

Dual Band Plug & Play Booster Kit Installation Guide

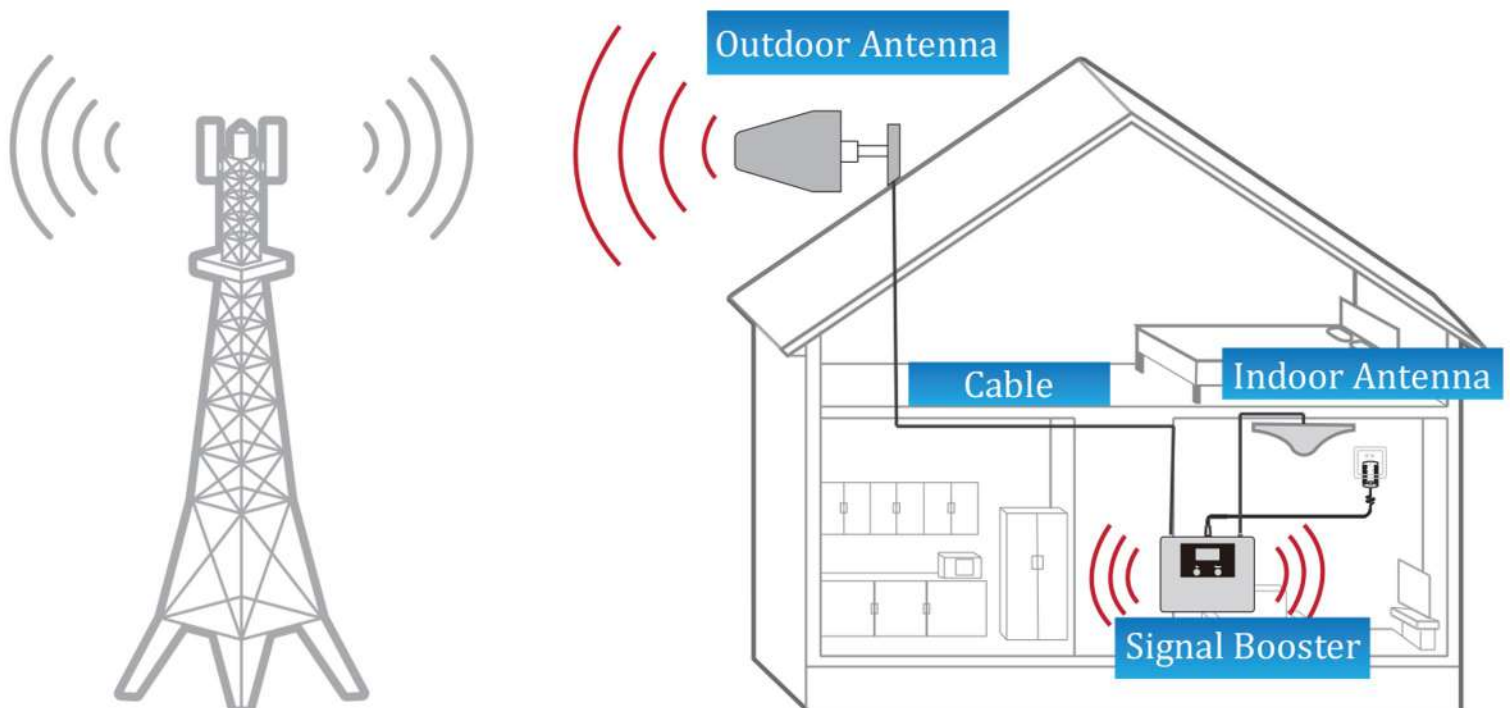


Product Introduction

Cerevo Dual Band Plug & Play booster Kit is designed to amplify cellular signal in area with weak cellular coverage. It provides a rapid and perfect solution to solve and optimize the weak signal of houses, offices, hotels, apartments, underground parking lots and other small weak signal areas. Cerevo Plug & Play booster kit has strong ALC function, which technically offers the product high reliability and coverage stability. In addition, with the LCD display interface, users could easily observe the input and output signal strength information, the isolation information and the repeater's working status information, so they can configure the booster accordingly to get the best coverage. All these functions will make your installation experience with our amplifiers much easier and more pleasant.

HOW IT WORKS

The outdoor antenna receives the signal from a cell tower; the signal booster amplifies the signal and then transmits to your phone through the indoor antenna. When your phone transmits, the signal is sent to the indoor antenna, amplified and then sent to the cell tower through the outdoor antenna.







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Note: Dual band LCD booster is available in different kits. Packing content is different according to the kit you select.

ANTENNA OPTIONS

Antenna Type	Antenna Name	Usage
	Pigtail Antenna	Receive and transmit signal in 360 degree. Designed for signal enhancement in 1-2 rooms
	Omni Antenna	Receive and transmit signal in 360 degree. Designed for signal enhancement in 2-3 rooms
	Log Antenna	It is used as an outdoor antenna. Can reach carrier towers that are up to 10KM away.
	Panel Antenna	Receive and transmit signal in 120 degree.

Installation Preparation

1. Find an ideal position to place your booster, make sure that it is close enough to an existing electrical outlet.
2. Ensure that there is sufficient cable length between proposed outside antenna location and booster connectors.
3. Ensure that there is sufficient cable length between proposed inside antenna location and booster connectors. Keep in mind that the outdoor antenna needs some separation with indoor antenna, usually 10 meters distance and a wall in between are necessary.

Installation overview

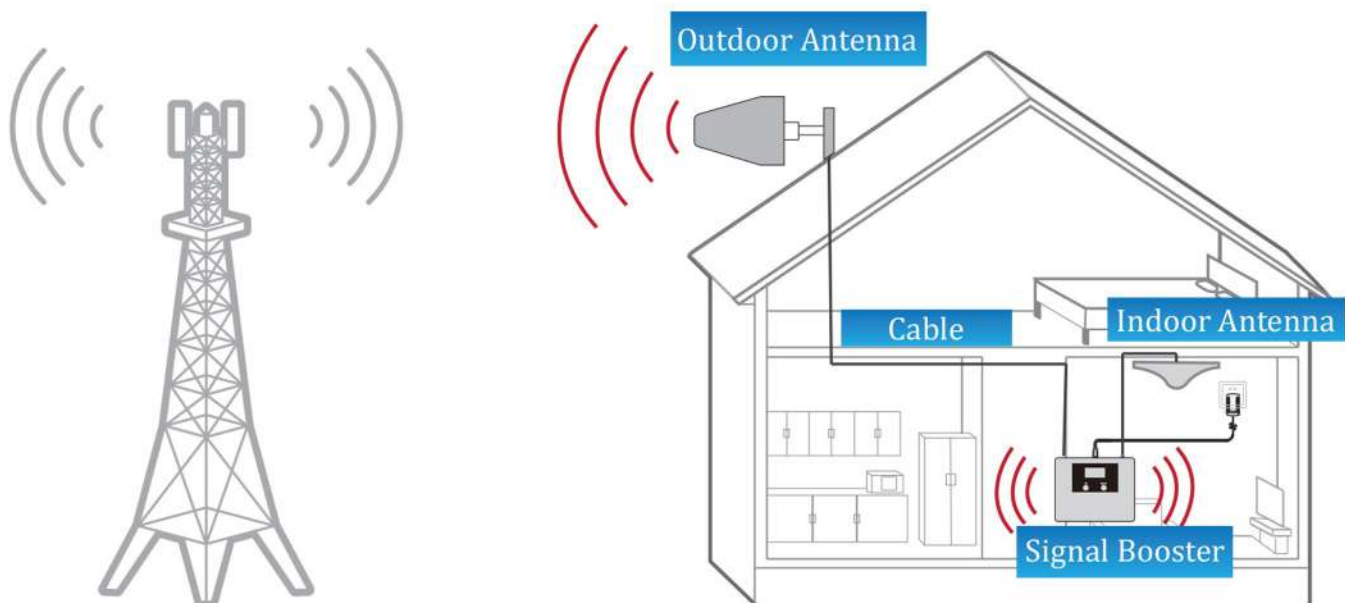
STEP 1: Find the outside location that has strongest signal

STEP 2: Install the outdoor antenna

STEP 3: Install the indoor antenna and cellular booster

STEP 4: Connect the cables with booster, and power on booster

STEP 5: Read the coverage result and optimize coverage if needed



Installation

INSTALL YOUR BOOSTER KITS

STEP 1: Find the outside area that has the strongest signal

Walk around your house with your cell phone, search for the area where your phone gets the strongest signal reception.

The signal booster requires a minimum cellular signal of -85dBm . Signal readings usually appear as a negative number. The stronger the signal, the better coverage you will get from the booster. It is recommended that the signal is between -65dBm and -85dBm . That's when the signal is neither too strong nor too weak. Signal stronger than -50dB may cause the booster shutting down itself to protect carrier's tower. If your outside signal is too weak (-90dB or worse) you may need a high gain Log antenna instead, which has better directivity towards the cell tower of your carrier to pull in a stronger signal to the booster.

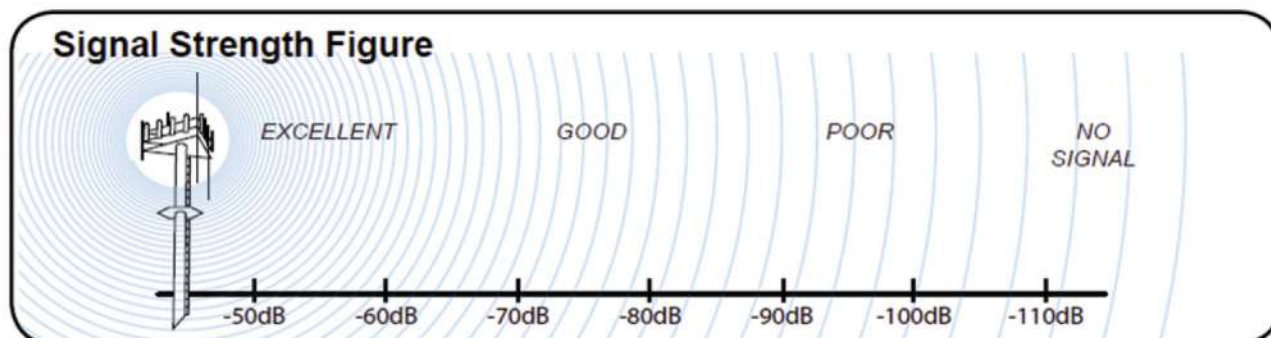
It is recommended to choose a location away from buildings, walls, trees, hills, and other terrain features that can block or reflect wireless signals. Make a few phone calls in the location where you want to install the outside antenna, double check the call quality. In order to make the booster work, **at least the location where you install the outdoor antenna should be able to make a phone call.**

Here are a few tips for measuring signal strength by using your phone

For Apple iPhones: Dial $*3001\# 12345\#*$ and press Call. In the top-left corner, a number appears instead of signal bars.

For Android devices: Download apps such as "Network Signal Info" in the Google Play store to measure signal strength. Or search "check real signal strength" to find other cell signal measurement apps.

Signal strength between -50dBm ~ -70dBm is excellent, -70 ~ -85dBm is good, under -85dBm is poor



TIPS: If your booster is a 2G&3G model only, when you do the signal strength test, you need to switch off the 4G networks in your phone, otherwise the signal strength information appeared in your phone might be for 4G networks.

STEP 2: Install the outdoor antenna

Install the outdoor antenna in the area where you located in step 1. Mount it as high as possible.

Make sure that the antenna is pointing to the nearest cellular tower being used by your carrier (see step 1).

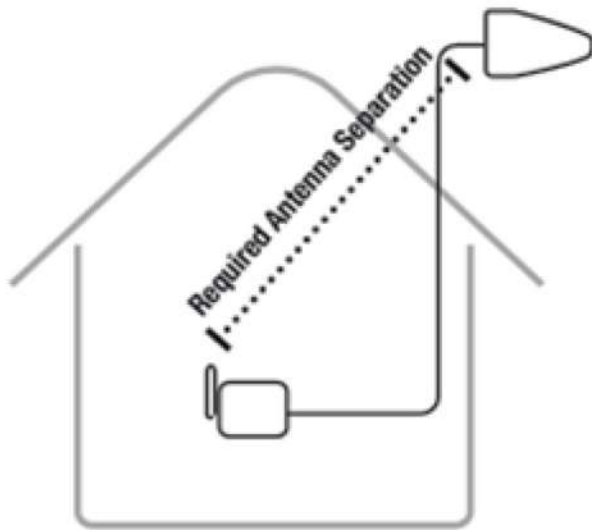
Outdoor antenna comes in different types. Log Antenna can be mounted to a pole, and panel antenna can be mounted to the wall under your roof.

IMPORTANT:

1. The Outdoor Antenna must be at least 6 meters vertical or 10 meters horizontal away from the Inside Antenna, and there **MUST** be at least 1 brick wall between outdoor and indoor antenna. This separation of the antennas is critical and it can determine the performance of your booster system.

2. The outdoor antenna should have at least 1 meter of clearance in all directions around it. Position the antenna so that it has the most unobstructed line of sight to the cellular service provider's strongest signal.

3. Make sure the outdoor antenna is pointing away from your building and inside antenna, this can prevent signal feedback between outdoor and indoor antennas.



Outdoor Log antenna installation

1. Install the Log antenna as pictures shown in the illustration below. Antenna needs to point to the direction of the closest cellular tower.
2. Fully tighten the mounting hardware by hand. Connect the outdoor antenna with outdoor cable, weatherproof the connections.
3. Make sure that the log antenna points away from the house.



Outdoor Antenna and Accessories

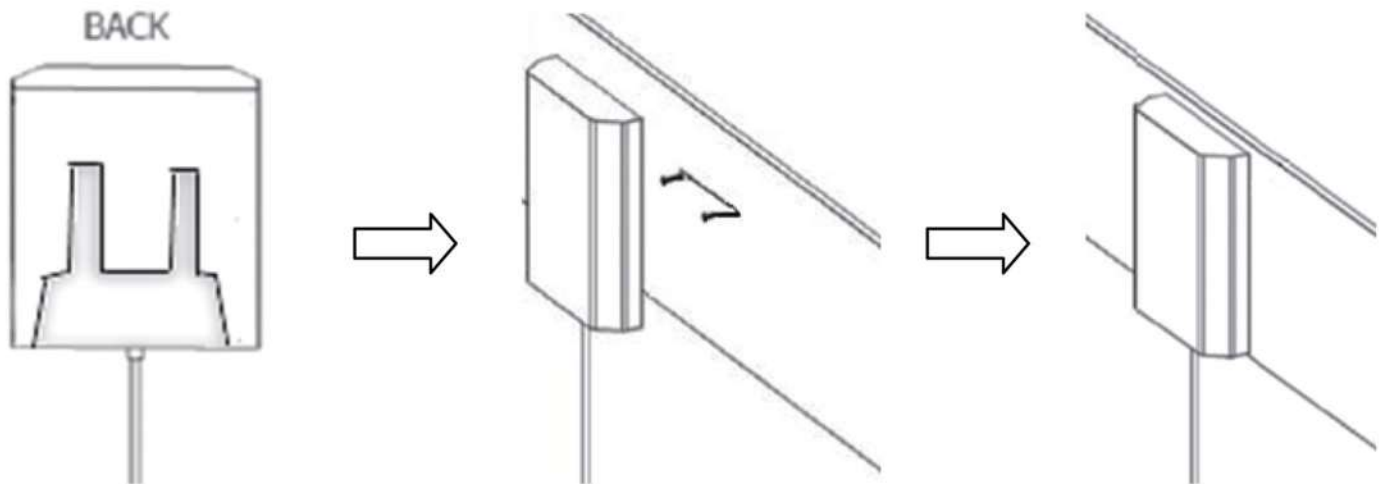


Outdoor Antenna Mounting

WARNING:

Lightning protection is recommended for your outdoor antenna installation. Take extreme care to ensure that neither you nor the antenna comes near any electric power lines.

Outdoor Panel Antenna Installation



Mounting Tips

1. Find a location for mounting the outdoor panel antenna, the higher the better.
2. Drill the screws half way into the wall, leave proper space in between to hange the outdoor panel antenna.
3. Slide the screws into the narrow groove at the back of the antenna.

STEP 3: Install the indoor antenna and cellular booster.

Indoor antenna comes in pigtail antenna or omni-directional antenna. Position the indoor antenna at where stronger signal is needed most.

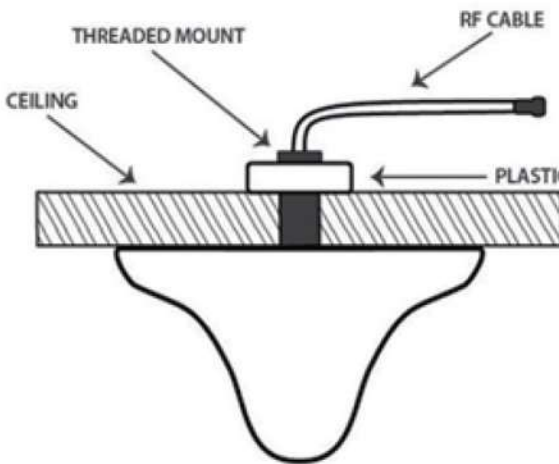
Celluar booster can be placed on a table or mounted on a wall by using the accessories provided. Make sure that there is a working AC outlet next to it. Do not expose the signal booster to excessive heat, direct sunlight, moisture and airtight enclosures.

Pigtail antenna Installation

Pigtail antenna can be connected directly to "MS" Port on booster in an Upright Position.

Omni Antenna Installation

You can mount the indoor ceiling antenna as diagram shown below.



1. Fully tighten the mounting hardware by hand.
2. Connect the indoor omni antenna with indoor cable, Weatherproof the connections.

STEP 4: Connect the cables with booster, power on the booster

Connect the outdoor antenna cable with "BS" port on the booster.

Connect the indoor antenna (or indoor cable) with "MS" port on the booster.

Connect the AC power cord with "DC" port on the booster.

Connect the other end of the Power Supply to AC power outlet



1. MS (Mobile Station): Connect with indoor antenna
2. DC: Connect with power supply
3. Base Station: Connect with outdoor antenna

STEP 5: Read LCD screen and optimize the coverage

Check the LCD screen on the signal booster and read the coverage status.








Please note: As this device is a dual band repeater, Indoor1 and Outdoor1 represent the lower frequency band, Indoor2 and Outdoor 2 represent the higher frequency band.

Outdoor 1 & Outdoor2: It means the signal strength your booster is picking up from outside antenna for two systems. It is recommended to have 3-5 bars for input signal, and the signal reading be between -65dBm and -50dBm. When input signal is weak, please try to adjust the position or direction of the outdoor antenna.





Indoor 1 & Indoor 2: It means the output power your booster is working on these two systems. The stronger signal you get from outside, the stronger coverage you will get inside. It is recommended that the power is between 5dBm to 20dBm. Indoor signal strength less than 0dBm will give very limited coverage.

LCD Display Definition

DISPLAY	DEFINATION	STATUS
outdoor1  - 49 dBm outdoor2  - 84 dBm	Indicate the input signal strength picked up by the booster through the outdoor antenna.	The stronger the input signal it gets, the more signal bars it appears. It is recommended to have 3-5 bars' input signal, and the signal reading is between -65dBm and -50dBm.
Indoor1  + 13 dBm Indoor2  - 14 dBm	Indicate the output power the signal booster is working at.	The stronger output power the signal booster works at, the larger area it can cover. It is recommended that the power is between 5dBm to 20dBm. Indoor signal strength less than 0dBm will give very limited coverage
ALC <input checked="" type="checkbox"/>	Indicates the Automatic Level Control function	Always on
Uplink : OK	Indicate if the booster is detecting signal from your mobile phone	Always on
	Indicate repeater is giving alarms.	When booster is working normally, it will not appear on LCD screen. However, when it flashes, it means the installation need improvement. Press the page "Down" button to see the instructions and make adjustment according to the instruction contents shown on LCD screen.
<div style="border: 1px solid black; padding: 2px;"> S2:Input signal weak Solution:Rise up the outdoor antenna ,point towards the base station direction and avoid obstacles </div>	Indicate the status of input signal strength.	When input signal strength is too weak, this information appears on LCD screen, you need to adjust the outdoor antenna accordingly to maintain better coverage.
<div style="border: 1px solid black; padding: 2px;"> S1:Isolation is not enough Solution:Increase the distance between indoor antenna and outdoor antenna at least 10 meters. or isolate the antennas with wall </div>	Indicate the isolation between the indoor antenna and outdoor antenna.	When the isolation between indoor antenna and outdoor antenna is not enough, this information appears. You need to increase the isolation between outdoor antenna and indoor antenna, otherwise the booster will either stop working or work with less coverage.
<div style="border: 1px solid black; padding: 2px;"> System status S1 Gain 70dB ISO 080dB </div>	Indicate the gain and isolation of each system.	The booster has maximum gain as 70dBi. Isolation is the separation between outdoor antenna and indoor antenna. It is recommended the isolation be 80dB or higher.

Troubleshooting

Problem	Resolution
LCD display off	<p>Verify that the switch on the power supply is turned on.</p> <p>Connect the power supply to an alternate power source.</p> <p>Make sure to use the original power supply.</p> <p>Or ask your distributor for more support</p>
After installing your signal booster system, you still have poor signal or no signal	<ol style="list-style-type: none"> 1. Check LCD screen, see if there is Arrow sign ↓ in the conner. If it appears, press DOWN button on the panel to check the warnings and solutions. 2. Check the input and output signal strength, if either of them is too weak to start up the booster. 3. Check if booster pops up isolation alarm. When Isolation between antennas is not enough, the booster will work with limit coverage. When isolation between antennas is too small, the booster will lock itself and give no coverage. You must increase the distance between antennas, or isolate the antennas with more walls, then re-power on the booster again to get proper coverage.

LCD DISPLAY	CONDITION	RESOLUTION
↓	<p>When booster is working normally, it will not appear.</p> <p>When it flashes, press the page "Down" button to see the instructions.</p>	<p>Make installation improvement according to the instructions show on LCD screen. Either you may need to adjust the position or direction of the outdoor antenna, or you may need to increase the isolation between the outdoor antenna and indoor antenna.</p>
outdoor1  - 49 dBm outdoor2  - 84 dBm	Only 1 signal bar appears	<p>Indicate the outside signal is very weak.</p> <p>Try to find a better location for the outdoor antenna, restart the booster and see if it gets better input signal.</p>
Indoor1  + 13 dBm Indoor2  - 14 dBm	Only 1 signal bar appears	<p>Booster is working with low coverage due to outdoor signal is too weak. Try to find an outdoor location with better input signal for outdoor antenna, then restart the booster and see if it gets better output power.</p>
<div style="border: 1px solid black; padding: 2px; font-size: small;"> S2: Input signal weak Solution: Rise up the outdoor antenna, point towards the base station direction and avoid obstacles </div>	Indicate the status of input signal strength.	<p>When input signal strength is weak, you need to adjust the outdoor antenna position and direction in order to get better input signal.</p>
<div style="border: 1px solid black; padding: 2px; font-size: small;"> S1: Isolation is not enough Solution: Increase the distance between indoor antenna and outdoor antenna at least 10 meters, or isolate the antennas with wall </div>	Indicate the isolation between the indoor antenna and outdoor antenna.	<p>When the isolation between indoor antenna and outdoor antenna is not enough, this information appears, you need to increase the distance between the antennas, or isolate the antennas with more walls, then repower on the booster again, otherwise booster will not work properly.</p>

Booster Specification

ELECTRICAL		
Models	CR-IR81970D1-20	850 MHz UL: 824-849 MHz DL: 869-894 MHz 1900 MHz UL: 1850-1910 MHz DL: 1930-1990 MHz
	CR-IR91870D1-20	900 MHz UL: 890-915 MHz DL: 935-960 MHz 1800 MHz UL: 1710-1785 MHz DL: 1805-1880 MHz
	CR-IR81770D1-20	850MHz UL: 824-849 MHz DL: 869-894 MHz AWS2100 UL: 1710-1755 MHz DL: 2110-2155 MHz
	CR-IR81870D1-20	850MHz UL: 824-849 MHz DL: 869-894 MHz 1800MHz UL: 1710-1785 MHz DL: 1805-1880 MHz
	CR-IR92170D1-20	900MHz UL: 890-915MHz DL: 915-935MHz 2100MHz UL: 1920-1980MHz DL: 2110-2170MHz
Output power	20 dBm	
Gain	70±3 dB	
ALC Range	≥30 dB	
Noise Figure	≤ 5 dB	
Ripple in Band	≤ 6 dB	
Time Delay	≤ 5 μs	
Port Impedance	50 Ω	
POWER, MECHANICAL & ENVIRONMENTAL		
Weight	≤1 kg	
Dimension	Host : 180 × 150 × 32 mm	
Installation Mode	Indoor	
RF Connector	SMA Female	
Power Supply	AC: 100-240 V / 6 W	
Temperatures	-5~+45°C	
Environmental Class	Host : IP40	

KITTING INFORMATION

Component	Specifications
Outdoor Log Antenna	800-2700MHz, Gain 11dBi
Outdoor Panel Antenna	800-2500Mhz, Gain 6dBi
Indoor Omni Antenna	800-2500MHz, Gain 3dB
Indoor Pigtail Antenna	800-2500MHz, Gain 1dB
3D-FB Cable	2dB Loss per 5 Meter