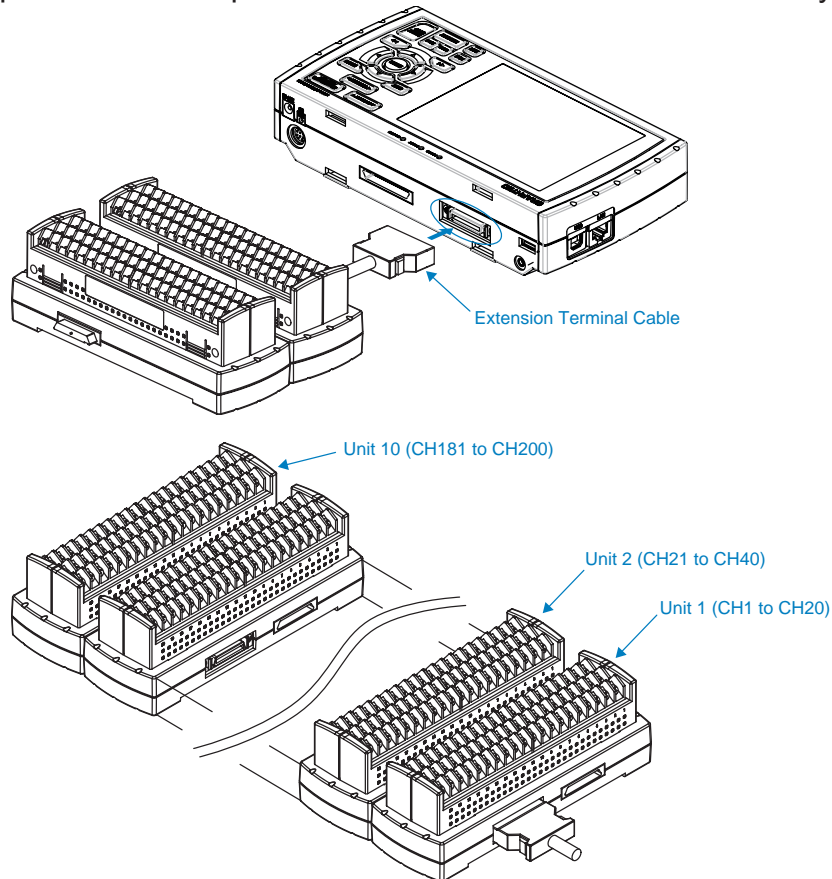# GL820 Analog Channel Expansion and Extension Options

Adding more flexibility to where and how the GL820 can be deployed, the analog input screw terminal unit may be detached from the GL820 and located up to 23 inches away using the optional B-537 Extension Kit. If you need channel expansion beyond the 20 channels provided by the base GL820, then use one or more B-538 Expansion Kits (plus ONE B-537 Extension Kit) to expand your channel count in 20-channel increments to a maximum of two-hundred.

The Terminal Unit May be Removed from the GL820...

...and relocated up to 23 inches away using the B-537 Extension kit

(1) Insert tabs at the top of the terminal unit into the slots.

Extension Terminal Cable
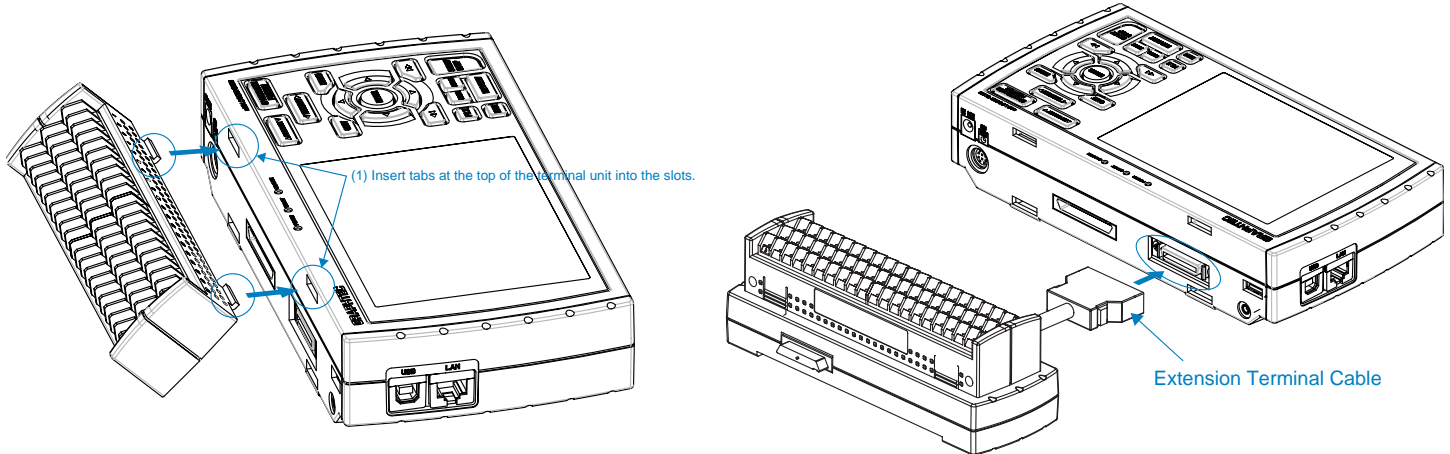
Then use a B-538 Expansion kit to expand the GL820 channel count to as many as 200

Extension Terminal Cable

Unit 10 (CH181 to CH200)

Unit 2 (CH21 to CH40)

Unit 1 (CH1 to CH20)

Expansion Ordering Chart

	20 Channels	40 Channels	100 Channels	200 Channels
GL-820	1	1	1	1
B-537 Extension Kit	-	1	1	1
B-538 Expansion Kit	-	1	4	9

GL820 Display Quick-look

The GL820's keyboard and display are key components you'll use for any typical data recording session. The display is a full color TFT LCD (thin-film transistor liquid crystal display), the same technology used in modern flat-panel televisions. The display measures 5.7 inches diagonally, and offers 640 × 480 pixels of bright, clear, high contrast resolution. The GL820's keyboard allows full access to the instrument's menu system as viewed through its display. Navigation is straightforward and intuitive using the keyboard's navigation and ENTER keys that form the center of the array. Other keys support special operations that are clearly annotated.

GL820 Display Close-up and Modes

1. Simplified message display
2. TIME/DIV
3. Status mark
4. Internal memory access display
5. USB memory access display
6. Remote display
7. Key lock display
8. Clock display
9. AC/battery status display
10. Digital display
11. Quick settings
12. Alarm display
13. Pen display
14. File name display
15. Lower limit scale
16. Waveform display
17. Upper limit scale
18. Data capture bar

MONITOR   AMP settings   Level settings   Digital screen

Keyboard Close-up

(1) CH GROUP
(2) SPAN/TRACE/POSITION
(3) TIME/DIV
(4) MENU
(5) QUIT
(6) Direction Keys
(7) ENTER
(8) FAST FORWARD key (KEY LOCK)
(9) START/STOP (USB DRIVE)
(10) REVIEW
(11) DISPLAY
(12) CURSOR (ALARM CLEAR)
(13) FILE
(14) NAVI
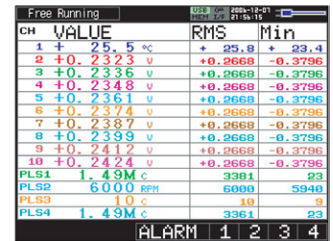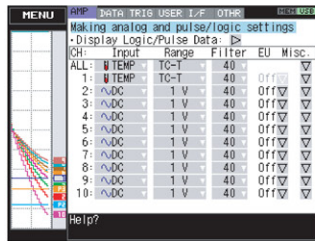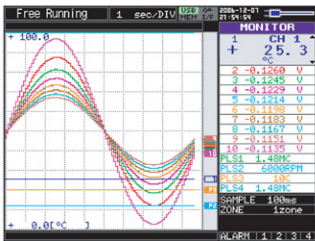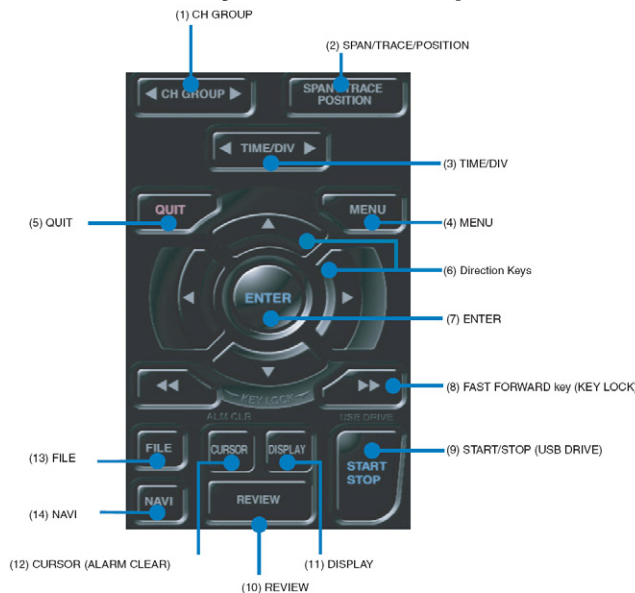
GL820 Included and Optional Accessories

Included PC Software

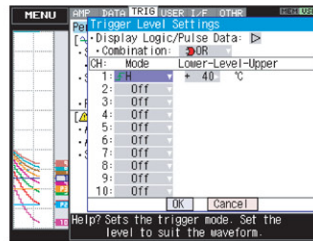| Item	Description
Compatible OS	Windows XP/Vista/7
Functions	Main unit control, real time data capture, data conversion
Main unit settings	Input, memory, alarm, trigger
Allowed connection	up to 10
Number of channels per connection	200 ch maximum
Maximum number of channels	500 ch maximum
Settings	AMP, data, trigger/alarm, report, others
Captured data (CSV, Binary)	Real time data, Memory data, USB memory data
Display	Analog waveforms, logic waveforms, pulse waveforms, digital values
Display modes	Y-T, X-Y, Digital, Meter, Report
File conversion	Between cursors, All data, Thinning function
Monitor functions	Alarm monitor enables sending of e-mail to the specified address
Report function	Automatic creation of daily or monthly files
Statistic/History	Displays max, min, and average values during measurement

Included Accessories

Item	Description
Quick Start Guide	GL820-UM-8xx
CD-ROM	User's manual, application software
AC adapter	100 to 240 VAC, 50/60 Hz, power supply cord for each area

Optional Battery Pack model B-517

| Item	Description
Capacity	7.4 V/2200 mAh 17Wh
Battery type	Lithium secondary battery
Running time (up to 2 battery packs can be mounted)	<When LCD is ON> 1 battery pack: MAX brightness: approx. 2.5 hours; MIN brightness: approx. 3 hours 2 battery packs: MAX brightness: approx. 5 hours; MIN brightness: approx. 6 hours <When LCD is OFF> 1 battery pack: approx. 3.5 hours; 2 battery packs: approx. 7 hours
Charging method	Mount in the main unit
Time required for charging	1 battery pack: approx. 4 hours; 2 battery packs: approx. 8 hours
Switchover in the case of power failure	Because the battery is used together with the AC adapter, the power supply will be switched automatically to the battery in the event of power failure. The AC adapter is the primary power source
Operating environment	Running on battery: 0 to 40°C, Battery being charged: 15 to 35°C
Other functions	When battery is running low, file is closed automatically (when captured to USB or internal memory). Remaining amount indicator.

Optional Humidity Sensor model B-530

Item	Description
Alowable temperature range	-25 to 80°C
Allowable Humidity Range	0 to 100%
Relative humidity measurement accuracy	±3% RH (5 to 98% RH at 25°C)
Method	Capacitance method
Relative humidity measurement accuracy 5 to 98%	0 to 10°C (±5%RH); 10 to 20°C (±4%RH); 20 to 30°C (±3%RH); 30 to 40°C (±4%RH); 40 to 50°C (±5%RH); 50 to 60°C (±6%RH); 60 to 70°C (±7%RH); 70 to 80°C (±8%RH)
Response time	15 s (90% response when membrane filter installed)
Sensor output	0 to 1 VDC
Sensor power source	5 to 16 VDC
Power consumption	approx. 4mA
External dimensions	14mm × 80 mm (excluding cable)
Cable length	3m

Other Optional Accessories

Item	Option	Description	Item	Option	Description
DC power cable	B-514	Bare tips (2 m)	Logic alarm cable	B-513	2m, bare tips
Extension terminal base set	B-537	Extension terminal base unit, cable	Carrying Case	B-536	Durable carrying case
20 channel extension terminal set	B-538	20 terminals, extension terminal base unit, connection plate, screws			

232

32

120

48

2
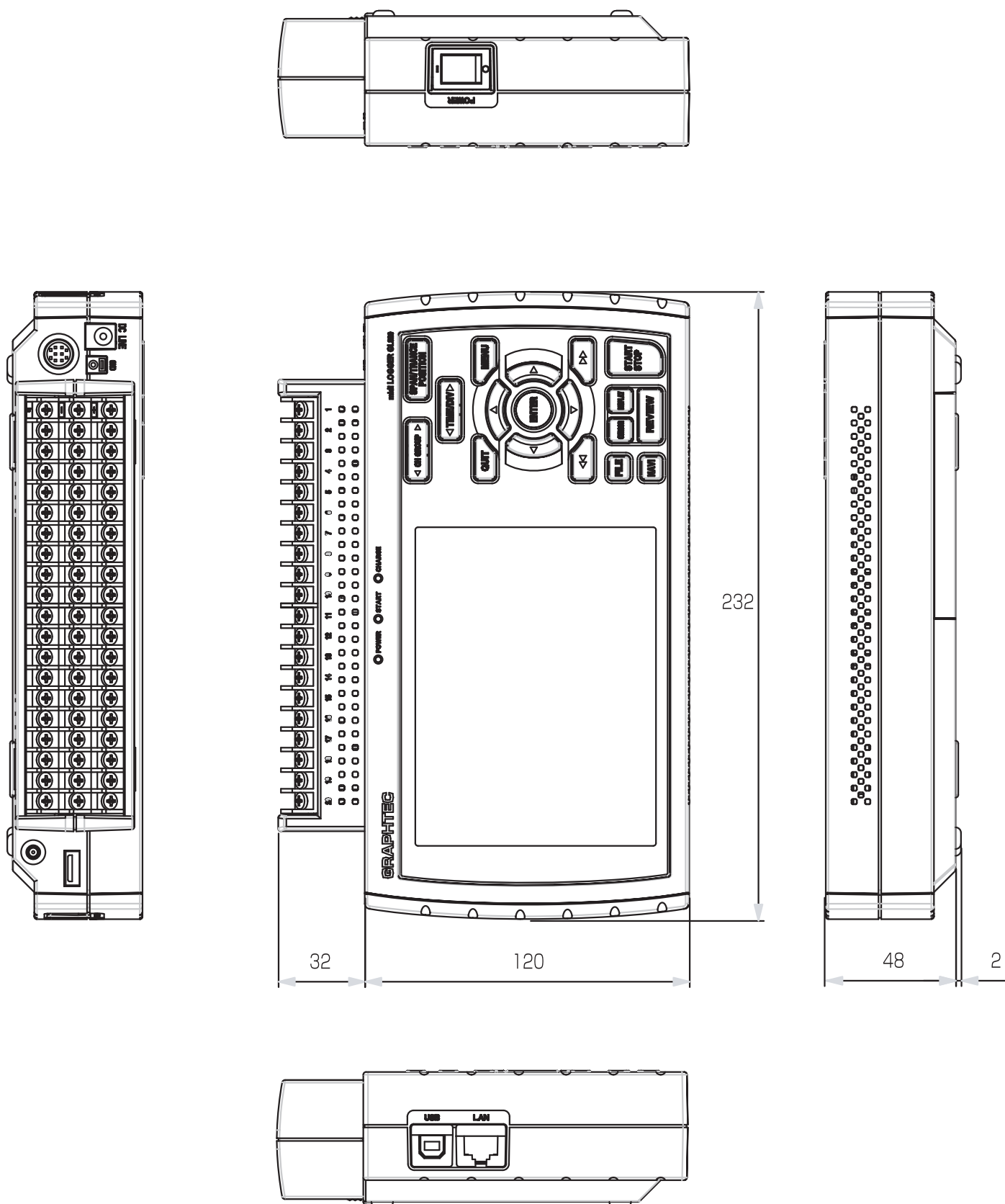
Dimension precision: Error ±5mm
Units: mm

GL820 Specifications

Overall Specifications

Number of analog inputs: 1 unit: 20 channels
Extension unit: Maximum 200 channels

External input/output: Trigger input, Logic input 4 channels or Pulse input 4 channels, Alarm output

PC interface: Ethernet (10Base-T/100Base-TX), USB (high speed supported) provided as standard features.

Internal memory devices: Internal memory: approx. 2 GB
USB memory slot (FullSpeed supported) standard

Data backup functions: Setup conditions: EEPROM; Clock: lithium secondary battery

Operating Environment: 0 to 45°C, 5 to 85% RH (15 to 40°C when using batteries)

Withstand voltage: Between each input channel and GND terminal: 1 minute at 350Vp-p
Between each input terminal: 1 minute at 350Vp-p

Power supply: AC adapter: 100 to 240 VAC, 50/60 Hz
DC input: 8.5 to 24 VDC
Battery pack (option): 7.2 VDC (2200 mAh), 2 packs mountable

Power Consumption: AC Power consumption (when AC adapter is used)

Condition	Normal Consumption	Consumption during battery recharge
LCD on	18 VA	32 VA
Screensaver on	14 VA	30 VA

DC Power consumption

DC Voltage	Condition	Normal Consumption	Consumption during battery recharge
+24V	LCD on	0.3 VA	0.7 VA
+24V	Screensaver on	0.25 VA	0.6 VA
+12V	LCD on	0.6 VA	Can't Recharge
+12V	Screensaver on	0.45 VA	Can't Recharge
+8.5V	LCD on	0.85 VA	Can't Recharge
+8.5V	Screensaver on	0.65 VA	Can't Recharge

Note: normal status is when LCD brightness is set to MAX

External Dimensions: 232 × 152 × 50 mm

Weight: 900g (excluding AC adapter and battery)

Vibration-tested conditions: Equivalent to automobile parts Type 1 Category A classification

Overall Functional Specifications

Display Screen: Waveform screen + Digital screen, Expanded Waveform screen, Digital screen + Calculation Display screen (can be key-toggled)

Sampling interval: 10 ms/1 ch maximum; 10, 20, 50, 100, 125, 200, 250, 500 ms; 1, 2, 5, 10, 20, 30 s; 1, 2, 5, 10, 20, 30 min; 1 h

EU Scaling function: 4 points can be set for each channel.

Function during capture: Double-screen display; Exchange of USB memory; Saving of data between cursors.

Data save functions: Capture to internal memory, capture to USB memory, setup data can be saved, copy of data screen saved.

Ring capture: ON/OFF; Number of recording points : 1000 to 2000000 (When ON, the memory space that can be used for capture is ⅓ of the free space or less.)

Channels calculation: Addition, subtraction, multiplication, and division

Statistical calculation: Average value, peak value, maximum value, minimum value, RMS
2 max simultaneously
Method: Realtime and between cursors
Results displayed in Digital Screen + Calculation Display Screen.

Search functions: Search the captured data for the required number of points: Channel Pulse, Logic, Level, Alarm

Annotation input function: Alphanumeric; 31 character max.

Analog Channel Specifications

Number of inputs: 20 channels (maximum 200 channels with extension unit)

Input terminal type: M3 screw type terminals

Input method: Photo MOS relay scanning system
All channels isolated, balanced input
Terminal b to be used to connect the resistance temperature detector is shorted within all channels.

Scan speed 10 ms/1 ch maximum

Measurement Ranges

Voltage: 20, 50, 100, 200, 500 mV; 1, 2, 5, 10, 20, 50 V; 1-5 V F.S.

Temperature: Thermocouples: K, J, E, T, R, S, B, N, W (WRe5-26)
Resistance temperature detector: Pt100, JPt100, Pt1000 (IEC751)

Humidity: Humidity: 0 to 100% (voltage 0 V to 1 V scaling conversion) *with B-530 (option)

Measurement accuracy*

Voltage: 0.1% of Full Scale

Temperature (Thermocouple):

TC	Measurement Temperature Range (°C)	Measurement Accuracy (°C)
R/S	0 ≤ Ts ≤ 100 100 < Ts ≤ 300 R: 300 < Ts ≤ 1600 S: 300 < Ts ≤ 1760	±5.2 ±3.0 ±(0.05% of rdg +2.0) ±(0.05% of rdg +2.0)
B	400 ≤ Ts ≤ 600 600 < Ts ≤ 1820	±3.5 ±(0.05% of rdg +2.0)
K	-200 ≤ Ts ≤ -100 -100 < Ts ≤ 1370	±(0.05% of rdg +2.0) ±(0.05% of rdg +1.0)
E	-200 ≤ Ts ≤ -100 -100 < Ts ≤ 800	±(0.05% of rdg +2.0) ±(0.05% of rdg +1.0)
T	-200 ≤ Ts ≤ -100 -100 < Ts ≤ 400	±(0.1% of rdg +1.5) ±(0.1% of rdg +0.5)
J	-200 ≤ Ts ≤ -100 -100 < Ts ≤ 100 100 < Ts ≤ 1100	±2.7 ±1.7 ±(0.05% of rdg +1.0)
N	0 ≤ Ts ≤ 1300	±(0.1% of rdg +1.0)
W	0 ≤ Ts ≤ 2000	±(0.1% of rdg +1.5)

Reference contact compensation accuracy: ±0.5°C

Resistance Temperature Detector:

Type	Measurement Temperature Range (°C)	Applied Current	Measurement Accuracy (°C)
Pt100	-200 to 850 (FS=1050)	1mA	±1.0
Jpt100	-200 to 500 (FS=700)	1mA	±0.8
Pt1000	-200 to 500 (FS=700)	0.2mA	±0.8

* 23°C ±3°C when 30 minutes have elapsed after the power was switched on (filter On (10), 1 s/20 ch sampling, GND connected).

Reference contact compensation accuracy: Internal/External switching

A/D converter: Method: ΔΣ; Resolution: 16-bit (Effective resolution: About 1/40000 of the +/- range)

Temperature coefficient: Gain: 0.01% of F.S./°C; Zero: 0.02% of F.S./°C
Zero occurs at the sampling intervals of 10, 20, and 50 ms.

Input resistance: 1 MΩ ±5%

Allowable signal source resistance: Within 300Ω

Maximum permissible input voltage: Between +/- terminals: Between input terminal/input terminal; Between input terminal/GND: 60 Vp-p

Withstand voltage: Between input terminal/input terminal : 1 min. at 350 Vp-p
Between input terminal/GND : 1 min. at 350 Vp-p

Insulation resistance: Between Input terminal/GND: At least 50 MΩ (at 500 VDC)

Common mode rejection ratio: At least 90 dB (50/60 Hz; signal source 300 Ω or less)

Noise: At least 48 dB (with +/- terminals shorted)

Filter: Off, 2, 5, 10, 20, 40
Filter operation is on a moving average basis. The average value of the set sampling count is used.
If the sample interval exceeds 30 seconds, the average value of data obtained
in a sub-sample (30 seconds) is used.

GL820 Specifications (continued)

Integral TFT LCD Display

Display:	5.7-inch TFT color LCD (VGA: 640 × 480 dots)
Displayed languages:	Japanese, English, French, German, Chinese, Korean
Backlight life:	50,000 hrs (when brightness is down to 50%), depends on operation environment
Backlight:	Screensaver function (10, 30 s, 1, 2, 5, 10, 30, 60 m)

Trigger Function Specifications

Repeat trigger:	Off, On
Trigger types:	Start: Data capture starts when a trigger is generated. Stop: Data capture stops when a trigger is generated.
Trigger conditions:	Start: Off, Level, Alarm, External,Time, Date, Weekly Stop: Off, Level, Alarm, External,Time, Date, Weekly
Alarm judgment modes:	Combination : Level OR, Level AND, Edge OR, Edge AND Analog channel judgment mode : H (↑), L (↓), Window In, Window Out Logic channel judgment mode : H (↑), L (↓) Pulse channel judgment mode : H (↑), L (↓), Window In, Window Out
Alarm judgment modes:	Detection method : Level, Edge Analog channel judgment mode : H (↑), L (↓), Window In, Window Out Logic channel judgment mode : H (↑), L (↓) Pulse channel judgment mode : H (↑), L (↓), Window In, Window Out

PC Interface

Interface types:	Ethernet (10Base-T/100Base-TX) USB (HighSpeed)
Software functions:	Data transfer to PC (real time, memory) PC control of the GL820
Ethernet functions:	Web server function : Displays GL820's screen image on Web browser, operation of GL820 FTP server function : Transfers and deletes files from internal memory and USB memory FTP client function : Backs up data in internal memory and USB memory NTP client function : Corrects the time of the GL820 clock DHCP client function : Automatically retrieves the IP address
USB functions:	USB drive mode: Transfers and deletes files from internal memory
Real time data transfer speed:	10 msec/1 ch maximum (depends on the number of transferring channels)

Internal Memory Devices

Memory capacity:	Internal memory: approx. 2GB Flash memory USB memory: Unlimited (1 file must be 2GB at the max
Memory contents:	Setup conditions, measured data, screen copy

Discrete I/O Specifications

Input/Output types:	Trigger input (1 ch) or External sampling input (1 ch); Logic input (4 ch) or Pulse input (4 ch); Alarm output (4 ch) Switch between Logic and Pulse; Switch between Trigger and External sampling. The logic alarm cable B-513 (option) is required to use the external output function.
Input specifications:	Input voltage range: 0 to +24 V (single-ended ground input) Input signal: No-voltage contact (a-contact, b-contact, NO, NC), Open collector, Voltage input Input threshold voltage: Approx. +2.5 V Hysteresis: Approx. 0.5 V (+2.5 to + 3 V)
Alarm output specifications:	Output format: Open collector output (5 V, pull-up resistance 10 KΩ) Maximum ratings of output transistor: Collector-GND voltage: 30 V; Collector current: 0.5 A; Collector dissipation: 0.2 W Output conditions: Level judgment, window judgment, logic pattern judgment, pulse judgment

Pulse input

Revolutions mode (engines, etc):	Function: Counts the number of pulses per second; enables them to be converted to rpms. Spans: 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M PRM/F.S.
Counts mode (electric meters, etc.):	Function: Displays a count of the number of pulses for each sampling interval from the start of measurement. Spans: 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S.
Inst. mode:	Function: Counts the number of pulses for each sampling interval. Resets the count value after each sampling interval. Spans: 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S.
Maximum number of pulse inputs:	Maximum input frequency: 50kHz Maximum number of count: 50kC/sampling (16-bit counter)

Ordering Guide

Description	Order No.	Description	Order No.
GL820 Compact, lightweight, multi-channel data logger that provides 20 standard analog measurement channels, expandable to 200.	GL820	**Extension Terminal Base Set** Extension terminal base unit with cable.	B-537
Battery Pack 7.2V/2200mAh Battery pack.	B-517	**20 Channel Extension Set** 20 channel terminals, Extension terminal base unit, connection plate, screws.	B-538
DC power cable 2-meter DC power cable, bare tips.	B-514	**Logic Alarm Cable** 2-meter, bare tips.	B-513
		Humidity Sensor 3-meter with dedicated power connector.	B-530
Carrying Case Durable case designed specifically for the GL820	B-536	**Resister** Precision 250 Ω resistor, 0.1%	R250