GRAPHTEC

data LOGGER GL860

Isolated Multi-CH data LOGGER

Easier and Faster Multi-CH Measurement

TABLE OF CONTENT

1.Overview / Features

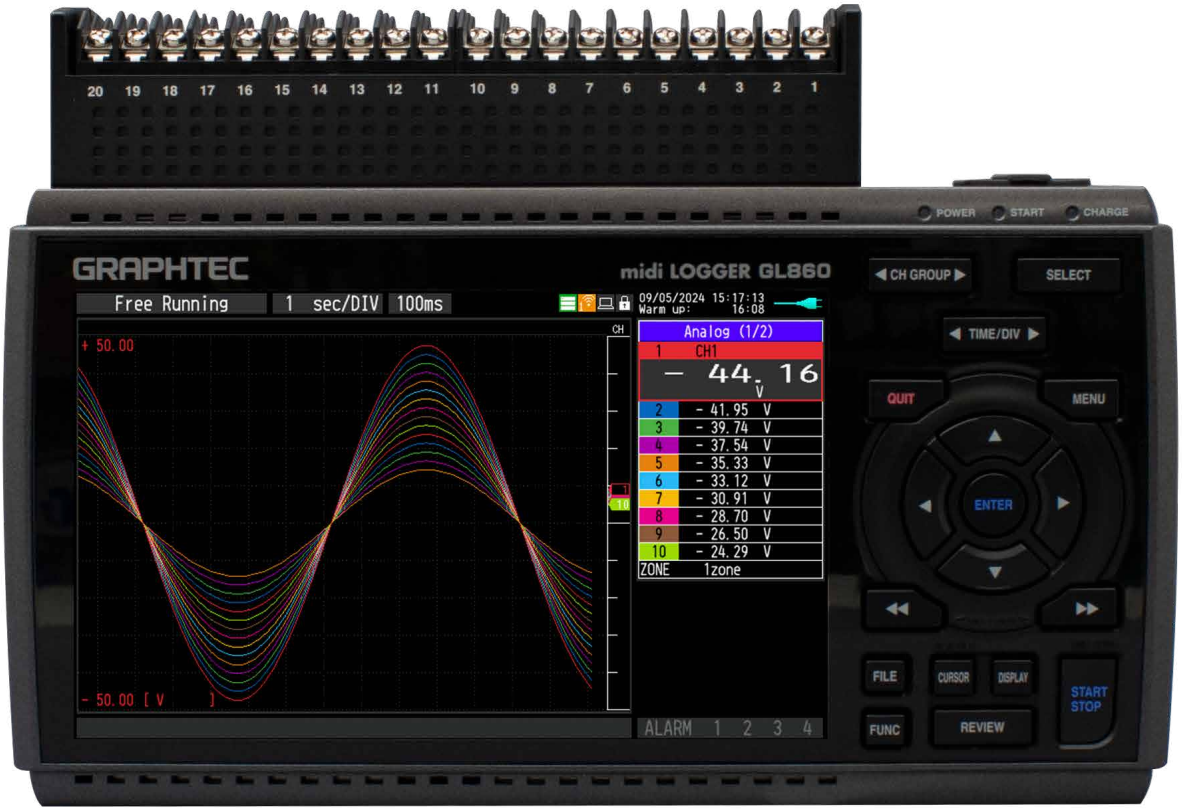
About GL860

All channels are isolated, support multi-function input and expandable from 20 channels to a maximum of 200 channels.

4 types of terminals including 30CH terminal and withstand high-voltage high-precision terminal which is ideal for voltage measurement of rechargeable batteries and advanced temperature measurement are lined-up.
We offer the terminal that best suits your measuring conditions.

Also an optional Wireless LAN unit enables wireless measurement and remote monitoring.

GL860 supports the new Remote control service "G-REMOTE", which makes your measuring more efficient.
*G-REMOTE is offered for limited areas only.



*GL860 with B-565 (optional items)

New Input Terminals NEW!

Flexible Options with 4 Terminals

3 new terminals have been added to the line-up!

*Terminals are not included. Please purchase separately.

NEW! 30ch Terminal

Terminal Specifications

		WITHSTAND HIGH-VOLTAGE HIGH-PRECISION TERMINAL (B-565)	30CH SCREW LESS INPUT TERMINAL (B-563SL-30)	20CH INPUT TERMINAL (B-563)	20CH SCREW LESS INPUT TERMINAL (B-563SL)
Number of channels		20ch/per terminal	30ch/per terminal	20ch/per terminal	20ch/per terminal
Input terminal type		M3 screw	Screwless	M3 screw	Screwless
Measuring	Voltage	20mV-100V			
	Temp.	ThermocoupleK- J- E- T- R- S- B- N- C(old: W(WRe5-26))			
		Resistance bulb (*only 3 wired type) Pt100- JPt100- Pt1000 (IEC751)	Unable to connect resistance bulb		
	Humidity	0-100%(optional humidity sensor B-530 is required)			
Maximum input voltage		20mV-2V range: 60Vp-p(Between(+) / (-) terminal), 5V-100Vrange:110Vp-(Between(+) / (-) terminal)			
		600Vp-p(Between input terminal and input terminal)	60Vp-p(Between input terminal and input terminal)		
		300Vp-p(Between input terminal and GND)	60Vp-p(Between input terminal and GND)		
Voltage measurement accuracy		±(0.05%ofF.S.+10μV)	±0.1%ofF.S.		
Operating environment		0-45°C			

Optional item B-551 cannot be used with screwless terminals.

Shunt resistor B-551

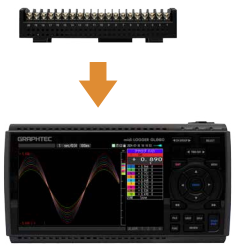
New Input Terminals

Flexible Options with 4 Terminals

Expandable up to 200 channels by combining 20 and 30CH terminals, allowing you to configure the number of channels that matches your measurement situation.

20ch/30ch

Mount the terminal to GL860



Potable!

Cable is required when expanding channels

40ch *using B-565

1 Connect one end of the connection cable for extension terminal to the GL860

2 Mount the terminal to extension terminal base unit

3 Connect another extension terminal base unit and terminal to 2.

New Input Terminals

Channel Configuration Example (*case: use both 20 ch and 30ch terminals)

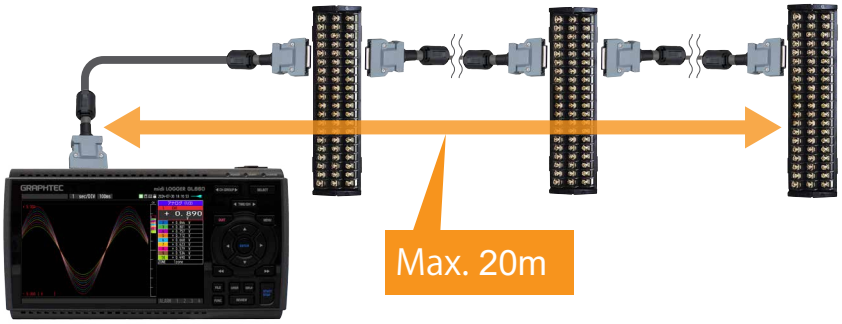
Number of channels	20ch	30ch	40ch	50ch	100ch	200ch
GL860	1 unit	1 unit	1 unit	1 unit	1 unit	1 unit
Connection cable for extension terminal	-	-	1 piece	1 piece	1 piece	1 piece
Extension Terminal Base (B-566)	-	-	2 units	2 units	4 units	7 units
20ch teminal	1 unit	-	2 units	1 unit	2 units	1 unit
30ch teminal	-	1unit	-	1 unit	2 units	6 units

When using B-565 with other terminals,

- Withstand voltage: lower withstand voltage will be applied
- Accuracy: depends on the terminal

Connection cable for extension terminal

The input terminal unit and the GL860 can be extended by using a connection cable for extension terminal (50cm, 2m).



Connection cable for extension terminal *Optional items

B-567-05

B-567-20

G-REMOTE NEW!

*Additional fees required for use.
*The service is offered for limited areas only.

Remote control and data storage service

Remote control and the data recording becomes easier by using web browser from anywhere you have an internet connection.
The recorded data can be backed up to a dedicated cloud server.

Get services just when and as much as you need

You can purchase the right plan at the right time.

Plan	Free trial	Basic	Standard	Premium
Number of monitoring units	1 unit monitoring *1	1 unit monitoring *2	Max. 5 units monitoring *2	Max. 10 units monitoring *2
Preiod of Use	30 days	360 days	360 days	360 days
Storage capacity	1GB	1GB	5GB	10GB

*1 30 days from the first day of login
*2 360 days after activation

G-REMOTE

*Additional fees required for use.
*The service is offered for limited areas only.

Remote control and data storage service

Remote control service

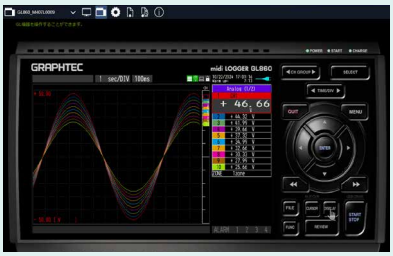
- GL remote control via web browser
- Simple user interface
- Easy setup (same menu design as GL860)
- All communications are encrypted

Easy setup with the same menu design as GL860

New functions *Available for all plans

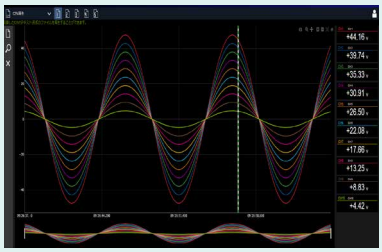
Remote Display

Remote control with the same display as GL860



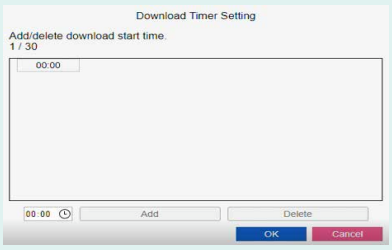
CSV Replay

Play the data recorded in CSV files



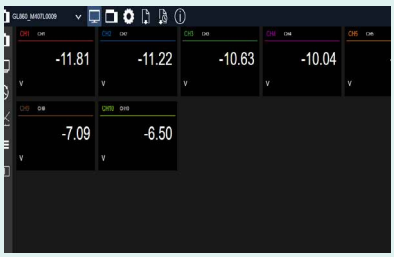
Download Timer

Transfer data automatically from GL860 to PC at specified time



Custom Monitor

Customize the display of waveform and digital value



Heat Area

Place color points for each CH on the image and visualize their condition

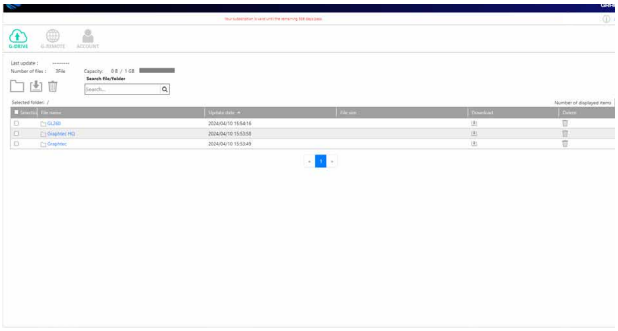
G-REMOTE

*Additional fees required for use.
*The service is offered for limited areas only.

Remote control and data storage service

Data storage service

- Backup of recording data
- Upload and share the data
- Destination of FTP backup function



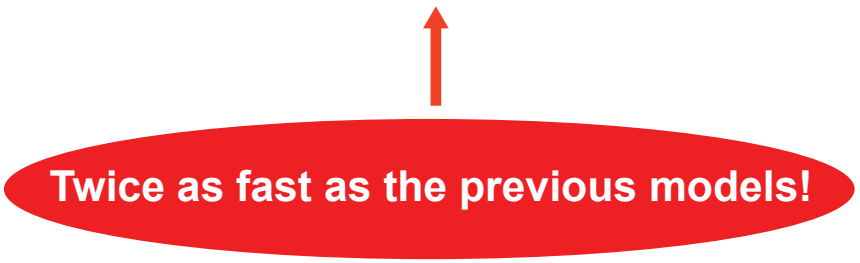
Faster Sampling Interval NEW!

Recording Options

Enables recording as twice as fast as the previous models

Sampling speed of GL860

Sampling interval		5ms	10ms	20ms	50ms	100ms	250ms	500ms	1s
Number of channels		1	2	4	10	20	50	100	200
Measuring	Volt.	●	●	●	●	●	●	●	●
	Temp.	-	-	-	-	●	●	●	●



Sampling speed of preivious model

Sampling interval		10ms	20ms	50ms	100ms	200ms	500ms	1s	2s
Number of channels		1	2	5	10	20	50	100	200
Measuring	Volt.	●	●	●	●	●	●	●	●
	Temp.	-	-	-	●	●	●	●	●

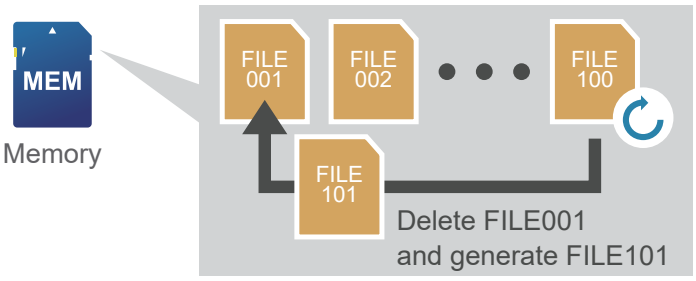
Memory Loop Function

Recording Options

NEW!

Relay capturing function enables capturing without missing data

In addition to the existing relay function, the oldest file is automatically deleted before memory capacity runs out.



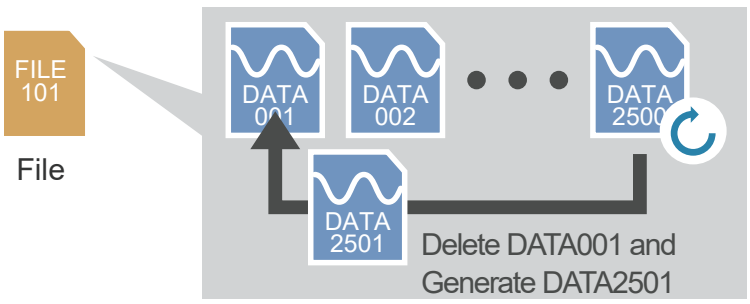
Other capturing functions (existing functions)

Relay capturing function

Set the capacity or capturing time of one file, and create a new file when either of them is reached.
Capturing will stop when the memory capacity is full.

Ring capturing function

The capacity of one file and the number of data points are set, and when either is full, the old data is deleted and capturing continues.



Regular capturing

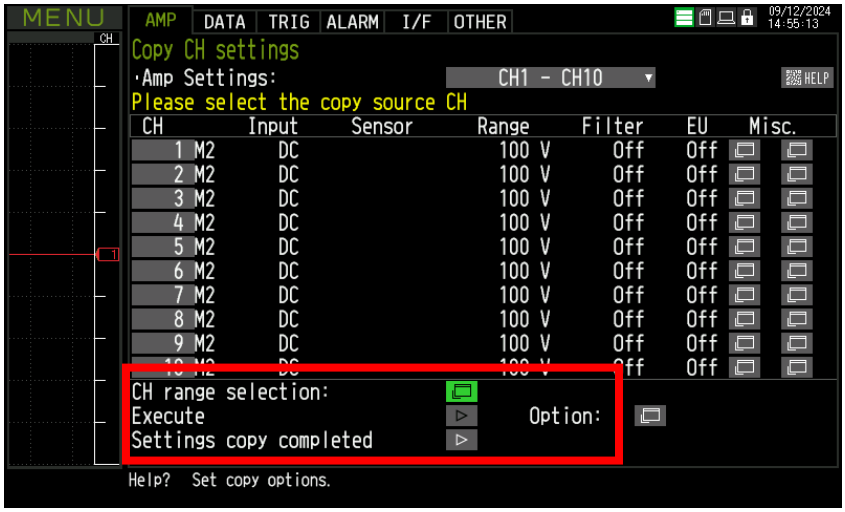
Stops when the file size reaches 2GB.

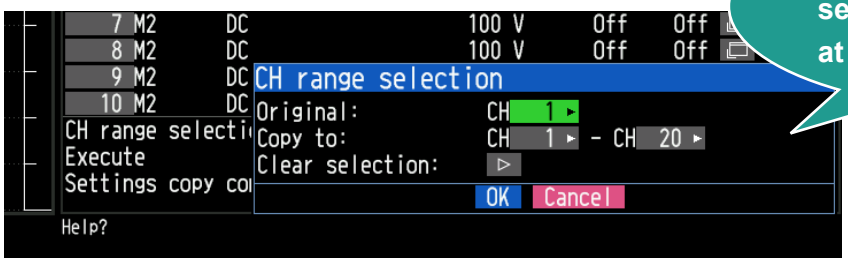
CH Copy Function NEW!

Recording Options

Easy copy of AMP settings for target channel

Copy settings such as input, range, filter, EU, etc. at once.
The setup can be done simply by selecting a channel,
greatly reducing the man-hours required.



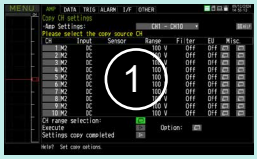


From 1ch to max 200chs, select copy destination at once.

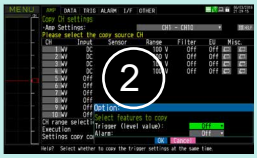
Exapmle

When measuring 100 channels

More than 400 items (input- range- Filter- EU etc.) need to be set up.



After selecting the copy source CH,



Select the copy destination.

Much easier!

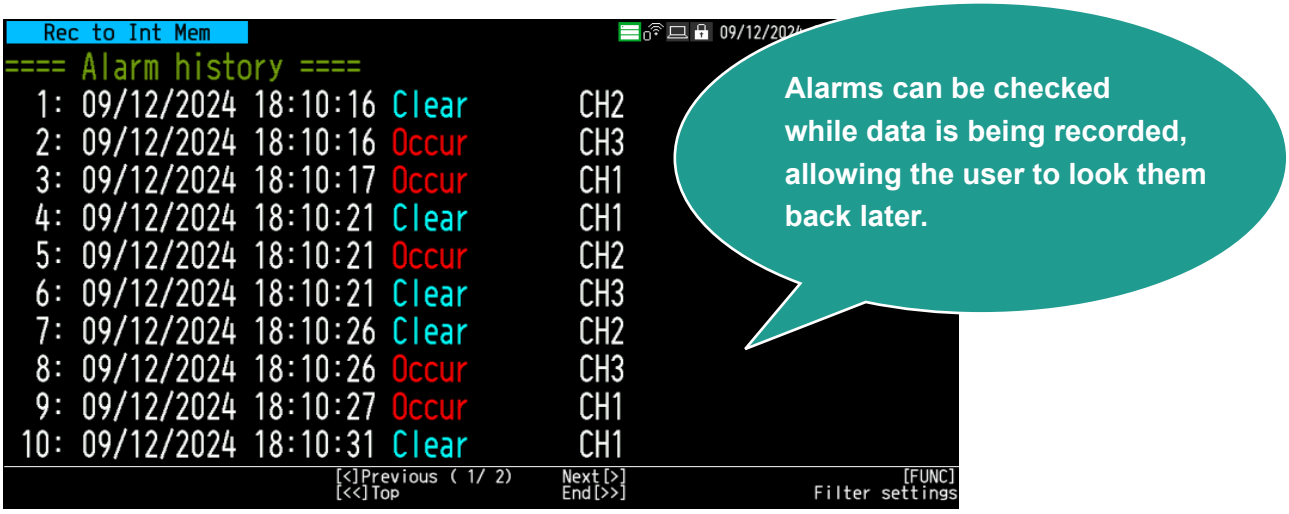
Alarm History

NEW FEATURES

Alarm occurrence/clearing time and event occurrence channel are clear at glance

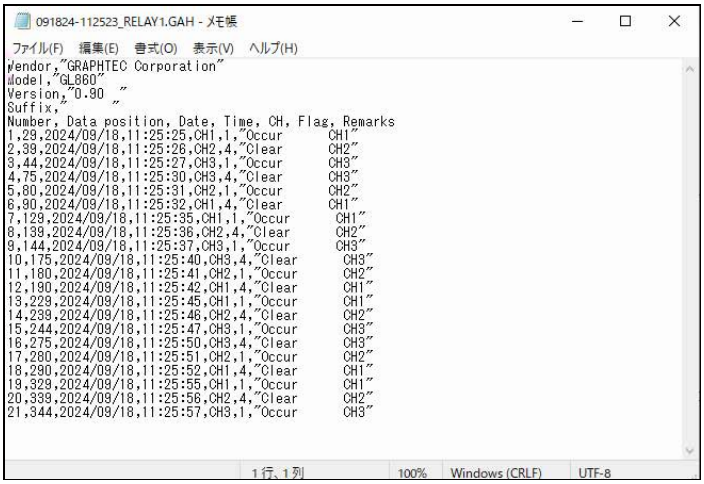
NEW!

This function displays a list of the time history of alarm occurrence/clearing.



Stores occurrence and clearing history in text data

The file is saved in GAH (Graphtec Alarm History) format, and can be opened as a text file.



Inter-CH Operation

NEW FEATURES

NEW!

More extensive Inter-CH operation function than ever before

Inter-CH operation function

Function to perform four arithmetic operations between two Channels (e.g. record CH1 + CH2 = X)

20 virtual channels for calculation

➡ No analog CH occupied or overwritten by calculation

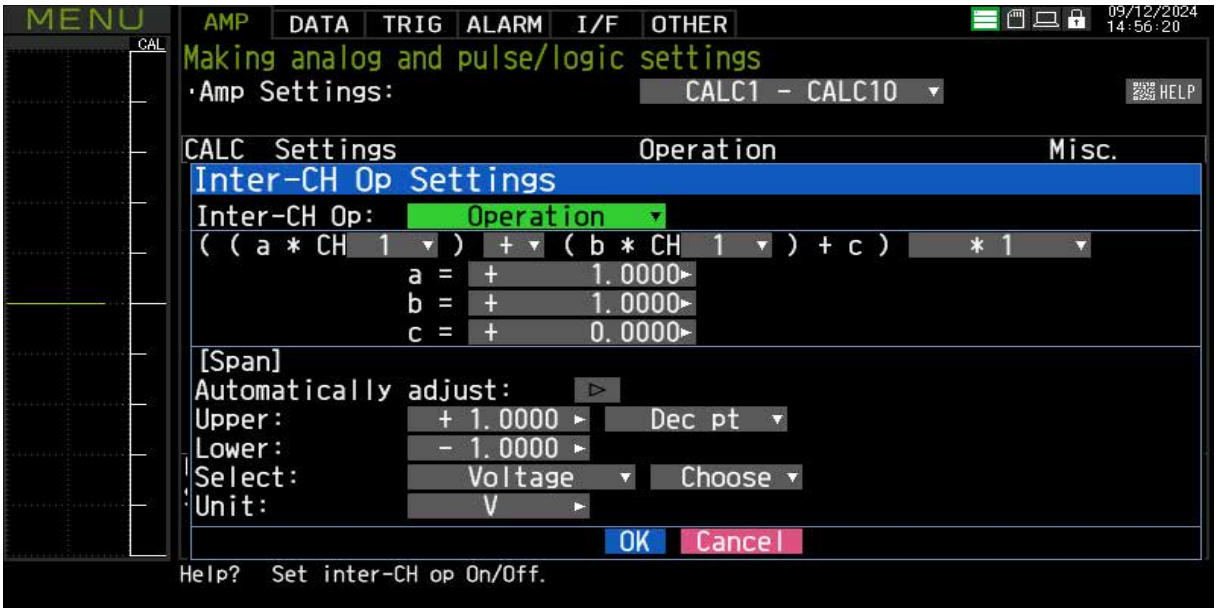
Coefficients can now be used in calculations

➡ More advanced calculations are now possible

Both the original CH and the result of the operation can be checked at the same time

Calculation method can be selected from calculation formula and 4-point input

- Calculation formula: Advanced calculations using coefficients and digit adjustments
- The 4-point input: Temperature slope calculation output

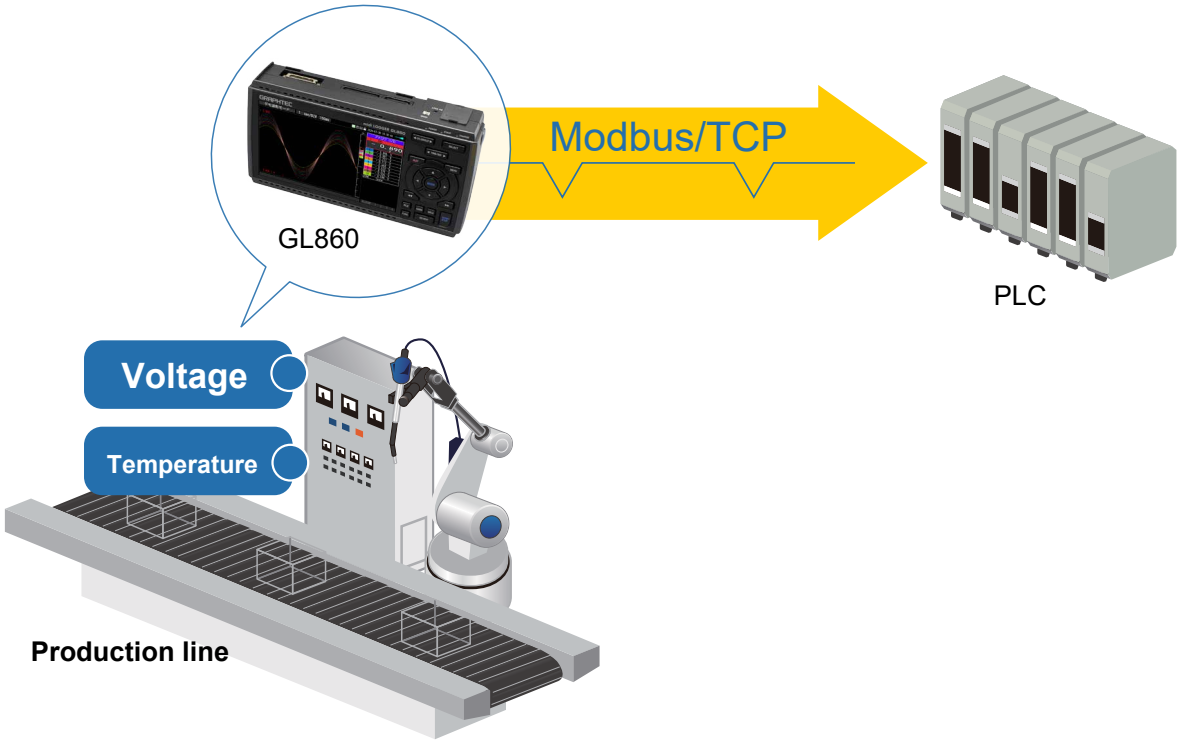


Modbus Connection NEW!

NEW FEATURES

Modbus linkage is possible as I/O for PLC

Communication with PLC is available by Modbus/TCP.
(Start / Stop from PLC and transfer the measurement data to PLC etc.)



2.Improved Functions and Operability

Faster Web Server Function

Functional Improvements

Web server function

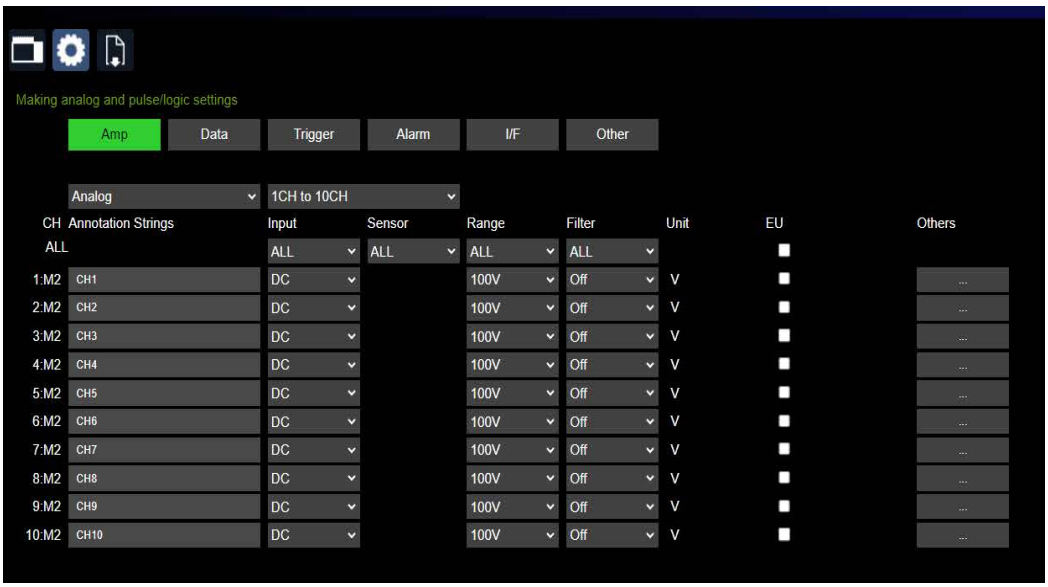
This function allows the GL unit settings and measurement values to be monitored using a web browser within the local network.
Easy to set up and control via PC without installing software.

Faster and smoother processing of update speeds

*In Graphtec network environment

New User Interface NEW!

Same design as GL860 for easier use



*Using B-565

Simplified Waveform

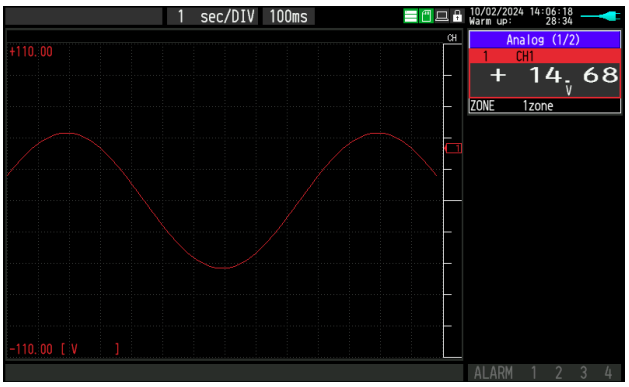
Functional Improvements

One-touch access to waveform setting screen Span adjustment is also done automatically

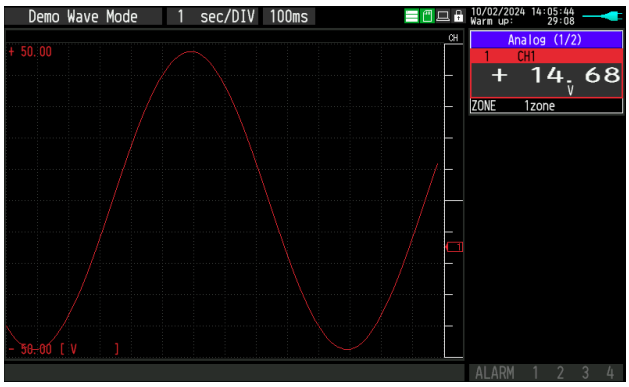
NEW!

Easy to open settings menu and span adjustment will be done automatically.
The waveform is set to the most optimal scale to display.

Before span setting



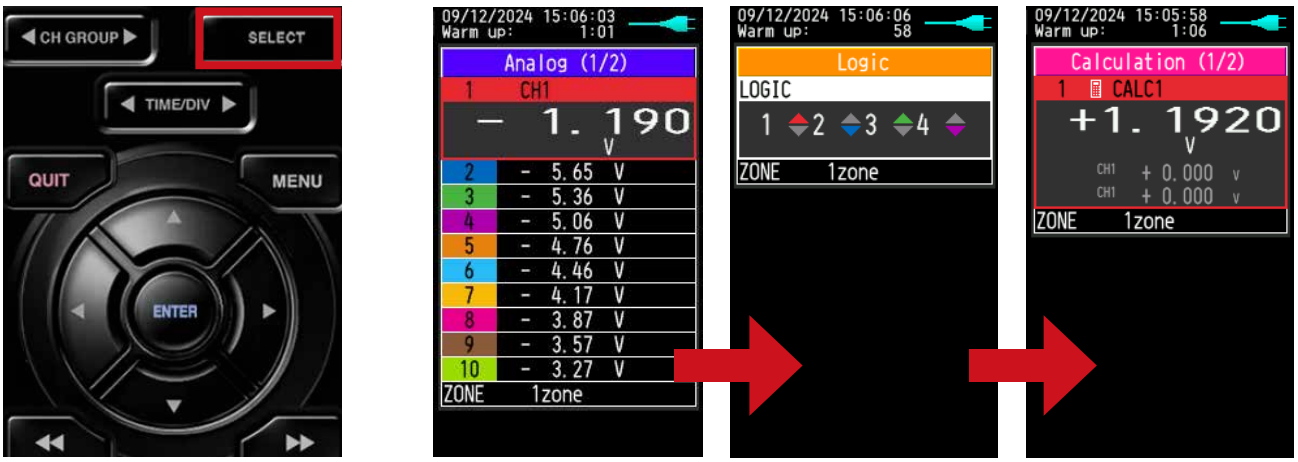
After span setting



Just click the botton to switch AMP settings

*only when AMP settings is ON

Push SELECT key to switch the CH category display Analog,
Logic/Pulse, Calculation during Free Running.



Hide unnecessary menu

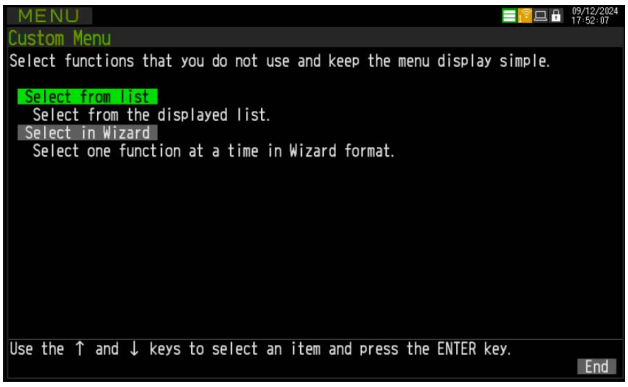
Improved operability

NEW!

Unused functions can be hidden for even greater ease of use

The sophisticated menu group of the GL series has been improved more.
Display/Hide can be selected from a list or wizard.

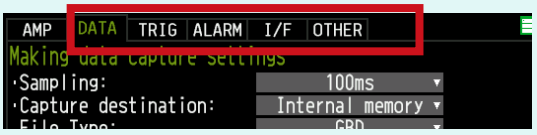
Menu display setting window



Menu list screen

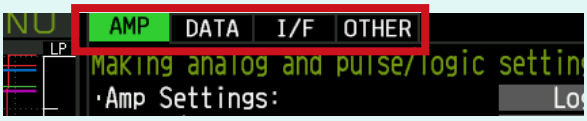
<Menu display setting example>

All menus ON

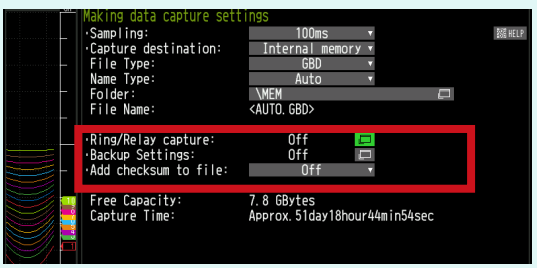


All menus OFF

e.g. only operating measurement with START/STOP keys

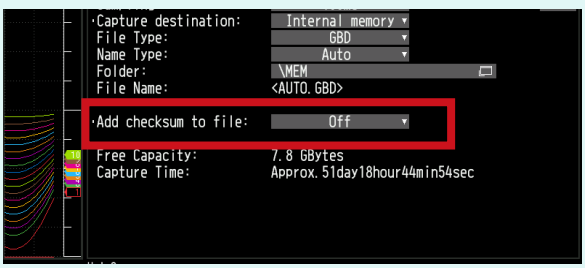


All menus ON



Some menues OFF

e.g. do not use ring/relay capturing function

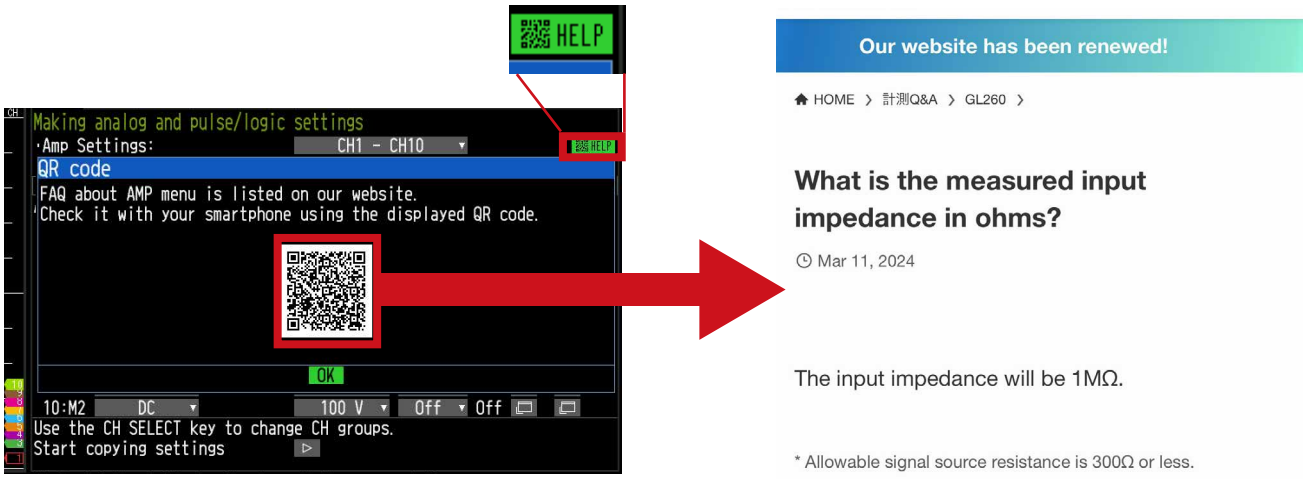


HELP QR Code Display

Improved operability

Access to FAQ of each functions NEW!

HELP-QR codes of FAQ web page are installed in each setting window of GL860.



3. PC Software

The software is included in the internal memory of GL860 when it is delivered.
Please copy it to PC with USB drive mode or download free of charge from the website.
Even while using the PC software, data can be transferred to the PC and saved to the internal memory at the same time. It can be used as backup data if PC failure or communication problem occured.

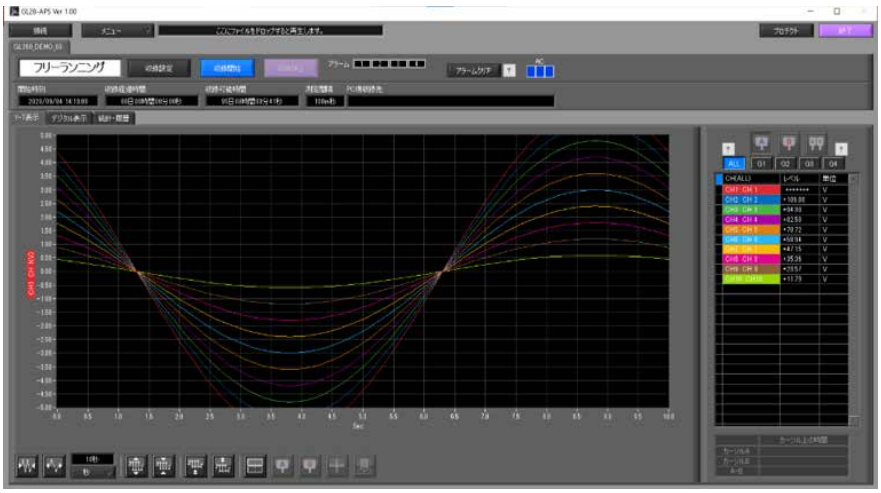
GL28-APS

Check, record and save the waveform to your PC

Easy to use software with simple operation and sophisticated display design

Supported model
Up to 10 units can be connected

- GL860
- GL260
- GL840 series
- GL240 series



Main Functions

- Play the recorded data
- Various waveforms display
- Connected device search function
- Scheduling Function
- Search list display function
- Statistical display of any range (max, min, mean, P-P)
- Extract and save data
- The recording synchronization with multiple devices and automatic file synthesis function
- The direct-Excel function
- Save all playback data or convert between cursors

GL-Connection

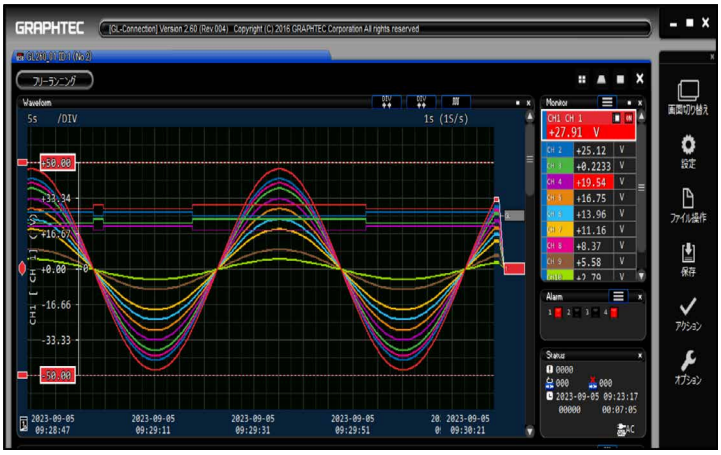
GL Series Integrated Waveform Viewer

Manage multiple GL series at once

By connecting various GL series devices via USB/LAN, GL series settings and real-time display of input signals, data recording, data playback, etc. can be performed from it.

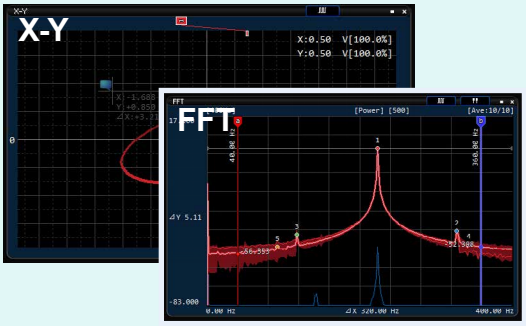
Supported model (Current model)

- GL860
- GL260
- GL7000
- GL2000
- GL980
- GL840 series
- GL240 series
- GLT400



Main Functions

Various waveforms display



Multi-window function

Tab function

Ability to connect multiple units and merge recorded data

4. Other Functions

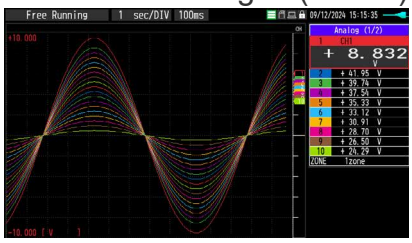
Screen

Screen mode

A variety of screen modes are provided. The display is easy to see according to the customer's application.

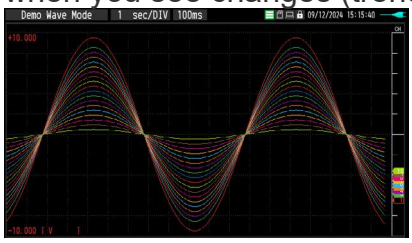
Wave + Digital screen

Ideal for viewing current values and changes (trends)



Magnified waveform screen

The entire screen can be displayed as a waveform when you see changes (trends)

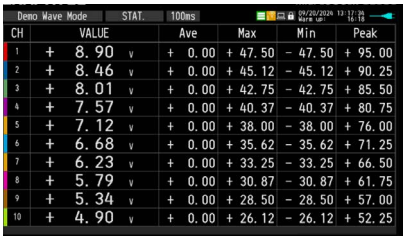


*Waveform display can be switched between 1s/DIV and 24hour/DIV per DIV (in real time)

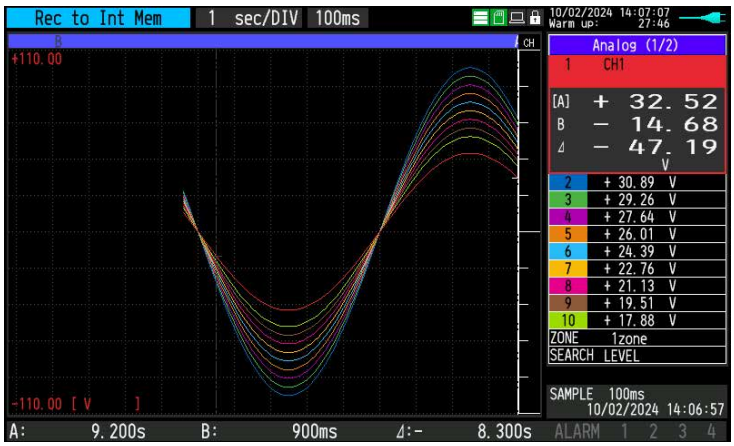
Digital + Calculation

▼If you want to see instantaneous data, you can view it by digital.

▼Statistical calculation values can be displayed at the same time



Data confirmation screen during measurement



You can check the past data when you push the REVIEW key while recording.
The past data can be scrolled with the cursor.

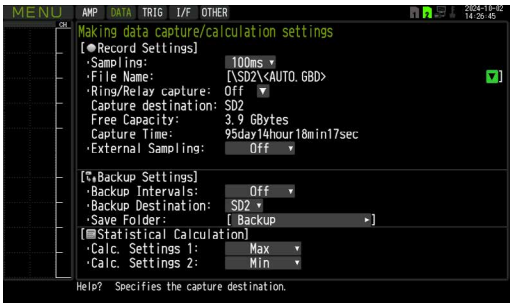
Operability

Easy operation NEW!

It is easier to see by changing the font and color saturation while simple operation that the cross key and ENTER key remains unchanged.

MENU tree change

For a simple and intuitive tree



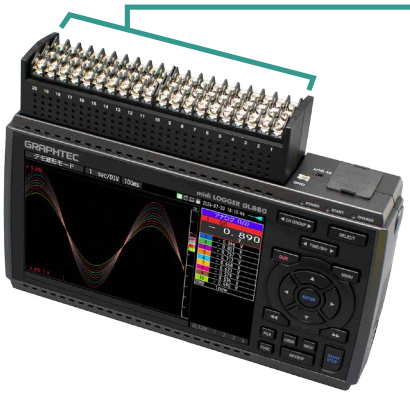
Amp Inputs

Input type of analog input section

*Input type can be set for each channel

*Analog

Analog channels are all isolated and multi-function inputs



*The image shows the B-565 (optional) installed.

Voltage

20mV - 100V

Temperature

Thermocouple compatible (K,J,R,E,B,S,N,C (W))

RTD (*three-wire system only)
Pt100, JPt100, Pt1000 (IEC751)

RTD can only be used with B-565

Humidity

0 - 100%
(optional tool B-530 is required)

Electric current

4 - 20mA
(optional tool B-551 is required)

Side of the GL860

Logic/Pulse

Selectable between 4 channels of logic input
or 4 channels of pulse input
(optional tool B-551 is required)
- Logic: measure H/L
- Pulse: selectable RPM, instantaneous value, and integrated value for each channel

Filter

*Analog channel only

Noise reduction, enable to set for each channel, moving average filter method
Off, 2, 5, 10, 20, 40

Amp Inputs

EU function (scaling function)

The sensor data can be output as voltage and converted to another unit for measurement.
(*When inputting voltage on analog channel)
It can also be used for temperature measurement and pulse input.

e.g. Humidity sensor

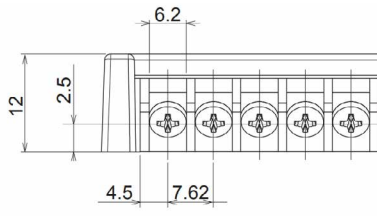
The sensor outputs humidity 0 - 100% with a voltage of 0 - 1 V

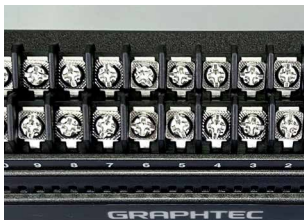
Measured value: Voltage 0 - 1 V
→ Converted value: Humidity 0 - 100%

Analog input terminal

B-565/B-563

Uses a highly versatile M3 screw terminal.

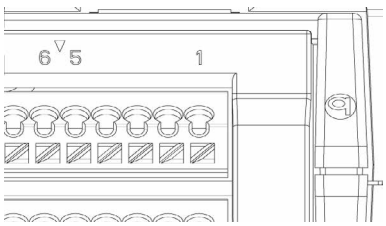




B-563SL-30/B-563SL

Standard push type terminal.
The time required for wiring can be significantly reduced compared to the screw type.

Optional item B-551 cannot be used with screwless terminals.



*The image shows B-563SL-30


*The image shows B-563SL-30

Memory

Recording destination

Large-capacity internal memory is installed to anable long-term recording.
The recording destination can be selected from the internal memory or an SD memory card.

SD memory card: Max. 32GB

*Cannot be used with wireless LAN unit (B-568) at the same time.

Internal memory: 8GB
*2GB per file

Recording time

Large capacity 8GB memory for long recording times

Recording time example (2GB recording)

Sampling interval*	5ms	10ms	50ms	100ms	200ms	500ms	1s	10s
GBD format	15 days	24 days	47 days	54 days	108 days	270 days	366 days+	366 days+
CSV format	1 days	3 days	8 days	11 days	22 days	55 days	111 days	366 days+

*The number of channels is limited depending on the sampling interval 5ms:1ch, 10ms:2ch, 20ms:4ch, 50ms:10ch, 100ms:20ch

Sampling/Number of usable channels

By narrowing down the number of channels,
it is possible to record data at a maximum of 5ms.

Sampling interval		5ms	10ms	20ms	50ms	100ms	250ms	500ms	1s
Number of usable channels		1	2	4	10	20	50	100	200
target	Volt.	●	●	●	●	●	●	●	●
	Temp.	-	-	-	-	●	●	●	●

Memory

Backup function (Backup destination: main unit memory, SD memory card, FTP)

Backups are performed at fixed intervals
(1 hour, 2 hours, 6 hours, 12 hours, 24 hours).
Autosave is available.
*When saving in CSV format, please set sampling slower than 100ms.

Ring/relay recording function See page 12

Multiple recording functions for various applications

- Normal recording
- Ring recording function
- Relay recording function
- Relay recording function + memory loop function

File save format

GBD format
→Our proprietary binary format

CSV format
→Data can be opened directly in Excel, making it convenient for creating reports.

Replacing SD memory card during measurement

Memory can be replaced while recording without missing data.
Semi-permanent 24h recording is possible.

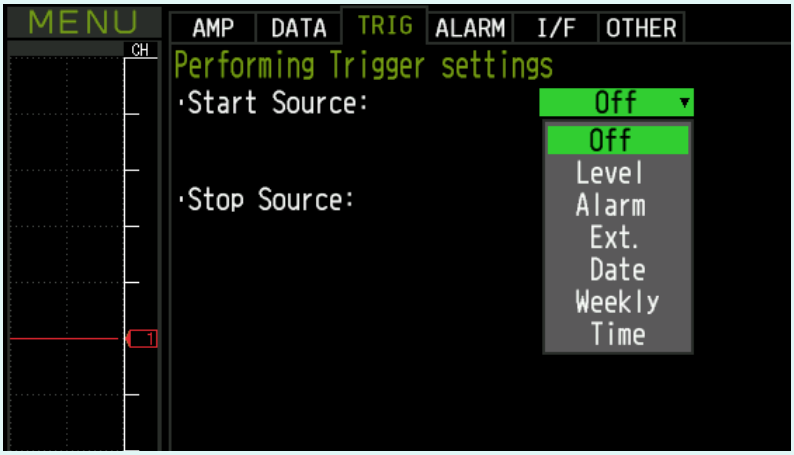
Trigger

Trigger type/function

Since the recording start/stops automatibally according to the set conditions, only the needed data can be extracted.
Unattended measurements are possible under a variety of setting conditions.
Enable to create files at any time.

Setting conditions (Can be set for both start and stop sides)

Off / Level*/ Alarm / External / Time / Day of the week / Fixed time



*in addition to analog input and L/P input, it can an also be set in operation channel.

External trigger (requires optional B-513)

Recording can be started
or stopped using a signal
from an external device as a trigger.

Input signal for external trigger

No-voltage contact (A contact, B contact, NO, NC), open collector, voltage input Conditions at input voltage
Voltage: 0 to +24V,(single-ended input), Threshold voltage: approx. +2.5V Hysteresis: 0.5V
(+2.5V to 3V)

Alarm

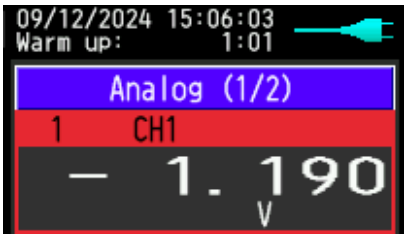
Alarm setting/output channel

NEW!

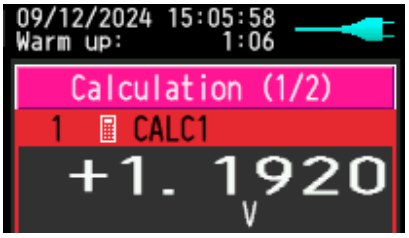
Alarm conditions can be set for each channel: analog input channel, logic/pulse channel, and calculation channel.

<Screen image>

Analog



Calculation



Logic/pulse

Alarm output

There are 4 ports, and the output port can be selected for each channel.
Signal output is possible from the output port
(*optional tool B-513 is required)

Alarm output signal

Open collector output (5V pull-up resistor 10KΩ)

External input/output cable

When using the external output function,
the optional GL input/output cable (B-513) is required.

When an alarm occurs, you can be notified by email.
Errors are detected automatically and a screen copy of the occurrence will be attached to the notification email.

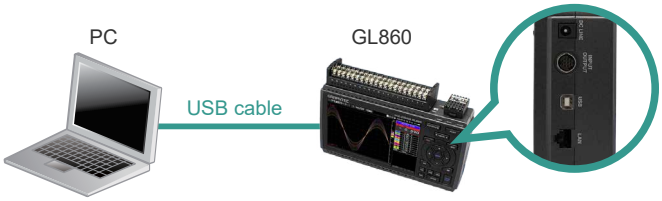
Interface

Connection to a PC can be made via USB, wireless LAN or wired LAN.

*Optional B-568 is required for wireless LAN connection. The USB connection is a common A-B type cable.

USB cable

Connect GL860 and PC with USB cable and data can be easily transferred to a PC by turning on the power while pressing GL860 [START/STOP] key.
(USB drive mode function)



*USB cable is not included. Please use a commercially available A-B type.

Wired LAN

Ethernet (10BASE-T / 100BASE-TX) is equipped.

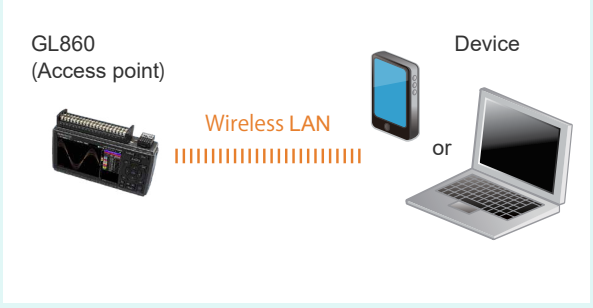
Support Modbus/TCP

Wireless LAN (access point (base unit)/station (child unit))

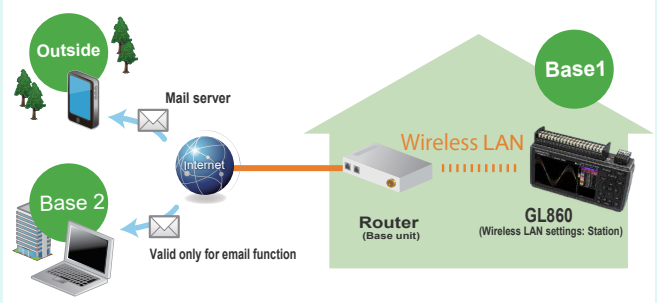
Wireless LAN unit (option B-568)
*It is impossible to use with SD memory card

Easy to send e-mail by Graphtec e-mail server.

Connection between GL860 (access point) and device (PC/smartphone)



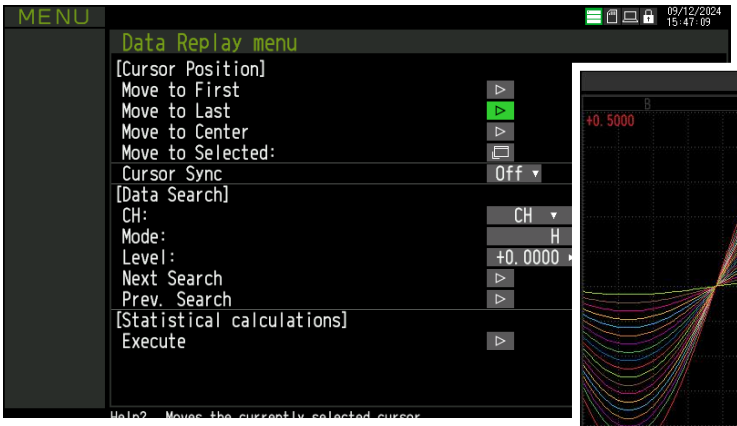
Connection between GL860 (station) and remote device (PC/smartphone)

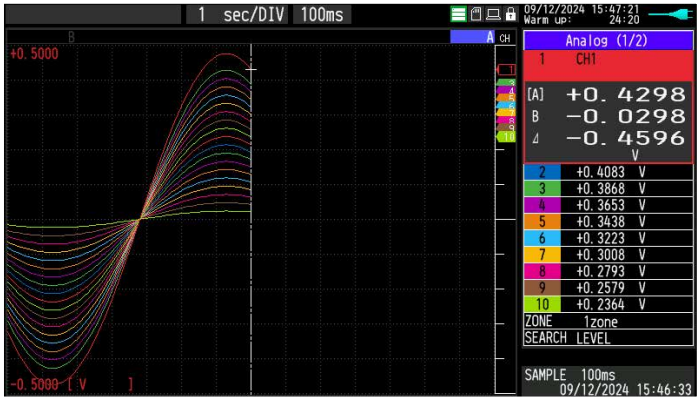


Statistics Calculations & Searches

Search function for playback data NEW!

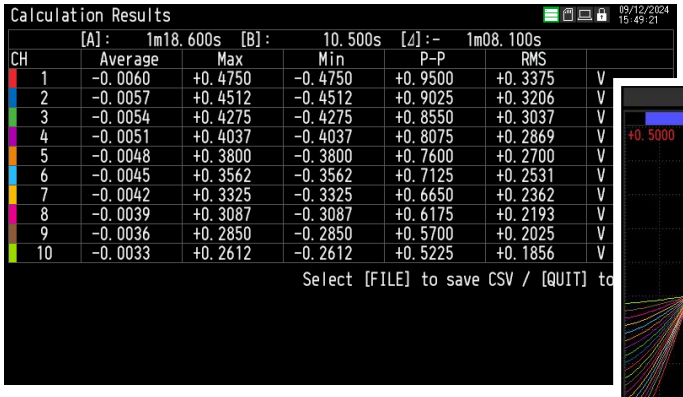
The relevant point can be searched from a huge amount of data by using set conditions.
Move the cursor to the set condition value.
Also, recorded data can be played back and searched while recording.

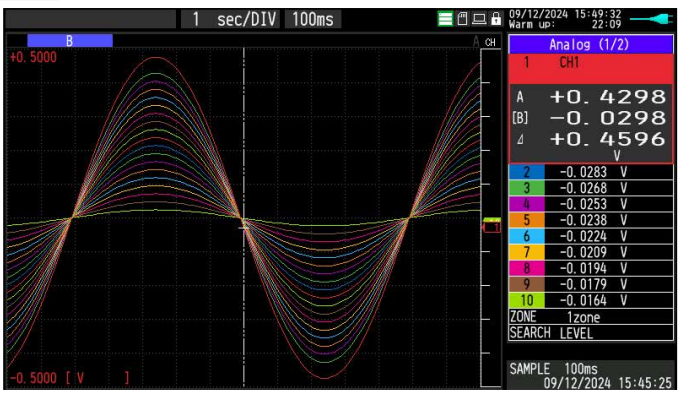




Statistical calculation between cursors

- Statistical calculation results of playback data are displayed instantly.
- No need to check the entire data
(Instantly access the points you want to look by the search function)





Other Functions

Power supply form

Power supply formats can be selected according to the application.

AC100V power supply: enable to use with the included AC adapter

DC power supply:requires optional DC drive cable B-514.

DC8.5V to 24V

Battery powered:requires optional dedicated battery B-573.

*Up to 2 packs can be installed.

Battery compatibility status

Model/Battery	B-569	B-573
GL860	*	Y
GL260	*	Y
GL2000/GL980	Y	-
GL840	Y	-
GL240	Y	-

*Battery performance down by 20%.

Key operation sound

Key operation sound can be switched ON/OFF.

Compatible standards

Compatible with Radio Law, RoHS, and CE mark

Game function

Game function has came back to help you get used to the controls.

5. Option / Specification

Option

Item	Model Number	Description
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	3 m long (with power plug) Allowable temperature range (-25 to 80℃)
Withstand high-voltage high-precision terminal	B-565	20CH screw terminal
30CH screwless terminal	B-563SL-30	
20CH screw terminal	B-563	
20CH screwless terminal	B-563SL	
Extension terminal base	B-566	Extension terminal base, Connection plate, screw
Connection cable for extension terminal(50cm)	B-567-05	
Connection cable for extension terminal(2m)	B-567-20	
Wireless unit	B-568	Wireless LAN
Battery pack	B-573	7.2V / 2875mAh (*Up to 2 packs can be installed)
Bracket for DIN rail for B-566	B-540	Built to Order Products
Bracket for DIN rale	B-570	Built to Order Products
Shunt resistace 250Ω	B-551-10	Built to Order Products ±250 Ω (0.1%), Rated power of 1 W Maximum working voltage15.8V
Terminal base cover	B-588	Mountable each analog terminal. Not mountable when B-551 Shunt resistor used.
Type T ultrafine thermocouple (TC200×TD1000)	ST-55K-TC-1.2M	Tip wire φ0.127, 0.5X0.7X200mm, relaying 1m, 5 units
Rod-shaped thermocouple K type	RIC-410	-100 - 300℃, class1, length 1.1m
Type K ultrafine thermocouple	RIC-440	5-piece set , Connectable thermocouple: Bare wire diameter 0.65mm, M3 Y terminal
Mini-connector for T type thermocouple	RIC-450	5-piece set , Connectable thermocouple: Bare Wire diameter 0.65mm, M3 Y terminal

Specifications

GL860 Specifications

Item		Description
Number of analog input channels		1 unit (20CH/30CH) , or extension unit (Max. 200CH)
External input/ output (*1)	Input	Input: Trigger or Sampling (1 channel), Logic/Pulse (4 channels) Input voltage range: 0 - +24V (single-ended input) Input signal: No-voltage contact (a contact, b contact, NO,NC), Open collector, Voltage input
	Output	Alarm output (4 channels) Output format: Open collector output (+5 V, 10 KΩ pull-up resistance)
Sampling interval		5ms-1h (5ms-50ms: voltage only number of channels is limited) , external(*1)
TIME / DIV		1s-24h
Trigger function	Repeat action	Off- On
	Trigger action	Start or stop capturing data by the trigger
	Trigger source	Start/Stop: Off, Level, Alarm, External, Date, Weekly or Tim
Alarm function	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
Pulse input function	Measurement mode	Rotation count (RPM) mode / Accumulating count mode / Instant count mode
	Maximum number of pulse inputs	Maximum input frequency: 50kHz Maximum number of count: 50kC/sampling (16-bit counter)
PC I/F		USB2.0 (Hi-speed) , Ethernet (10BASE-T / 100BASE-TX) Wireless LAN (using B-568 optional item)
Storage Device	Internal memory	Approx. 8GB
	SD card slot	1 (Supports SDHC, Up to approx. 32GB memory available) *Up to 2GB per file *Unable to use the SD card slot when using the optional wireless LAN unit
	Contents	Setting conditions of the main unit, Recorded data, Screen capture
Operating environment		0-45℃, 5-85%RH (When operating with battery pack 0 to 40 ºC, charging battery 15 to 35 ºC)
Power source	AC adapter	AC100-240V / 50-60Hz
	DC power	DC8.5-24V (Max.26.4V)
	Battery pack	DC7.2V (2875mAh)*optional item, up to 2 packs can be installed.
Power consumption		38VA or lower (using the AC adapter, with LCD display on, and battery pack being charged, 100V AC)
Earthquake resistant		Automotive parts Class 1A equivalent

*1 Input/Output cable for GL (option B-513) is required to connect the signal.

Specifications

Terminal Specifications (B-565)

Item			Description	
Number of input channels			20CH (Up to 200 CH with expansion terminal base)	
Type of analog input terminal			Screw terminal (M3 screw)	
Input method			Photo MOS relay scanning system All channels isolated, Balanced input *Terminal b connecting the resistance bulb is short-circuited inside all channels	
Measurement range	Voltage		20-50-100-200-500mV, 1-2-5-10-20-50-100V, 1-5V F.S.	
	Temp.		Thermocouple:K, J, E, T, R, S, B, N, C (oldW: WRe5-26) RTD:Pt100- JPt100- Pt1000 (IEC751) Temp. range:100°C, 500°C, 2000°C (In Fahrenheit:150°F, 750°F, 3000°F)	
	Humidity		0-100% (Voltage0-1 scaling conversion) *using option B-530	
Filter			Off, 2, 5, 10, 20, 40 (moving average in selected number)	
Measurement accuracy(*2) (23°C±5°C) - At least 30 minutes after turning the power on - Sampling speed 1s/10CH - Filter ON (10) - GND ground	Voltage		± (0.05% of F.S. +10μV)	
	Temp.	Thermocouple	Measuring temperature range (°C)	Measurement accuracy
		R/S	0 ≦ TS ≦ 100°C 100 < TS ≦ 300°C R:300 < TS ≦ 1600°C S:300 < TS ≦ 1760°C	±4.5°C ±3.0°C ±2.2°C ±2.2°C
		B	400 ≦ TS ≦ 600°C 600 < TS ≦ 1820°C	±3.5°C ±2.5°C
		K	-200 ≦ TS ≦ -100°C -100 < TS ≦ 1370°C	±1.5°C ±0.8°C
		E	-200 ≦ TS ≦ -100°C -100 < TS ≦ 800°C	±1.0°C ±0.8°C
		T	-200 ≦ TS ≦ -100°C -100 < TS ≦ 400°C	±1.5°C ±0.6°C
		J	-200 ≦ TS ≦ -100°C -100 < TS ≦ 100°C 100 < TS ≦ 1100°C	±1.0°C ±0.8°C ±0.6°C
		N	-200 ≦ TS < 0°C 0 ≦ TS ≦ 1300°C	±2.2°C ±1.0°C
		C (W)	0 ≦ TS ≦ 2000°C	±1.8°C
		Reference contact compensation accuracy		±0.3°C
		Resistance bulb	Measuring temperature range (°C)	Applied current / Measurement accuracy
		Pt100	-200 ≦ TS ≦ 100°C	1mA / ±0.6°C
			100 < TS ≦ 500°C	±0.8°C
			500 < TS ≦ 850°C	±1.0°C
		JPt100	-200 ≦ TS ≦ -100°C	1mA / ±0.6°C
			100 < TS ≦ 500°C	±0.8°C
		Pt1000	-200 ≦ TS ≦ 100°C	0.3mA / ±0.6°C
			100 < TS ≦ 500°C	±0.6°C

(*2) Please refer to the instruction manual for each range and resolution.

Specifications

Terminal Specifications (B-565)

Item		Description
A/D converter	Resolution	16Bit (Effective Resolution:Approx. ±1/ 40000 of the measuring full range)
Input resistance		1MΩ±5%
Maximum inputVoltage	Between(+) / (-) terminal	20mV-2V range (60Vp-p) , 5V-100V range (110Vp-p)
	Between input terminal and input terminal	600Vp-p
	Between input terminal and GND	300Vp-p
Withstand voltage	Between input terminal and input terminal	600Vp-p
	Between input terminal and GND	2300Vp-p 1 minute

Specifications

Terminal Specifications (B-563SL-30)

Item			Description	
Number of input channels			30CH (Up to 200 CH with expansion terminal base)	
Type of analog input terminal			Screwless terminal	
Input method			Photo MOS relay scanning system All channels isolated, Balanced input	
Measurement range	Voltage		20-50-100-200-500mV, 1-2-5-10-20-50-100V, 1-5V F.S.	
	Temp.		Thermocouple:K, J, E, T, R, S, B, N, C (旧W:WRe5-26) Temp.range:100℃, 500℃, 2000℃ (In Fahrenheit:150°F, 750°F, 3000°F)	
	Humidity		0-100% (Voltage0-1Vscaling conversion) *using option B-530	
Filter			Off, 2, 5, 10, 20, 40 (moving average in selected number)	
Measurement accuracy(*2) (23℃±5℃) - At least 30 minutes after turning the power on - Sampling speed 1s/10CH - Filter ON (10) - GND ground	Voltage		±0.1% of F.S.	
	Temp.	Thermocouple	Measuring temperature range (℃)	Measurement accuracy
		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	-200 ≦ TS < 0℃ 0 ≦ TS ≦ 1300℃	± (0.1% of rdg +2.0℃) ± (0.1% of rdg +1.0℃)
		C (W)	0 ≦ TS ≦ 2000℃	± (0.1% of rdg +1.5℃)
		Reference contact compensation accuracy		±0.5℃
A/D converter	Resolution		16Bit (Effective Resolution:Approx. ±1/ 40000 of the measuring full range)	
Input resistance			1MΩ±5%	
Maximum input voltage	Between(+) / (-) terminal		20mV-2V range (60Vp-p) , 5V-100V range (110Vp-p)	
	Between input terminal and input terminal		60Vp-p	
	Between input terminal and GND		60Vp-p	
Withstand voltage	Between input terminal and input terminal		350Vp-p 1 minute	
	Between input terminal and GND		350Vp-p 1 minute	

(*2) Please refer to the instruction manual for each range and resolution.

Specifications

Terminal Specifications(B-563/B-563SL)

Item			Description	
Number of input channels			20CH (Up to 200 CH with expansion terminal base)	
Type of analog input terminal			B-563: Screw terminal (M3 screw) , B-563SL: Screwless terminal	
Input method			Photo MOS relay scanning system All channels isolated, Balanced input	
Measurement range	Voltage		20-50-100-200-500mV, 1-2-5-10-20-50-100V, 1-5V F.S.	
	Temp.		Thermocouple:K, J, E, T, R, S, B, N, C (旧W:WRe5-26) Temp.range:100℃, 500℃, 2000℃ (In Fahrenheit:150°F, 750°F, 3000°F)	
	Humidity		0-100% (Voltage0-1Vscaling conversion) *using option B-530	
Filter			Off, 2, 5, 10, 20, 40 (moving average in selected number)	
Measurement accuracy(*2) (23℃±5℃) - At least 30 minutes after turning the power on - Sampling speed 1s/10CH - Filter ON (10) - GND ground	Voltage		±0.1% of F.S.	
	Temp.	Thermocouple	Measuring temperature range (℃)	Measurement accuracy
		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	-200 ≦ TS < 0℃ 0 ≦ TS ≦ 1300℃	± (0.1% of rdg +2.0℃) ± (0.1% of rdg +1.0℃)
		C (W)	0 ≦ TS ≦ 2000℃	± (0.1% of rdg +1.5℃)
		Reference contact compensation accuracy		±0.5℃
A/D converter	Resolution		16Bit (Effective Resolution:Approx. ±1/ 40000 of the measuring full range)	
Input resistance			1MΩ±5%	
Maximum input voltage	Between(+) / (-) terminal		20mV-2V range (60Vp-p) , 5V-100V range (110Vp-p)	
	Between input terminal and input terminal		60Vp-p	
	Between input terminal and GND		60Vp-p	
Withstand voltage	Between input terminal and input terminal		350Vp-p 1 minute	
	Between input terminal and GND		350Vp-p 1 minute	

(*2) Please refer to the instruction manual for each range and resolution.

Specifications

PC Software (GL28-APS) specifications

Item	Description
Supported OS	Windows 11 (64bit) *Operating system that is no longer supported by the OS manufacturer will no longer be supported by us.
Function	Main unit control, real time data recording, data replay, data conversion
Number of groups	4 groups MAX
Number of Channels per 1 group	Up to number of connected module
Maximum number of channels	1000ch
Settings	AMP settings, recording settings, trigger/alarm settings, report settings, others
Recorded data	Real time data (CSV, GBD Binary) Data in Internal memory or SD memory card (CSV, GBD binary)
Display	Analog waveforms, logic waveforms, pulse waveforms, digital values
Display modes	Y-T View, Digital View, X-Y View between Cursors (only during replay)
File conversion	Between cursors, All data
Monitor functions	Alarm monitor enables sending of email to the specified address
Statistic/ History	Displays maximum, minimum and average values during measurement
Report function	Enables creation of daily or monthly files

PC Software (GL-Connection) specifications

Item	Description
Supported OS	Windows 11 (64bit) *Operating system that is no longer supported by the OS manufacturer will no longer be supported by us.
Function	Main unit control, Real time data recording, Conversion, data playback
Number of units connected	Up to 20 units can be mixed and matched via USB and LAN
Display	Analog waveform, Logic waveform, Pulse waveform, Digital waveform
Display mode	Y-T view (Digital view), X-Y View between cursors (data reply only) FFT display, cursor information, recording information display, alarm information display, etc.
Multi-screen function	Up to 4 separate screens to display different waveforms at the same time
Recorded data	Real time data (CSV,GBD binary) Internal memory or SD memory card data (CSV,GBD binary) *Sampling is limited by conditions.
Statistic/ History	During recording: Maximum, Minimum, Average, Peak During playback cursor: Maximum, Minimum, Average, Peak, RMS
Direct-Excel Function	Transfer recorded data directly to Excel
E-mail send function	The e-mail is sent to the specified address when the alarm monitor is performed

Specifications

Standard Accessory

Item	Description	Quantity
TO ENSURE SAFE AND CORRECT USE	This document contains important information to ensure the safe and proper use of the product.	1
Notice	This document provides a clear explanation of the basic operations.	1
AC cable/AC adapter	100 to 240 VAC, 50/60 Hz	1

⚠ 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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