


7 Send system summary report

When you have completed your system setup, you can generate and email a summary report.

- From Enphase Installer App, tap **Done** on the upper-right corner of the screen to disconnect from the Envoy. Enphase Installer App will ask if you want to view a summary report.
- Tap **View Report**. The report displays Envoy-S and system information with a list of device serial numbers, their last power reports, and information about the grid profile applied to the devices.
- Tap  to email the report as a record of successful system installation and for evidence of grid profile settings.

8 Activate monitoring

Register the Envoy-S in Enphase Installer Platform at enlighten.enphaseenergy.com.

Method A: If the Envoy-S is associated with a system in Enphase Installer App

- On your mobile device, go to Settings and disconnect from the Envoy's Wi-Fi network.
- Return to the Enphase Installer App and tap the **Sync** button on the System Overview screen.

TROUBLESHOOTING

a LED overview

LED	State	Description
All	Flashing amber in unison	The Envoy-S is booting up
	Flashing green sequentially	Software upgrade in progress
Network communications	Solid green	Communicating with Enphase Installer Platform
	Flashing green	WPS connection in progress, or the Envoy-S is attempting to connect to Enphase Installer Platform
	Solid amber	Local network connection only
AP mode	Off	No network connection
	Solid green	AP mode enabled: Envoy-S Wi-Fi network available
Power production	Off	AP mode disabled: Envoy-S Wi-Fi network unavailable
	Solid green	All communicating microinverters are producing
	Flashing green	Microinverter upgrade in progress
Device communications	Solid Amber	At least one microinverter is not producing
	Off	Microinverters are not producing or communicating (low light or nighttime)
	Solid Green	All devices are communicating
Device communications	Flashing Green	Device scan in progress
	Solid Amber	At least one device is not communicating
	Off	Devices are not communicating (low light or nighttime)

b Device detection issues

If the Device Communications LED  lights solid amber, it may be a result of low light levels. If there isn't enough sunlight to power up the microinverters, they can't communicate with the Envoy.

If there is sufficient daylight for the microinverters to power up, the issue may be that the Envoy-S is having difficulty communicating over the power lines. To troubleshoot this issue:

- Check the Enphase Installer App to see which devices are not communicating.
- Check that the circuit breakers for the PV array are switched on.
- Verify that the PV modules are connected to the microinverters.
- Verify the PV module DC voltage is within the allowable range for the microinverter.

C) Log in to Enphase Installer Platform and select the system name from the **Activation** list on the dashboard.

D) From the activation form, open **Array Builder**.

If you used Enphase Installer App to build arrays and scan device serial numbers, the arrays are built—make any necessary adjustments in Array Builder.

If you did NOT use Enphase Installer App to build arrays and scan device serial numbers, create a virtual array in Array Builder using the installation map as your reference. (You may need to wait if the devices have not yet reported to Enphase Installer Platform.)

Method B: If the Envoy-S is NOT associated with a system in Enphase Installer App

- Log into Enphase Installer Platform and click **Add a New System** on the dashboard.
- Enter the System, Installer, Owner, and Location information.
- Enter the Envoy-S serial number.
- Click **Save** to submit the form.
- After the devices have reported to Enphase Installer Platform, open Array Builder from the activation form, and create a virtual array using the installation map as your reference.

c Power production issues

If the Power Production LED  lights solid amber, check the Enphase Installer App to see which microinverters are not producing:

- If none of the microinverters are producing power, there may be a grid or wiring issue. First, verify that there is proper input voltage and frequency from the grid. Next, check the breaker and wiring, starting at the load center.
- If all the non-productive microinverters are on the same branch, check the breaker and wiring starting at the junction box for the affected branch.
- If only one or scattered microinverters are not producing power, first check to see that the AC connectors are fully connected. Next, check that each module is providing the required startup voltage for the microinverter (22 V). A PV module that is failing or that is undersized may not generate enough power for AC conversion.

d Internet connection issues

If you are using Wi-Fi and the Network Communications LED  remains off:

- The WPS connection window may have timed out. Retry the connection steps.
- Make sure that the broadband router is operational by checking that other devices at the site can access the network.
- Be aware that metal enclosures or obstructions impede wireless communication.
- If you cannot see your router or access point in the list on Envoy, or cannot maintain a connection, it may be necessary to add a wireless repeater to extend the network range.

If you are using Wi-Fi and the Network Communications LED lights solid amber, make sure that the broadband router is connected to the internet by checking that other devices at the site can access the internet.




If you are using the Enphase Mobile Connect modem and the Network Communications LED remains off or lights solid amber, see *Troubleshooting in the Enphase Mobile Connect Installation Guide*.

For any connection method, you can troubleshoot network issues using Enphase Installer App by tapping the **Network** button, and then **Diagnostic Tools**.

If you replace the broadband router, configure the Envoy-S Wi-Fi settings for the new Wireless Network Name (SSID) and password. Or use the WPS function described in step 6.

SAFETY

Safety and Advisory Symbols

	DANGER: This indicates a hazardous situation, which, if not avoided, will result in death or serious injury.
	WARNING: This indicates a situation where failure to follow instructions may be a safety hazard or cause equipment malfunction. Use extreme caution and follow instructions carefully.
	NOTE: This indicates information particularly important for optimal system operation. Follow instructions carefully.

Safety Instructions

	DANGER: Risk of electric shock. Risk of fire. Do not attempt to repair the Envoy-S; it contains no user-serviceable parts. Tampering with or opening the Envoy-S will void the warranty. Warranty void if cover removed. If the Envoy-S fails, contact Enphase Support for assistance (enphase.com/contact/support).
	DANGER: Risk of electric shock. Always open or disconnect circuit from power distribution system (or service) of building before installing or servicing current transformers (CTs).
	DANGER: Risk of electrocution! Do not install CTs when current flowing in the sensed circuit. Always install CT wires in the terminal blocks before energizing the sensed circuit.
	DANGER: 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.
	DANGER: Risk of electric shock. Be aware that installation of this equipment includes risk of electric shock. Always de-energize the load center before beginning wiring.
	DANGER: Risk of electric shock. Risk of fire. Only qualified personnel should troubleshoot, install, or replace the Envoy-S.
	DANGER: Risk of electric shock. Risk of fire. Do not wire unused terminals or terminal blocks on the Envoy-S.
	WARNING: Before installing or using the Envoy-S, read all instructions and cautionary markings in the technical description and on the Envoy-S.
	WARNING: Risk of equipment damage. If installing the Envoy-S in an enclosure, choose an area where the ambient temperature does not exceed 46°C (115°F).
	NOTE: Do not install the CTs in a panel where they exceed 75% of the wiring space of any cross-sectional area within the panel, or refer to local standards for guidance.
	NOTE: Do not install CTs in an area where they will block ventilation openings, or in area of breaker arc venting.
	NOTE: The CTs are not suitable for Class 2 wiring methods and not intended for connection to Class 2 equipment.
	NOTE: Secure CT and route conductors so that they do not directly contact live terminals or bus.
	NOTE: Perform all electrical installations in accordance with all national and local electrical codes.
	NOTE: To ensure optimal reliability and to meet warranty requirements, the Enphase Envoy-S must be installed according to the instructions in this guide.

FCC Statement: 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 receiving antenna.
- 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.
- Consult the dealer or an experienced radio/TV technician for help.

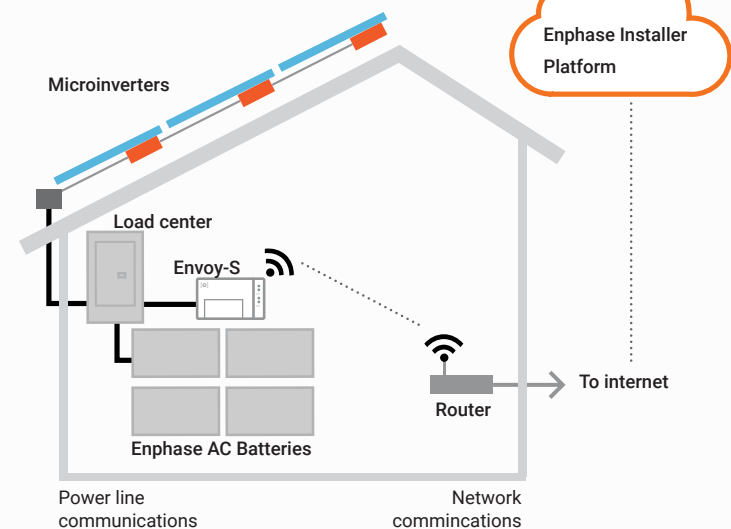
Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

This Class B digital apparatus complies with Industry Canada ICES-003.


Installing the Enphase Envoy-S Metered

To install the Enphase Envoy-S, read and follow all warnings and instructions in this guide. Safety warnings are listed on the back of this guide.

How it works



Envoy-S display and controls

Track the system installation progress using Enphase Installer App. The LEDs on the Envoy-S are solid green when a function is enabled or performing as expected. They flash when an operation is in progress and solid amber when troubleshooting using Enphase Installer App is required. For a legend of all LED states, see *Troubleshooting* .



Network Communications LED
Green when Envoy-S is connected to Enphase Installer Platform.



AP Mode LED
Green when Envoy's AP Wi-Fi network is available.



AP Mode Button
Press to enable Envoy's AP Mode for connecting with a mobile device. Hold for 5 seconds to start WPS connection to a router.



Power Production LED
Green when microinverters are producing power.



Device Communications LED
Green when devices are communicating with Envoy-S.



Device Scan Button
Press to start/stop a 15 minute scan for devices over the power line.



Preparation

- Download the Enphase Installer App and open it to log in to your Enphase Account. With this app, you can connect to the Envoy-S to track system installation progress. To download, go to enphase.com/installers/apps or scan the QR code at the right.
- Download the latest version of the software to your mobile device. To do so, go to the **Envoy Resources** screen in the Enphase Installer App **Settings**.
- Check the box for the following items:
 - Enphase Envoy-S Metered
 - Solid-core production metering current transformer (CT)
 - DIN rail for mounting
 - Installing the Enphase Envoy-S Metered QIG* (this document)
- If you plan to do consumption metering, make sure you have two split-core consumption metering CTs (order CT-200-SPLIT).
- Check that there is enough space in the load center to install CTs. Do not install CTs where they exceed 75% of the wiring space of any cross-sectional area within the load center.
- Install the Envoy-S in an NRTL-certified, NEMA type 3R (or better) enclosure with conduit attachment when installing outdoors. Do not drill holes on the top of the enclosure or anywhere that allows moisture ingress. Metallic enclosures may impair Wi-Fi signal strength. Use an appropriately rated enclosure if installed indoors.
- Decide how to connect the Envoy-S to the internet: Use Wi-Fi, an Enphase Mobile Connect modem, or Ethernet. Then, make sure you have the following optional items if needed:
 - Enphase Mobile Connect modem [order CELLMODEM-01 (3G) or CELLMODEM-03 (4G)]
 - Ethernet over power line communication (PLC) bridge with Ethernet cables (order EPLC-01). You must use a ferrite bead on the Ethernet cable (we recommend Fair-Rite 0431167281).
 - Ethernet cable [802.3, Cat5E or Cat6, unshielded twisted pair (UTP)]. Do not use a shielded twisted pair (STP) cable. You must use a ferrite bead on the Ethernet cable (we recommend Fair-Rite 0431167281).
- Create a paper installation map to record device serial numbers and positions in the array. You will scan this map later using Enphase Installer App and your mobile device.
 - As you do with the microinverters (and Enphase AC Batteries, if installed), peel the removable label from the bottom of the Envoy-S and affix it to the paper installation map.
 - Always keep a copy of the installation map for your records.
- Installation of the Envoy-S has two parts. To ensure successful device detection, complete Part 2 after installing any Enphase microinverters and Enphase AC Batteries.

NOTE: If needed, you can find an installation map at the back of the *Enphase Microinverter Quick Install Guide*.

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Enphase Support: <https://enphase.com/contact/support>

INSTALLATION – Part 1

It is best practice to complete Installation Part 1 before installing Enphase Microinverters and Batteries.

NOTE: For step 2, refer to the wiring diagram on the next page.

1 Choose a location for the Envoy-S

WARNING: Risk of equipment damage. When installing the Envoy-S in an enclosure, choose an area where the ambient temperature does not exceed 46°C (115°F).

- Install the Envoy-S near the main load center or PCC (point of common coupling), and consider the length of the Production CT leads (5 feet) when choosing the location. Do not extend the leads of the Production CT.
- Install the Envoy-S in a protected dry space in an NRTL-certified, NEMA-type 3R (or better) enclosure with conduit attachment. Use an appropriately rated enclosure if hard wiring the Envoy-S indoors.

NOTE: Metallic enclosures may impair Wi-Fi signal strength.

- Mount the Envoy:
 - Mount it horizontally using the included DIN rail.
 - To wall-mount, use two #8 screws and a screwdriver. Mount the DIN rail first, then clip the Envoy-S to the DIN rail.

2 Wire Envoy-S for power and metering

The Envoy-S uses terminal blocks for power and metering connections. One solid-core CT is provided for revenue-grade production metering. Two optional split-core CTs can be used to provide consumption metering. Use a protected route in conduit for the CT wires from the main load center to the Envoy-S. Do not extend the leads of the Production CT.



DANGER! Risk of electric shock. Always de-energize circuits before wiring for power and CTs.

DANGER! Risk of electrocution! Do not install CTs when current is flowing in the sensed circuit. Always install CT wires in the terminal blocks before energizing the sensed circuit.

NOTE: When installing CTs, it is important to match CT and sense voltage phases. Identify the two AC lines at three points: the main load center feed, the Envoy, and the solar production circuit breaker. Wire colors (typically black and red) may not always identify L1 and L2. If in doubt, use a multimeter to check.

NOTE: Because of variance in load center design and main power feed, there may not always be enough space to install consumption metering CTs.

- Wire the Envoy-S for power.
 - Use a 15 A maximum circuit breaker for the supply wiring.
 - Make sure the supply wiring is 14 AWG copper rated at 75°C or better.
 - Locate the screw on the left side of the terminal block door, and loosen it with a screwdriver to unlock the door.
 - Flip open the terminal block door and wire the line and neutral conductors as shown. (Connect Line 1 to L1, Line 2 to L2, and Neutral to N.) Tighten to 5 in-lb.

- Install the CT for production metering.
 - Use only the CT that came with the Envoy-S. It is marked with the same serial number as the Envoy-S.
 - Place the CT near L1 of the solar production circuit and make sure the circuit is not energized (breaker OFF).
 - Locate the arrow on the CT label.
 - Connect the white wire to the left P1 terminal.
 - Connect the blue wire to the right P1 terminal.
 - Tighten all connections to 5 in-lb.

- Pass the L1 wire through the CT in the same direction as the arrow on the side of the CT on Line 1 (matching Envoy-S L1 voltage terminal) of the solar production circuit with the arrow pointing toward the load (away from the solar array).

- Install CTs for consumption metering (optional).
 - Make sure that the main load center wires are de-energized until

NOTE: Do not pass conductors from AC battery branch circuits through the Production CT. This will distort production readings.

- you have secured the CT wires in the terminal blocks.
- Before running the CT wires through the conduit, use colored tape to mark one of the CTs and the free end of its wires.
 - For the marked CT, connect the white wire to the upper C1 terminal and the blue wire to the lower C1 terminal.
 - For the unmarked CT, connect the white wire to the upper C2 terminal and the blue wire to the lower C2 terminal.
 - Tighten all connections to 5 in-lb.
 - Clamp the marked CT on the load center feed wire Line 1 (matching the Envoy's L1 voltage terminal) with the CT arrow pointing toward the load (away from the grid).
 - Clamp the unmarked CT on the load center feed wire Line 2 (matching the Envoy's L2 voltage terminal) with the CT arrow pointing toward the load (away from the grid).

3 Energize and update Envoy-S

- Close the terminal block door, and secure it with the screw.
- Turn on the circuit that feeds the Envoy-S.
- On the Envoy, 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 **Envoy_nnnnnn** (where **nnnnnn** represents the final six digits of the Envoy-S serial number).
- The app informs you if the software on the Envoy is not the latest version by displaying the Envoy software update message. If the app displays this message, follow the on-screen instructions to update the Envoy.

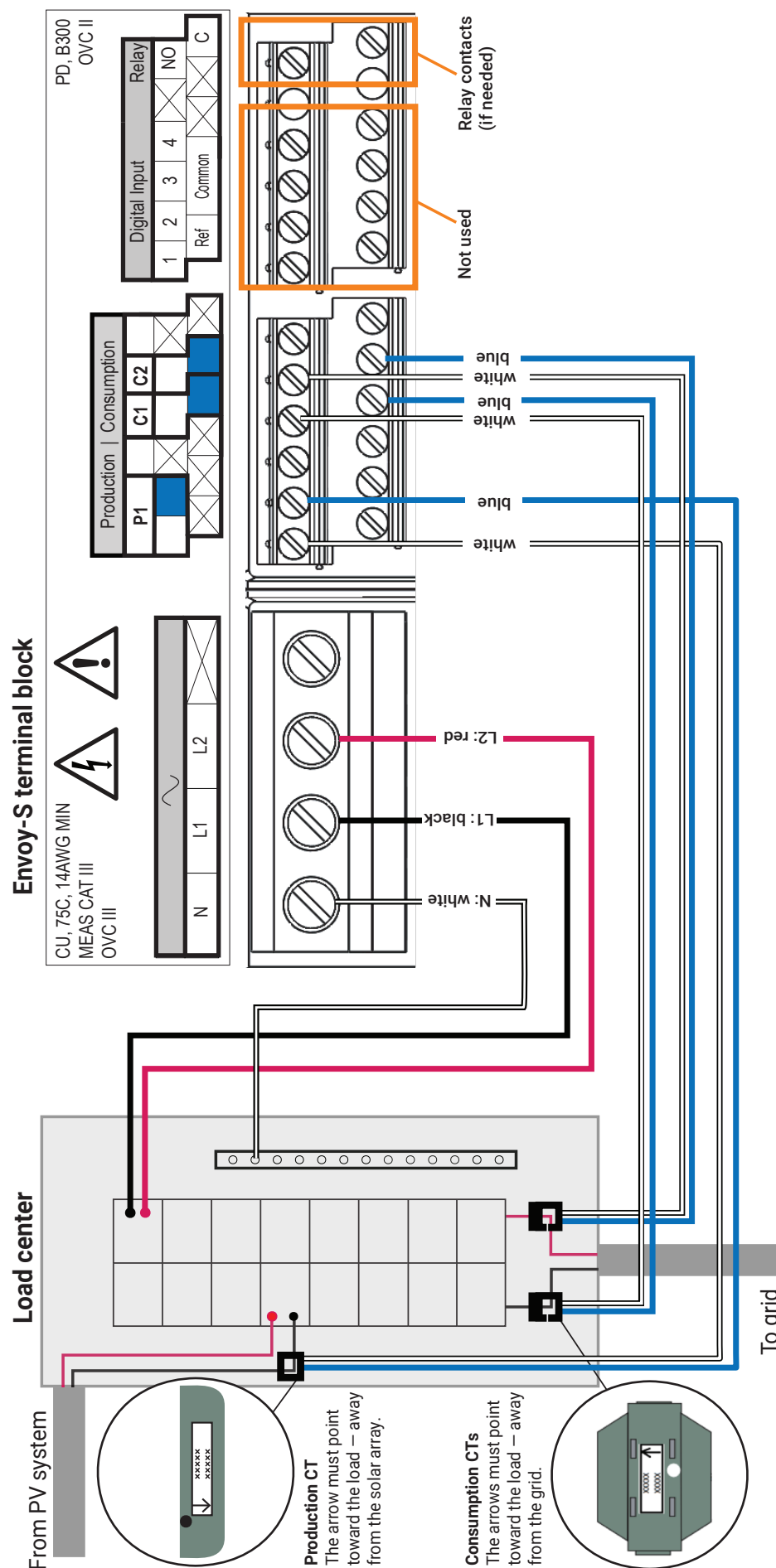
WARNING: Do not remove power from the Envoy-S during the update.

- For a short period (5–10 minutes), you must keep your mobile device near the Envoy. Follow the on-screen instructions while the update takes place.

The update may take up to 20 minutes. The Envoy reboots several times during the update and the LEDs light up in varied sequences until the update is complete.

After the update is finished and the PV system is installed, the Envoy is ready for Installation Part 2.

All four LEDs flash amber during boot up (approximately 3 minutes). When the boot up is complete, the Device Communications LED lights solid amber, indicating that devices are not yet detected.



INSTALLATION – Part 2

You must complete Installation Part 2 after installing the PV system.

4 Detect devices

Use one of the following methods to detect devices (Enphase microinverters and Enphase AC Batteries).

Method A: Provision devices using Enphase Installer App

Use the Enphase Installer App to configure the Envoy-S with the serial numbers of the installed devices.

- Launch the Enphase Installer App and tap **Systems**.
 - Select the system you are working with, or tap **+** to add a new system.
 - Connect to the Envoy-S using your mobile device (smartphone or tablet). The AP Mode LED lights solid green when the network is available.
 - On the Envoy, 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 **Envoy_nnnnnn** (where **nnnnnn** represents the final six digits of the Envoy-S serial number).
 - If the serial number for the Envoy you are installing is not displayed on the System Overview screen, tap the **+** sign next to "Envoys". When the app displays the serial number of the Envoy, tap it to add it to the system.
 - Follow the on-screen instructions to create the arrays and scan the serial numbers from the installation map.
 - Tap the **Connect** button. This provisions the scanned devices on the Envoy.
 - When prompted, confirm the number of devices that you installed.
 - If your system requires a region-specific grid profile, select and apply a grid profile to the devices. (Systems in Hawaii and systems with Enphase Batteries require you to set a profile.)
- The Device Communications LED lights solid green if all the provisioned devices are communicating or solid amber if any devices are not communicating.

Method B: Discover devices using Enphase Installer App

Use the Enphase Installer App to set the number of devices the Envoy-S should search for on the power line.

- Connect to the Envoy-S using your mobile device (smartphone or tablet). The AP Mode LED lights solid green when the network is available.
 - On the Envoy, 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 **Envoy_nnnnnn** (where **nnnnnn** represents the final six digits of the Envoy-S serial number).
- Launch Enphase Installer App and tap **Connect to an Envoy**.
- When prompted, enter the number of devices that you installed.
- If your system requires a region-specific grid profile, select and apply a grid profile to the devices. (Systems in Hawaii and systems with Enphase Batteries require you to set a profile.)
- When prompted to start a device scan, tap **OK**.

The Device Communications LED flashes green while scanning, solid green when all the devices you installed are communicating, or solid amber if any devices are not communicating.

With both methods

If the Device Communications LED remains solid amber, see [Troubleshooting](#).

5 Verify configuration and enable the meters

While still connected to the Envoy-S using Enphase Installer App, check the Overview screen for the following:

- Confirm that the expected number of devices are detected and communicating.
- Check that the new profile is set on all the devices. Setting the profile may take up to 5 minutes for a typical system.
- Tap the **Meters** button.
- Tap **Production Meter** and follow the on-screen instructions to enable the Production Meter.
- If you installed consumption metering CT(s), tap **Consumption Meter** and follow the on-screen instructions to enable the Consumption Meter.
- Return to the **Overview** screen and verify the meter readings.

If you used Enphase Installer App to detect devices, the Power Production LED lights solid green when all expected microinverters are producing power. If you did not use Enphase Installer App and all communicating microinverters are producing power, it lights solid green. It flashes green when devices are upgrading. Check Enphase Installer App for production status details. If the Power Production LED remains solid amber. See [Troubleshooting](#).

6 Connect to Enphase Installer Platform

This section describes using the Envoy-S integrated Wi-Fi or the Enphase Mobile Connect modem.

Method A: Integrated Wi-Fi

Requires a wireless router with an internet connection.

- On the Envoy, verify that no Ethernet cable is plugged into the RJ45 port.
- If the router supports WPS, press and hold the WPS button on the wireless router for a few seconds. On most routers, a WPS indicator begins flashing.
- If you are using the Enphase Installer App, tap the **Network** button, tap **Wi-Fi**, and then select your network from the list of available networks. If the wireless router does not support WPS, you may be prompted to enter a password.

The Network Communications LED begins flashing green. Within

three minutes, the Network Communications LED lights solid green, indicating a successful connection to Enphase Installer Platform. If the Network Communications LED remains off or lights solid amber. See [Troubleshooting](#).



Method B: Enphase Mobile Connect modem

[Order CELLMODEM-01 (3G) or CELLMODEM-03 (4G) separately]

- Connect the antennas to the connectors and mount the modem as described in the [Enphase Mobile Connect Installation Guide](#).
- First, connect the USB cable to the Envoy-S and then connect the mini-USB connector to the modem. If the modem receives power from the Envoy-S, the power LED lights.

Within three minutes the Network Communications LED lights solid green, indicating a successful connection to Enphase Installer Platform. If the Network Communications LED remains off or lights solid amber, see [Troubleshooting in the Enphase Mobile Connect Installation Guide](#).

