ISOLATED/UNIVERSAL INPUT, STANDALONE MULTI – CHANNEL DATA LOGGER

Stock Code: N13-840-M

20 Channel Data Logger
HANDY-TYPE LOGGER

VOLTAGE **TEMP** **HUMIDITY** **PULSE** **LOGIC**

- 20 isolated channels, each with multifunction input
- Modular system allows expansion up to 200 channels
- Large easy-to-read 7-inch wide TFT color LCD
- Using SD memory card for data saving
- PC-friendly, supports USB memory stick, has USB and LAN ports
- Easy operation and devise set up
- Easy application software
- Other features

## Isolated channels, each with multifunction input

It contains an isolated input system which ensures that signals are not corrupted by inputs to other channels, thus eliminating wiring concerns. These 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	→	Ranges from 20mV to 100V
Temp.	→	Thermocouple types: K,J,E,T,R,S,B,N,W RTD TYPES: Pt100, JPt100, Pt1000
Humidity	→	0 to 100%RH Using the optional humidity sensor (B-530 option)
Pulse	→	4 Channels * Accumulating , Instant or RPM
Logic	→	4 Channels *

*Select either Pulse input or Logic input and use the optional Logic/Alarm cable (B513 option)

7-inch Large easy-to read wide color

Utilizes a clear 7-inch wide TFT color LCD monitor (WVGA: 800 x 480 dots). Makes it easy to read data in waveform or digital form and to check your measurement parameter settings.
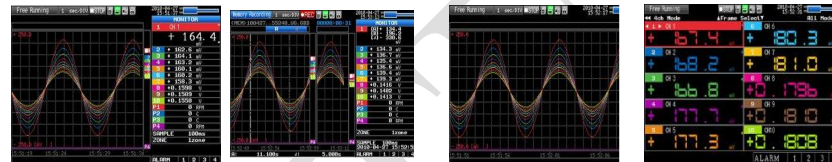
Waveform display (Analog+Digital)   Dual display (Current+Past)   Waveform display (Analog only)   Digital Display

Standard unit has 20 analogue input channels, expandable up to 200 channels

The standard configuration has 20 analogue input channels. It can be expanded up to 200 channels by adding optional 20 channel extension terminal kits.
The following shows how a standard configuration is expanded to 60 channels.

1. The terminal unit is removed from the Logger.

2. The extension terminal base (B-566) is connected to the Logger using the cable.

3. The terminal unit that was removed from the Logger is connected to the extension terminal base (B-566).

4. Two additional 20ch extension terminal sets (B-566) are also connected to the extension terminal base (B-564 OR 565).

Configuration for additional channels

Number of channels	20ch	40ch	100ch	200ch
20 channel Logger	1set	1set	1set	1set
Connection Cable	N/A	1pc	1pc	1pc
Extension terminal base kit	N/A	2sets	5set	10set
20ch extension terminal base kit	N/A	1set	4sets	9sets

Maximum sampling rate of up to 10ms

Provides faster sampling rates for voltage measurements. Can achieve 10ms sampling interval 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	X	X	X	X	X	X	X	X
	Temp	N/A	N/A	N/A	X	X	X	X	X

- This chart is applicable when the captured data is saved in the GBD binary file format. Limited sampling speed is available when digital sensors are used as a remote monitoring device.

Supports large-size SD memeory 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 accory installed in the first slot

Capturing time (20 Analogue channels being used with Logic/Pulse inputs turned off)

Sampling interval	10ms	50ms	100ms	200ms	500ms	1s	10s
GBD format	31 days	77 days	95 days	108 days	270 days	Over 365 days	Over 365days
CSV format	3 days	11 days	16 days	21 days	54 days	109 days	Over 365 days

*The above figures are approximate. The sampling rate is limited by the number of channels in use.(10ms:1ch, 50ms: 5ch, 100ms: 10ch)

- WEB & FTP server function.
  Controlled by using 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 is periodically synchronized with the NTP server.

Alarm output function

Alarm signals can be output when alarm conditions occur.Four alarm output ports are fitted
The Logic/alarm cable, (B-513 option), is needed to connect the alarm output ports.

USB Drive Mode

USB drive mode function enables data to be transferred to the PC from GL840 by drag & drop feature

Navigation function

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

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

Main Unit Specification

Item		Description
Number of analog input channels		20 ch, Expandable up to 200 ch by unit of 20 ch
External input output	Input[*8]	Trigger or Sampling input 1 ch, Logic or Pulse input 4 ch
	Output[*8]	Alarm output 4 ch
Sampling interval		10 ms to 1 h(in 10ms to 50ms, voltage only and limited channel), External
Time scale		1 sec to 24 hour / division
Trigger function	Trigger Action	Start or stop capturing data by the trigger
	Repeat Action	Off, On (auto rearmed)
	Trigger Source	Start: Off, Input signal, Alarm, External , Clock, Week or Time
		Stop: Off, Input signal, Alarm, External , Clock, Week or Time
	Combination	OR or AND condition at the level of signal or edge of signal
	Condition	Analog: Rising, Falling, Window-in, Window-out
		Pulse: Rising, Falling, Window-in, Window-out
		Logic: Rising, Falling
	Alarm output	Output a signal when alarm condition occurs in the input signal
	Alarm output[*8]	4 channels, Output type: Open collector (pulled-up to 5 V by resistor 10 kΩ)
Pulse input function [*8]	Accumulating count mode	Accumulating the number of pulses from the start of measurement Range: 50, 500, 5 k, 50 k, 500 k, 5 M, 50M, 500 M, counts/F.S
	Instant count mode	Counting the number of pulses per sampling interval Range: 50, 500, 5 k, 50 k, 500 k, 5 M, 50M, 500 M, counts/F.S
	Rotation count (RPM)	Counting the number pulses per second and then it is converted to RPM Range: 50 rpm, 500 rpm, 5 krpm, 50krpm, 500krpm, 5 Mrpm, 50 Mrpm, 500Mrpm/F.S
	Max. input pulse rate	50 k pulses/sec or 50k counts per sampling interval (16 bits counter is used)
Calculation function	Between channels	Addition, Subtraction, Multiplication and Division for analog input
	Statistical	Select two calculations from Average, Peak, Max., Min., RMS
Search function		Search for analog signal levels, values of logic or pulse or alarm point in captured data
Interface to PC		Ethernet , USB 2.0 (Hi Speed)
Storage device	Media	SD Memory card (Support SDHC, up to 32 GB
	Saved content	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 Relay: Saves data to multiple files without losing data until data capturing is stopped.
Replay data (in GBD or CSV format)		Replays captured data that was saved
Engineering scale 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).
Display	Size	7 inch TFT color LCD (WVGA: 800 x 480 dots)
	Information	Waveform in Y-T with digital values, Waveform only, Digital values and statistics values
Operating environment		0 to 45 °C, 5 to 85 % RH (When operating with battery pack 0 to 40°C, charging battery 15 to 35°C)
Power source		AC adapter (100 to 240 V, 50/60 Hz), DC power (8.5 to 24 V DC), DC drive cable is required) Battery pack- Mountable battery pack
Power consumption		Max 38 VA or lower
External dimensions (W x D x H)		Approx. 240 x 158 x 52.5 mm
Weight		Approx. 1010 g (Excluding AC adapter and battery pack)

Software Specification

Item		Description
Supported OS		Windows 8.1, 8 , 7, Vista (32bits and 64 bits edition)
Functions		Real-time data capture, Replay data, Data format conversion
Settings control		Input condition, capturing condition, Trigger/Alarm condition, Reports etec
Controlled units		Up to 1000 channels total, Up to 4 groups (number of units is limited by model)
Captured data	Save to PC	Saves captured data in real time (in GBD binary or CSV format)
	Save to logger unit	Saves to the SD memory card (in GBD binary or CSV format)
Displayed information		Analog waveforms, Logic waveforms, Pulse waveforms, Digital values
Displayed modes		Y-T waveforms, Digital values, Report X-Y graph (specified period data, data reply only)
Warning functions		Sends E-mail to the specified address when the alarms occur
Statistical calculation		Max, Min, and Ave during data capturing
Report functions		Creates the daily or monthly report automatically (can also export directly to Excel)

Standard Accessories

Item	Description	Quantity
Ac adapter	100 to 240 V AC, 50 / 60 Hz (with specified type of power cord)	1 set
CD-ROM	User's manual (PDF format), Application software	1 piece
Quick Start Guide		1 copy
SD Card	4 GB	1 piece

Options and Accessories

Item	Model number	Remarks
Input Terminal (Multi input)	B-564	20 ch input terminal, multi-input type for GL840
Base unit for input terminal	B-566	Base unit for input terminal
Connection cable for extension terminal	B-567-05	Cable to connect GL840 and B-566, 50cm long
	B-567-20	Cable to connect GL840 and B-566, 2mtr long
Battery pack	B-569	Rechargeable Lithium-ion battery (7.2 V, 2900mAh)
Input / Output cable	B-513	2m long (no clip on end of cable)
DC Drive cable	B-514	2m long (no clip on end of cable)
Humidity sensor	B-530	3m long (with power plug)
Shunt resistor	B-551-10	250 ohms (it converts the signal to the '1-5V' from the 4-20mA
AC power adaptor	ACADP-20	Input: 100 to 240V AC, output: 24 VDC

Analog input Specification

Item			Description	
Type of input terminal			Screw terminal (M3 screw)	
Input method			all channels isolated, balanced input scan channels for sampling, screw terminal M3	
Measurement range	Voltage		20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 50 V, and 1-5 V/F.S.	
	Thermocouple		Thermocouple: K, J, E, T, R, S, B, N and W (WRe5-26)	
	RTD		Resistance Temperature Detectors (RTDs): Pt100, JPt100(JIS), Pt10000(IEC751)	
	Humidity		0 to 100% (using humidity sensor (B-530 optional), power is supplied to only one sensor)	
Filter			Off, 2, 5, 10, 20, 40 (moving average in selected number)	
Measurement accuracy[11]	Voltage		0.1% of F.S	
	Temperature			
		Thermocouple	Measurement range	Measurement accuracy
		R/S	$0°C \leq TS \leq 100°C$	$\pm5.2°C$
			$100°C < TS \leq 300°C$	$\pm3.0°C$
			R: $300°C < TS \leq 1600°C$	$\pm(0.05\%$ of reading $+2.0°C)$
			S: $300°C < TS \leq 1760°C$	$\pm(0.05\%$ of reading $+2.0°C)$
		B	$400°C \leq TS \leq 600°C$	$\pm3.5°C$
			$600°C < TS \leq 1820°C$	$\pm(0.05\%$ of reading $+2.0°C)$
		K	$-200°C \leq TS \leq -100°C$	$\pm(0.05\%$ of reading $+2.0°C)$
			$-100°C < TS \leq 1370°C$	$\pm(0.05\%$ of reading $+1.0°C)$
		E	$-200°C \leq TS \leq -100°C$	$\pm(0.05\%$ of reading $+2.0°C)$
			$-100°C < TS \leq 800°C$	$\pm(0.05\%$ of reading $+1.0°C)$
		T	$-200°C \leq TS \leq -100°C$	$\pm(0.1\%$ of reading $+1.5°C)$
			$-100°C < TS \leq 400°C$	$\pm(0.1\%$ of reading $+0.5°C)$
		J	$-200°C \leq TS \leq -100°C$	$\pm2.7°C$
			$-100°C < TS \leq 100°C$	$\pm1.7°C$
			$100°C < TS \leq 1100°C$	$\pm(0.05\%$ of reading $+1.0°C)$
		N	$0°C \leq TS \leq 1300°C$	$\pm(0.1\%$ of reading $+1.0°C)$
		W	$0°C \leq TS \leq 2000°C$	$\pm(0.1\%$ of reading $+1.5°C)$
			Reference Junction Compensation (R.J.C): $\pm0.5°C$	
		RTD	Measurement range	Measurement accuracy
		Pt100	$-200°C$ to $850°C$ (FS = $1050°C$)	$\pm1.0°C$
		JPt1000	$-200°C$ to $500°C$ (FS = $700°C$)	$\pm0.8°C$
		Pt1000	$-200°C$ to $500°C$ (FS = $700°C$)	$\pm0.8°C$
A/D Converter			$\sum\Delta$ type, 16 bits (effective resolution: 1/40000 of measuring full range)	
Maximum input voltage	Between +/ - terminal		20mV to 2V range: 60 V p-p 5V to 100V range : 110 Vp-p	
	Between channels		60 V p-p	
	Between channel / GND		60 V p-p	
Withstand Voltage	Between channels		350 V p-p (1 minute)	
	Between channel(-)/GND		350 V p-p (1 minute)	