

Adapter for AC Current Sensor

USER'S MANUAL

Thank you very much for buying this GRAPHTEC product. This module can be used as a measurement adapter (hereafter "module") that connects to the GL100-N/GL100-WL.

These directions describe preparations and cautions before measurement.

To ensure safety, please read the operation instructions, etc.

For details on the warnings and how to handle this module, please read the Quick Start Guide or USER'S MANUAL included on the CD-ROM (included in the GL100 packaging)

Confirmation of the exterior

After opening the package, please confirm that there are no problems (scratches and dirt) on the exterior before use.

Confirmation of the attached items.

- User's manual (this book): 1

If by any chance faults are found, please contact the store where you bought the item.

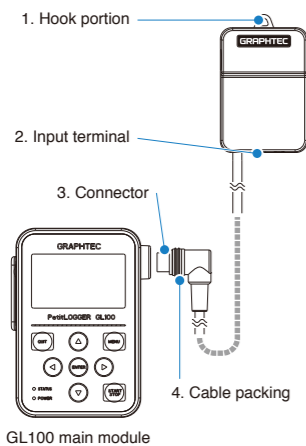
* Please note that items mentioned in this book may change without prior notice.

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MANUAL-AC

1 Part Names

This section describes the name and function of each part.



GL100 main module

1. Hook portion Used to mount to a wall.
2. Input terminal Terminal that connects to the AC Current Sensor (sold separately).
3. Connector Used to connect to the connector on the GL100 module.
4. Cable packing This packing is used when connecting the connector.

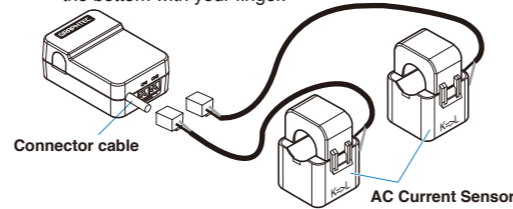
After connecting the GL100 to modules or sensors, please always check/set the time and date.

< Extension cable >
The module can be used approx. 1.5 m away from the GL100 by using an extension cable for GS (GS-EXC). However, you cannot connect and use multiple extension cables.

2 How To Connect

1. Connect the AC Current Sensor (GS-AC**A, sold separately) to the module.

Connecting : Push the connector in until it locks in.
Disconnecting : Pull the connector out while pressing down on the lock on the bottom with your finger.

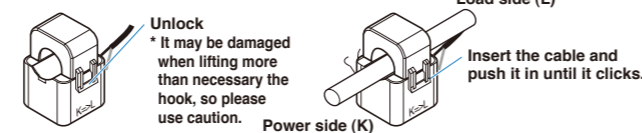


WARNING The connector is exclusively to be used to connect the AC Current Sensor. Do not connect it to voltages, other electrical currents, etc. It will damage the module.

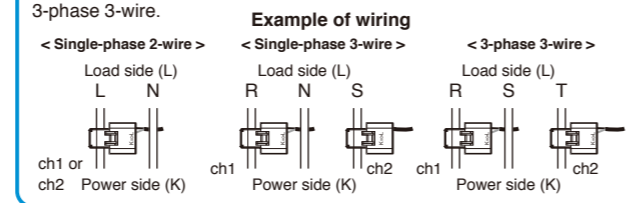
CAUTION Pulling the AC Current Sensor's cable and holding the sensor by the cable will damage the cable's wires.

2. How to measure with AC Current Sensor

Remove the AC Current Sensor's lock, insert the measurement cable and push it in until it locks (putting the cable in the wrong way will cause the module to measure incorrectly).



Clamp ch1 or ch2 to L-phase when using single-phase 2-wire.
Clamp ch1 and ch2 to R-phase and S-phase respectively when using single-phase 3-wire.
Clamp ch1 and ch2 to R-phase and T-phase respectively when using 3-phase 3-wire.



3 How To Measure

1. Power supply (Refer to Quick Start Guide or USER'S MANUAL.)

Connect this module while power is being supplied to the GL100 by a battery or USB cable.

2. Start-up and operation

(1) Screen display menu flow

After power-on, the GL100 is ready for operation by holding down [MENU] key. When the module is connected, "Module Type Recognition" screen is displayed. When the module is not connected, "Module Unconnected State" screen is displayed.

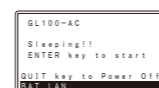
Operate in accordance with the displayed instructions.



Module unconnected state
<Operation>
Connect the module.



Recognition of module types

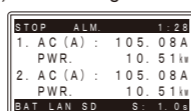


Standby state
<Operation>
Press [ENTER] key.



Module start-up

(2) Free-running screen



Hold down the [QUIT] key (approx. three seconds) to put the module into standby state. When running on batteries, the module will automatically go into standby state after three minutes of no operation. Press the [ENTER] key while in standby state to return to the free-running screen.

3. Setting

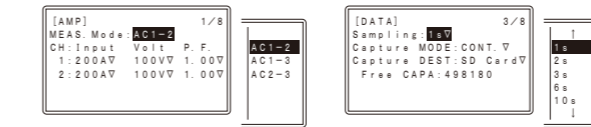
(1) Setting screen operation

Item selecting screen

Press the [MENU] key on the free-running screen to go to the setting screen.

<How to set>

Select the item with the directional keys (Δ▽◀▶) and press the [ENTER] key.

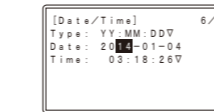


If the submenu shows ↑ ↓ then there are selections in those directions.

Numerical entry screen

<How to set>

Numbers can be inputted by increasing or decreasing the value with the Δ and ▽ keys.



(2) AMP setting

Select measure mode, select the sensor type being used, and set the measured voltage and power factor.

MEAS. Mode	Input	Volt	P. F.
AC102W (2ch)	Off, 50, 100, 200A	90 to 264V	0.30 to 1.00
AC103W, AC303W	50, 100, 200A	90 to 264V	0.30 to 1.00

The actual value that is being measured is the electrical current. The electrical current value is converted by multiplying the measured electrical current value with the AMP setting's voltage and power factor (percent of actual power) (see below).

AC102W: Setting for single-phase 2-wire measurement
Measurement of the 2 channels is possible.

* Power = Measured current x Voltage x Power factor

AC103W: Setting for single-phase 3-wire measurement

* Power = (Measured current (ch1) + Measured current (ch2)) x Voltage x Power factor

AC303W: Setting for 3-phase 3-wire measurement

* Power = ((Measured current (ch1) + Measured current (ch2)) ÷ 2) x Voltage x √3 x Power factor

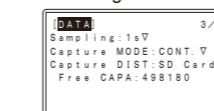
The voltage and power factor in the above calculation formulas are the numerical values set on the setting screen.

<Power display>

- Only the instantaneous electrical power can be displayed when free-running.
- By pressing the [◀▶] keys when recording, you can switch between displaying the instantaneous electrical power and accumulated electrical power.

(3) DATA setting

Set the Sampling and Capture Mode those will be recorded to the data recording media. The recorded data's size will be displayed in the information for the SD card being recorded to. Please take note of it.

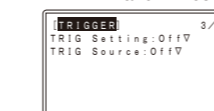


DATA recording condition setting	Sampling	Capture MODE	Capture DIST
Sampling	500 ms, 1, 2, 5, 10, 20, 30 s, 1, 2, 5, 10, 20, 30, 60 min	CONT, 1 Hour, 24 Hour	Memory, SD card

(4) TRIGGER setting

Select the conditions for beginning data recording after measurement starts.

- Off : Pressing the [START/STOP] key on this module will start/stop recording.
- Start : The recording will start with the trigger source conditions after pressing the [START/STOP] key. The recording will stop after pressing the [START/STOP] key.
- Stop : The recording will start after pressing the [START/STOP] key and will be stopped with the trigger source conditions.



TRIGGER capture condition settings	TRIG setting	TRIG Source
TRIG setting	Off, Start, Stop	Off
TRIG Source	Alarm	Date, Time

(5) ALARM setting

Set the alarm information. The parameters will vary depending on the setting range. Please set the number level.



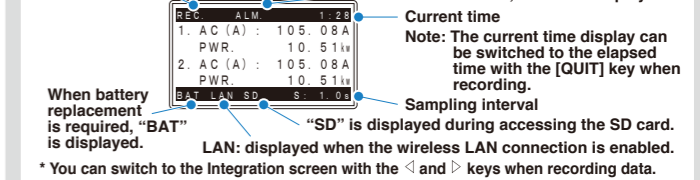
ALARM settings	Alarm	Level / Mode
Alarm	Off	Off
Level / Mode	Level	Level
	↑H Value setting	↓L

4 Recording

(1) Recording

Press the [START/STOP] key to start measuring with the set conditions.

After pressing [START] key, when the module is in awaiting recording start, "ARMED" is displayed, and then when recording is started, "REC" is displayed.



When alarm occurs, "ALM" is displayed. Note: The current time display can be switched to the elapsed time with the [QUIT] key when recording.

When battery replacement is required, "BAT" is displayed. "SD" is displayed during accessing the SD card. LAN: displayed when the wireless LAN connection is enabled.

* You can switch to the integration screen with the ◀ and ▶ keys when recording data.

The module's status is shown with the lamp display.

STATUS (Orange)	Accessing SD card	Access light
Low battery	Flash once every 5 seconds	Flash once every 10 seconds
Alarm active	Flash once every 10 seconds	

POWER (Green)	Power supplying	Flash once every 10 seconds
Wireless LAN connection possible status	Flash once every 5 seconds	

CAUTION • When accessing an SD card, do not remove the SD card. The data may not write properly or the SD card may be damaged.
• When "low battery" is displayed, replace the battery or connect the USB interface to supply power as soon as possible. Caution: Batteries cannot be replaced when recording data. Replace them after the recording has finished.

(2) Recording completion

- Press the [START/STOP] key to stop measuring.
- The screen display will change to the standby screen display.
- Press [ENTER] key to change to the free-running screen display.



5 How To Confirm The Data

Check the recorded data with the application software included with this module using the method below (for details, refer to the USER'S MANUAL).

- (1) Connect the USB interface and check the online data
- (2) Insert the SD card into PC and check the data directly
- (3) Check the data directly from PC via wireless LAN

6 Specifications

Item	Contents
Measurement data	Current, power, accumulated power * The accumulated power is displayed only when recording.
Connectable sensors	50A AC Current Sensor (GS-AC50A) 100A AC Current Sensor (GS-AC100A) 200A AC Current Sensor (GS-AC200A) * This is optional
Measurement channel	Connectable sensor: up to 2 channels
Measured current accuracy	<Module + Sensor> ±2.0% FS ± 1 digit Ambient temperature 23°C, Rated input, Rated frequency
Frequency to be measured	50Hz / 60Hz
Applicable circuit	Single-phase 2-wire Single-phase 3-wire 3-phase 3-wire
Measured value display function	Current and power (Instantaneous power or accumulated power consumption)
Primary rated current	50A AC Current Sensor: 50A 100A AC Current Sensor: 100A 200A AC Current Sensor: 200A
Withstand voltage	Between case and all input/output terminals interval AC1000V, 50/60Hz, 1 min.
Sampling interval	0.5, 1, 2, 5, 10, 20, 30 sec. 1, 2, 5, 10, 20, 30, 60 min.
Alarm	OFF / Level
Cable length	approx. 20 cm
Usage environment	-10 to 50°C, 80% RH or less (non-condensing)
External dimensions [WxDxH] (approximate)	46 x 66 x 27.4 mm (not including protruding parts)
Weight (approximate)	55 g

The AC Current Sensor has the specifications below. Be careful when handling it.

AC Current Sensor specifications
Max. allowable current : GS-AC50A: 100Arms, GS-AC100A: 200Arms, GS-AC200A: 300Arms
Withstand voltage : AC2200V, 1 min. (between external case and output terminals)
Insulation resistance: DC500V, 100MΩ or more (between external case and output terminals)
Window diameter: GS-AC50A: φ10 mm, GS-AC100A: φ16 mm, GS-AC200A: φ24 mm
Operating temperature and humidity: -10 to 60°C 80% RH or less (non-condensing)
Cable length: approx. 20 cm