Enphase

Mobile Connect

Installation Guide

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Other Information

Product information is subject to change without notice. All trademarks are recognized as the property of their respective owners.

User documentation is updated frequently. Check the Enphase website (http://www.enphase.com/support) for the latest information.

For Enphase patent information refer to http://enphase.com/company/patents/.

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Audience

This guide is intended for use by professional installation and maintenance personnel.

About this Guide

This guide provides instructions on how to install Enphase Mobile Connect with the Envoy. For details about the Envoy, refer to the *Envoy Installation and Operation Manual*.

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Safety Warnings

Radio Frequency (RF) Safety

To avoid possible radio frequency (RF) interference, follow any special regulations for using radio equipment, and follow the safety advice listed here:

- Operating the device close to other electronic equipment may cause interference if the equipment is inadequately protected.
- Observe any warning signs and the manufacturer recommendations. Different industries and businesses restrict the use of cellular devices. Respect restrictions on the use of radio equipment in fuel depots, chemical plants, or where blasting operations are in process. Follow restrictions for any environment where you operate the device.
- Do not place the antenna outdoors, unless in an outdoor-rated enclosure.
- Switch OFF your wireless device when in an aircraft. Failing to observe this restriction may lead to suspension or denial of cellular services to the offender, legal action, or both.
- Switch OFF your wireless device when around gasoline or diesel fuel pumps and before filling your vehicle with fuel.
- Switch OFF your wireless device in hospitals and any other place where medical equipment may be in use
- Refer to Potential Interference with Pacemakers and Other Medical Devices.

Potential Interference with Pacemakers and Other Medical Devices

Radio frequency energy (RF) from cellular devices can interact with some electronic devices, causing electromagnetic interference (EMI). The FDA helped develop a detailed test method to measure EMI of implanted cardiac pacemakers and defibrillators from cellular devices. This test method is part of the Association for the Advancement of Medical Instrumentation (AAMI) standard. This standard allows manufacturers to ensure that cardiac pacemakers and defibrillators are safe from cellular device EMI.

The FDA continues to monitor cellular devices for interactions with other medical devices. If harmful interference occurs, the FDA will assess the interference and work to resolve the problem.

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Precautions for Pacemaker Wearers

EMI can affect a pacemaker in one of three ways:

- Stop the pacemaker from delivering the stimulating pulses that regulate the heart's rhythm.
- Cause the pacemaker to deliver the pulses irregularly.
- Cause the pacemaker to ignore the heart's own rhythm and deliver pulses at a fixed rate.

Based on current research, cellular devices do not pose a significant health problem for most pacemaker wearers. However, people with pacemakers may want to take simple precautions to avoid EMI from cellular devices:

- Keep the device on the opposite the side of the body from the pacemaker to add extra distance between the pacemaker and the device.
- Avoid placing a turned-on device next to the pacemaker (for example, don’t carry the device in a shirt or jacket pocket directly over the pacemaker).

Antenna

The antenna intended for use with this unit meets the requirements for mobile operating configurations and for fixed mounted operations, as defined in 2.1091 and 1.1307 of the FCC rules for satisfying RF exposure compliance.

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About Enphase Mobile Connect

Enphase® Mobile Connect (CELLMODEM-01) is a modem package that connects to the Enphase Envoy, and eliminates the need for an on-site Internet connection to monitor an Enphase System. The addition of Mobile Connect to an Enphase System enables greater installation flexibility and provides reliable system monitoring independent of the Internet service on site.

The Envoy paired with Mobile Connect provides plug-and-play connectivity to the Enlighten monitoring platform. Mobile Connect includes the following:

- 3G cellular modem, MultiTech Cell 100 Series MTC-H5
- Five-year M2M data plan
- SIM card - industrial grade, pre-configured, tested, and installed
- Antenna (Laird Heptaband)
- USB to mini-USB cable
- Mounting hardware
- Four (4) round, clear plastic or silicone feet, to install as a free-standing modem

Mobile Connect is only for these regions in the US: the contiguous United States, Alaska, Hawaii, Puerto Rico, and the US Virgin Islands.

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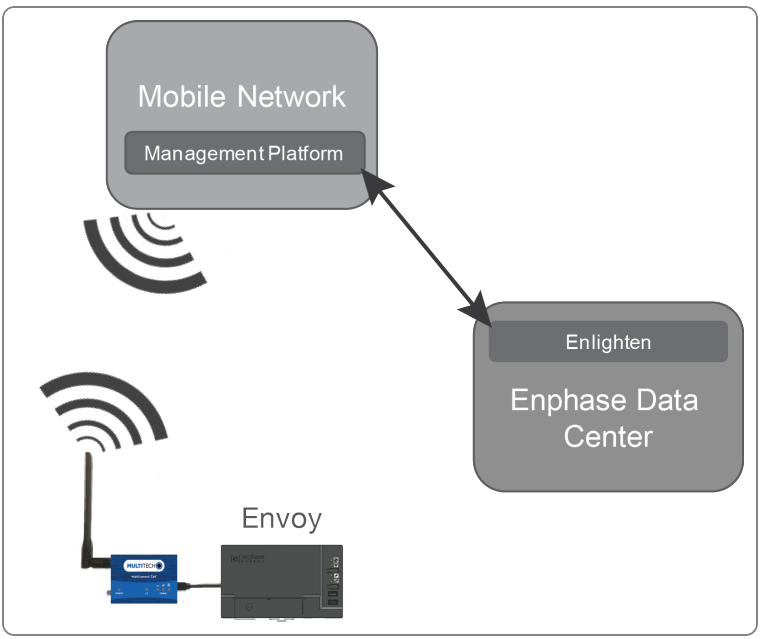
How Mobile Connect Works

The Envoy connects to the modem using a USB cable. The USB cable also powers the modem.

Enphase Mobile Connect is pre-configured for data service and becomes activated when connected to the Envoy.

The Envoy collects module-level production data, system-level production data, and, if available, consumption data, at pre-defined periods of time, typically at 15-minute intervals.

The report setting for an Envoy with Mobile Connect is low bandwidth mode and transmits data to Enlighten four times a day. The transmission times occur within a five-minute window, at 3 am (03:00), 9 am (09:00), 3 pm (15:00), 9 pm (21:00). After transmission, the data may take several minutes to display in Enlighten.



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Installation

Installation Guidelines

- Enphase recommends that you install the Envoy and Mobile Connect in a non-metal enclosure. For outdoor installations, you must use an outdoor-rated (NEMA type 3R or better) enclosure.
- If you use a metal enclosure, then install a dome antenna on the outside of the unit. Contact Enphase Customer Support for suggested dome antenna models.
- Orient the antenna for best reception, typically, a vertical alignment.
- Make sure the pre-installed SIM card is already in the modem before connecting USB cable.
- Although Mobile Connect comes with a Laird Heptaband antenna, you can use other compatible antennas. Contact Enphase Customer Support for suggested antenna models.

Mounting the Modem

Mount the modem, either on a wall using the slide-in tab, or attach the rubber feet and place on a flat surface.

You can mount the modem differently than described here.

Using a Mounting Tab

1. Locate the groove on the bottom of the device.
2. Slide the mounting tab through the groove.
3. Place the modem and tab on the mounting surface.
4. Secure to the surface using the holes at each end of the mounting tab.

Mount the Modem on a Flat Surface

You can also rest the modem on a flat, stable surface using the four plastic feet.

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Connecting the Modem

1. Connect the antenna to the connector labeled CELL on the modem.
2. Connect the mini-USB on one end of the cable to the modem.
3. Connect the other end of the cable to one of the Envoy USB ports.

The power LED lights when the modem has power. After about two minutes, the Link Status LED flashes to indicate a network connection. The Signal LEDs indicate signal strength according to the Signal LED table on page 10.

No additional configuration is needed. The Envoy automatically starts reporting to Enlighten via the cellular modem.

For the Envoy-S, check the Envoy Network Communication LED to verify connectivity to Enlighten. Refer to the *Enphase Envoy-S Installation and Operation Manual* for LED status indications.

⚠ If you have already installed and connected the cellular modem to the Envoy, do NOT move the modem to another Envoy. This de-activates the modem.

✓ If you are having an issue with the MultiTech modem included in Mobile Connect, contact Enphase Customer Support.

Reporting Mode

The report setting for an Envoy with Mobile Connect is low bandwidth mode. If you unplug the cellular modem, the Envoy remains in low bandwidth mode. Contact Enphase Customer Support if you want to configure the Envoy to standard reporting mode. Standard mode is applicable only when the Envoy connects via WiFi or Ethernet.

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MultiTech Status LEDs

This MultiTech modem has the following status LEDs:

- Power
- LS
- Signal

The following tables list LED indicator status. The LEDs may be difficult to see if you view them from an angle. View the LEDs straight on.

Power

LED	Indicates
Off	DC power not present
On	DC power present

LS (Link Status)

LED	Indicates
Off	There is no power to the cellular radio
Continuously lit	DC power present, but not transmitting or receiving.
Slow blink	Powered and searching for a connection
Fast blink	Transmitting or receiving

Signal

LED	Indicates
All Off	Very weak signal
Bar 1 ON	Weak signal
Bar 1 and 2 ON	Good signal
Bar 1, 2, and 3 ON	Very good signal

A weak or very weak signal may be adequate for data transmission. Use the Enphase Installer Toolkit app or the Envoy to confirm the connection to Enlighten.

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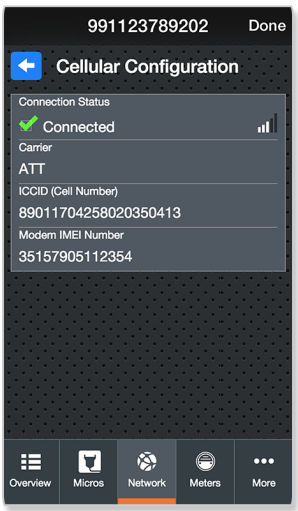
Checking Modem Status

An Envoy with Mobile Connect automatically reports to Enlighten. You can check the status of the modem from the Enphase Installer Toolkit or from Enlighten.

When the Internet connection to the Envoy is made through the cellular modem, the Envoy Network Communications LED lights solid green in the Envoy-S, indicating connection to Enlighten.

Checking the Modem from Installer Toolkit

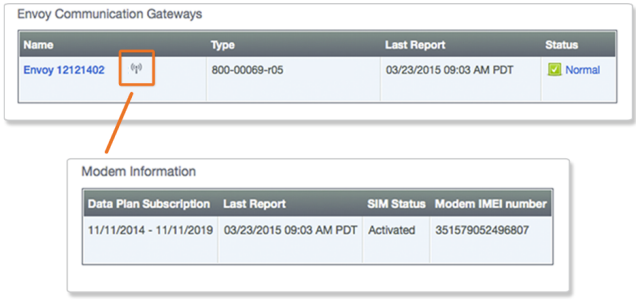
Open the Enphase Installer Toolkit app. Tap **Network** > **Cellular**. The cellular modem information displays.



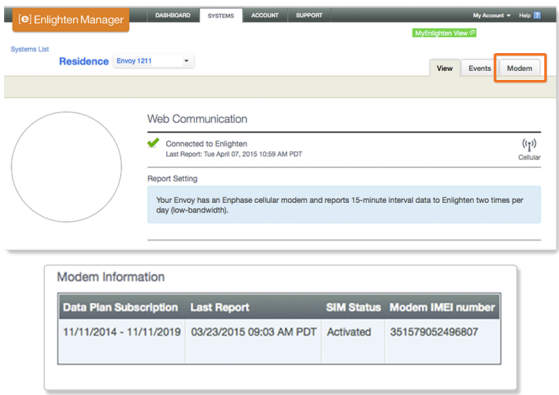
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Checking the Modem from Enlighten

1. Log in to Enlighten Manager.
2. Select a system.
3. Choose the **Devices** tab.
   a. Click the **Cellular** icon next to the Envoy serial number. The modem information displays.

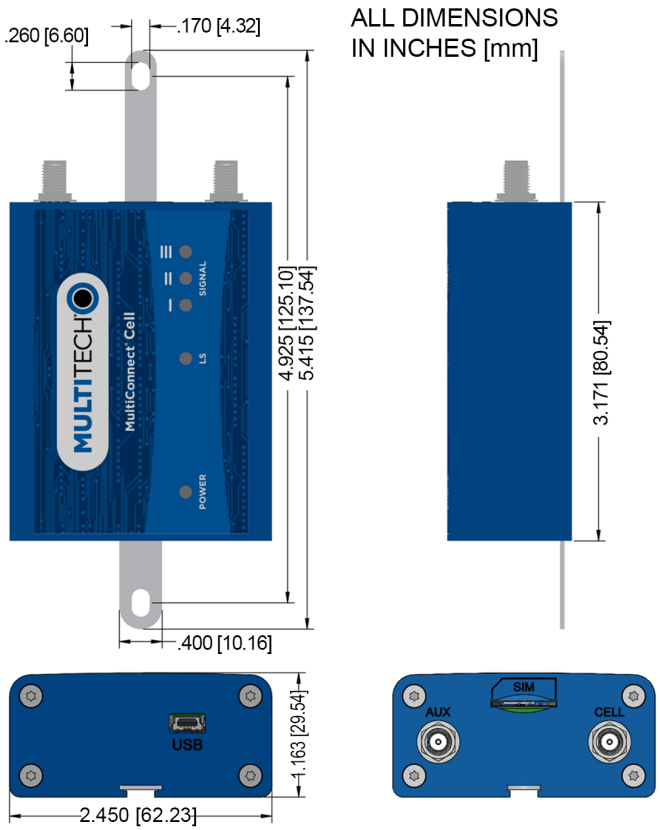


   b. Or, click the Envoy serial number to view the Envoy page. Select the **Modem** tab. The modem information displays.



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About the MultiTech Modem



✓ If you are having an issue with the MultiTech modem included in Mobile Connect, contact Enphase Customer Support.

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Troubleshooting

Issue	Action
No communication with Enlighten after connecting the cellular modem to the Envoy.	1. Disconnect the USB cable. 2. Power cycle the Envoy. 3. Wait until the Envoy boots completely. 4. Reconnect the cellular modem USB cable.
I want to disconnect the modem and re-use it at a different site.	Moving the modem to an Envoy at a different site de-activates the modem. Contact Enphase Customer Support if you need to re-install the modem at a different site.

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Regulatory Notices

Antenna - Wireless Products only

The antenna intended for use with this unit meets the requirements for mobile operating configurations and for fixed mounted operations, as defined in 2.1091 and 1.1307 of the FCC rules for satisfying RF exposure compliance. If an alternate antenna is used, please consult user documentation for required antenna specifications.

47 CFR Part 15 Regulation

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and
- receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the 47 CFR rules. Operation of this device is subject to the following conditions: (1} This device may not cause harmful interference, and (2} this device must accept any interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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May 2015

140-00068-02

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