

Amplifier Installation Guide



SIGNALBOOST™
900/1900 MHz
iDEN
Amplifier

Contents:

Guarantee and Warranty	1
How it Works	2
Before Getting Started	3
Installation Overview	3
Installing the Antenna (Vehicle)	4
Installing the SIGNALBOOST™ Amplifier (Vehicle)	5
Installing the Antenna (Home/Office)	7
Installing the SIGNALBOOST™ Amplifier (Home/Office)	7
Installing the Universal Connector (Cellular Data Card)	7
Powering Up the Amplifier	8
Warnings and Recommendations	9
About Wilson Electronics	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

All Wilson Electronics products are protected by Wilson's 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

Wilson Electronics 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.

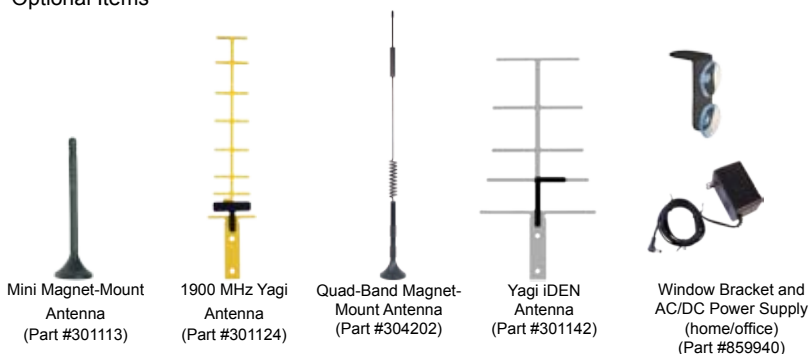
Amplifiers may also be returned directly to the manufacturer at the consumer's expense, with a dated proof of purchase and a Returned Material Authorization (RMA) number supplied by Wilson Electronics. Wilson shall, at its option, either repair or replace the product. Wilson Electronics will pay for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

This warranty does not apply to any amplifiers determined by Wilson Electronics 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 866-294-1660.

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.

Optional Items



Disclaimer: The information provided by Wilson Electronics, Inc. is believed to be complete and accurate. However, no responsibility is assumed by Wilson Electronics, Inc. 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.

Installation Instructions for the Following Wilson Amplifier:

SIGNALBOOST™ 900/1900 MHz iDEN Amplifier

Model #2B4310, Part #814310

FCC ID: PWO2B4310SM IC: 4726A-2B4310SM

Patent Pending

The term "IC" before the radio certification number only signifies that Industry Canada technical specifications were met.

Inside this Package



SIGNALBOOST™
amplifier



12 V DC power
supply (vehicle)



VELCRO®



Universal
connector



Cell Phone
Cradle Plus



Adhesive
Bracket



Adhesive/Screw
Swivel Bracket



Air-vent
Bracket

How it Works

Your new Wilson SIGNALBOOST™ Amplifier has been carefully engineered to significantly improve the performance of your cell phone or cellular data card. Together with an antenna, the amplifier's state-of-the-art technology is designed to increase your signal up to 10-15 times, reduce disconnects and dropouts, and increase data communication rates needed for 3G technologies. The universal connector works with all iDEN data cards.

The antenna will collect the cell tower signal and send it through the cable to the amplifier. The signal is then boosted and sent through the extension cable to either the universal connector on your data card or the cradle antenna with your cell phone, which then communicates with the improved signal. When the cell phone or data card transmits, the signal goes through either the universal connector or the cradle antenna, is boosted by the amplifier and broadcast back to the cell tower through the antenna.

NOTE: Use of this amplifier with an antenna gain higher than 6.12 dBi on a vehicle or within a building is in violation of FCC regulations. All Wilson mobile antennas have 6.12 dBi or less gain. Use of this amplifier with an outside fixed building antenna gain exceeding 15 dBi is in violation of FCC regulations. All Wilson Yagi antennas have gains of 15 dBi or less. Use of antennas with higher than the above maximum allowable gains is in violation of FCC regulations for which the offender is fully liable.

Before Getting Started

This guide will help you properly install Wilson's dual-band, SIGNALBOOST™ amplifier. **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, please contact Wilson Technical Support at 866-294-1660.

Installation Overview

The following steps provide a summary of the amplifier/antenna installation process using a magnet-mount or mini magnet-mount antenna. However, they are not a substitute for the complete installation instructions on the following pages, which you should read thoroughly. If you are using a different antenna, follow the specific instructions that come with it.

STEP 1 Install the Antenna

For a vehicle installation, attach the antenna in the center of the vehicle's roof and run the cable through the door to the amplifier. For a home or office installation, attach the magnet-mount or mini magnet-mount antenna to the optional window bracket, affix the bracket to a window with the suction cups and run the cable to the amplifier. (See pages 4 and 6 for details and warnings.)

STEP 2 Install the Amplifier

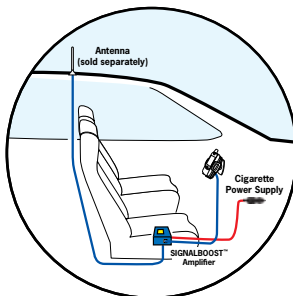
Position the amplifier in a well-ventilated location away from direct sunlight. Run the cable from the antenna and attach it to the FME-Male connector labeled "outside antenna" on the amplifier. (See pages 5 and 6 for details.)

STEP 3 Attach the Universal Connector or the Cradle Antenna

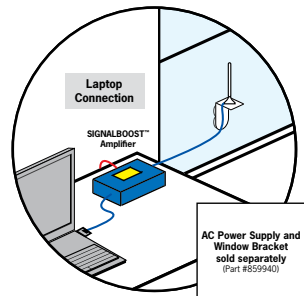
Attach the universal connector cable to the FME-Male connector labeled "Universal Connector" on the amplifier. Attach the other end of the cable to your cellular data card with the supplied VELCRO®. (See page 7 for details.) Or, attach the Cradle Antenna cable to the amplifier.

STEP 4 Power up the Amplifier

IMPORTANT! Before connecting the power supply, ensure that both the antenna cable and the cable to either the Cradle Antenna or the Universal Connector are connected. (See page 8 for details.)



Mobile Installation Diagram



Home/Office Installation Diagram

Installing the 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.

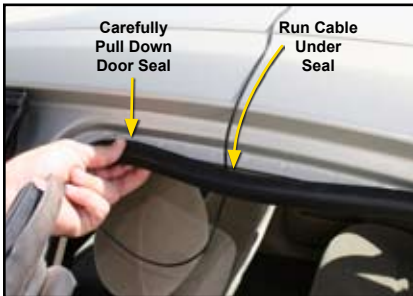


The antenna must be installed vertically. Signal performance will be degraded if the antenna is not vertical.

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



Warning: The mobile antenna used with this amplifier must have a separation distance of at least 8 inches from all persons.



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.

Vehicle Installation

Installing the Wilson SIGNALBOOST™ Amplifier



Warning: Do not plug in the DC power supply until the antenna and other cables are attached to the amplifier.



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

Recommended installation locations are:

- Under the seat
- Under the dash

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



Attach the cradle antenna cable to the FME-Male connector labeled "Universal Connector" on the amplifier.

Installing the Cradle Plus



Option 1 - Air Vent Bracket

Insert the two vent clips into the circular hole in the bracket and slide them to each end of the slot. The flat surface of the clips should face upwards.

Slide the bracket clips into the chosen vent until they snap into place. If necessary, use a thin-bladed screwdriver to gently pry the clips apart as they slide into the vent.

Position the moveable arm at the base of the bracket to achieve the desired angle and to provide additional stability for the bracket.



Option 2 - Adhesive Bracket

Clean the area where the bracket is to be mounted with rubbing alcohol and a soft cloth. Allow to dry.

Peel the backing to expose the adhesive and press the bracket onto the desired location in the vehicle. Note: be sure the bracket is positioned **vertically**, not horizontally.

Allow the adhesive to cure for 24 hours before you attach the cradle.

Note: Once the cradle is attached, you can adjust the angle of the adhesive bracket by applying gentle pressure to the top or bottom of the cradle.



Option 3 - Adhesive/Screw Swivel Bracket

Clean the area where the bracket is to be mounted with rubbing alcohol and a soft cloth. Allow to dry.

For an adhesive mount, peel the backing to expose the adhesive and press the bracket onto the desired location in the vehicle. Allow the adhesive to cure for 24 hours before you attach the cradle.

For a screw mount, use an ice pick or awl to punch through the adhesive and expose the four screw holes in the bracket. You must provide the screws of an appropriate size for your particular application. Using the bracket as a template, mark the locations for the screws as shown, drill pilot holes and attach the bracket with screws.

Once the cradle is attached, you can loosen the knurled wheel and swivel the hook to the desired angle, then re-tighten the wheel.

For best mounting results and long-term performance, we suggest that you choose a flat smooth surface like the console area of your vehicle between the two front seats. If this is not available in your vehicle, you may mount the cradle on the front of the dashboard.

If mounting the cradle on a sloped area of the dashboard in your vehicle, please note that gravity may affect the adhesive over time. Use the screw mount for a more permanent attachment.

Attaching the Cradle

Once you have installed the mount in the desired location, attach the cradle by aligning the rectangular hole on its back with the hook on the mount. Grasping the sides of the cradle, slide it downward approximately $\frac{1}{4}$ inch into place.

Home/Office Installation

Installing the Antenna

To receive the best cell signal, select a window location at least 12 inches away from any radio or television antennas and free of obstructions.



Using the suction cups, position the optional mounting bracket on the window at a height convenient to where the amplifier will be located, then attach the antenna to the bracket.

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



Warning: The bracket mounted antennas used with this amplifier must have a separation distance of at least 8 inches from all persons.

Installing the Wilson SIGNALBOOST™ Amplifier



Warning: Do not plug in the AC power supply until the outside antenna and universal connector cables are attached to the amplifier.

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

Recommended installation locations are:

- On a desk or table top
- In a bookshelf
- On the floor

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

Attach the universal connector cable to the extension cable and attach the extension cable to the FME-Male connector labeled “Universal Connector” on the amplifier.

Then attach the universal connector to your cellular data card.

Installing the Wilson Universal Connector

Amplifier



Universal Connector



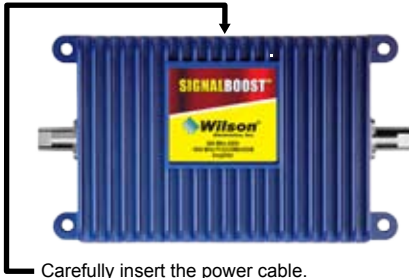


Cellular data card

The universal connector must be placed directly on the cellular data card to work properly. Attach the universal connector to the cellular data card with the VELCRO® included in the package. **IMPORTANT:** The adhesive of the gray Velcro patch needs time to “cure.” For best results, do not use the Velcro connection for a minimum of 24 hours after application.

The universal connector and extension cable included in the package are long enough to reach the amplifier location. This allows for ease and convenience of use.

Powering up the Amplifier



Carefully insert the power cable.

Make sure both the outside antenna and other cables are connected before powering up the amplifier.

For vehicle use, connect the power cable from the DC power supply to the amplifier input marked “Power” and insert the large end into DC power socket (the cigarette lighter outlet).

For home or office use, connect the cable from the AC/DC power supply (sold separately) to the amplifier input marked “Power” and insert the plug end into a standard wall outlet.



12 V DC power supply (included)



Warning: Use only Wilson power supply units. Use of a non-Wilson product may damage your equipment.



AC/DC power supply (not included)




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 the amplifier is turned on and off with the vehicle.

IMPORTANT: Do not power up the amplifier unless the antenna and other cables are attached to the amplifier.

NOTE: The aluminum casing of the SIGNALBOOST™ 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 steering wheel. Such high temperatures will not damage the amplifier, nor do they pose a fire risk. As recommended in these instructions, when installing the amplifier in a vehicle, select a location with adequate ventilation, such as under the seat or dashboard. Keep the area free of items that could block air flow to the amplifier.

Warnings and Recommendations

-  Warning: Do not plug the amplifier directly into the cell phone or cellular data card using an antenna adapter. It will damage the cell phone or cellular data card.
-  Warning: Do not plug in the power supply until the antenna other cables are attached to the amplifier.
-  Warning: **RF Safety:** Vehicle and indoor building antennas must be installed with a separation of at least 8 inches from all persons. Fixed outdoor building antennas must be installed with a separation distance of at least 24 inches from all persons. These antennas must not be located or operating in conjunction with any other antenna or amplifier.

NOTE: Use of this amplifier with an antenna gain higher than 6.12 dBi on a vehicle or within a building is in violation of FCC regulations. All Wilson mobile antennas have 6.12 dBi or less gain. Use of this amplifier with an outside building antenna gain exceeding 15 dBi is in violation of FCC regulations. All Wilson Yagi antennas have gains of 15 dBi or less. Use of antennas with higher than the above maximum allowable gains is in violation of FCC regulations for which the offender is fully liable.

Recommended amplifier installation locations for a vehicle are:

- Under the seat
- Under the dash

Power the amplifier through the ignition switch so the amplifier is turned on and off with the vehicle.

Recommended amplifier installation locations for a home or office are:

- On a desk or table top
- In a bookshelf
- On the floor

About Wilson Electronics



Wilson Electronics, Inc. has been a leader in the wireless communications industry for nearly 40 years. The company designs and manufactures amplifiers, antennas and related components that significantly improve cellular telephone signal reception and transmission in a wide variety of applications, both mobile and in-building.

With extensive experience in antenna and amplifier research and design, the company's engineering team uses a state-of-the-art testing laboratory, including an anechoic chamber and network analyzers, to fine-tune antenna designs and performance. For its amplifiers, Wilson uses a double electrically insulated RF enclosure and cell site simulators for compliance testing.

All products are engineered and assembled in the company's 50,000-square-foot headquarters in St. George, Utah. Wilson has product dealers in all 50 states as well as countries all over the world.

Amplifier Specifications

		Dual Band 900/1900 MHz Specifications	
Model Number	2B4310		
Connectors	FME-Male		
Impedance (input/output)	50 Ohms		
Dimensions	5 x 3.5 x 1.2 inch or 12.7 x 8.9 x 3 cm		
Weight	1.03 lbs or 0.468 kg		
Frequency	896-940 MHz / 1850-1990 MHz		
¹Passband Gain (nominal)	25 dB typical, 30 dB maximum		
²20 dB Bandwidth (nominal)	900 MHz	8 MHz maximum	
	1900 MHz	74 MHz maximum	
³Power output for single cell phone (uplink)	900 MHz	1900 MHz	
	CDMA	29.0 dBm	
	GSM	29.2 dBm	
	EDGE	29.0 dBm	
	iDEN	29.6 dBm	
Power output for single received channel (downlink)	900 MHz	1900 MHz	
	CDMA	8 dBm	
	GSM	8 dBm	
	EDGE	8 dBm	
	iDEN	-6.6 dBm	
⁴Power output for multiple received channels (downlink).	Maximum Power		
The maximum power is reduced by the number of channels:	Number of channels	900 MHz	1900 MHz
	2	5.8 dBm	13.3 dBm
	3	2.2 dBm	9.8 dBm
	4	-0.3 dBm	7.3 dBm
	5	-2.2 dBm	5.3 dBm
	6	-3.8 dBm	3.8 dBm
Noise Figure (typical)	3.5 dB nominal		
Isolation	uplink/downlink more than 50 dB		
Power Requirements	12 V, 2 A (subject to uplink power)		

- Notes:
1. Nominal gain is the maximum gain at any frequency in the passband.
 2. Nominal bandwidth is the difference between two frequencies that are adjacent to the passband where the amplification is 20 dB lower than the passband amplification. One of the frequencies is lower than the passband and the other is higher.
 3. The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.
 4. The maximum power for 2 or more simultaneous signals will be reduced by 6 dB every time the number of signals is doubled.



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