

## Enphase Monitoring

The tutorial video for Enphase monitoring system: [http://www.youtube.com/watch?feature=player\\_embedded&v=DV4btuipPfw](http://www.youtube.com/watch?feature=player_embedded&v=DV4btuipPfw)

### Flexible Views

Performance information can easily be viewed “at a glance” or in detail, including graphs, totals by day/week/month/lifetime, and time-lapse videos. Enlighten can also be accessed by web-enabled mobile devices.

### Automated Reports & Alerts

Enlighten’s cloud-based analytics will identify and alert owners and installers to any deviation in performance. Enlighten also enables remote troubleshooting and updates, so issues can be addressed without cost or hassle.



## Enphase Monitoring

The tutorial video for Enphase monitoring system: [http://www.youtube.com/watch?feature=player\\_embedded&v=DV4btuipPfw](http://www.youtube.com/watch?feature=player_embedded&v=DV4btuipPfw)

### Overview

The Enphase Envoy Communications Gateway is the networking hub connecting every module and microinverter in your solar array to the Internet.

The Envoy uses advanced powerline communications technology to connect to each microinverter without additional wiring or wireless configuration. System owners can easily check the status of their solar system using the Envoy's LCD display, or get more detailed information through the Enlighten website.

For commercial installations, multiple Envoy devices are used in combination with Line Communications Filters (LCF) to separate networking domains across the site.

### Envoy Features

- Plug & Play setup
- Communicates over existing electrical wires
- Enables remote troubleshooting of solar array

### LCF Features

- Required in most commercial installations
- Simplifies & speeds system bring-up
- Includes Envoy & protective housing



## Enphase Monitoring

The tutorial video for Enphase monitoring system: [http://www.youtube.com/watch?feature=player\\_embedded&v=DV4btuipPfw](http://www.youtube.com/watch?feature=player_embedded&v=DV4btuipPfw)

### 1. Enphase Micro-inverter system

- Installed on the racking beneath each solar module
- Maximizes energy harvest

### 2. AC power is sent via AC wiring to the load center

- Performance data is also sent via the AC wiring
- Plug and play communications

### 3. Envoy Communications Gateway

- Plugs into any AC outlet
- Collects information via the AC wiring
- Transmits data through a standard Ethernet router to the internet

### 4. Standard Ethernet Router

- Information collected by Enphase Envoy is then transmitted to Enlighten in 5-minute intervals

### 5. Enphase Enlighten Monitoring

- Provides monitoring and analysis
- Performance information can be viewed from any web browser



### Plug-and-Play Installation

Enphase Energy's per-module monitoring technology is integrated into the Enphase Microinverter System which means that you do not need to purchase or install a bolt-on or stand-alone third-party monitoring tool.

The Enphase Envoy (EMU) communications gateway plugs into any standard AC outlet and collects micro-inverter performance information over the existing power line. No additional wiring is required.

By plugging the Ethernet cable of the Envoy into a broadband router, performance data is automatically transmitted to Enlighten using the site's existing internet connection, further simplifying installation.

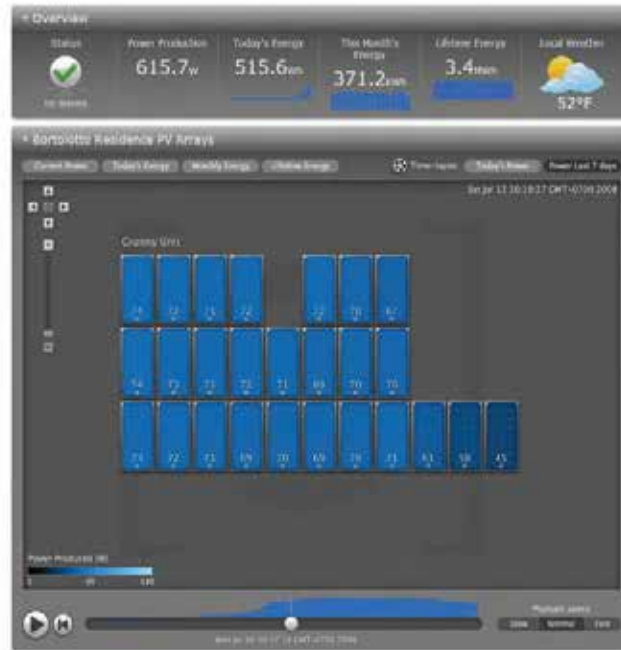
### About Enphase Energy

Enphase Energy provides solar energy management systems for residential and commercial markets. The company offers a networked system, which includes high-efficiency micro-inverters, communications and web-based analytics. The systems increase energy harvest, increase system reliability, and simplify design, installation and management. Founded in 2006 and based in Northern California, the company is led by veterans from the solar and high tech industries and backed by industry leaders. For more information, please visit [www.enphaseenergy.com](http://www.enphaseenergy.com) or call (707) 763-4784

# Enphase Monitoring



ENLIGHTEN™  
Per-Module Monitoring and Analysis





## Per-Module Monitoring

The Enphase 24/7 per-module monitoring service ensures optimal uptime. System owners and installers can rest assured that Enlighten is monitoring their installation and will notify them of any issues that need attention.

### Monitoring



Enlighten constantly monitors every module and compares its performance to each of its neighboring modules to identify any production issues.

### Analysis



Using its built-in analysis algorithms, Enlighten analyzes production shortfalls, establishes a possible cause and suggests solutions to remedy the situation.

### Insight



Enlighten promptly sends an alert to the system owner or installer per the user-defined preferences established at installation.

## Enlighten™ Website



Enphase Enlighten enables a new level of performance, reliability and management for solar energy installations. Enlighten is integrated into the Enphase Microinverter System and provides unprecedented visibility into the performance of every solar module.

Upon logging in, installers get an at-a-glance view of the status of all their systems via the Enlighten console as well as a visual alert for installations that require attention.



The overview pane provides system-level information for each installation.

The aerial view provides visualization of the array as it is physically configured at the site.

Additional information is gathered and displayed to enable analysis of energy harvest deviations.

Environmental benefits are automatically calculated.

## Enphase Troubleshooting Guide

To the Local Area Network (LAN), the Envoy is just another host on the network, much like a personal computer. Enphase offers technical support at [support@enphaseenergy.com](mailto:support@enphaseenergy.com) for Envoy issues, but Enphase's Support responsibility does not extend to the premises network of LAN.

### Issue: IP Address Problems

If the IP address displayed on the Envoy's LCD screen is 169.254.120.1, or if the IP address does not match the DHCP subnet on the internal network, then the Envoy was unsuccessful in obtaining a DHCP lease from the router.

- Check network connectivity to the router or other DHCP server. You may also wish to contact your Internet Service Provider or refer to your router documentation for help.
- Check that you are using a broadband router and not a switch or a hub. Many hubs and switches cannot provide a DHCP lease and may not allow the Envoy to connect to the web.
- Use the Envoy menu button to "Get New IP Address", and then allow 30 to 60 seconds for the new IP address to appear on the Envoy LCD screen.
- Two small green LEDs on the Ethernet port indicate Internet link and activity. One LED will be solid green, and the other will blink green every few seconds. If the LEDs are not both on or blinking, try using a new Ethernet (CAT5) cable in place of the existing cable.
- Unplug all units in the chain, applying power again in this order: 1) modem, 2) router, and 3) Envoy. Allow a few minutes for the IP address to be reassigned.

### Issue: LCD Screen Displays "-Web"

This means that the Envoy has no connection to the Enlighten website.

- Check network connectivity to the router. You may also wish to contact your Internet Service Provider or refer to your router documentation for assistance.
- Unplug all units in the chain, applying power again in this order: 1) modem, 2) router, and 3) Envoy. Allow a few minutes for the IP address to be reassigned.
- Allow a few minutes longer. If the Envoy has recently received a valid IP address, it will likely display "+Web" momentarily.

### Issue: LCD Screen Displays "Envoy Failure +Web or -Web"

This message displays after the Envoy has tried unsuccessfully three times to initialize.

- Unplug the Envoy from the AC outlet and plug it in once again. Leave it in place for at least 15 minutes.
- If it continues to display Envoy Failure or if it never moves beyond the Initialization stage, contact Enphase Customer Support ([support@enphaseenergy.com](mailto:support@enphaseenergy.com)).

### Issue: The Envoy has Good Signal Strength but is Too Far from the Router

- In this case, you may need to use power line communication bridges or a wireless Ethernet bridge.