# solaredge

# **Application Note**

Ethernet Communications Troubleshooting Guide for North America

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# solar<mark>edge</mark>

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# **Revision history**

Version	Date	Description
2.1	June 2025	Updated content.
2.0	November 2023	Updated content.
1.0	February 2015	Initial release date.



#### WARNING

The following troubleshooting steps require you to work inside the inverter.

- Do not install the Ethernet cable or any other hardware when the AC power is connected to the inverter.
- Failure to disconnect the AC power can result in injury or death.
- Do not open the inverter if it is raining or expose it to moisture.
- Adhere to your company's safety protocols when working inside the inverter.

# **Safety Precautions**

To ensure safety, perform the following steps before removing any covers:

1. Switch the P/1/0 switch to 0 (OFF) and wait for at least 5 minutes for  $V_{DC}$  on the inverter to drop below 50V.

To verify that V<sub>DC</sub> has dropped below 50V:

#### Safety voltage verification

Inverter type	Procedure
Inverters via SetApp	Connect to SetApp > Inverter's Status page > DC voltage field
Inverters with an LCD screen	A warning message appears as the $V_{\text{DC}}$ decreases, advising against disconnection. After the $V_{\text{DC}}$ drops below 50V, the message disappears.



#### NOTE

(North America only) If the DC does not reach a safe level, turn off the DC Disconnect (DCD) switch and measure the voltage with a voltmeter.



- 2. Turn the DC disconnect switch to the OFF position.
- 3. Ensure that the AC disconnect to the inverter is switched OFF when working inside the inverter.



If the Inverter's AC circuit breaker trips on-site, do not power on the AC circuit breaker before investigating the inverter for any internal damage, such as debris or thermal damage. If you find any internal inverter damage, take photos and contact SolarEdge Technical Support.

# Overview

Ethernet is a communication method that enables SolarEdge devices to communicate with the SolarEdge Monitoring server using a standard CAT5 or CAT6 Ethernet cable from the SolarEdge device to the local network on site.



#### WARNING

These troubleshooting steps require working inside the inverter. Never install any wiring or other hardware while AC power is connected to the inverter or damage may occur. Never open the inverter if it is raining or if the inverter will be exposed to moisture. Always follow your company safety protocols when working inside the inverter.

# Install the Ethernet cable

1. Shut down any devices you are working on before opening any covers or working with any wiring. Make sure to do the following:

Component	Shutdown procedure
Inverter	Turn the P/1/0 switch to 0 (OFF), wait at least five minutes for the $V_{DC}$ to drain below 50V, then turn OFF the DC and AC Disconnect switches.
Battery	After shutting down the inverter, turn off any battery toggle switches and breakers.
AC	After shutting down the devices, turn OFF the AC to the device you are working on.

- 2. Remove the cover from the inverter.
- 3. Plug an Ethernet cable with an RJ45 connector into the communication board on the inverter.

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- 4. Plug the opposite end of the cable into the internet source, such as the router or switch.
- 5. Power on the AC to the inverter.

# Configure the device

After installing the Ethernet cable, you may need to configure the device to establish a proper connection to the SolarEdge Monitoring server.



#### NOTE

Depending on the model, you may need to remove the cover on the LCD.

## Configure SetApp

#### To configure SetApp:

- 1. Connect to the device using SetApp.
- 2. Go to Monitoring Communications.
- 3. If an Ethernet is not selected, tap the **Change Configuration Type** button at the bottom of the screen, and select **Ethernet.**
- 4. (Optional) If the local network is not DHCP enabled, you may need to enter the **Configure Ethernet** menu to input the static IP address and DNS gateway.



#### NOTE

SolarEdge Technical Support cannot provide assistance with communications issues that result from altering the Ethernet settings from their default values.

### Configure LCD

- 1. Turn OFF the 0/1/P switch to shut down production.
- 2. Press and hold the Enter button using the navigational buttons for about 5 seconds, then release. You are prompted to enter a password.
  - a. Enter the password "12312312" using the Up (1), Down (2), and OK (3) buttons on the front cover (Home Wave) or on the communications board inside the inverter (A Series).
  - b. Use the push buttons to navigate menus based on the button pressed (Escape/Up/ Down/OK).
- 3. Go to **Communications** > **Server** and set the server channel to **LAN**, if not already done.
- 4. (Optional) If the local network is not DHCP enabled, you may need to enter the LAN Conf menu to input the static IP address and DNS gateway.





#### NOTE

SolarEdge Technical Support cannot provide assistance with communication issues related to the local network equipment.

# Verify the status of Ethernet communication

Verifying the status of the Ethernet connection on the device helps to identify any issues with connectivity to the SolarEdge Monitoring server. The Ethernet connection status displays each step it takes to establish a connection and relies on the previous step passing. If any step in the Ethernet status fails, begin the troubleshooting process at the initial point where the status indicates a failure.

### Check Communication status on SetApp devices

You can check the inverter LEDs to confirm any communication issues with the inverter. A steady blue light indicates the inverter is communicating.

#### To check Communication Status on SetApp Devices:

- 1. Connect to the device using SetApp.
- 2. Go to **Monitoring Communications**. This page displays the current connection status.
- 3. Tap the blue **i** icon next to the status. This page displays each step taken to establish a connection, showing a Pass (green check) or a Fail (red X).
- 4. To resolve any communication issues, see Troubleshooting.

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ò	Monitoring Communication Ethernet			Connection Info	
	₽ 🕗		Ethernet cable	e connection	~
	I		IP Address		~
Status	Connected (S_OK)	i	Internet conne	ection	~
Via	Dynamic IP (DHCP)		DNS		~
IP	10.40.3.68		Monitoring co	nnection	~
			Monitoring da	ta (S_OK)	~
	Configure Ethernet				
	Change Connection Type			Done	
	Disconnect from device	JPG	Disco	nnect from device	↓ JPG

#### To check Communication Status on LCD Enabled Devices:

- From the main status screen that displays V<sub>AC</sub>, V<sub>DC</sub>, and P<sub>AC</sub>, tap the green button, or the navigational buttons on the device to cycle status screens until Server is displayed. The server status screen displays each step taken to connect, represented by a Pass (1), or Fail (0).
- 2. To identify any steps necessary to resolve the communications issue, see Troubleshooting.





# Troubleshooting

The sequence of steps to connect to the server depends on each preceding step in the specified order. Begin troubleshooting with the first status displays an X or 0, indicating a failure.

SetApp Status	LCD Status	Description	Proposed Troubleshooting
Ethernet Cable Connecti on	00000000 LAN Disconnected	The Ethernet cable connected to the device is not detected	<ul> <li>Verify that the cable is securely connected at both ends and that the internet source (router/switch/ etc.), such as the router or switch is powered ON</li> </ul>
			<ul> <li>Verify that the cable isn't damaged or broken.</li> </ul>
			• Try another Ethernet cable.
			<ul> <li>Plug the end of the cable that goes to the SolarEdge device into a different device to see if a different device can connect to the internet or not</li> </ul>
			<ul> <li>If the issue appears to be only present on the SolarEdge device, contact SolarEdge Technical Support.</li> </ul>
IP Address	1000000 DHCP Failed	The device is not being assigned an IP address	<ul> <li>Verify that the Ethernet network settings on the SolarEdge device align with your local networking equipment and software.</li> <li>If a firewall or static IP is not required to connect the SolarEdge device to the internet, we recommend leaving the Ethernet settings at their default settings.</li> </ul>
DNS	11000000 Gateway Ping Failed	The router did not assign a subnet mask to the device	Verify there is an active internet connection available on the network the SolarEdge device is connected to
Internet Connecti on	11100000 G Ping Failed	Connection to the internet has failed – the device has a connection to the router, but no internet access	<ul> <li>Verify that changes were enabled in the Ethernet settings on the SolarEdge device</li> <li>If non-default settings were made to the device, verify the input values are correct</li> </ul>



SetApp Status	LCD Status	Description	Proposed Troubleshooting
Internet Connecti on <sup>1</sup>	11110000 - Server Ping 1 Failed 11111000 – Server Ping 2 Failed 11111100 – Server Ping 3 Failed	Pinging one or more SolarEdge servers has failed	<ul> <li>If this ping failure occurs intermittently, it can be disregarded.</li> <li>If all three pings register as 0 for a prolonged duration, it could indicate a problem with the SolarEdge servers. We recommend that you reach out to support if this persists over an extended period.</li> </ul>
Monitorin g Connecti on	11111110 TCP Connect Failed	Connection to the monitoring servers failed	<ul> <li>Verify the server and ports are whitelisted in the local firewall settings.</li> <li>SetApp <ul> <li>Server: prodssl.solaredge.com</li> <li>TCP Port: 443</li> </ul> </li> <li>LCD <ul> <li>Server: prod.solaredge.com</li> <li>TCP Port: 22222</li> </ul> </li> </ul>
S_OK	11111111 S_OK	The device is online and communicating with the SolarEdge monitoring servers	No troubleshooting is required

<sup>1</sup>This LCD

status is not available in SetApp.