



# User Manual

Energy Genius by PowerSave

## Genius Gateway (GGAT-1)



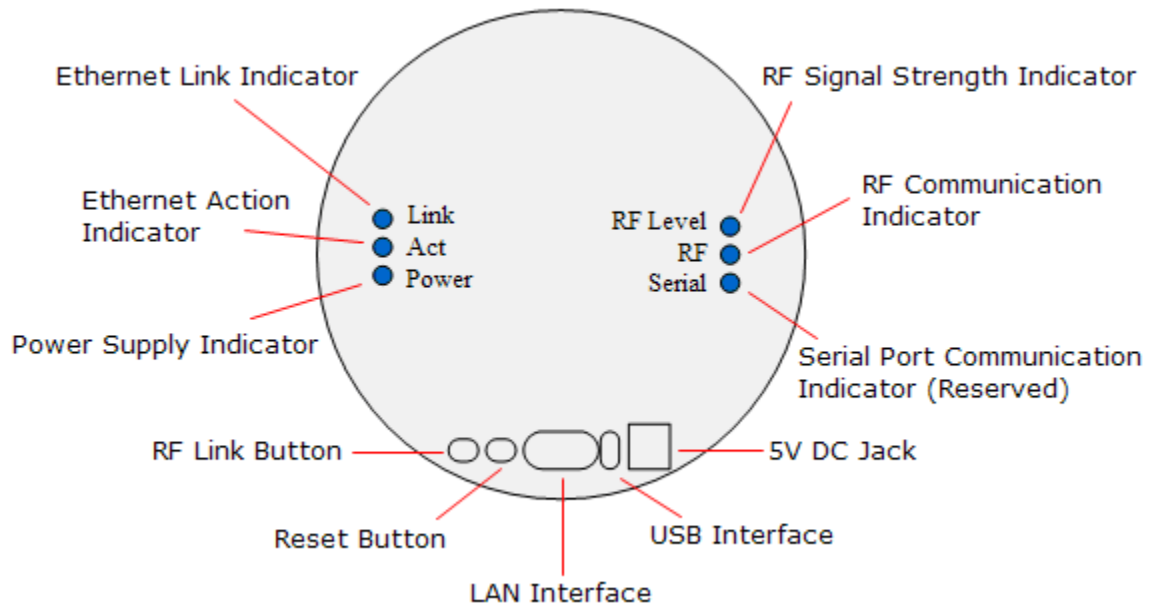
**POWERSAVE**  
energy management

[www.powersave.us](http://www.powersave.us)

# 1. General introduction of GGAT-1 Wireless Gateway.

The Energy Genius Gateway receives real time energy usage and temperature information from up to 10 Genius sensors via wireless signals. The Gateway connects to a router using an Ethernet cable and automatically links the sensors to the Enerati cloud based management system. Users can use Enerati to monitor and manage their sensors in real time.

## 1.1 Interfaces, Buttons and LED indicators



### LED Indicator descriptions:

- Link This indicator lights up when Ethernet network link is established.
- Act This indicator flashes when there is data flow in the Ethernet network.
- Power This indicator lights up when the gateway is powered on.
- RF Level This indicator lights up when the RF signal is strong, flashes when signal is weak and lights off when there is no signal. If there are two or more than two transmitters paired with the gateway, this indicator will represent the weakest signal's strength.
- RF This indicator flashes when RF wireless communication is in process.
- Serial This indicator flashes when there is data flow in the serial port (reserved).

### Interface and Buttons descriptions:

- DC 5V The DC Jack for power supply.
- USB The USB port for power supply (Also reserved for serial devices).
- LAN The Ethernet network interface. 10/100 Base-T RJ45 interface to connect with network router.
- Reset Press this button to recover the factory default setting. To reset or to clear all pairing, history data and web server setting, press the Reset Button and hold it here for 5 seconds until the right 3 LED indicators all light up, then release the Reset Button, after 2 seconds, the right 3 LED indicators all light off and all information has been cleared. **Be cautious to use this button since all data will be lost.**
- RF Link This button is used to pair the sensor terminals with the gateway.

## 2. Installation and Operation of the Genius gateway.

### 2.1 Installation Preparation

Power Supply: 100-240VAC, 50/60 Hz

Working Temperature: -10-50°C

Working Humidity: 10-90%, with no condensation.

### 2.2 Installation and Pairing

#### 2.2.1 Power on the gateway and connect it with home Ethernet network.

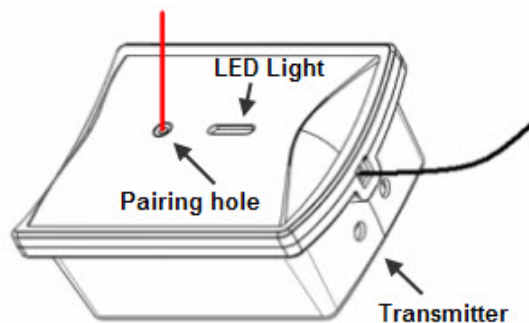
- 1) Use the power adapter to connect the gateway's DC jack with the main power supply until the power indicator lights up. Or use a USB power adapter to provide power via the gateway's USB interface until the Power LED indicator lights up.
- 2) Plug Ethernet network cable into the LAN interface of the gateway and connect it with a local working router or home wall network socket, wait until the Link LED indicator lights up, which means the Ethernet network link has been established.
- 3) The sensor terminals that can be paired with the gateway include the 1-way power transmitter with sensor clamp, temperature transmitter, Genius Smart Plug .

#### 2.2.2 To pair a Genius CT Sensor with the gateway:

- 1) Keep the power transmitter as close to the gateway as possible. Pull out the clear plastic tab (marked with "REMOVE BEFORE USING") from the back of the transmitter. The tab is an insulation sheet, once it is pulled out, the built-in batteries will make the transmitter start to work immediately.



- 2) Press the RF link button of the gateway and hold it there for about 5 seconds until the RF indicator lights up, then the gateway enters the pairing mode and begins to search for pairing signal.
- 3) Now use a slim stick to push into the pairing hole of the transmitter (as shown in below photo) and hold it there for about 3 seconds until the LED light of the transmitter flashes quickly. Then release the slim stick and the transmitter is now starting to pair with the gateway.

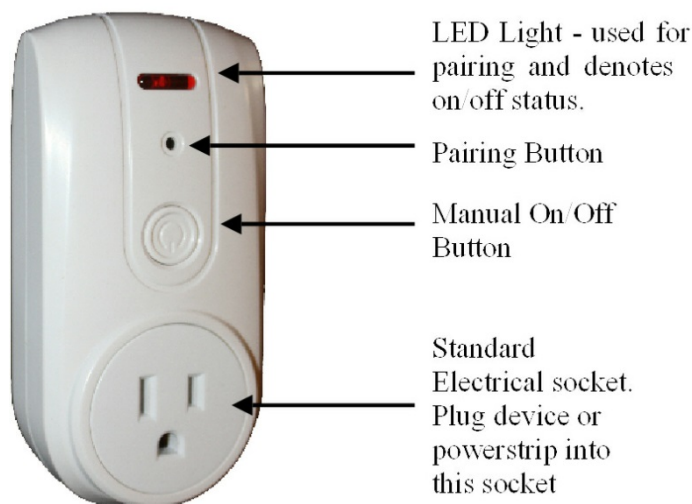


- 4) The pairing may take up to 60 seconds. When the pairing is successfully finished, the RF indicator of the gateway will flash and the gateway automatically exits the pairing mode. The user will see the transmitter information on the web page. If the gateway can't receive a pairing signal from a transmitter in 60 seconds, it will also exit the pairing mode automatically. While the transmitter will exit the pairing mode after sending pairing signal for 30seconds.
- 5) Each transmitter has its own MAC ID and after successful pairing, the gateway will regard it as authorized device and handle its wireless data in the gateway to the distant server.
- 6) The user may choose to use the embedded web server on the gateway or the Enerati server to add or delete transmitters.
- 7) Up to 10 sensor terminals totally can be paired with the gateway.

### 2.2.3 To pair a Genius Smart Plug with the gateway:

The remote control function is realized via the Smart Plug, which connect the electrical appliances into the system by working between the appliances and the power supply. The Genius Smart plug sockets work as the sensor terminals and detect the power consumption data from the appliances. It also receives and implements the switching on/off instruction remotely from the gateway. To make the sensor plug socket communicate with the gateway, it need to be paired with the gateway first.

## Wireless Energy Sensing Plug with Remote On Off Control



- 1) Before pairing, keep the sensor socket closest to the gateway. Try to locate a power supply wall socket nearest to the gateway. Attach the sensor plug socket into the power supply socket and switch on the sensor socket by pressing its switch button.

- 2) Press the RF link button of the gateway and hold it there for about 5 seconds until the RF indicator lights up, then the gateway enters the pairing mode and begins to search for pairing signal.

- 3) Now use a slim stick to push into the pairing hole of the sensor Smart Plug socket and hold there for about 6 seconds until the LED light on the sensor plug socket flashes quickly. The sensor socket is now starting to pair with the gateway. The pairing may take up to 60 seconds. When the pairing is successfully finished, the

LED light on the sensor socket will stop flashing and the RF indicator of the gateway begins to flash. And the user can see the sensor socket information on the web page. If the gateway can't receive a pairing signal in 60 seconds, it will also exit the pairing mode automatically. While the sensor socket will exit the pairing mode after sending pairing signal for 60seconds.

- 4) After the pairing is finished, pull out the sensor socket from the power supply socket near the gateway and attach it again to the power supply socket near the actual electrical appliance to be monitored and controlled, then attach the plug of the electrical appliance into the sensor plug socket. And the connected electrical appliance can now be monitored and controlled via the gateway remotely.
- 5) Each sensor socket has its own MAC ID and after successful pairing, the gateway will regard it as authorized device and handle its wireless data in the gateway to the distant server.

- 6) The user may choose to use the embedded web server or distant server to add or delete the sensor sockets.
- 7) Up to 10 sensor terminals totally can be paired with the gateway.

### 2.2.4 To pair a temperature transmitter with the gateway:

The temperature transmitter uses the same case as the 1-way power transmitter. Please pair the temperature transmitter in the same way as the 1-way power transmitter.

## 2.3 Configuration and management of embedded web server

### Basic Setting


When the gateway has been properly connected with the ADSL router (Act LED indicator flashes), the router will assign a dynamic IP address to the gateway via DHCP. Use a PC in the same LAN and open the browser on the PC, input the gateway's device name directly in the url address bar, in the format of <http://GENIUS> (GENIUS is the default device name and can be changed by the user), then tap the enter key to visit the embedded web sever. The basic setting page of the embedded server will display as below:

- 1) **Device Name:** The default name is GENIUS. The user can change it to desired name (its maximum length is 15 characters and it should not contain empty space or symbols not accepted to be URL). The device name can be used as the URL address to visit the embedded web server in browser in the format of <http://devicename>. Please keep record of the changed device name, otherwise the user will not be able to log in the web server and have to reset to factory setting, which will lose all data.

- 2) **Server URL (IP):** This is the address of the distant server

where the gateway needs to transmit data to and receive command from. For Enerati this must be set **to 23.21.64.78 and Port 5000**. After this setting, the gateway will automatically link to the Enerati servers and send data to Enerati in Client mode according to set interval.

- 3) **DHCP:** The default setting is  **Enable**, means the router will assign a dynamic IP address to the gateway and the user will be able to view the IP address (not settable). To allow IP setting by hand, please select  **Disable**, and the user will be able to set the parameters as image to the right.



The screenshot shows a DHCP configuration window. At the top, there are two radio buttons: 'Enable' (unselected) and 'Disable' (selected). Below this are five input fields: 'IP Address' (192.168.1.97), 'Subnet mask' (255.255.255.0), 'Gateway' (192.168.1.1), 'Primary DNS server' (202.96.128.166), and 'Secondary DNS server' (202.96.128.86).

**IP Address:** Fill in the columns the IP address of the gateway. Please don't use the same IP address of other device in the same LAN. This IP address should be in the same network segment as the LAN gateway.

**Subnet mask:** Please set the correct subnet mask of the LAN here.

**Gateway:** Please set the correct gateway address for connection with outside network here.

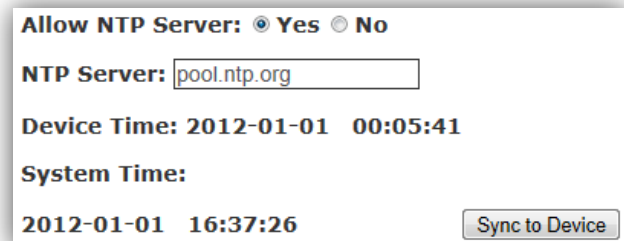
**DNS server:** Please set the correct DNS here.

- 4) **Period of data transmission:** Fill in this column the time interval of data sending from the gateway to the distant server. The should be set at 60 seconds.
- 5)  : Please check above setting correctly, then click the "save" button to save the setting. And the gateway will reboot and refresh the setting.

- 6) **Time running setting:** Please refer to below description:

The default setting is allow NTP server **Yes**, which means the device synchronizes the time with NTP server every 24 hours. The user can change the NTP server then click the "**Sync to Device**" button to synchronize.

The user may choose **No** to synchronize the gateway's clock with local PC instead of distant timing server. Please just click "**Sync to Device**" button. Upon power cut off, the gateway's time will return to default time: Jan. 1<sup>st</sup>, 2012.



The screenshot shows an NTP configuration window. At the top, there are two radio buttons: 'Yes' (selected) and 'No' (unselected). Below this is an input field for 'NTP Server' containing 'pool.ntp.org'. Underneath, the 'Device Time' is shown as '2012-01-01 00:05:41' and the 'System Time' is shown as '2012-01-01 16:37:26'. A 'Sync to Device' button is located at the bottom right.

## Sensors Manager

Please click the **Sensors Manager** button to enter the interface of sensors management, as below:

Basic SettingSensors ManagerChange PasswordUpdate

| NO. | ID       | Power    | Temperature | Switch                             | Action                             |
|-----|----------|----------|-------------|------------------------------------|------------------------------------|
| 1   | 00000DC6 | 18.128kw | ---         | --                                 | <input type="button" value="del"/> |
| 2   | 3B1A211D | 0w       | ---         | <input type="button" value="OFF"/> | <input type="button" value="del"/> |
| 3   | 00001033 | ---      | 25.7°C      | --                                 | <input type="button" value="del"/> |
| 4   | --       |          |             |                                    | <input type="button" value="add"/> |
| 5   | --       |          |             |                                    | <input type="button" value="add"/> |
| 6   | --       |          |             |                                    | <input type="button" value="add"/> |
| 7   | --       |          |             |                                    | <input type="button" value="add"/> |
| 8   | --       |          |             |                                    | <input type="button" value="add"/> |
| 9   | --       |          |             |                                    | <input type="button" value="add"/> |
| 10  | --       |          |             |                                    | <input type="button" value="add"/> |

Voltage:

IMP:

This page is used to add or delete the sensor terminals and to view the real time power data of each 1-way transmitter (with clamp or LED sensor), 2-way Smart Plug, 2-way RF switches or temperature transmitters. The user can also operate the switch on/off function from this page for the 2-way sensor terminals. When the real time power is larger than 999w, its unit will automatically change to be kw.

The voltage for the 1-way transmitter with clamp or the IMP value for the 1-way transmitter with LED sensor also needs to be set here.

If the transmitter is a temperature transmitter, its temperature can be read from this page in the column of "Temperature". The temperature can be displayed is -30°C to 50°C. For temperature out of this range, it will display as "LO" if less than -30°C and will display as "HO" if higher than 50°C.

To add a new sensor terminal into the system from the embedded web server, click the "add" button on a blank line, then the gateway will enter the pairing mode. Then operate the same way on the sensor terminals as described in **2.2 Installation and Pairing** to pair sensor terminals with the gateway. When the gateway receives the pairing signal from the sensor terminals, its sensors manager page will automatically display the sensor's MAC ID and real time data. The gateway will send the received real time data to the distant server according to the set interval. Its "add"



button changes to be “del” button. For 2-way sensors, there is a button ON or OFF appearing in its “Switch” column.

|   |          |      |     |     |     |
|---|----------|------|-----|-----|-----|
| 2 | 732E5B71 | 597w | --- | OFF | del |
| 3 | 00005EBF | 305w | --- | --  | del |

To delete a sensor terminal from the system, please simply click the  button on the same line.

For 1-way transmitter with clamp or LED sensor, the voltage and IMP value need to be set correctly in this page, otherwise the data can't be correct.

Please input the correct value and click the “Set Voltage and IMP” button to save the setting. This setting has nothing to do with the 2-way sensor terminals since they detect both voltage and current. The setting range for the voltage is 0-999. The setting range of the IMP is 0-9999. Most US standard homes should use 115V for their Voltage setting.

**Voltage:**   
**IMP:**

The factory setting of the user name is “admin” with blank password. The user can change the user name and password here.

**Web Server Configuration** version: 1.0.1

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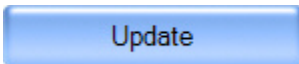
**User:**   
**Old password:**   
**Now password:**   
**Confirm password:**

Once the user has changed the password setting, next time he need to login with correct user name and password to visit the web server.



User Name   
Password

The user should keep the user name and password properly, otherwise the user will not able to login the web server and has to reset to factory setting to visit the web server. In this case, all data will be lost. The user needs to do the pairing and setting again.



The gateway can be upgraded here once the user has the upgrade file in the computer. Save the upgrade file in local PC.

**Web Server Configuration**  
version:1.0.1

Select file:

### To upgrade the Genius Gateway

Please browse and select the upgrade file, then click the “Update” button.

During the upgrading, the right three LED indicators will flash in cycle. When they stop flashing, the upgrade is finished. During the upgrading, don’t cut off the power.

After the upgrading, please do the reset. In this case, all data will be lost. The user needs to do the pairing and setting again.

### To upgrade the web pages of the embedded web server on the gateway

Please also browse and select the upgrade file, then click the “Update” button. When below window pops up, click “Site main page” to return to the web pages and finish the upgrading.



In case both the energy gateway and the embedded web pages need to be upgraded, make sure to upgrade the energy gateway first.

### 3. Installation of the 1-way Power Transmitter, Sensor Clamp

The 1-way power transmitter is with 2pcs C batteries inside. It uses sensor clamp to collect the energy consumption data. All sensor clamps are detachable.

The sockets on the transmitter for each CT and LED sensor are displayed as below photo.

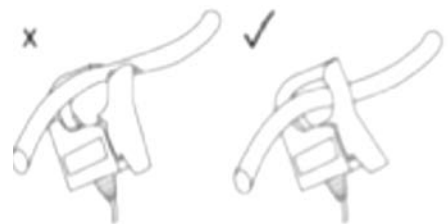


If sensor clamp is to be used, make sure that the voltage has been set correctly. Plug the sensor clamp into any one of the three CT sockets.

**IMPORTANT: THIS DEVICE MUST BE INSTALLED BY A QUALIFIED/LICENCED ELECTRICIAN, UNLESS OTHERWISE PERMITTED BY LOCAL REGULATIONS.**

IF THE MAIN BREAKER PANEL ENCLOSURE OR WIRING OR BREAKERS SHOW ANY SIGN OF DISREPAIR OR DAMAGE OR YOU NOTICE ANYTHING UNUSUAL ABOUT YOUR ELECTRICITY SUPPLY SUCH AS LOSS WIRES, EXPOSED CABLING, BURN MARKS OR HOLES IN THE INSULATING MATERIALS OR DAMAGE TO YOUR METER THEN STOP IMMEDIATELY AND CONSULT A QUALIFIED ELECTRICIAN.

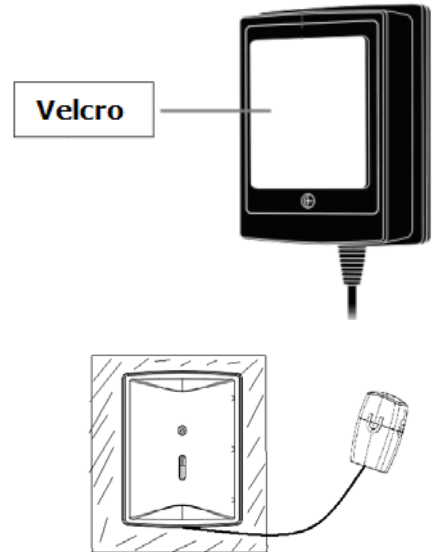
- Open the main breaker panel enclosure
- Turn Off main breaker. NOTE even though this turns off power to the panel, the main incoming power lines are still live. Extreme care should be taken not to touch any exposed metals or wires.
- Unscrew and carefully remove the protective cover. This will reveal all the wires.
- Check to make sure there is enough room to fit the transmitter in the enclosure so that the protective cover can be remounted. If there is not enough room see help from a qualified electrician.
- Place the transmitter as high in the enclosure as possible. A Velcro sticker is used to secure the transmitter in place.
- Locate the two main incoming cables coming from the meter and feeding the main breaker in the panel. They are usually the 2 thickest cables and are normally black or red. A third cable usually thinner and marked with green or white labels/tape is the ground or neutral and is not used.
- Clamps one CT clamp around each main cable. Do not pull or bend the power cables. Make sure the clamps can move freely and that they do not pinch or apply any undue pressure on the cables.
- Connect the clamp leads to the bottom of the transmitter.
- Check the web server or Enerati to see if energy usage is being received and displayed.
- Re-attach the protective cover and close the panel.
- Turn on the main breaker.



The Sensor Clamp immediately starts to detect the current and the transmitter sends the data to the gateway which will send the received data to the Enerati server according to set time interval. The user will begin to be able to see the real time data of home energy consumption on Enerati or the embedded web server.

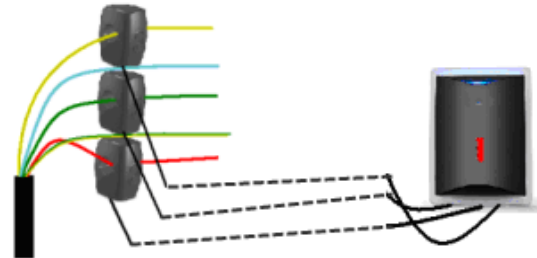
Under single phase power supply, one transmitter can work on up to three objects by using 3pcs sensor clamps fixed around the live wire or the null line of each object (if they are close enough to the transmitter). Then the data of the transmitter is the total data of three objects.

The transmitter can be put flat in a dry place nearby or be stuck on the wall nearby using the 3M velcro on its back.



### 3-phase power supply

If the monitoring target is 3-phase, the user needs totally three sensor clamps for the transmitter. Attach the DC plug of each sensor clamp into the three CT sockets on the bottom of the Transmitter. Fix the 3pcs of Sensor Clamps around the lines of Phase-A, Phase-B and Phase-C (Don't fix the clamps around the ground wire and neutral wire).



### 3.2. Installation of the 2-way sensor socket

The installation of the 2-way sensor socket is quite simple. Just first plug it into a wall socket near the target appliance, then plug the appliance into it.

### 3.3. Installation of the temperature transmitter

The temperature transmitter uses the same case as the 1-way power transmitter, but without the sockets for the CT or LED sensor. After pairing, the transmitter can be flat in a dry place or be stuck on the wall using the 3M velcro on its back in the environment to be measured.



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#### 4. Limited One Year Warranty

PowerSave Inc. warrants this product for a period of one (1) year from date of purchase for all defects in workmanship or materials to the original user or consumer purchaser. This warranty excludes and does not cover defects, malfunctions, or failures caused by misuse, unauthorized repairs, modifications or accidental damage. All defective parts will be repaired free of charge or replaced.

*Note: This warranty does not apply to batteries. This warranty is only applicable to a product purchased through a PowerSave Inc. authorized Reseller. In no event shall PowerSave, Inc. be liable for consequential or incidental damages. This warranty is in lieu of all other expressed warranties. The duration of any implied warranty is limited to the period of the expressed warranty set forth above.*

**Thank you for reading this user manual and using our product.**

**If you need help please visit our help options at**

**[www.powersve.us](http://www.powersve.us)**

**or [www.enerati.com](http://www.enerati.com)**

**or send an email to [help@powersave.us](mailto:help@powersave.us)**

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