



# User's Manual

F12G-3S-BTW

MADE IN HUAPTEC

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## WHAT IS INCLUDED

1. Mobile Signal boosterF12G-3S-BTW
2. OutdoorAntenna& Cable
3. Indoor Antenna &Cable
4. AC/DC Power Adapter

## 1 HOW IT WORKS

The cellular booster provides reliable two-way cellular coverage by improving signal strength in vehicles, where cellular reception is weak or unreliable.

The system amplifies the signal from the nearest cellular tower and retransmits at a higher power level within a local area.

This manual provides simple installation instructions that will have your cellular booster kit running in record time.

## 2 TOOL REQUIRED



Phillips Screwdriver

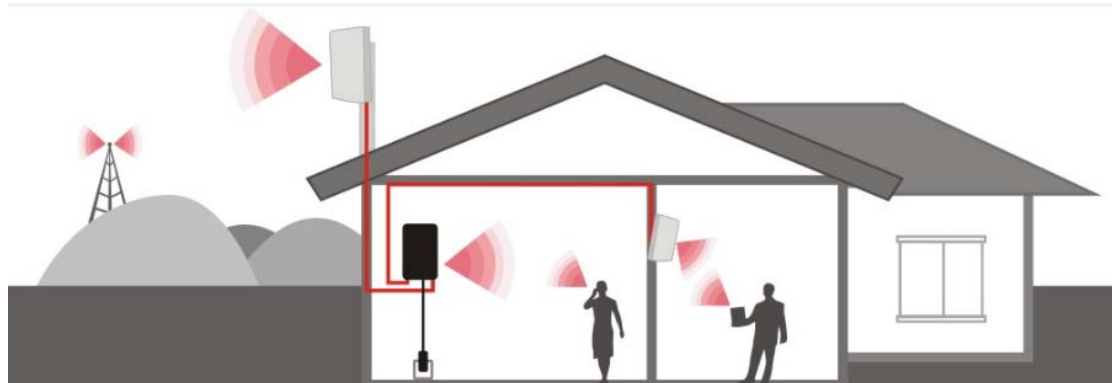


Drill



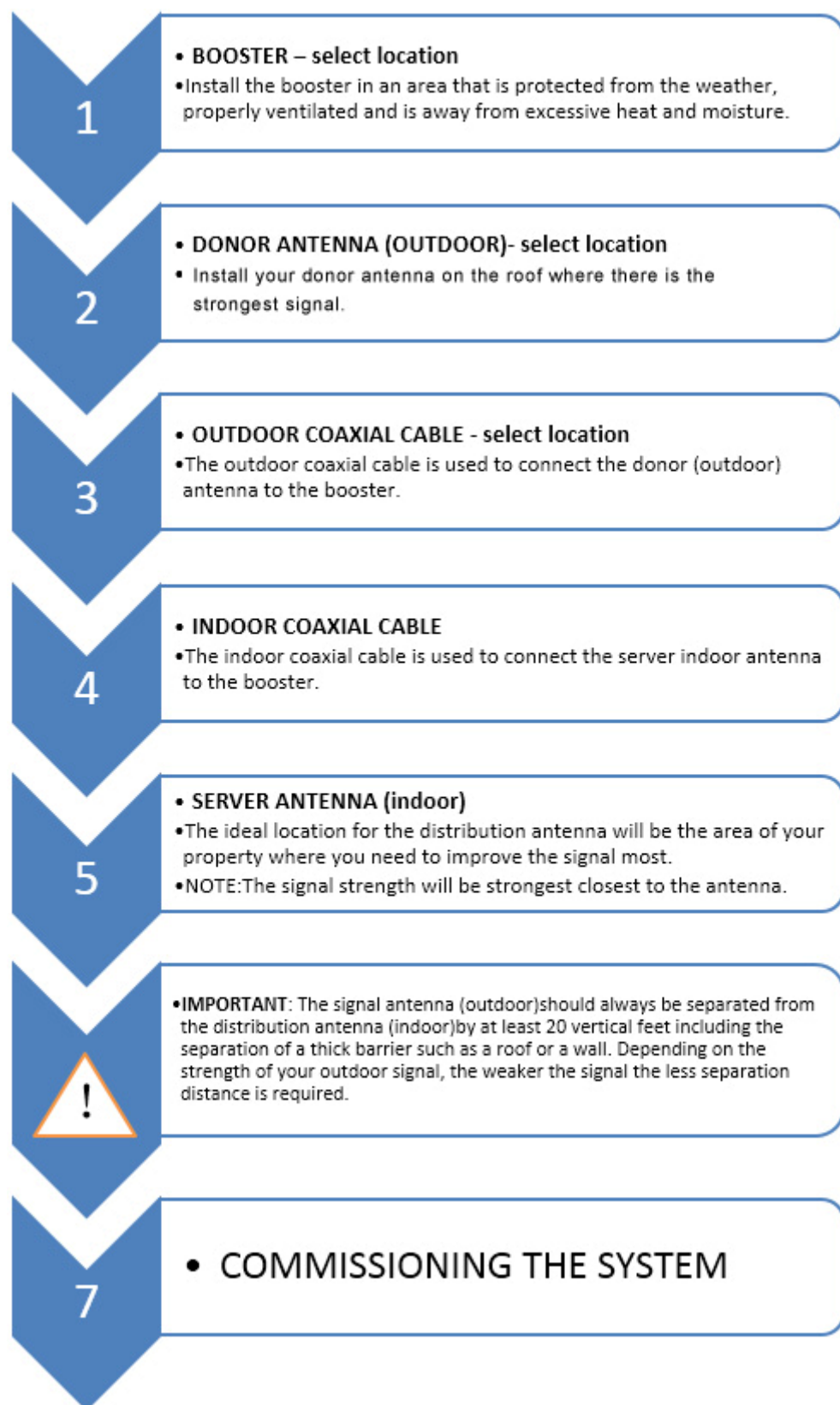
Cellular Phone(tocheck signal strength)

## HOW TO INSTALL YOUR NEW CELLULAR BOOSTER



### 2.1 Overview

This guide will help you properly install your cellular booster kit. It is important to read through all of the installation steps before installing your equipment. Thoroughly read through the instructions, visualize where all the equipment will need to be installed and do a soft installation before mounting any equipment.



## 2.2 Plan the layout of your system

Before you get started you will need to plan the layout of your system. This involves checking signal strength for signals coming from the cellular tower, as well as antenna, booster and cable placement.

## 2.3 Check for Signal Strength

Select a location on the roof of the vehicle to install the signal antenna, by monitoring your cellular phone's signal strength (signal bars) to find the strongest signal from your carrier's cellular tower.

Mark that area as the installation location for the Donor (outdoor)

**IMPORTANT:** To prevent the system from oscillation (feedback) you want to ensure that there is enough separation between the distribution and signal antenna or that they are shielded from each other to ensure the distribution antenna does not send a signal back into the signal antenna. If you cannot achieve these separations, either choose an alternate location for the donor (outdoor) antenna or determine if there are natural barriers in the building construction itself that will attenuate signals between the two antennas so that oscillation can be prevented.

## 2.4 Run coaxial cable

Loosely run the coaxial cable from your outdoor antenna to your booster. (After you have tested the system you can permanently secure the coaxial cable).

As you route and pull cabling, follow these general guidelines:

- Bend cables and route them smoothly, and protect the outer skin against any damage.
- Keep horizontal cables straight and fasten them with a tie every two to three feet.
- Bind and fasten vertical cables every two to three feet.
- Waterproof all outdoor connections with silicone caulking
- Be careful when plugging the connector in so as not to damage the center pins on the connectors.

## 2.5 Install the Donor (Outdoor) antenna

Connect the supplied coaxial cable to the antenna. We recommend applying silicone caulking to fully waterproof the connection.

Attach the cable in such a way that a drip loop is formed.

Once mounted, connect one end of the coaxial cable to the donor (outdoor) antenna and the other end to the cellular booster where it is marked "Outdoor"



## 2.6 Install the Server (Indoor) antenna

Connect one end of the coaxial cable to the antenna and the other end to the cellular booster where it is marked "Indoor".

Place in the outer perimeter of the area the signal needs to be amplified.

## 2.7 Install your cellular booster

Install the cellular booster in a location that is properly ventilated and not exposed to excessive heat, moisture and/or direct sunlight. The optimal area would be located near a power outlet.

It should be mounted in an easily accessible area so it's easy to perform general maintenance with the coaxial cable connections, dip switch settings and power adaptor.

Make sure all cables and antennas are securely connected before commissioning the system.

## 2.8 Power up your cellular booster

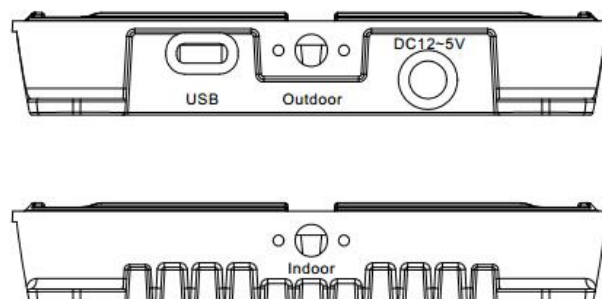
Once all the Following precautions have been taken, power on the cellular booster.

1. Verify that you have left at least 0.5meter of vertical separation space between the indoor and outdoor antennas.
2. Never point the front of the donor (outdoor) antenna towards the inside of the server (outdoor) antenna.
3. Verify that the supplied coaxial cables from both the donor (outdoor) antenna and the server (outdoor) antenna are properly connected to the cellular booster before powering it up.
4. Carefully plug in the supplied power adaptor into the back of the cellular booster where it is marked 'DC 12~5V' and connect the other end to a power outlet.

The LED indicator marked power should light up blue.

# 3 UNDERSTAND THE PORTS, and LED STATUS, MGC

## 3.1 Repeater ports



Connector	Description
Indoor	SMA-female connector, for connection to indoor antenna
Outdoor	SMA-female connector, for connection to outdoor antenna

DC12-5V	Power wire port
USB	For debug connector

### 3.2 LED Status

LED	Status	Definition
Alarm	blue	It is working properly
	Red	Alarm
	off	No power input
Bluetooth	blue	Normal
WIFI	blue	Normal

## 4 UNDERSTAND THE ANTENNA

### 4.1 Donor (Outdoor) antenna



#### The Panel Antenna

The panel is a directional antenna with a 120 degree reach and is designed to distribute the signal from a perimeter wall or ceiling.

### 4.2 External Server (Indoor) antenna



#### The Panel Antenna

The panel is a directional antenna with a 120 degree reach and is designed to distribute the signal from a perimeter wall or ceiling.

### 4.3 Authorized Kitting Options

The following accessories are authorized by the FCC to be used with the HiBoost vehicle Signal Booster. Outdoor antenna & cable kit options

Outdoor Antenna	Outdoor Antenna Gain		
	Lower 700MHz	Upper 700MHz	Cellular
Yagi antenna	5	5	5
Panel antenna	5	5	6
Outdoor Cable			
Outdoor Cable	Outdoor Cable Loss		
	Lower 700MHz	Upper 700MHz	Cellular
HiBoost200 (50 feet)	1.2	1.2	1.2
Indoor Antenna			
Indoor Antenna	Indoor Antenna Gain		
	Lower 700MHz	Upper 700MHz	Cellular
Omni antenna	3	3	3
Panel antenna	6	6	6
Indoor Cable			
Indoor Cable	Indoor Cable Loss		
	Lower 700MHz	Upper 700MHz	Cellular
HiBoost200 (30 feet)	5.2	5.3	5.3

**Warning:** Unauthorized antennas cables and/or coupling devices are prohibited by FCC rules. The antenna, cables, and other accessories of the booster kits shall not be modified without authorized, otherwise it shall be deemed invalid.

## 5 TROUBLESHOOTING

Eliminate Alarm warning problems:

1. Adjust the outdoor antenna direction, keeping it away from indoor antenna. Restart booster.
2. Increase the vertical or horizontal distance between the outdoor antenna and indoor antenna. Restart booster.
3. Use barriers to increase the isolation.
4. Change the indoor antenna type to an antenna with a more directional antenna pattern. Orient the indoor antenna and outdoor antenna so they point in opposite directions.
5. Reduce the booster's downlink gain via setting the gain parameter in app. Keep the uplink gain value and downlink gain value the same then restart the booster.

Note: Uplink gain must be equal to or not less than 5dB below the downlink gain, to avoid interference with the local carrier's cell site network.

Target: The Alarm issues are solved when there is no Alarm warning from the app.

Eliminate ALC warning problems:



1. Adjust the antennas' directions or locations to lower downlink received signal level.
2. Slowly reduce the downlink gain via setting the gain parameter in app.
3. If the above methods don't work, reduce the booster's gain with an external attenuator in line with the outdoor antenna or replace with lower gain antenna.

Target: The overload issues are fixed when there is no ALC warning from the app. Please note that a low gain may result in smaller coverage area. This can be improved by adjusting the outdoor antenna to receive a stronger signal. Eliminate poor coverage problems when Power or ALC is warning:

1. If the signal has not been improved, please check below:

☞ The weak downlink signal leads to the low output signal level. Change the direction or position of the outdoor antenna. You may also try replacing the outdoor antenna with a higher gain antenna to increase the incoming signal.

\* Check to see if it is necessary to add more indoor antennas. Barriers such as walls can block the signal indoors. You should also check the booster to make sure the power is maximized. Try installing more indoor antennas or replace the booster with a higher powered one.

2. If the signal in a small section of the building hasn't been improved, try the following:

\* Check to see if the indoor antenna is installed correctly. Try moving the antenna to improve coverage.

☞ Try adjusting the direction the indoor antenna is pointing.

Check whether it is necessary to add one or more antennas to enhance the coverage of special areas.

## IMPORTANT NOTES

The 2 most important things to look for when setting up your system is:

**1**

A good input signal (the best you can find)

**2**

Isolating the outdoor (donor) antenna from the indoor (server) antennas so they do not feedback into each other.

By capturing the best input signal you will be able to enjoy the maximum coverage and best quality signal inside where your Indoor antennas are located. The better the input signal, the better the output signal. In order to find the best input signal, you want to place your outdoor antenna as high as possible with the least amount of obstruction between the antenna and the cellular base tower. A clear line of site is ideal.

Isolating the signal from the antennas is done by ensuring that the antennas are not pointing to each other and by having enough distance or barrier shielding in between them. The signals travel like rays of sunlight, a directional antenna will send the signal in the direction that it is pointing. An omni directional antenna will send the signal in every direction around it. So depending on your equipment it's important to be sure that your Indoor antenna is not sending the signal back into the outdoor antenna.

## THINGS TO CHECK WHEN EXPERIENCING WEAK CELLULAR SIGNAL

1. Check all connections on the cable, antennas, and booster.

2. Check cable for bends and or cuts.
3. All LED lights on the booster should be blue.
4. Outdoor antenna and the indoor antennas have adequate separation and are not causing feedback.

## 6 FREQUENTLY ASKED QUESTIONS



### WHY ARE THE LED LIGHTS TURNING FLASHING GREEN, FLASHING RED OR SHUTTING OFF?

There are certain cases where your system could be experiencing oscillation. This can be attributed to either the quality of your input signal or having your outdoor antenna and indoor antenna too close together. Please review the following guidelines to help resolve this issue:

1. Adjust the direction of the outdoor antenna. If the system is receiving a very high input signal, you can point your outdoor antenna away from the cellular tower to reduce the strength of the input signal and therefore, reduce the oscillation. Alternatively if your system is receiving a very poor quality signal (weak and unusable signal), you can high the antenna to increase the strength of the input signal. Sometimes this may require completely repositioning the antenna to a location where you can achieve a line of site to the tower.
2. Increase the separation between the outdoor antenna and the indoor antenna. This can be achieved by increasing the distance between the two antennas or by placing barriers between them.

## 7 FCC RF Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instruction for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

## 8 Warning and Statement

**Note:** 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.

Changes or modifications not expressly approved by Huaptec could void the user's authority to operate the equipment.

**Note:**For a complete list of antennas and cables approved for use with these boosters see **Authorized Kitting Options** pages 7&8.

#### **FURTHER INFORMATION ON SIGNAL BOOSTER END-USE REGISTRATION**

The following is currently active contact of US wireless provider for booster register.

<https://www.uscellular.com/uscellular/support/fcc-booster-registration.jsp>

[https://www.sprint.com/legal/fcc\\_boosters.html](https://www.sprint.com/legal/fcc_boosters.html)

<https://www.verizonwireless.com/solutions-and-services/accessories/register-signal-booster/>

<https://support.t-mobile.com/docs/DOC-9827>

<https://securec45.securewebsession.com/attsignalbooster.com/>

#### **ISED RF EXPOSURE STATEMENT**

The device is compliance with RF exposure limits. The minimum distance from body to use the device is 20cm.

Le présent appareil est conforme aux conformité ou aux limites d'intensité de champ RF. La distance minimale du corps à utiliser le dispositif est de 20cm.

#### **ISED Statement:**

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s).

Operation is subject to the following two conditions: 1. This device may not cause interference; 2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est

autorisée aux deux conditions suivantes : 1. L'appareil ne doit pas produire de brouillage;  
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device complies with Innovation, Science and Economic Development Canada ICES-003 Compliance Label: CAN ICES-3 (B)/ NMB-3(B).

Le présent appareil est conforme Innovation, science et développement économique Canada ICES-003 Étiquette de conformité: CAN ICES-3 (B) / NMB-3 (B).

Link to CPC-2-1-05

<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08942.html>

This is a **CONSUMER** device.

**BEFORE USE**, you **MUST REGISTER THIS DEVICE** with your wireless provider and have your provider's consent. Most wireless providers consent to the use of signal boosters. Some providers may not consent to the use of this device on their network. If you are unsure, contact your provider.

In Canada, **BEFORE USE**, you must meet all requirements set out in ISED CPC-2-1-05.

You **MUST** operate this device with approved antennas and cables as specified by the manufacturer. Antennas **MUST** be installed least 20 cm (8 inches) from (i.e., **MUST NOT** be installed within 20 cm of) any person.

You **MUST** cease operating this device immediately if requested by the FCC (or ISED in Canada) or a licensed wireless service provider.

**WARNING.** E911 location information may not be provided or may be inaccurate for calls served by using this device.

This device may be operated **ONLY** in a fixed location (i.e., may operate in a fixed location only) for in-building use.

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