



Installation & Monitoring Guide

Cel-Fi Booster



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Introduction

In industrial environments where cellular connectivity is weak or inconsistent, maintaining stable data transmission can be a challenge. The Booster RMS solves this by capturing weak signals from nearby cellular towers through its external antenna, amplifying them, and redistributing the stronger signal via the internal antenna to connected devices like Nanoprecise sensors.

This boosted connectivity ensures reliable communication between sensors and the cloud platform, enabling real-time data flow and uninterrupted performance. It helps reduce installation delays, minimizes signal dropouts, and improves the accuracy and timeliness of predictive maintenance insights. Importantly, better connectivity also contributes to longer battery life by reducing the energy sensors expend while attempting to connect or resend data.

Including the Booster RMS in your setup means faster deployments, fewer connectivity issues, and better long-term reliability for your Nanoprecise solution.

Need more information or assistance? Reach out to us at customer-success@nanoprecise.io or click the  button on your dashboard for setup guidance or troubleshooting tips.



Booster Description

Model

The booster model is Nextivity's Cel-Fi GO G41.



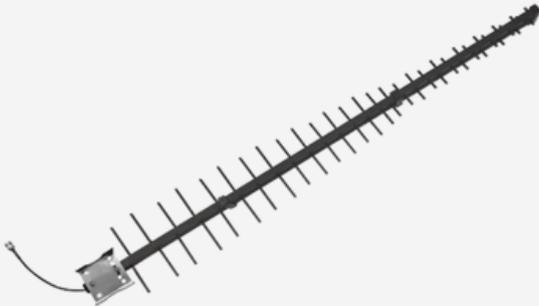
Functions

The Nextivity Cel-Fi GO G41 is a smart cellular signal booster designed to improve mobile coverage in industrial, commercial, and remote environments. It automatically detects and strengthens weak cellular signals to ensure stable, high-quality connectivity for devices such as Nanoprecise sensors.

- Automatic Signal Detection and Optimization.
- Multi-Carrier Compatibility.
- Smart Gain and Power Management.
- High-Speed Data and Voice Support.
- Flexible Deployment Options: Indoor and Outdoor.
- App and Remote Based Configuration and Monitoring.
- Seamless Integration with Nanoprecise Systems.

Accessories

Donor Antenna



There are 2 options available for the Donor Antenna Wideband Directional (Left) and LPDA-R (Right). Choose based on requirements.

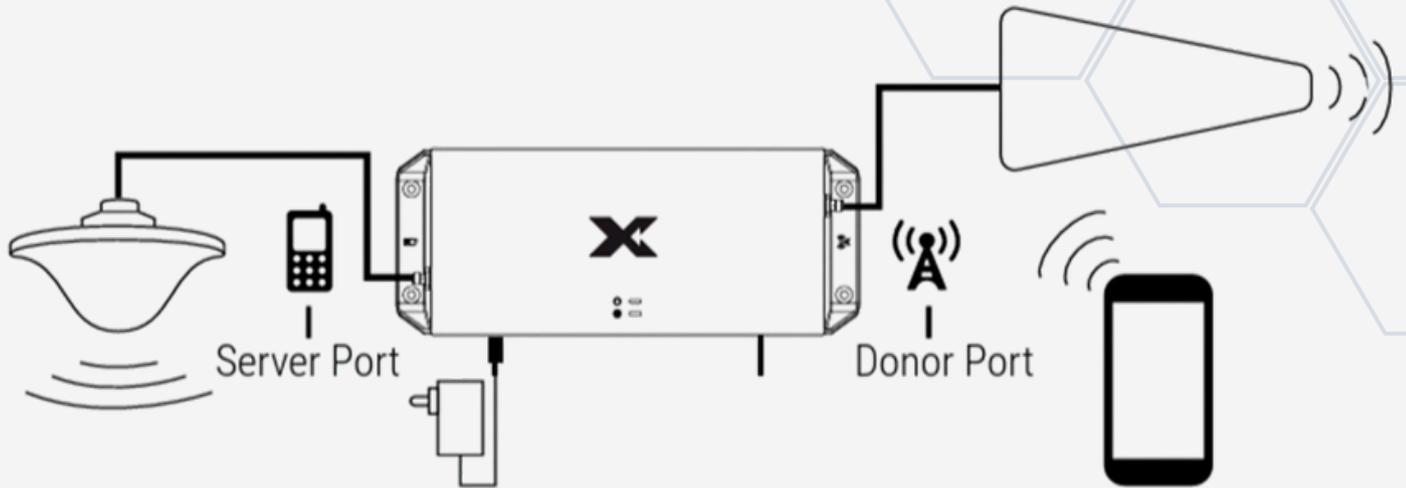
Server Antenna



There are 2 options available for the Server Antenna based on installation place: Inside (Left) and Outside (Right).

Cables and Power Cord: You need 2 cables, Coaxial Cable Assembly. The length of each cable will depend on the requirement.

Ports



The device has 4 ports: Server Port (left), power outlet (side-left corner), USB-C (mid-side), Ethernet port (mid-side), Donor Port (right).

Understanding Signal Metrics

Includes signal and RMS environmental performance indicators.

To help interpret the connectivity data from your network test sensor, here's a quick guide to what each value means and how to identify good or weak signal strength:

These values can help diagnose installation locations or signal performance when deploying Nanoprecise solutions. If most values fall in the "poor" range, consider using a Booster RMS to both amplify signal strength and continuously monitor real-time system health parameters such as voltage, current, and temperature.

Network Type	Parameter	Excellent	Good	Poor
4G (LTE) and LTE-M (CAT-M1)	RSRP (dBm)	>-90	-90 to -110	<-110
	RSRQ (dB)	>-9	-9 to -12	<-12
3G (WCDMA)	RSRP (dBm)	>-70	-70 to -95	<-11
	RSRQ (dB)	>-7	-7 to -11	>-100
2G (GSM)	RSSI (dBm)	>-90	-90 to -100	>-100
Wi-Fi	RSSI (dBm)	>-30	-30 to -80	>-90
RMS Monitoring	Voltage (V)	11.5 - 12.5	10 - 11.4	< 10
	Temperature (°C)	20 - 45	46 - 55	> 55

The Booster RMS automatically logs these signal and health metrics, viewable on the RMS Dashboard under "Live Data" and "Reports."

Pre-setup Steps

- Determine the strongest signal: To determine the strongest signal, refer to the field survey document for cellular document.
- Identify the type of setup: Based on the site, choose the setup type: Indoor or Outdoor. This is done to determine which type of server antenna is to be installed.

Booster Setup

Donor Antenna Placement

- The donor antenna installation/placement is the most important part of the setup. The success of the setup depends on how this antenna is installed.
- The donor antenna is a directional antenna; hence, the antenna should have a direct line of sight to the cell tower.
- To have a direct line of sight to the cell tower, install the donor antenna on the highest possible place on the site, such as terrace or poles.
- Everything in the way of the donor antenna and the cell tower will cause hindrance in the network quality.
- Once the donor antenna is installed, connect the antenna using the coax cable to the booster.

NOTE: Keep the length of the coax cable only as much as necessary, if the cable is longer, it will need to be folded. With each fold, the loss of the signal quality reduces.

Server Antenna Placement

- The server antenna installation/placement is also as important as the donor antenna. This antenna will be responsible for providing the boosted cell quality to the sensors.
- The donor antenna can be a directional antenna or an omni-directional; hence, the antenna installation will depend on a case-by-case basis.
- If a directional antenna is chosen, then the antenna should have a clear line of sight to the sensors. Directional antenna will cover a longer distance but a very narrow field of sight.
- If an omni-directional antenna is chosen, this antenna will cover a 360-degree field of sight, however, the distance between the sensors and the antenna must be less than directional antenna.
- Once the server antenna is installed, connect the antenna using the coax cable to the booster.

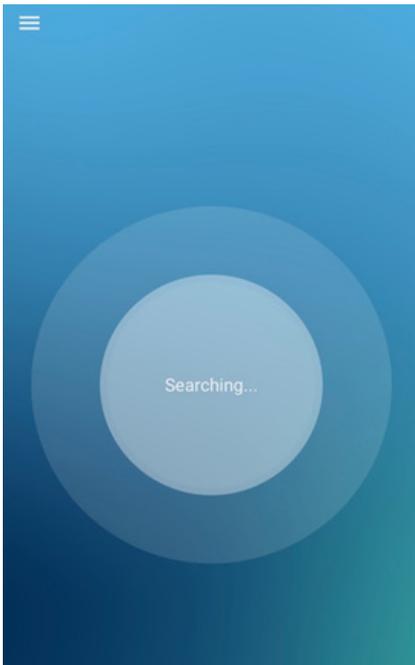
NOTE: Keep the length of the coax cable only as much as necessary, if the cable is longer, it will need to be folded. With each fold, the loss of the signal quality reduces.

Booster Placement

- The booster should be installed on a convenient place where it can be accessed if needed for configuration and changes.

Booster setup via WAVE App

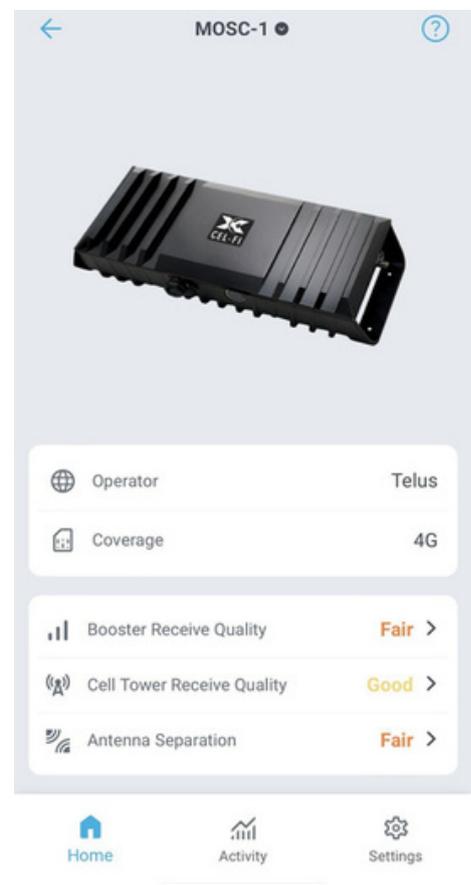
- Download the WAVE App from App Store or Play Store. NOTE: WAVE App can only be used locally because it uses Bluetooth to find the booster.
- Plug-in the booster and open the WAVE App.
- The app will automatically scan for the available boosters nearby using Bluetooth.



A screenshot of the WAVE app searching for the booster information

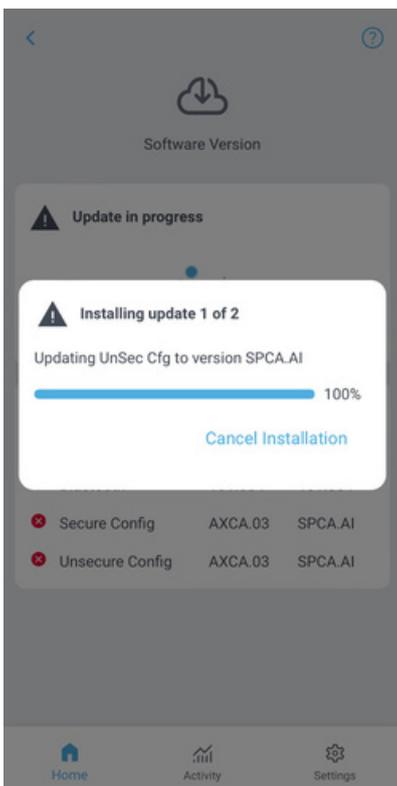
- Once found, select the booster, and re-name it to make it easier to identify when needed.

A screenshot of the WAVE App showing the booster information

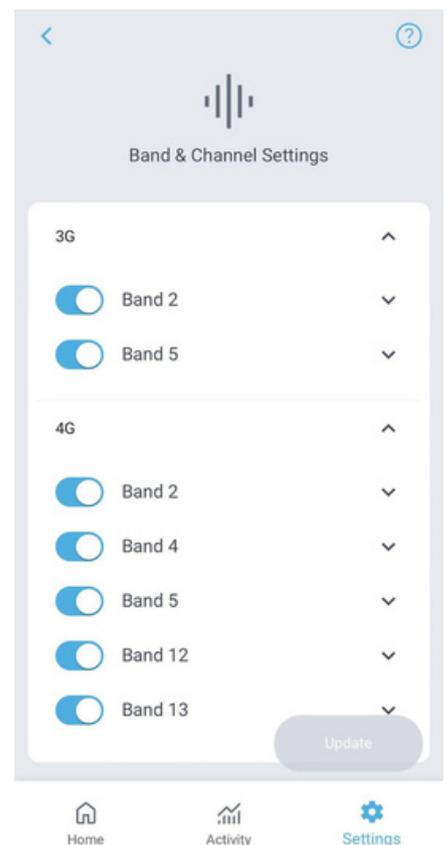


- Confirm with Nanoprecise the network and band your sensors use. Within the WAVE App, go to Settings → Operator, select the appropriate operator, and apply updates if prompted.
- The Booster RMS will download and install any required firmware automatically (usually 1–3 minutes). Keep the device powered on during the process
- Once completed, a description page will appear. Verify if all the settings are correct and make changes if necessary.
- Go to Band settings. And unselect all bands and only keep the band provided by Nanoprecise Team or from the network testing sensor:

Note: for North America LTE-M is on Band 12:4G. [most of the time]

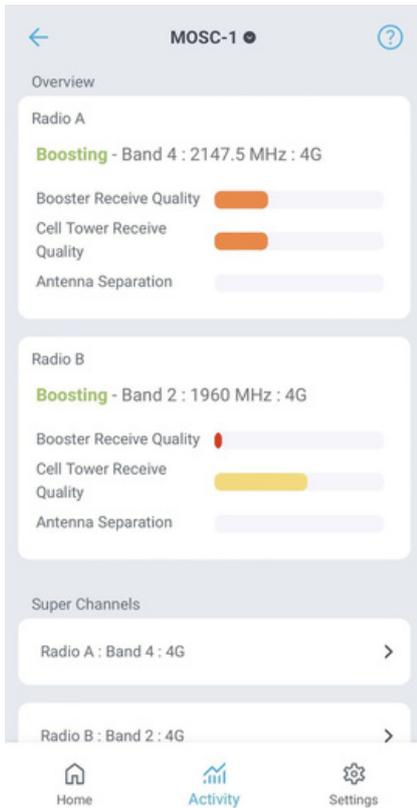


A screenshot of the WAVE app showing the update installation.



A screenshot of the WAVE app showing band selection options.

- Go to Advance and check the band boosted along with signal quality, Signal strength, and antenna separation.



A screenshot of the WAVE app showing connection information

Booster pre-enrolment into WAVE Portal

- When we receive the shipment from our suppliers, the boosters are mostly enrolled automatically to the WAVE Portal (a remote management portal).
- If not enrolled automatically, Nanoprecise can ask Nextivity directly to add the booster the portal using few details regarding the booster.

Remote Management

The Nextivity's GO G4I comes with Remote Management Service at no-additional cost. The remote management allows similar access to the booster as the WAVE App without being on-site.

WAVE Portal provides a Remote Management Service (RMS) designed to support centralized monitoring and management of their cellular boosters. This cloud-based platform offers a suite of tools that significantly simplify device oversight, diagnostics, and configuration at scale.

There are several benefits of this Remote Management System. The remote management from WAVE Portal allows features like creation of alerts, notifications, changing configuration such as changing the cellular operator which needs to be boosted, and automations along with the report generation.

However, accessing this remote management service has a limitation. The booster does not have an in-built cellular modem, which is necessary to connect the booster to the cloud. The booster has an ethernet port from the Wi-Fi router/modem which can be used to connect the booster to cloud. Another alternative to connect the booster to cloud is to connect an external cellular modem via the ethernet port.

Finishing Up

Once the setup is complete, verify the coverage using an app called 'Network Cell Info Lite' on the phone which has access for the cellular operator which is being boosted.

Always, double check the installation and settings to avoid distress in the future. Verify each setting, software updates, selected bands, and any relevant settings which is crucial for the booster to work as expected.

NOTE: Any missed step will always cause issues with the booster. To ensure the booster works as expected, follow each step word-to-word.