

# Amplifier Installation Guide



SIGNALBOOST™  
Dual-Band  
Cellular / PCS  
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) .....	6
Installing the SIGNALBOOST™ Amplifier (Home/Office)	6
Installing the Universal Connector .....	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.

**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.

Copyright © 2007 Wilson Electronics, Inc. All rights reserved.

## Installation Instructions for the Following Wilson Amplifier:

### SIGNALBOOST™ Dual-Band Cellular/PCS Amplifier

Model/Part #811210 / Part #811211

FCC ID: PWO819DA

IC: 4726A-819DA

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)



Mini Magnet-  
Mount Antenna  
(811211 only)



Universal  
connector



VELCRO®



Cable Wrench

### 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 in both vehicle and home/office applications. 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 fits all cellular and PCS phones and data cards. (Not designed for iDEN/NEXTEL)

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 the universal connector on your cell phone or data card, which then communicates with the improved signal. When the cell phone or data card transmits, the signal goes through the universal connector and the extension cable, 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 is in violation of FCC regulations for which the offender is fully liable. All Wilson mobile antennas are 6.12 dBi or less.



Mini Magnet-Mount  
Antenna  
(Part #301113)



12-inch Magnet-Mount  
Antenna  
(Part #301103)



Soft Carrying  
Case  
(Part #859924)



Window Bracket and  
AC/DC Power Supply  
(home/office)  
(Part #859940)

### Optional Items

## 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 the mini magnet-mount antenna (included with Part #811211). 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 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

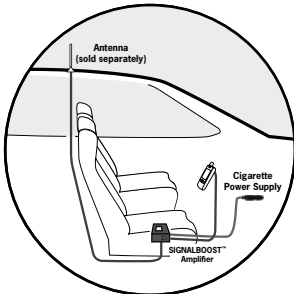
Position the amplifier in a well-ventilated location away from direct sunlight. Run the cable from the antenna and attach it to the FME-Male connector labeled "outside antenna" on the amplifier. (See pages 5 and 6 for details.)

### STEP 3 Attach the Universal Connector

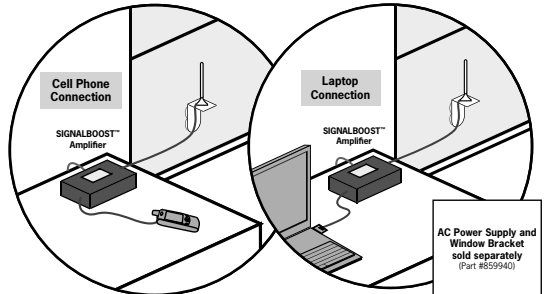
Attach the universal connector cable to the FME-Male connector labeled "Universal Connector" on the amplifier. Attach the other end of the cable to your cell phone or cellular data card with the supplied VELCRO®. (See page 7 for details.)

### STEP 4 Power up the Amplifier

**IMPORTANT!** Before connecting the power supply, ensure that both the antenna cable and the universal connector cable 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.

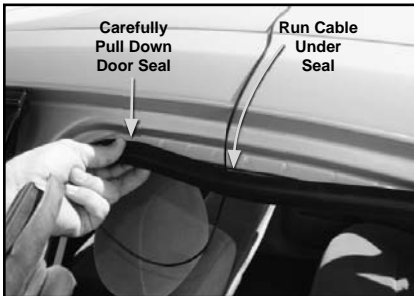


The antenna must be installed vertically. Signal performance will be degraded if the antenna is not vertical.

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



**Warning:** The antenna used with this amplifier must have a separation distance of at least 11 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 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:

- 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 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 cell phone or data card. (See page 7)

# 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 antenna used with this amplifier must have a separation distance of at least 11 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 mini magnet-mount 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 cell phone or data card. (See page 7)

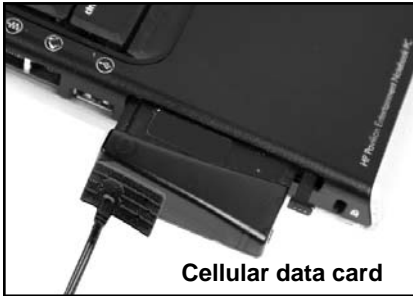


## Installing the Wilson Universal Connector

Amplifier



Universal Connector



Cellular data card

The universal connector must be placed directly on the cell phone or cellular data card to work properly. Attach the universal connector to the cell phone or cellular data card with the VELCRO® included in the package.

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.

To adjust the universal connector for the best signal, go to a weak signal location where your cell phone registers only 1-2 bars without the universal connector connected. (Be sure the amplifier is turned off when checking for low signal.) Then, attach the universal connector to the phone, power up the amplifier and you should see a signal improvement of 2 or more bars.

**NOTE:** Many phones take up to 20 seconds to reset the bar indicator.

To maximize performance, attach the universal connector as close as possible

to the original antenna on your cell phone or cellular data card.

For cell phones with an internal antenna, place the universal connector on the back, upper left-hand corner of the phone. (Figure 1)

**NOTE:** Certain phones, such as the Motorola RAZR, have internal antennas at the base, rather than the top, in which case the universal connector should be attached at the bottom rear of the phone.

For cell phones with an external antenna, place the universal connector directly below the phone's original antenna. (Figure 2)

If you have any questions as to the location of the antenna on your phone, call Wilson Technical Support at 866-294-1660 or visit [www.wilsonelectronics.com](http://www.wilsonelectronics.com).



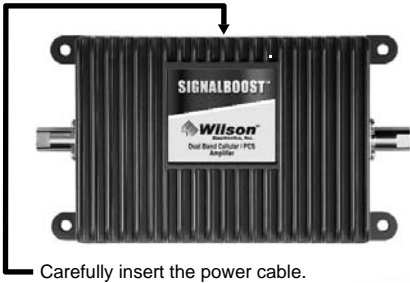
Figure 1

Figure 2

To Amplifier



## Powering up the Amplifier



Make sure both the outside antenna and universal connector 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 universal connector 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 and universal connector cables are attached to the amplifier.
-  Warning: The antenna must be installed with a separation of at least 11 inches from nearby persons and must not be located or operating in conjunction with any other antenna or amplifier. Use of this amplifier with an antenna gain higher than 6.12 dBi is in violation of FCC regulations for which the offender is fully liable. All Wilson mobile antennas are 6.12 dBi or less.

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 Canada and Mexico, Central and South America.



# Amplifier Specifications

		Dual Band 800/1900 MHz Specifications	
<b>Model Number</b>	811210		
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	824-894 MHz / 1850-1990 MHz		
<b><sup>1</sup>Passband Gain (nominal)</b>			
	800 MHz (uplink/downlink)	26 dB / 26 dB	
	1900 MHz (uplink/downlink)	26 dB / 26 dB	
<b><sup>2</sup>20 dB Bandwidth (nominal)</b>			
	800 MHz (uplink/downlink)	53 MHz / 62 MHz	
	1900 MHz (uplink/downlink)	112 MHz / 110 MHz	
<b><sup>3</sup>Power output for single cell phone (uplink)</b>			
	800 MHz	1900 MHz	
	CDMA	+33.0 dBm	+29.3 dBm
	GSM	+34.3 dBm	+30.3 dBm
	EDGE	+34.1 dBm	+30.2 dBm
	AMPS	+30.1 dBm	
<b>Power output for single received channel (downlink)</b>			
	800 MHz	1900 MHz	
	CDMA	+5.1 dBm	+6.8 dBm
	GSM	+3.2 dBm	+4.4 dBm
	EDGE	+3.2 dBm	+4.6 dBm
	AMPS	+3.2 dBm	
<b><sup>4</sup>Power output for multiple received channels (downlink).</b>			
		Maximum Power	
The maximum power is reduced by the number of channels:	Number of channels	800 MHz	1900 MHz
	2	+1.0 dBm	+1.7 dBm
	3	-2.5 dBm	-1.8 dBm
	4	-5.0 dBm	-4.3 dBm
	5	-7.0 dBm	-6.3 dBm
	6	-8.5 dBm	-7.8 dBm
Noise Figure (typical)	3.5 dB nominal		
Isolation	uplink/downlink more than 50 dB		
<b>Power Requirements</b>	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.

