

Installer guide



Solo III + hub version

Important safety notice



*The following safety regulations must be observed at all times.
Failure to observe precautions could result in severe injury or death.*

- This equipment contains two disconnection switches for interruption of supply that do not provide supply isolation. Means of isolation from the supply must be provided as part of the building installation. Do not work on the equipment unless the supply is isolated. If isolation is made by removal of fuses or other cut-outs, the removed devices must be kept secure from replacement whilst work is performed. If isolation is provided by a switch, the switch must conform to the requirements of IEC 947-1 and IEC 947-3 or equivalent.
- Over-current protection is not provided by the equipment and must be provided as part of the building installation. For the domestic supply the maximum over-current device rating is 100A at 415V AC, conforming to the requirements of BS1361 or equivalent.
- Only suitable trained and qualified personnel shall be allowed to work on the equipment. Local safety standards shall be observed and shall take precedence over these regulations in points of conflict.
- The meters must be held securely during installation. They can cause injury if dropped.
- Meters that have fallen must not be installed. Even if no damage is apparent, meters must be returned to the manufacturer for testing. Internal damage can result in functional disorders or short-circuits.
- The meters must only be cleaned whilst disconnected and with a dry cloth without solvent and on no account be cleaned with running water or with high-pressure devices. Penetrating water can cause internal short-circuits.
- A terminal cover protects inadvertent exposure to the meter tail connections and must be fitted prior to energising the electrical supply.



System overview

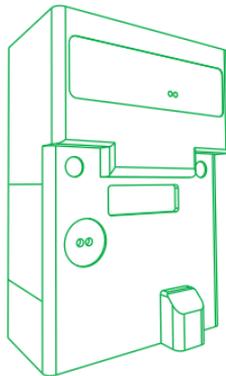
Twin element meter

The twin element meter connects to both the PV system and the consumer unit to allow the Solo III system to measure generation, import, export and consumption via a low-powered radio link.

The meter measures active and reactive energy consumption in single-phase two-wire installations. The meter does not contain any user serviceable parts.

The meter:

- is intended for installation in E2 electromagnetic and M1 mechanical environments where shock and vibrations are of low significance (2004/22/EC directive),
- is to be installed directly onto the distribution company's supply tails and generation cabling within a residential environment,
- conforms to British Standards,
- must be installed away from sources of electromagnetic interference,
- is classified as a Category III device according to EN61010-1 2010.



Meters must be fitted by qualified personnel and should be used in accordance with the technical specifications provided in this installer guide.



A metal meter cabinet may affect communication between the meter and the hub or (optional) display.

Solo III display

The Solo III display is paired to the hub to show the user cost and energy consumption, import and export and generation information in real-time. A limited amount of historical data is also visible.

The display does not contain any user serviceable parts and does not contain batteries. It is powered using an external power supply which is supplied with the unit.

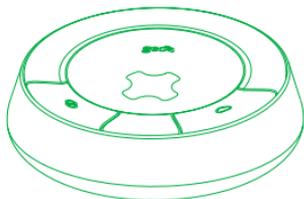


Hub

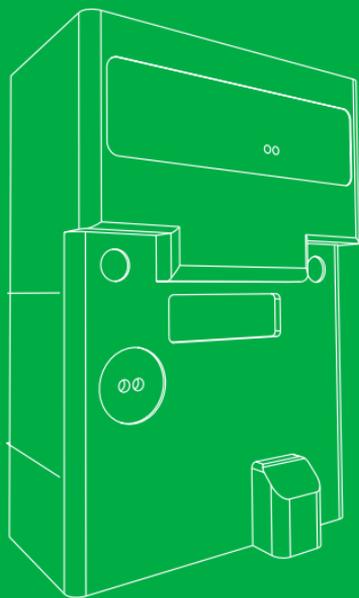
The hub connects the meter to the internet and allows the user to view their generation, import, export and consumption data online using an application on their smartphone, tablet or computer.

This requires a physical connection to an RJ45 point either on a broadband router or other network switch.

The hub does not contain any user serviceable parts and does not contain batteries. It is powered using an external power supply which is supplied with the unit.



It is recommended that the hub is installed first to give it time to perform an automatic software update whilst the meter is installed.



Meter installation

Preparation



Before installation of the meter the supplies to **both** the consumer and PV systems **must** be isolated. Never operate on a live system and power should only be restored once the meter installation is complete.

Isolation of power supply

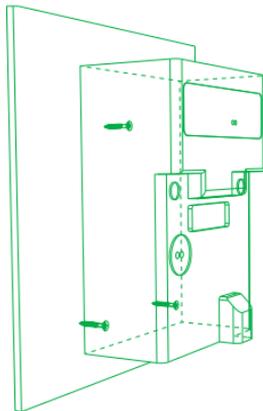
Before installation of the meter, you must do the following:

- Isolate the consumer and PV supplies

Mounting the meter

The meter must be securely mounted to a wall or meter board.

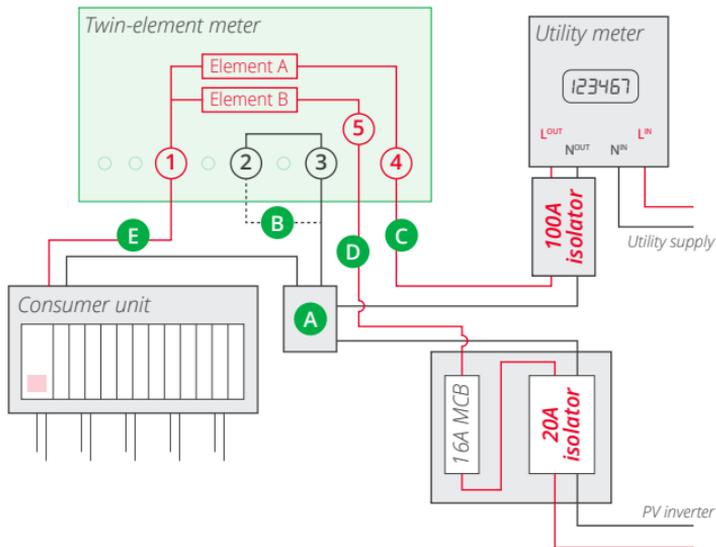
- Unscrew and remove the lower-front meter panel to expose the terminal connections
- Mount the meter using a suitable round headed screw that is fitted to the wall or meter board. The width of the slot in the hanging bracket is 5mm
- The screw depth should be adjusted so that the head fits snugly under the hanging point and the meter is held firm against the wall or board
- Finally the meter should be firmly screwed to the wall or board using the two mounting holes located under the terminal cover



Wiring

The meter should be installed and wired according to the diagram below. Neutral is only required to be connected to either terminal 2 or 3 of the meter.

- (A) All **N** wires can be connected together
- (B) Connect **N** to either terminal 2 or 3
- (C) Connect **L** from utility meter to terminal 4
- (D) Connect **L** from PV MCB / isolator to terminal 5
- (E) Connect **L** from consumer unit to terminal 1



You must check all wiring before restoring power to the consumer and PV systems and the new meter. The meter must only be used in single-phase installations.

Post-install verification

Complete installation

Before restoring power, do the following:

- Double-check the wiring to the meter
- Re-insert the meter front panel and secure tightly
- Restore power to the consumer and PV systems
- If required, an external antenna can be added to the top of the meter module to extend the range between the meter and the hub

Meter diagnostics

The LCD display on the meter will turn on - this confirms that power is OK.

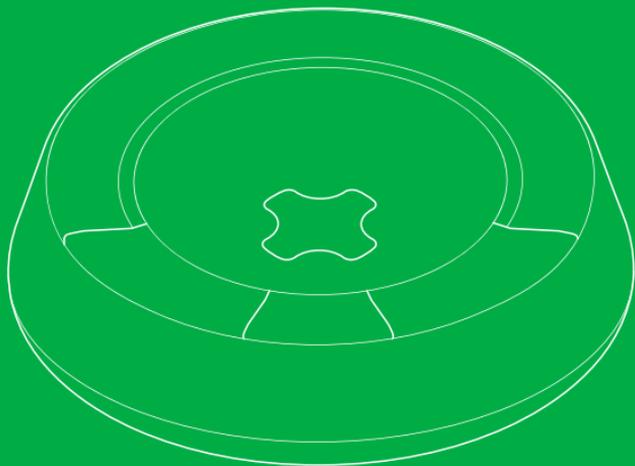
Below is a typical screen:



Once the system has been powered on, the two LEDs on the module indicate the module is correctly installed.



The meter module is transmit only - the LEDs will flash irrespective of whether it is paired to a Solo III display or hub.

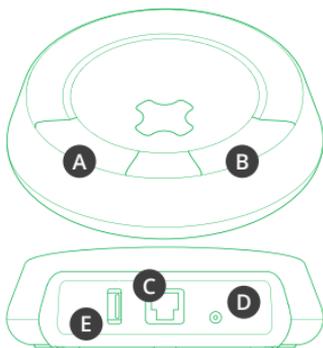


Hub installation

Connections & buttons

The hub has two buttons with LEDs on the top and three connections on the back:

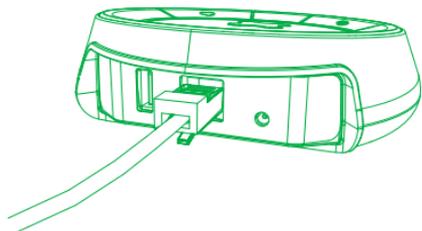
- (A) Link button (🔗) and status LED for wireless pairing
- (B) Cloud button (☁️) and status LED for the cloud service connection
- (C) Ethernet socket for connecting the hub to the consumer's broadband router or network switch
- (D) Power socket for mains power
- (E) USB socket (reserved for future use)



Connecting to the network

The hub needs to be connected to an available Ethernet socket on the consumer's broadband router. If no socket is available, then a suitable network switch will be required.

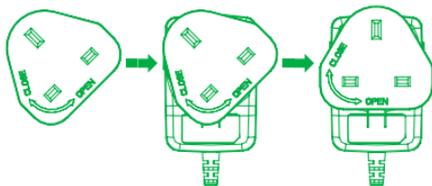
- Connect one end of the supplied Ethernet cable into the router / switch
- Connect the other end into the Ethernet socket on the hub (C)



Powering the hub

The hub is packaged with adapter pins for a number of countries - recycle adapters that are not suitable for your country

- Assemble the power supply by twisting the pins on to the adapter in a clockwise direction until you hear a click
- Connect the power adapter into the hub (D)
- Insert the power supply into the electricity socket
- Power on the hub



Firmware update

The hub comes pre-installed with firmware that will automatically update once connected to the broadband network.

Once the update has completed, the status LEDs will indicate the state of the hub (as shown in the status table).



During update, the two status LEDs will flash green alternately to indicate the update is in progress. The update will last for approximately four minutes.

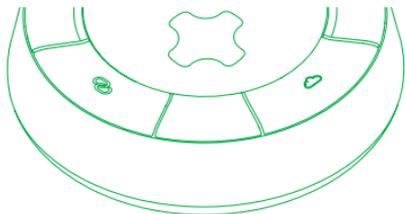
Do not switch off the power or disconnect the hub from the broadband during this time.

Hub status LEDs

Hub ready for pairing

After the hub has updated and is ready to pair with the meter, the status LEDs will show the following:

- Link LED (🔌) is RED
- Cloud LED (☁️) is AMBER



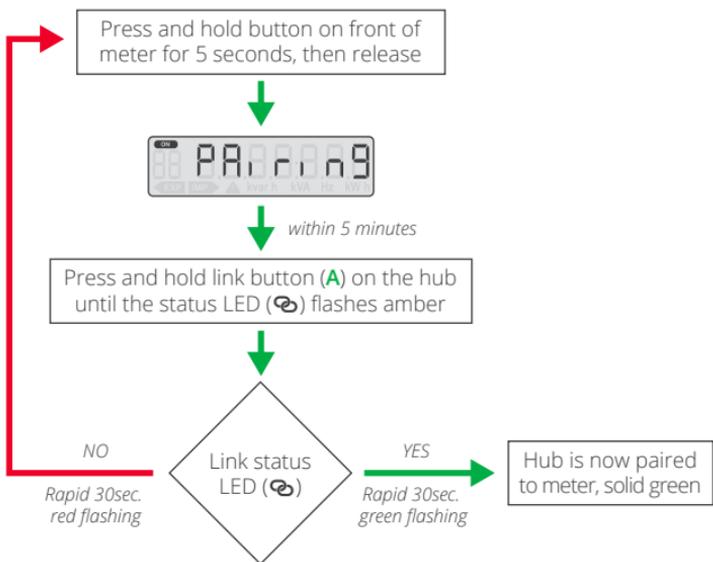
Status LED meanings

The following table shows what the different coloured LEDs mean.

LED	Colour	Meaning
🔌	OFF	Check the power supply to the hub
	RED	The hub is not paired to the meter and / or Solo III display
	AMBER (flashing)	The hub is in pairing mode and waiting to pair with the meter or Solo III display
	AMBER	Devices paired, but signal lost (see FAQs)
	GREEN	The hub is paired to the meter
☁️	OFF	Check the Ethernet cable - the hub is unable to obtain a network IP address
	AMBER (flashing)	Requesting association with online service
	AMBER	The hub is connected to the broadband and ready to associate with the user's account
	GREEN	The hub is connected to the broadband and associated with the user's account

Pairing hub to meter

The hub will need to be paired to the meter by completing the following steps:



If the link LED (🌀) is green before pairing, then the hub may have previously been paired with another meter and it must be reset before pairing to the new meter. See FAQs at the end of this guide.



Solo III display

Display overview

The Solo III system comes with a connected display to show real-time generation, consumption and savings.

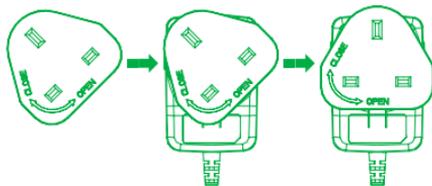
For more information on the Solo III display or to make a purchase, visit:

<http://www.geotogether.com/support/solo-iii-pv>

Powering the display

The Solo III display is packaged with adapter pins for a number of countries - recycle adapters that are not suitable for your country. Do not power the display using the USB port (for future use).

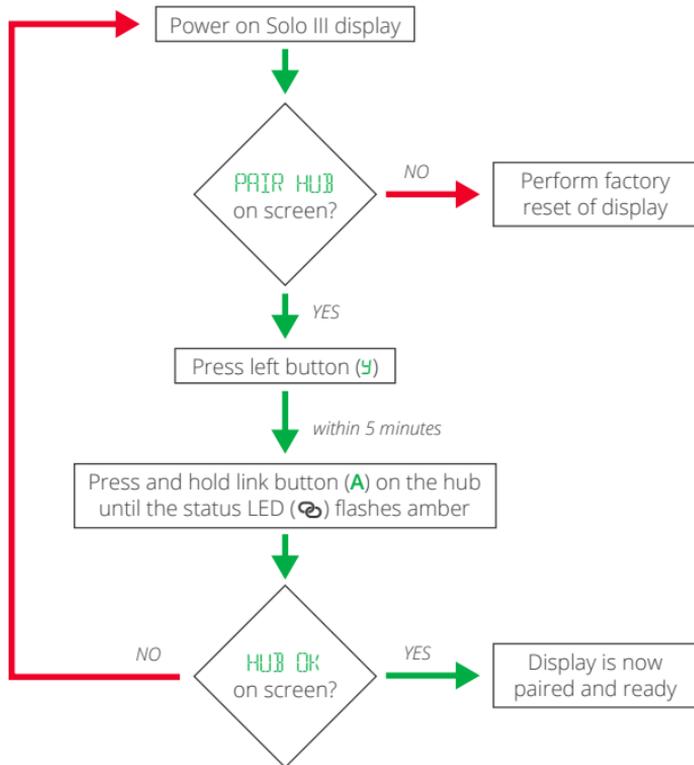
- Assemble the power supply by twisting the pins on to the adapter in a clockwise direction until you hear a click
- Connect the power adapter into the Solo III display
- Insert the power supply into the electricity socket
- Power on the Solo III display
- Once the display is powered on, it will show **PAIR HUB** on the screen



If the display has previously been paired to a hub, it will need to be reset. Refer to the back of this installer guide for details on performing a factory reset.

Pairing to the hub

The display will need to be paired to the hub by completing the following steps:



Using the display

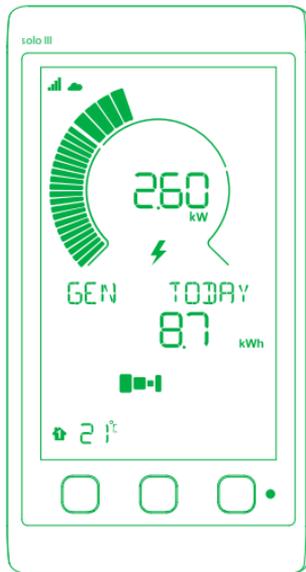
The Solo III will immediately start to show live generation and consumption readings taken directly from the smart meter.

Pressing the left button will cycle through the following screens:

- **GEN TODAY**
Total generation from the PV system for today
- **USE TODAY**
Total usage for the whole house for today
- **IMP TODAY**
Total amount of energy imported from the grid for today
- **EXP TODAY**
Total amount of energy exported to the grid for today

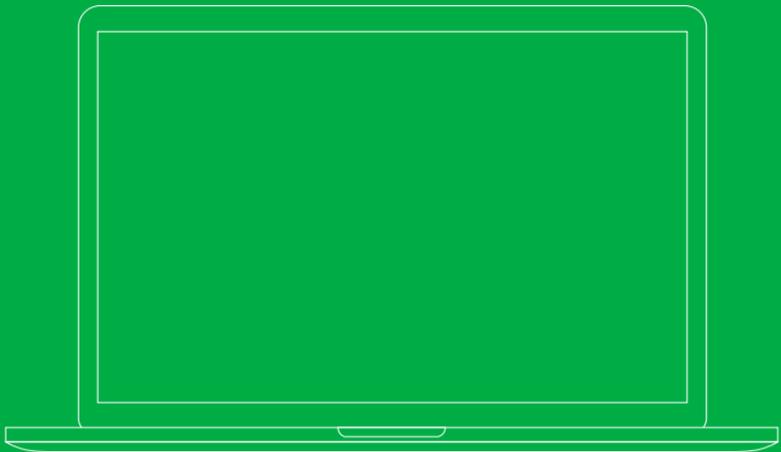
Pressing the right button will change between **TODAY, Y'DAY** (yesterday), **THISWK** (this week), **LASTWK** (last week) and this and previous months (e.g. **AUG, JUL**).

Pressing the middle button will also show **SAVE** (for savings), **COST** (for total cost) and **EARN** (for earnings from the PV system).



After a new installation all the readings will start from zero and start to increment from the point at which the Solo III and hub are first paired.

When associated with energynote®, all data will be reset.



energynote[®]

Account activation

The Solo III system provides in-depth analysis on generation, consumption and other earnings related information and can be accessed from a desktop, laptop or tablet computer or via a smartphone.



Online activation of energynote® requires that the end-user is available to create an online account using a valid email address.

It is strongly advisable to complete the account activation during the system installation otherwise all data accumulated in the intervening time between installation and association may be lost.

Account creation

Log on to **<http://solo3.energynote.eu/>** and follow the instructions to create an account.

- Click **Sign up**
- Enter the end-user's name, valid email address and a password
- Tick the box to accept the terms and conditions
- Click **Sign up** to create the account

Account verification

Within five minutes the user will receive an email with instructions on how to complete their account creation.

Associating the Solo III system

Once the user has created and verified their online energy**note**® account, follow the steps below. You will need to have access to the hub, Solo III display and the energy**note**® website.

- Press and hold the cloud button (☁) on the hub for five seconds
- A code will appear on the display and this will need to be entered on energy**note**® to complete the association process



The display must be paired to the hub and connected to the internet in order for the code to appear.



Technical support

For technical queries relating to the installation, please call 01223 850 218. Lines are open Monday to Friday, 0900 to 1730. (UK hours.)

Further information on the Solo III product is available at:
<http://www.geotogether.com/support/solo-iii-pv>

FAQs

How do I reset the hub?

To reset the hub, insert a pointed object in to the reset button on the base of the hub for more than five seconds while the hub is powered on. The hub will then reset and the link (🔌) and cloud (☁️) icons will alternately flash RED.

How do I reset the Solo III display?

Remove power to the display and then press and hold the three buttons while powering the display back on. Press the right (➡️) for **DATA RESET** and then the left button (⬅️) to confirm **FULL RESET**.

Why is no data being shown on the Solo III display?

Check that the Solo III is paired to the hub and that the hub is also paired to the meter. The link icon (🔌) should be GREEN. The Solo III will show the signal strength between it and the hub. If the problem persists, perform a factory reset of the display and repeat the pairing process.



Technical information

Hub specification

Supply voltage	5Vdc
Supply power	250mA, 1.25W
Operating temperature	+5 to +45°C
Operating humidity	0 to 85% RH non-condensing
Storage temperature	0 to +55°C
Storage humidity	0 to 85% RH non-condensing



This product is double insulated.



At the end of its life please recycle at a suitable recycling facility.



For use in dry, indoor environments only.



These units have been tested and conform to all relevant European safety and regulatory standards where applicable.

Solo III display specification

Supply voltage	5Vdc
Supply power	100mA, 0.5W
Operating temperature	+5 to +40°C
Operating humidity	0 to 85% RH non-condensing
Storage temperature	0 to +55°C
Storage humidity	0 to 85% RH non-condensing

Meter specification

Supply voltage	220 - 240Vac 276Vac maximum
Supply frequency	47 - 53Hz
Maximum current	100A
Operating temperature	-20 to +55°C non-condensing
Ingress protection	IP52, according to BS EN 60529

Manufacturer

Green Energy Options Ltd.
3 St. Mary's Court, Hardwick, Cambridge, CB23 7QS, UK



www.geotogether.com