

Amplifier Installation Guide



Direct Connection
Amplifiers

Contents:

Guarantee and Warranty	1
Before Getting Started / How it Works	3
Installing the Outside Antenna - In-Vehicle	4
Installing the Amplifier in vehicle	5
Installing an External Adapter - In-Vehicle	6
Installing an Outside Antenna - In-Building	7
Installing an Amplifier In-Building	7
Installing an External Adapter - In-Building	8
Powering Up an Amplifier	9
Warnings and Recommendations	10
Amplifier Specifications	Back Cover



Warning: This manual contains important safety and operating information. Please read and follow the instructions in this manual. Failure to do so could be hazardous and result in damage to your amplifier.

30-Day Money-Back Guarantee

The amplifier is protected by a third party 30-day money-back guarantee. If for any reason the performance of any product is not acceptable, simply return the product directly to the reseller with a dated proof of purchase.

1-Year Warranty

Third party amplifiers are warranted for one (1) year against defects in workmanship and / or materials. Warranty cases may be resolved by returning the product directly to the reseller with a dated proof of purchase.

Amplifiers may also be returned directly to the manufacturer at the consumer's expense, with a dated proof of purchase and a Returned Material Authorization (RMA) number supplied by Nexus. Nexus shall, at its option, either repair or replace the product. Nexus will pay for delivery of the repaired or replaced product back to the original consumer.

This warranty does not apply to any amplifiers determined by Nexus iSR to have been subjected to misuse, abuse, neglect, or mishandling that alters or damages physical or electronic properties.

RMA numbers may be obtained by phoning Technical Support at 585-435-0015.

The Manufacturer's rated output power of this equipment is for single carrier operation.

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

Disclaimer: The information provided by Nexus iSR LLC. is believed to be complete and accurate. However, no responsibility is assumed by Nexus iSR LLC for any business or personal losses arising from its use, or for any infringements of patents or other rights of third parties that may result from its use.

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Installation Instructions for the Following Amplifiers

Direct Connection Dual-Band Amplifier – Model # 811201

Safe for use on all Cellular and PCS carriers.

FCC ID: PWO819D IC: 4726A-819D

Before Getting Started

This guide will help you properly install your direct connection amplifiers in both in-vehicle and in-building applications. **It is important to read through all of the installation steps for your particular application prior to installing any equipment.** Read through the instructions, visualize where all the equipment will need to be installed and do a soft installation before mounting any equipment. If you do not understand the instructions in full, seek professional help, or contact Nexus customer care at 585-436-0015.

Contents:

- Direct connection amplifier
- 6' extension cable



Direct connection
amplifier



6' extension
cable

Additional Equipment

- Outside antenna for in-vehicle or in-building use (required)
(NOTE: specifically tuned iDEN antennas available)
- Cell phone-specific external cable assembly (required)
- AC/DC power supply (optional – for in-building use)

How it Works

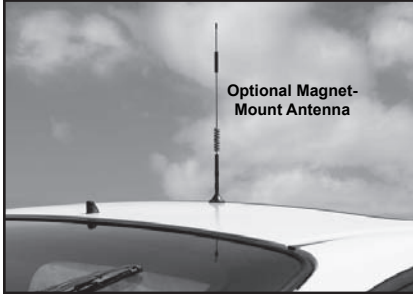
These amplifiers are small, portable, bi-directional devices that deliver service levels consistent with what would be expected in areas of high cell network coverage. They amplify a weak or shadowed signal in mobile, marine and in-building applications.

When using these amplifiers in conjunction with antennas, the outside antenna will collect the cell tower signal and send it through the cable to the amplifier. Cell phones and cellular data cards (laptops) then communicate with the improved signal. When a cellular data card transmits, the signal is amplified by the amplifier and broadcast back to the cell tower through the outside antenna.

Installing an Outside Antenna

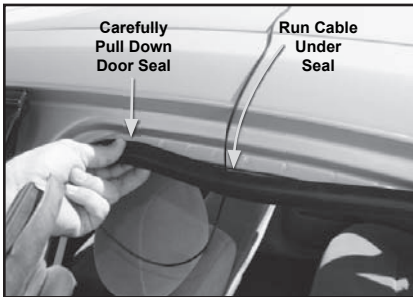
To receive the best cell signal, select a location in the center of the vehicle's roof at least 12 inches away from any other antennas and free of obstructions.

Follow the specific antenna installation instructions included with the outside antenna (sold separately).



The outside antenna must be installed vertically. Signal performance will be degraded if the antenna is not vertical.

The antenna cable may be run through the door to the amplifier.



For a more professional-looking installation, the antenna cable may be run under the door seal. Carefully pull down the door seal. Run the cable through the seal and push the seal back into place. This prevents constant wear and tear on the cable as the door opens and closes.



The antenna cable is small enough to easily tuck under the door seal or plastic molding.

In-Vehicle

Installing an Amplifier



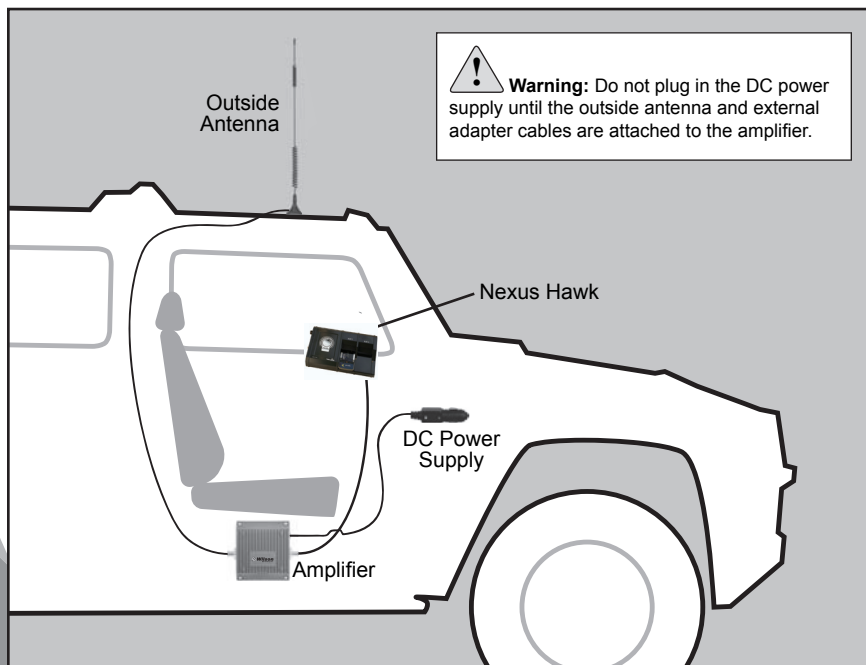
Select a location to install the amplifier that is away from excessive heat, direct sunlight, moisture and that has proper ventilation.

Recommended installation locations for in-vehicle are:

- Nexus Enclosure
- Under the seat
- In the trunk
- Under the dash



Run the cable from the outside antenna and attach it to the FME-Male connector labeled "outside antenna" on the amplifier.



Installing a Cable Assembly

An 18-inch external cable assembly is required to connect cellular data card to the amplifier. The external adapter is cell phone/data card-specific and may be purchased through your Nexus authorized VAR.



**Sample
adapter**

Refer to the Nexus Guide to identify the right adapter for your cellular data card. The adapter adapter guide is available through the Nexus VAR or visit www.nexusisr.com.

The external adapter plugs into the included antenna extension cable and directly into a socket on the cellular data card.

The external adapter and the included extension cable are long enough to reach the amplifier location. This allows for ease and convenience of use.

Run the extension cable from the external adapter and attach it to the FME-Male connector labeled “cellular phone” on the amplifier.

In-Building

Installing an Outside Antenna – In-Building

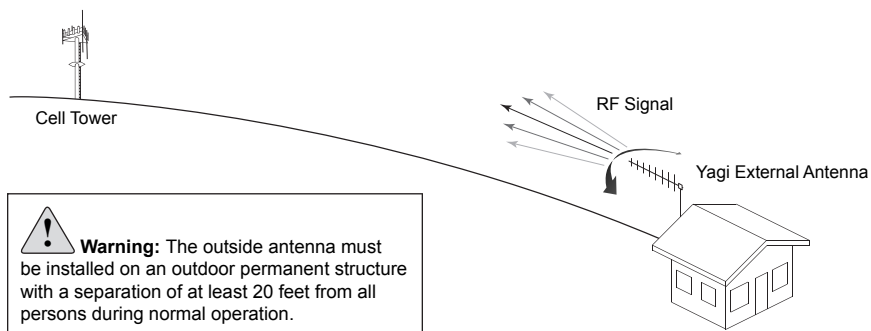
Select a location on the roof of the building to install the outside antenna that has the most unobstructed line of sight to the cell tower.

Follow the specific antenna installation instructions included with the outside antenna.

Lightning protection is recommended for all in-building installations. Take extreme care to ensure neither you nor the antenna come in contact with any electrical power lines.

A Yagi antenna must be installed horizontally with the elements vertical and the drip hole on the bottom. Ensure there are three feet of clearance in all directions surrounding the antenna.

To obtain maximum performance, the antenna should point toward the cell tower. Follow the instructions included with the outside antenna.

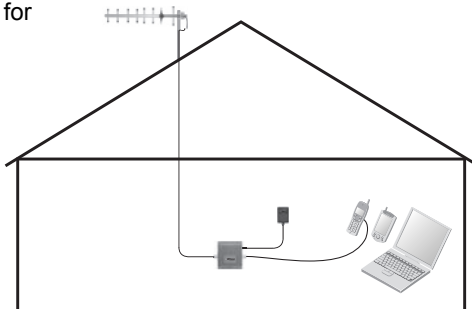


Installing an Amplifier

Select a location to install the amplifier that is away from excessive heat, direct sunlight, moisture and that has proper ventilation. Ensure the amplifier is installed within six feet of where the cell phone or cellular data card will be used (to accommodate the six-foot adapter extension cable). Run the cable from the outside antenna and attach it to the FME-Male connector labeled “outside antenna” on the amplifier. Connect the AC/DC power supply (sold separately) to the power input labeled “DC 12 V IN” on the amplifier.

Recommended installation locations for in-building are:

- On a wall
- On the ceiling
- Near a power outlet



Installing a Cable Assembly

An 18-inch cable assembly adapter is required to connect the cellular data card to the amplifier. The external adapter is cell phone/data card-specific and may be purchased through a Nexus Authorized VAR.



**Sample
adapter**

Refer to Nexus' Product Guide to identify the right adapter for your cell phone or cellular data card. The adapter guide is available through a your Nexus VAR or visit www.nexusisr.com.

The external adapter plugs into the included six-foot extension cable and directly into a socket on the cell phone or cellular data card.

(NOTE: See the user's manual for your specific phone or data card to determine the socket location.)

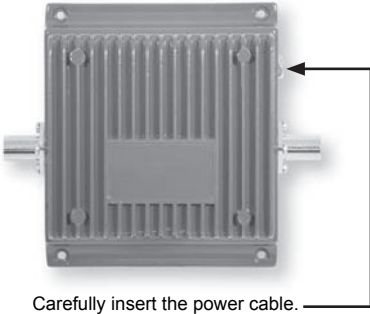
Run the extension cable from the external adapter on the cellular data card and attach it to the FME-Male connector labeled "cellular phone" on the amplifier

Extension Cable Chart

The longer the extension cable, the more loss and lower throughput you will experience. Below is an example of some loss values.

5' Extension Cable RG58U Low Loss Coax	0.6 dB loss
10' Extension Cable RG58U Low Loss Coax	1.2 dB loss
15' Extension Cable RG58U Low Loss Coax	1.8 dB loss
20' Extension Cable RG58U Low Loss Coax	2.4 dB loss, N-Male to FME-Female
20' Extension Cable 9913 Equivalent Ultra Low Loss Coax	Only use 9913 Equivalent Low Loss Coax for extensions 20' or longer, 0.8 dB loss
30' Extension Cable 9913 Equivalent Ultra Low Loss Coax	1.2 dB loss
50' Extension Cable 9913 Equivalent Ultra Low Loss Coax	2.0 dB loss
75' Extension 9913 Equivalent Ultra Low Loss Coax	3.0 dB loss
100' Extension 9913 Equivalent Ultra Low Loss Coax	4.0 dB loss
2' Extension 9913 Equivalent Ultra Low Loss Coax (N-Male to N-Male Ends)	0.08 dB loss, Jumper Coax - Can be used to connect a splitter behind an amplifier.
2' Extension RG58U Low Loss Coax (N-Male to FME-Female)	Used with the Yagi antenna to help find the optimum signal strength (for installation purposes only).

Powering up an Amplifier



Warning: Verify that both the outside antenna and the adapter extension cable are connected to the amplifier before powering up the amplifier.

For **in-vehicle**, first connect the power cable to the amplifier input marked "DC 12 V IN" and then insert the large end into a 12 V DC power socket or cigarette lighter outlet.

The amplifier may remain on all the time; however, leaving the amplifier on in a vehicle when it is not running can discharge the battery in a day or two.

A good option is to power the amplifier through the ignition switch so that the amplifier turns off and on with the vehicle.



In-vehicle 12-volt DC power supply (optional)

For **in-building**, first connect the optional AC/DC power supply to the amplifier input labeled "DC 12 V IN" and then into a wall outlet.



In-building AC/DC power supply (optional)







Warning: Use only a rated power supply. Use of an incorrect rated product could damage your equipment.

Testing an Amplifier

To test your amplifier, go to a weak signal area where your air card registers low signal without the amplifier turned on. Then, connect the amplifier to the air card and you should see a signal improvement.

Note: You must disconnect and reconnect the air card to determine signal strength.

Warnings and Recommendations

-  Warning: Verify that both the outside antenna and the adapter extension cable are connected to the amplifier before powering up the amplifier.
-  Warning: **RF Safety:** In-vehicle - The outside antenna must be installed with a separation of at least 16 inches from any of the vehicle's occupants or nearby persons and must not be located or operating in conjunction with any other antenna or amplifier. Use of a cellular amplifier with an antenna gain higher than 5.12 dBi is in violation of FCC regulations, for which the offender is fully liable. Utilize mobile antennas that are 5.12 dBi or less.
-  Warning: **RF Exposure Compliance:** In-vehicle - All roof-mount antennas should be centrally located on the roof of the vehicle. Glass-mount antennas should be located in the middle of either the front or back windshield. Mirror-mount antennas should be at least six inches from the ground and leave at least 16 inches of separation from any persons in or around the vehicle.
-  Warning: **RF Safety:** In-Building - The outside antenna must be installed on an outdoor permanent structure with a separation of at least 20 feet from all persons during normal operation.

Lightning protection is recommended for all in-building installations.

NOTE: The aluminum casing of the amplifier will adjust very quickly to the ambient temperature of its environment. For example, in the summer, when the inside of a car can reach 140 degrees Fahrenheit, the amplifier temperature may be 150 degrees or higher. The casing will be hot to the touch, similar to a metal door handle or a steering wheel. Such high temperatures will not damage the amplifier, nor do they pose a fire risk to the vehicle. As recommended in these instructions, install the amplifier in a location with adequate ventilation, such as under the seat, in the trunk or under the dashboard. Keep the area free of items that could block air flow to the amplifier.

Amplifier Specifications

Model Number	Dual-Band 811201	GSM / TDMA 812201
Frequency	824-894 MHz / 1850-1990 MHz	
Gain (up/down)	Cell site controlled	14 dB
Max RF	+ 35 dBm / +15 dBm	
Noise Figure	3.5 dB nominal	
Flatness (up/down)	± 2 dB / ± 2 dB	
Isolation	> 50 dB	
Power Requirements	12 V, 0.5-1.5 A	
Connectors	FME-Male 50 ohms	
Dimensions	5.5 x 4.3 x 1.4 (inch) / 14 x 10.8 x 3.5 (cm)	
Weight	1.32 lbs / 0.6 kg	