

# Smarthome Limited Warranty

Smarthome warrants to the original consumer purchaser of this product that, for a period of one year from the date of purchase, this product will be free from defects in material and workmanship and will perform in substantial conformity to the description of the product in this Owner's Manual. This warranty shall not apply to defects or errors caused by misuse or neglect.

If the product is found to be defective in material or workmanship or if the product does not perform as warranted above during the warranty period, Smarthome will either repair it, replace it or refund the purchase price, at its option, upon receipt of the product at the address below, postage prepaid, with proof of the date of purchase and an explanation of the defect or error. The repair, replacement, or refund that is provided for above shall be the full extent of SmarthomeMFG's liability with respect to this product.

For repair or replacement during the warranty period, call Smarthome customer service to receive an RA# (return authorization number), properly package the product (with the RA# clearly printed on the outside of the package) and send the product, along with all other required materials, to:

Smarthome  
ATTN: Receiving Dept.  
16542 Millikan Ave  
Irvine, CA 92606-5027



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# SMARTHOME™

MAKING LIFE MORE CONVENIENT, SAFE AND FUN



# SignalLinc™

The first plug-in powerline passive phase coupler for improving powerline carrier reliability in a home

Owner's Manual

Model # 4816A2 and 4816B2

Please read this manual thoroughly before using the product

## **CONGRATULATIONS AND INTRODUCTION**

Congratulations on purchasing Signalinc™, the world's first plug-in phase coupler!

Adding a phase coupler to a home's electrical system is the first step in improving the reliability of the automation products used in the home. The Signalinc is the easiest way to passively couple the powerline carrier signals (PLC) X10 signals between the two phases of the home. Unlike previous solutions, which included working in the home's breaker box, installing new circuit breakers, and hardwiring electrical devices or jury-rigging a capacitor, Signalinc™ takes all that away with its simple plug-in design.

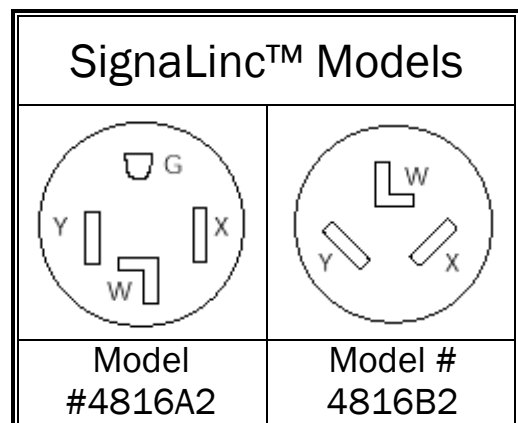
Signalinc plugs into a 240-volt outlet found in most U.S. homes (the outlets used for powering larger appliances, like clothes dryers, stoves, or window-mounted air conditioners). Since the Signalinc is equipped with an attached receptacle, you can continue to use the 240-volt appliance originally plugged into that outlet. The Signalinc is able to pass up to 30 amps, which is the maximum supplied by the outlets into which Signalinc will be plugged.

### **Key Features**

- Easy installation, no electrician required.
- Signalinc includes a feed-through outlet so that other AC powered products can be used at the same power outlet.
- Signalinc is small and compact with no cords or wires, fitting easily behind your dryer or stove.
- Safety tested and approved to ensure the highest quality products available.

### **How to install**

Before installing, please verify that you have the proper model for your home. Choose an outlet with a 240-volt device plugged into it. The outlet for the clothes dryer or a plug-in air conditioner are ideal locations for the Signalinc. If you have trouble locating these receptacles, please consult a local electrician for assistance. Once you've located the receptacle, compare it to the illustration on the right. The Signalinc model number that corresponds to each plug is located next to each illustration.



1. If the receptacle the Signalinc will be plugged into is already in use, turn off the appliance and unplug it from the wall receptacle.
2. Plug the Signalinc into the empty wall receptacle
3. Plug the appliance back into the receptacle provided with the Signalinc.

The Signalinc is now powered and ready to couple signals.

### **How Signalinc Works**

The Signalinc is a passive coupler and does not amplify the PLC signals. This means the signals coupled onto the receiving phase will only be as strong as the signals on the transmitting phase. How well the Signalinc works in your home is dependent on many factors, including signal strength for the transmission phase. Other considerations include:

1. If there is more than one receptacle in the home for the Signalinc to plug into, choose the one closest to the main circuit breaker distribution box. The further away the Signalinc is from the circuit breaker distribution box, the longer the distance the signal has to travel. This results in signal attenuation — a weakening of the signal. By installing the Signalinc as close as possible to the main circuit breaker distribution box, you'll ensure that the least amount of signal attenuation will occur before the signal is coupled.

2. The phase receiving the signal through the Signalinc may have electrical devices plugged in that will attenuate the signal from the transmission phase. Some of the electrical devices that might cause the receiving phase to take absorb the transmitted signal include power line carrier (PLC) X10 transmitters, noise/surge suppressors (like those found in multi-outlet strips), and any electrical device that contains a complex power supply like those found in computers and audio-video products. If the PLC signal is severely attenuated, it may cause devices that once worked on the transmission phase to stop working.
  
3. Noise on the receiving phase may be transferred through the Signalinc™ onto the transmitting phase, resulting in some interference among receivers. This interference may prevent PLC devices from receiving the signal correctly, even if they were once working properly before Signalinc™ was installed. Noise from the transmission phase may also be transmitted to the receiving phase, resulting in missed signals from transmitters devices on the receiving phase.

To determine just how well Signalinc works in the home, try checking the signal strength on the receiving phase and transmission phase using a Powerline Signal Analyzer both before and after installing the Signalinc. The table below illustrates the before and after effects of having a signal coupler installed in a home.

Outlet	Status	Phase	No signal coupler	With signal coupler	Improvement %
Same Outlet as Transmitter		A	2.3	2.3	0
Master Bedroom		A	.86	.89	3%
Master Bathroom		A	.76	.72	-5%
Light Circuit 2		A	.31	.32	3%
Light Circuit 1		A	.17	.18	5%
Laundry Room		B	.42	1.1	261%
Garage Outlet		B	.10	.95	950%
Dishwasher		B	.082	.75	914%
Patio		B	.075	.70	933%
Outlet in Kitchen		B	.065	.69	1062%
All values are volts					

From this example, the signal starts out at 2.3 volts and is quickly loaded down to much lower levels as the signals travels throughout the house. The shaded rows are circuits that are on the opposite phase of the transmitter. Remember, most homes have two lines of 120-volts coming in from the utility company. Each line or "phase" services half the electrical devices in the home. You can quickly see that circuits that are shaded have a lower signal level than those on the same phase as the originating transmitter. Without the Signalinc's circuit breaker being on, the PLC signal must travel through the utility company's distribution transformer to get to the other phase.

## **CAUTION**

- The Signalinc phase coupler should only be used with the appropriate receptacles.
- Turn off the circuit breaker feeding the receptacle before plugging-in or unplugging the Signalinc™ from it.
- Do not attempt to alter or modify the Signalinc in any way.
- Use only indoors.
- Consult a local electrician for any questions you might have about your home's wiring.
- The Signalinc does not have any user-serviceable parts. Do not attempt to service or repair the unit or open the receptacle enclosure. Doing so may result in severe injury or electrocution