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# M1-06 Enphase Mobile Connect Installation Guide

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# Enphase

## M1-06 Enphase Mobile Connect



## Installation Guide

Enphase Mobile Connect Installation Guide (M1-06)

This guide provides instructions on how to install the Enphase™ Mobile Connect cell modem CELLMODEM-M1-06 family with the Enphase Envoy-S and the Enphase IQ Gateway for North America. This guide is intended for use by professional installation personnel. For details about the Envoy-S or IQ Gateway, refer to the Installation and Operation Manual. Read all safety warnings before installing the Enphase Mobile Connect cell modem (hereafter referred to as Mobile Connect).



### How Enphase Mobile Connect works

The Enphase Mobile Connect is a modem package that connects to the Enphase Envoy-S or IQ Gateway, and eliminates the need for an on-site Internet connection to monitor an Enphase Microinverter System. The addition of The Enphase Mobile Connect to an Enphase System enables greater installation flexibility and provides reliable system monitoring independent of the Internet service on site. The Enphase Mobile Connect is preconfigured for data service and becomes activated when connected to the IQ Gateway. The IQ Gateway collects module-level and system-level production data, and, if configured, consumption data, at predefined periods of time, typically at 15-minute intervals. The report setting for an IQ Gateway with The Enphase Mobile Connect is low bandwidth mode, which transmits data to Enphase App 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 Enphase Enlighten™ monitoring platform.

### About the Enphase Mobile Connect

The IQ Gateway paired with the Enphase Mobile Connect provides plug and play connectivity to the Enphase Enphase App monitoring platform. The Enphase Mobile Connect includes the following:

- 4G-LTE CAT M1/2G CELLMODEM-M1-06 family (indicated by SKU format CELLMODEM-M1-06-AB-CD, where AB and CD can change) with Five-year M2M data plan. CELLMODEM-M1-06-AT-05 has AT&T SIM and CELLMODEM-M1-06- SP-06 has T-Mobile data plan
- SIM card – industrial grade, preconfigured, tested, and installed
- USB cable: 2.3 foot USB type A Female to Type A Male. The IQ Gateway connects to the modem using this cable, which also powers the modem.
- Mounting hardware (plastic mounting rail and two rivets)

The Enphase Mobile Connect (CELLMODEM-M1-06) is designed to install inside an Enphase Combiner, Enphase Combiner +, Enphase Combiner 3, Enphase Combiner 3C, Enphase Combiner 3C-ES, Enphase Combiner 4C or on a table top. Supported combiner models include IQ Combiner (X-IQ-AM1-240-B), IQ Combiner + (X-IQ-AM1-240-2), IQ Combiner 3 (X-IQ-AM1-240-3), IQ Combiner 3C (X-IQ-AM1-240-3C), IQ Combiner 3C-ES (X-IQ-AM1-240-3CES) AND IQ Combiner 4C (X-IQ-AM1-240-4C). Supported IQ Gateway models include IQ Gateway for North America (ENV-IQ-AM1-240), Envoy-S Standard for North America (ENV-S-AB-120-A), Envoy-S Metered for North America (ENV- S -AM1-120), IQ Gateway Standard for Rest of the World (ENV-S-WB-230), IQ Gateway Metered for Rest of the World (ENV-S-WM-230). Both Sprint/T-Mobile and AT&T variants provide coverage in regions where there is adequate cellular service in installation area, including the US, Canada, Mexico, Puerto Rico, the US virgin islands, Australia, New Zealand, France, United Kingdom, Netherlands, Germany, Austria, Belgium, Switzerland, Spain, Portugal, and Italy

### CELLULAR MODEM TERMS AND CONDITIONS

These following Cellular Modem Terms and Conditions ("Terms and Conditions") will apply to anyone who purchases and/or uses ("you", "your") the Enphase Cell Modem to enable internet connectivity for an Enphase IQ Gateway device ("Cell Modem Terms"). These Cell Modem Terms are incorporated into and made an integral part of the

## Agreement.

- Cellular Modem Description, Use, Unauthorized Use Limitation on Use. The Cellular Modem must be used only in conjunction with Enphase's IQ Gateway/IQ Combiner products. The Cellular Modem shall not be used for any unlawful purpose(s).
- Limited Warranty. The Cellular Modem comes with and is covered by a 5-year Limited Warranty which is included in the standard Enphase Limited Warranty which can be found at [www.enphase.com/warranty](http://www.enphase.com/warranty) ("Limited Warranty"). Except as expressly provided in this Section, to the maximum extent permitted by applicable law, the Cellular Modem is provided on an "AS IS" basis without warranty whatsoever, and Enphase expressly disclaims all warranties, express, implied, and statutory including the implied warranties of merchantability, satisfactory quality, fitness for a particular purpose, title, and non-infringement. Any use of the Cellular Modem other than as expressly stated in these Terms and Conditions shall constitute a breach of the limited warranty and render it null and void. The Cellular Modem will contain a SIM card provided by a network provider. The SIM Card (a) must not be removed from the Cellular Modem, nor (b) used with any other device. Any such removal or use shall constitute a breach of the limited Warranty and render the Limited Warranty null and void.
- Territory. The Cellular Modem shall only be used in the countries listed on this quick installation guide (QIG). Enphase in its sole discretion reserves the right to amend the QIG to add or delete counties wherein the Cellular Modem may be used.
- Network Coverage. Network Coverage is dependent upon network availability which is the responsibility of the network service provider. Enphase shall have no responsibility, nor any liability to any end user for network service provider's non-coverage, lack of coverage, defective coverage, or termination of the coverage.
- Connectivity. Cellular Modem connectivity is subject to the telecommunication regulations and policies and terms of the network service providers, and the applicable laws of the country in which the Cell Modem is located and installed. Enphase makes no representation or warranties as to such connectivity and Enphase shall have no responsibility, nor any liability to you for network service provider's failure to provide connectivity nor any responsibility or liability due to network service provider's termination of connectivity.
- Acceptable Use Policy. You must conform to the applicable acceptable use policy ("AUP") posted on the applicable network providers website, and you alone will be responsible for ensuring compliance with its terms. You will indemnify, defend and hold Enphase harmless against any claims or losses suffered by Enphase because of your breach of the AUP.

### For Cell Modems with:

- AT & T connectivity – The terms available at <https://www.att.com/legal/terms.aup.html> shall apply.
- T-Mobile connectivity – The terms available at <https://www.sprint.com/en/legal/acceptable-use-policy.html>

## General Safety

- Risk of electric shock. Risk of fire. Do not attempt to repair the
- Enphase Mobile Connect; it contains no user-serviceable parts. Tampering with or opening the Enphase Mobile Connect will void the warranty.
- Warranty void if cover removed. If the Enphase Mobile Connect fails, contact
- Enphase Customer Support for assistance (<https://enphase.com/contact/support>).
- Risk of electric shock. Do not use Enphase equipment in a manner not specified by the manufacturer. Doing so may cause death or injury to persons, or damage to equipment.
- Perform all installation in accordance with all national and local regulations regarding the use of radio equipment.
- This cellular device may cause interference with other electronic equipment if the equipment is inadequately protected.
- Follow restrictions imposed for any environment in which the device may operate, such as fuel depot, chemical plants, or where blasting operations are in process.

### 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. 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 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).

### **Device Maintenance**

- **DANGER:** Risk of electric shock. Risk of fire. Only qualified personnel should troubleshoot the Enphase Mobile Connect cell modem.
- **DANGER:** Risk of equipment damage. Choose an area for installation where the ambient temperature does not exceed 46° C.
- **WARNING:** To ensure optimal reliability and to meet warranty requirements, you must install the Enphase Mobile Connect according to the instructions in this guide.
- **WARNING:** Risk of equipment damage. Exposure to liquids can damage the cell modem.
- **WARNING:** DO NOT place the cell modem near computer discs, credit or travel cards or other magnetic media. It may affect the information contained in the magnetic media.

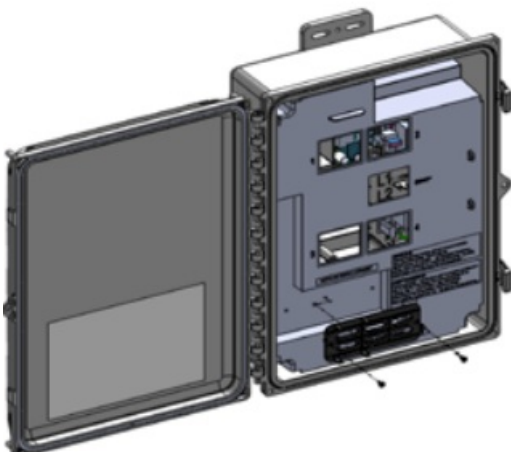
### **Guidelines**

- Enphase recommends that you install the IQ Gateway (Or Envoy-S) and the Enphase Mobile Connect in a non-metal enclosure.
- For outdoor installations, you must use an outdoor rated enclosure.
- Only IQ Gateway software 7.X and later support the CELLMODEM-M1-06. Updating IQ Gateway software can take up to 30 minutes, so be sure to do this before installing Enphase Mobile Connect CELLMODEM-M1-06

### **Mounting the Modem**

#### **Inside IQ Combiner series**

- Open the IQ Combiner and locate the mounting recess on the dead front of the IQ Combiner.
- Remove the black rivets and existing cellular modem (if present) from the IQ Combiner dead front and discard them.
- Attach the mounting tab to the combiner using the included snap rivets.
- Position the new modem (CELLMODEM-M1-06) on the mounting tab and snap it on



### **Mounting the modem on a wall or flat surface**

Enphase recommends that you install the IQ Gateway and Mobile Connect in a non-metal enclosure. For outdoor installations, you must use an outdoor rated enclosure. (NEMA 3R/IP54) The IQ Gateway data sheets and installation guides list acceptable enclosure types. Mount the modem, either on a wall using the mounting rail, or attach the rubber feet and place on a flat surface. You can mount the modem differently than described here.

### **Using a Mounting rail**

- Place the mounting rail on the mounting surface.
- Secure to the surface using the holes at each end of the mounting tab
- Slide the modem into the groove in the mounting rail.

**Mount the Modem on a Flat Surface** You can also rest the modem on a flat, stable surface using the four rubber feet, with the status LEDs pointing up.

### **Connecting the USB Cable**

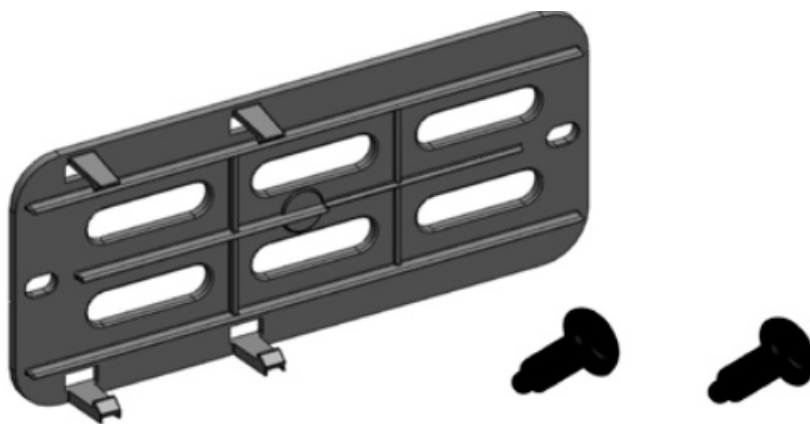
The modem power LED lights when the modem has power. After about two minutes, the Link Status LED flashes to indicate a network connection. The Signal LEDs indicate signal strength according to the Signal LED table. No additional configuration is needed. The IQ Gateway automatically starts reporting to Enlighten via the cellular modem. On the Envoy-S or IQ Gateway, check the Network Communication LED to verify connectivity to Enlighten. See the first page of this document for IQ

- First, connect the USB cable to the USB port(s) on the IQ Gateway.
- Then, connect the type A USB connector to the Enphase Mobile Connect.

### **Checking Connection Status and Cellular Signal Strength**

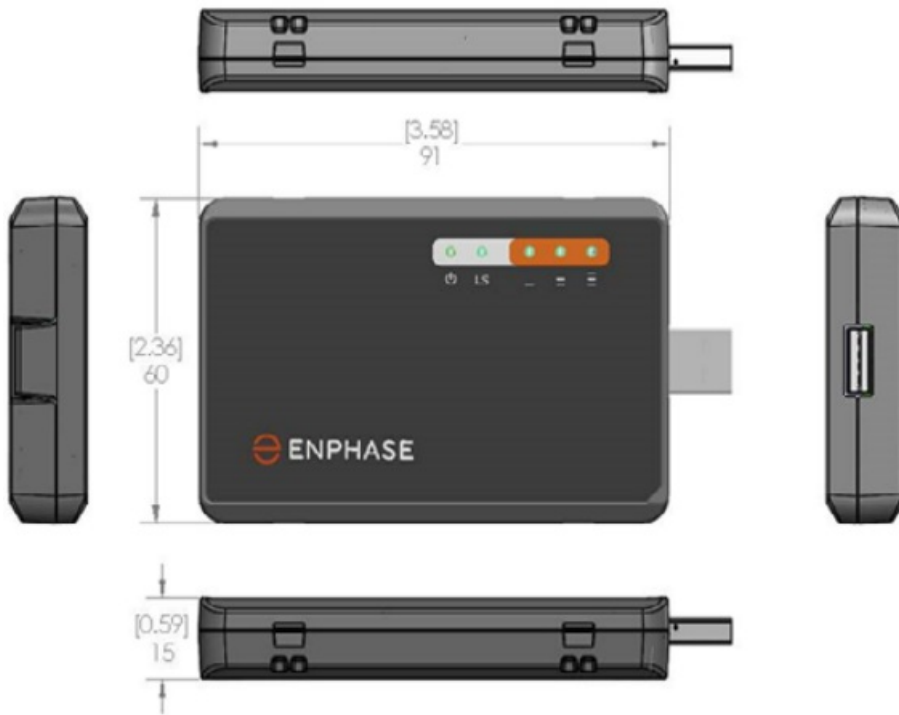
An IQ Gateway with the Enphase Mobile Connect automatically reports to Enlighten. When the IQ Gateway establishes an Internet connection through the cellular modem, the IQ Gateway Network Communications LED lights solid green. You can use the Enphase Installer App to check the modem status and cellular signal strength. The IQ Gateway's AP (Access Point) Wi-Fi network allows you to connect your mobile device (smart phone or tablet) to the IQ Gateway

- On the IQ Gateway, the AP Mode LED lights solid green when the network is available. If the AP Mode LED is not lit, press the AP Mode button.
- On your mobile device, go to Settings and join the Wi-Fi network "IQ Gateway\_nnnnnn" (where "nnnnnn" represents the final six digits of the IQ Gateway serial number).
- Launch Enphase Installer App and tap Connect to IQ Gateway.
- Tap Network.
- Under Network Configuration, tap Cellular. The app displays Connection Status and an indication of signal strength.
- Check the connection status and verify that signal strength is at least two bars for adequate data transmission.



**Mounting Rail and Rivets**

### **Enphase Mobile Connect Dimensions**



### Checking the Cell Modem Status LEDs

The modem has the following status LEDs

- Power
- Link
- Signal

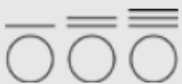



LED	Indicates
Off	DC power not present
On	DC power present

### Power

### Link

LED	Indicates
Flashing slowly (200ms high/1800ms low)	Network searching
Flashing slowly (1800ms high/200ms low)	Idle
Flashing quickly (125ms high/125ms low)	Data transfer is occurring

### Signal

LEDs	Description	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

Issue	Action
No communication with Enphase App after connecting the cellular modem to the IQ Gateway.	<ol style="list-style-type: none"> <li>1. Disconnect the USB cable.</li> <li>2. Power cycle the IQ Gateway.</li> <li>3. Wait until the IQ Gateway boots completely.</li> <li>4. Reconnect the cellular modem USB cable.</li> </ol>
I want to disconnect the modem and re-use it at a different site.	Moving the modem to a different IQ Gateway deactivates the modem. Contact Enphase Customer Support if you need to re-install the modem at a different site.

## Troubleshooting

### Environmental Protection

ELECTRONIC DEVICE: DO NOT THROW AWAY. Waste elec – trical products should not be disposed of with household waste. Refer to your local codes for disposal requirements.

### EMC, Safety, and R&TTE Directive Compliance

The CE mark is affixed to this product to confirm compliance with the following European Community Directives: Council Directive 2004/108/EC of 15 December 2004 on the approximation of the laws of Member States relating to electromagnetic compatibility; and Council Directive 2006/95/EC of 12 December 2006 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits; and Council Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment; and Council Directive 1999/5/EC of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

### Restriction of the Use of Hazardous Substances (RoHS)

- Enphase Energy, Inc.
- Certificate of Compliance
- 2011/65/EU

Enphase Energy, Inc. confirms that its embedded products comply with the chemical concentration limitations set forth in the directive 2011/65/EU of the European Parliament (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment – RoHS).

### These Enphase products do not contain the following banned chemicals:

- Lead<sup>1</sup>, [Pb] < 1000 PPM
- Mercury, [Hg] < 1000 PPM
- Hexavalent Chromium, [Cr+6] < 1000 PPM
- Cadmium, [Cd] < 100 PPM



- Polybrominated Biphenyl, [PBB] < 1000 PPM
- Polybrominated Diphenyl Ether, [PBDE] < 1000 PPM

### Environmental Considerations:

- Moisture Sensitivity Level (MSL) =1
- Maximum Soldering Temperature = 260C (in SMT reflow oven)
- <sup>1</sup>Lead usage in some components is exempted by the following RoHS annex, therefore higher lead concentration would be found in some modules (>1000 PPM);
- Resistors containing lead in a glass or ceramic matrix compound.

### FCC

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, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the cell modem.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Contact Enphase Customer Support for assistance ( <https://enphase.com/contact/support> ).

### Documents / Resources



**[ENPHASE M1-06 Enphase Mobile Connect](#)** [pdf] Installation Guide

M1-06 Enphase Mobile Connect, M1-06, M1-06 Mobile Connect, Enphase Mobile Connect, Mobile Connect, Enphase Mobile

### References

- [AT&T Official Site - Unlimited Data Plans, Internet Service, & TV](#)
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