

**AG Pro™ 70**  
**Adjustable Gain Signal Booster**  
**460105**

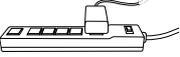
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[www.WilsonElectronics.com](http://www.WilsonElectronics.com)



**Tech Support 866-294-1660**  
Mon.- Fri. Hours: 7 am to 6 pm MST

 <p>IT IS VERY IMPORTANT TO POWER YOUR SIGNAL BOOSTER USING A SURGE PROTECTED AC POWER STRIP WITH AT LEAST A 1000 JOULE RATING.</p>  <p>FAILURE TO DO THIS WILL VOID YOUR WARRANTY IN THE EVENT OF A POWER SURGE OR LIGHTNING STRIKE.</p>	 <p>THE SIGNAL BOOSTER UNIT IS DESIGNED FOR USE IN AN INDOOR, TEMPERATURE-CONTROLLED ENVIRONMENT (LESS THAN 150 DEGREES FAHRENHEIT). IT IS NOT INTENDED FOR USE IN ATTICS OR SIMILAR LOCATIONS SUBJECT TO TEMPERATURES IN EXCESS OF 150°F.</p>
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**Installation Instructions for the Following Wilson Electronics Signal Booster:**

**AG Pro™ 70 In-Building Wireless 800/1900 MHz  
 SmarTech III™ Signal Booster  
 Model # 460005 FCC ID: PWO460005**

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## Package Contents



AG PRO™ 70



AC Power Supply  
6V / 2.5A  
(Not included with some models)  
**(859912)**



Outside Antenna Kit  
50 Ohm Wide Band Antenna  
75' LMR Cable  
**(314411-40075)**

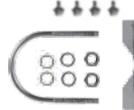


Panel Antenna Kit  
Panel Antenna  
60' LMR Cable  
**(311135-40075)**

### Upgrade Option (311155-0630)



Panel Antenna  
w/F-Female Connectors  
RG6 30' Coax Cable  
w/F-Male Connectors  
*Required F-Female to N-Male  
adapter*



Pole Mount Bracket



Wall Mount Bracket

### Tools Required for Installation:

(depending on your particular installation, you will need the following tools)

1. Pole mount - 10 mm open-end wrench or adjustable wrench
2. Wall mount - Drill and 3/16 inch bit, Phillips-head screwdriver

## Before Getting Started

Before you install your AG Pro 70 and start enjoying improved cellular reception in your facility, please do the following:

1. Read through all the installation steps. This will help you know what to expect from start to finish.
2. Watch the YouTube video demonstrating the AG Pro 70 installation at [wilsonelectronics.com/AGPro70video](http://wilsonelectronics.com/AGPro70video).
3. Familiarize yourself with all materials in your product package. This will allow you to know which pieces are referenced in the instructions.
4. Identify the location of your best available cellular signal. See instructions that follow.
5. Determine the best installation locations for your Outside Antenna, Signal Boost, and Inside Antenna. Test the function of your AG Pro 70 system before finalizing installation.

## Find the Strongest Cellular Signal

Before you install your AG Pro 70 signal booster, you must determine the location of the best available cellular signal. This will affect the location of your Outside Antenna and will help you get the best performance from your AG Pro 70. You can find the strongest signal outside your building, typically at the highest point available, using any of the following methods:

### 1. **Best method:**

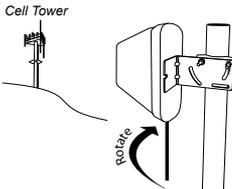
Connect the Outside Antenna to the AG Pro 70 signal booster, and the AG Pro 70 to the Inside Antenna. Have one person outside (on the roof for best results) rotate the Outside Antenna with a second person inside the building near the Inside Antenna watching the signal strength on a phone. This allows you to read the signal strength from nearby cell towers.

- a. The person inside should have the phone in test mode so the numerical signal strength can be read. This is more accurate than

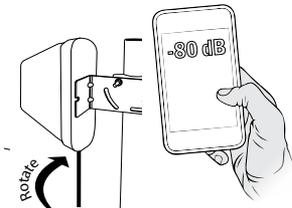


the bar indicator. Go to [www.wilsonelectronics.com/test-mode-instructions](http://www.wilsonelectronics.com/test-mode-instructions) for help in finding the test mode for your phone.

- b. The person on the roof should turn the Outside Antenna 45 degrees at a time. Allow 30 seconds for the phone to register with each turn.



- c. The person inside should note the readings on the phone with each turn. Signal readings usually appear as a negative number. The closer the number gets to zero, the stronger the signal (for example, -86 dB would be a moderately good reading while -55 dB would be an excellent reading, and -110 dB would be a weak, or unusable signal).



- d. Once you have determined which direction provides the strongest outside signal, you can install the Outside Antenna in that general direction.

## 2. Good methods:

- a. Place calls from several locations outside your building. As you move to different locations, note where you get the best reception.
- b. If you have a smart phone, you can download apps that help you identify locations of cell phone towers or the strongest signal. Go to the App Store and search for "cell signal" to find available apps for your device.



4

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3. **Acceptable method:** Check the bar indicator on your cell phone display and note where the signal appears the strongest. (Note: cell phone bars are only an approximation of signal strength and vary from phone to phone.) Phones can take up to 30 seconds to reset to a new reading. Be patient and repeat your signal check several times.

WAIT 30 SECONDS

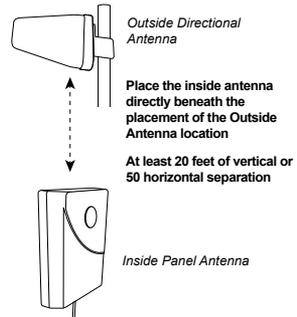


For additional instructions on finding the strongest cellular signal, watch the installation video at: [www.wilsonelectronics.com/AGPro70video](http://www.wilsonelectronics.com/AGPro70video).

## Installation Details

As you plan your installation, keep the following guidelines in mind to maximize your signal strength:

1. Maintain a vertical distance of at least 20 feet or a horizontal distance of at least 50 feet between the Outside Antenna to the Inside Antenna.



2. Be sure the Inside Antenna is NOT facing toward the Outside Antenna. This creates potential oscillation or feedback and reduces the effectiveness of the AG Pro 70.
3. If you do not know how to mount hardware or run coax cable through walls, ceilings and floors, get help from a Wilson Certified Installer

at [www.wilsonelectronics.com/wci](http://www.wilsonelectronics.com/wci) or from a qualified contractor or electrician.

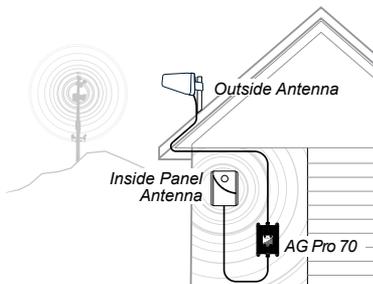
We recommend you install a Lightning Surge Protector (**859902 sold separately**). Attach the cable from the Outside Antenna to the surge protector and ground the surge protector. See diagram on page 10 for more details.

## Quick Install

For more detailed instructions on installation, read the description later in this guide or watch the video at [www.wilsonelectronics.com/AGPro70video](http://www.wilsonelectronics.com/AGPro70video).

NOTE: Create a “soft” install first by testing components in your proposed locations before securing them with hardware.

1. Select a location on the roof of the building to install the Outside Antenna. Make sure the antenna is clear of obstructions that could block the signal from the nearest cellular tower.
2. Select a location to install the Signal Booster that is well ventilated and away from excessive heat, moisture, and direct sunlight.
3. Select a location for the Inside Antenna that is in the center of the area where the signal needs to be amplified and a minimum of 20 vertical feet or 50 horizontal feet from the Outside Antenna.



4. Run the coax cable from the Outside Antenna to the Signal Booster and attach it to the connector labeled “Outside Antenna.” Connect another coax cable to the connector labeled “Inside Antenna” and run it to the Inside Antenna. NOTE: Be careful not to bend the center pins on the connectors when securing connections.

5. Once you have ensured all connections are tight, connect the Signal Booster to a surge protected power strip with at least a 1000 Joule rating to protect your equipment from power surges and lightning strikes. (See page 10 for information on lightning protection)
6. If your AG Pro 70 is working correctly, the lights will be green. If the lights are orange or red, see the “Troubleshooting” section starting on page 6.

## Outside Antenna Installation

1. Select a location on the roof or an outside wall where the Outside Antenna can be mounted without obstruction (at least three feet of clearance in all directions) and with at least 20 feet of vertical or 50 feet of horizontal separation from the Internal Antenna.
2. After connecting the coax cable to the antenna, run it underneath the down side of your roof's flashing if mounted on the roof. Tip: Often you can follow the route used by satellite TV cables. If you attach the Outside Antenna to a wall, run the cable along the outside of the wall to the area where you want the cable to appear on the inside of the building, then drill a hole through the wall where the cable will enter the building. Caution: Before drilling holes for the cable, be sure there are no electrical outlets, wiring, sewer, or water pipes you could puncture or sever.
3. Seal any holes with silicone, cable bushings or other waterproof sealant.

## Inside Antenna Installation

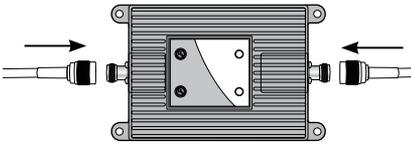
1. Select a location in the center of the area where you want cellular signals improved to mount the Inside Antenna. If you have multiple rooms with poor signal, you may need multiple Inside Antennas. These can attach to the Signal Boost by using a splitter (sold separately). Contact Wilson Electronics for more information.
2. Ensure a minimum of 20 feet vertical or 50 horizontal feet separation from the Outside Antenna.



3. Inside Antennas can be mounted above ceiling drywall, on a ceiling inside a room, or on a wall inside a room. Ensure the Inside Antenna is facing AWAY from the Outside Antenna to avoid oscillation (feedback).
4. Use the mounting hardware included in the package to secure the Inside Antenna to the selected location.

## Signal Booster Installation

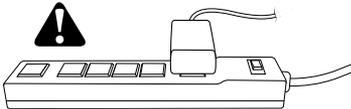
1. Select a location for the Signal Booster that is away from excessive heat, direct sunlight, moisture and well ventilated. The enclosure must NOT be air tight. Also, be sure the location is near a power source.
2. Connect the cables to the Signal Booster from the Outside Antenna and Inside Antenna at the designated ports.



3. Do NOT connect the Signal Booster to the power source until all cables are connected.

## Powering Up The Signal Booster

1. Ensure the cables to both the Outside Antenna and Inside Antenna are securely connected before powering up the Signal Booster.
2. Plug the power supply into the Signal Booster input marked "POWER" and then into a surge protector power strip with a minimum 1000 Joule rating.



3. The lights on the Signal Booster should remain green. If the lights are red or orange, see the "Troubleshooting" section on page 6.

4. If you know that only one frequency band (800 MHz or 1900 MHz) is available in your coverage area, reduce the gain control on the frequency band that is NOT in use to the lowest setting. This will reduce power consumption of the Signal Booster.

For illustrations of these installation steps, view the install video at [wilsonelectronics.com/AGPro70video](http://wilsonelectronics.com/AGPro70video).

## Troubleshooting & Understanding Lights

The Signal Boost includes two indicator lights, one for the 800 MHz band and the other for the 1900 MHz band (see FAQ for explanation of MHz bands). Both indicator lights will be green, orange or red.



**Green** indicates the unit is powered and working properly. You always want the lights to be green.

**Red** indicates the AG Pro 70 has shut down to prevent oscillation (feedback).

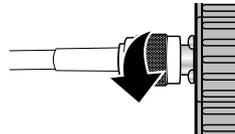
**Orange** indicates the AG Pro 70 is overloaded because it is too close to a cell tower.

**Note:** All red light issues must be resolved before orange light issues.

### Fixing Red Light Issues

If one or both lights on the Signal Boost are red:

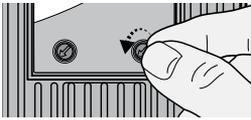
1. Make sure all connections are tight.



2. Reduce the gain of the Signal Booster by rotating the gain control knob corresponding with the red light. This is done by turning the knob counter-clockwise in small increments, waiting



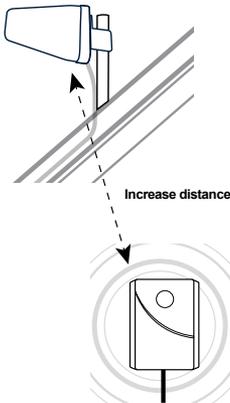
5 seconds between each adjustment for the Signal Booster to reset. Continue this adjustment until the light turns green.



wait 5 seconds between each adjustment

**IMPORTANT NOTE:** Reducing the gain decreases the inside coverage area. If the amount of coverage area is sufficient when the green light comes on, your installation is complete.

3. If the coverage area is not large enough with a reduced gain, you need to increase the distance between the Outside Antenna and the Inside Antenna by moving them horizontally and/or vertically farther apart. Reset the Signal Booster by disconnecting and reconnecting the power supply. If the light is green after separating the antennas, increase the gain until the red light comes on. Then slightly decrease the gain until the green light appears. This ensures maximum coverage.



4. If your coverage area is still too small after separating the antennas contact the Wilson Electronics Technical Support Team for assistance: 866-294-1660.

### Fixing Orange Light Issues

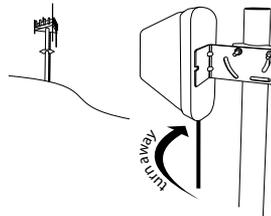
If one or both lights on the Signal Booster are orange:

1. Turn down the gain control (described in the red light instructions above) until you get a green light.
2. If the gain is not adequate for good coverage, move the Outside Antenna away from the strongest cellular signal in small increments. Reset the Signal Booster by disconnecting and reconnecting the power supply. If there is no green light or the Signal Booster will not respond, turn the gain down in 5 dB increments and move the Outside Antenna. Continue to adjust the gain, antenna positions and reset booster until the light turns green.
3. If the light remains orange, contact the Wilson Electronics Technical Support Team for assistance: 866-294-1660.

### Fixing Blinking Red & Orange Light Issues

If one or more of the lights on Signal Booster are blinking red and orange, it indicates that the Signal Booster is experiencing extreme receiver overload and has shutoff.

- a) Turn away Outside Antenna from the cell tower until lights no longer flash. Contact Wilson Electronics Technical Support Team for assistance.



### Fixing Blinking Red Light Issues

If one or more of the lights on Signal Booster are blinking red, this means that the Signal Booster has shutoff.

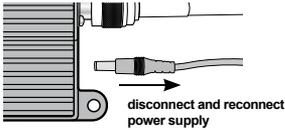
- a) Increase the distance between the cellular device and the Inside Antenna.



## Lights Off

If one or more of the lights on Signal Booster are off verify power to your surge protected power strip.

NOTE: The Signal Booster can be reset by disconnecting and reconnecting the power supply.



For additional descriptions on troubleshooting, see the install video at [wilsonelectronics.com/AGPro70video](http://wilsonelectronics.com/AGPro70video).

## Additional FAQ:

### What hours can I contact tech support?

Technical Support can be reached from 7:00am to 6:00pm MST, by calling (866-294-1660), or by email, at [tech@wilsonelectronics.com](mailto:tech@wilsonelectronics.com)

### How does weather affect the performance of my Outside Antenna?

Water vapor (e.g. rain, fog, snow or other precipitation) creates an effective filter to cellular signal. In times of heavy precipitation, you may see less performance.

### What's the difference between the 800 MHz and the 1900 MHz bands? How do I know which MHz band my cell phone uses?

The AGPro 70 works with all major North American cellular providers on the 800 & 1900 MHz frequencies. Traditionally, 800/1900MHz are associated with voice and 3G data; while 700MHz and 1700/2100MHz are associated with 4G data. For more detail, refer to [wirelessadvisor.com](http://wirelessadvisor.com).



## Inside Antenna Expansion Kit Options

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### Kit 309900-50N

- 2 - Wall Panel antennas
- 1 - 50 ohm 3-Way Splitter

### Kit 309905-50N

- 3 - Wall Panel Antennas
- 3 - 2-Way 50 Ohm Splitters

## Inside Antenna

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### Kit 301121-40010

- 50 Ohm Dome Antenna
- 10' LMR400

### 311135-5820

- 50 Ohm Wall mount Panel Antenna
- 20' RG58 Cable

### 301211

- Desktop Antenna w/ 5' RG174

## 50 Ohm Outside Antennas

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### Kit 314453-5825

- 50 Ohm Pole Mount Panel Antenna
- 25' RG58 Cable

### Kit 314411-5825

- 50 Ohm Wide Band Directional
- 25' RG58 Cable

### Kit 301111-5850

- Yagi Directional Antenna
- 50' RG58 Cable

### Kit 311124-5840

- 1900 MHz Yagi Directional
- 40' RG58 Cable

### Kit 311203-5820

- Omni-Directional antenna
- 20' RG58 Cable

### Kit 311129-5830

- 800 MHz Yagi Antenna
- 30' RG58 Cable

### Kit 311203-40020

- Omni-Directional antenna
- 20' LMR400 Cable

### Kit 301111-400170

- Yagi Directional w/ N-Female
- 170' LMR400

### Kit 311124-400100

- 1900 MHz Yagi Directional
- 100' LMR400 Cable

### Kit 311129-400100

- 800 MHz Yagi Antenna
- 100' LMR400 Cable

### Kit 314453-40075

- 50 Ohm Pole Mount Panel Antenna
- 75' LMR400 Cable



## Safety Guidelines

-  **WARNING:** To uphold compliance with network protection standards, all active cellular devices must maintain at least 6 feet of separation distance from Panel and Dome antennas and 4 feet of separation distance from desktop antennas.
-  **WARNING:** Connecting the Signal Booster directly to the cell phone with use of an adapter will damage the cell phone.
-  **WARNING:** Use only the power supply provided in this package. Use of a non-Wilson Electronics product may damage your equipment.
-  **WARNING:** The Signal Booster unit is designed for use in an indoor, temperature-controlled environment (less than 150 degrees Fahrenheit). It is not intended for use in attics or similar locations subject to temperatures in excess of that range.
-  **WARNING:** Take care to ensure that neither you nor the pole comes near any power lines during installation.
-  **RF SAFETY WARNING:** Any antenna used with this device must be located at least 8 inches from all persons.

### 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.

You **MUST** operate this device with approved antennas and cables as specified by the manufacturer. Antennas **MUST** be installed at least 20 cm (8 inches) from any person.

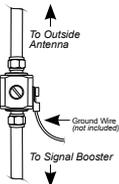
You **MUST** cease operating this device immediately if requested by the FCC or a licensed wireless service provider.

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

This device complies with Part 15 of FCC rules. Operation is subject to two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by Wilson Electronics could void the authority to operate this equipment.



Lightning Surge Protector (sold separately)



#### RECOMMENDED: INSTALLING THE LIGHTNING SURGE PROTECTOR (SOLD SEPARATELY)

INSTALL THE LIGHTNING SURGE PROTECTOR (LSP) CLOSE TO THE SIGNAL BOOSTER. ATTACH THE CABLE FROM THE OUTSIDE ANTENNA TO THE SURGE PROTECTOR. **ENSURE THE LSP IS PROPERLY GROUNDED.** #859992-75 OHM MAY BE PURCHASED AT [WWW.WILSONELECTRONICS.COM](http://WWW.WILSONELECTRONICS.COM) OR BY CALLING 800-204-4104.



## Signal Booster Specifications

		AG Pro 70	
<b>Model Number</b>		460005	
Antenna connectors		N-Female	
Antenna Impedance		50 Ohms	
Dimensions		6.75 x 4.2 x 1.25 inch (17.1 x 10.8 x 3.17 cm)	
Weight		1.27 lbs (0.544 kg)	
Frequency		824-894 MHz / 1850-1990 MHz	
<b>Power output for single cell phone dBm</b>		<b>800 MHz</b>	<b>1900 MHz</b>
		uplink downlink	24.9 -2.2
Noise Figure (typical downlink/uplink)		3.5 dB nominal / 6 dB nominal	
Isolation		> 90 dB	
<b>Power Requirements</b>		110-240 V AC, 50-60 Hz, 8 W	

Each Signal Booster is individually tested and factory set to ensure FCC compliance. The Signal Booster cannot be adjusted without factory reprogramming or disabling the hardware. The Signal Booster will amplify, but not alter incoming and outgoing signals in order to increase coverage of authorized frequency bands only. If the Signal Booster is not in use for five minutes, it will reduce gain until a signal is detected. If a detected signal is too high in a frequency band, or if the Signal Booster detects an oscillation, the Signal Booster will automatically turn the power off on that band. For a detected oscillation the Signal Booster will automatically resume normal operation after a minimum of 1 minute. After 5 (five) such automatic restarts, any problematic bands are permanently shut off until the Signal Booster has been manually restarted by momentarily removing power from the Signal Booster. Noise power, gain, and linearity are maintained by the Signal Booster's microprocessor.



### 30-Day Money-Back Guarantee

All Wilson Electronics products are protected by Wilson Electronics 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.

### 2-Year Warranty

Wilson Electronics Signal Boosters are warranted for two (2) years 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.

Signal Boosters 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 Electronics 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 if located within the continental U.S.

This warranty does not apply to any Signal Boosters determined by Wilson Electronics to have been subjected to misuse, abuse, neglect, or mishandling that alters or damages physical or electronic properties.

Failure to use a surge protected AC Power Strip with at least a 1000 Joule rating will void your warranty.

RMA numbers may be obtained by contacting Technical Support at 866-294-1660.

**Disclaimer:** The information provided by Wilson Electronics, LLC is believed to be complete and accurate. However, no responsibility is assumed by Wilson Electronics, 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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U.S. Patent Nos. – 7,221,967; 7,729,669; 7,486,929; 7,409,186; 7,783,318; 8,583,034; 8,583,033; D694,735



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