INSTEON™
SignaLinc™ RF
INSTEON Signal Enhancer

For models:
#2442    SignaLinc RF Signal Enhancer
#2442P   SignaLinc RF Signal Enhancer two pack

SMARTHOMESM
MAKING LIFE MORE CONVENIENT, SAFE AND FUN
ABOUT INSTEON SIGNALINC RF

Congratulations on purchasing the INSTEON™ SignaLinc RF™ Signal Enhancer. Installing at least two SignaLinc RFs will improve INSTEON signal strength and network coverage throughout your home. SignaLinc RF ties together your dual-band INSTEON network by simultaneously retransmitting INSTEON signals across both radio-frequency and your home’s existing powerline wiring.

What is INSTEON?
INSTEON is a simple, reliable, and affordable breakthrough in home control. Simple, because Plug-n-Tap™ setup is a breeze, and there are no wires to add – INSTEON uses existing powerline wiring as well as radio-frequency for communication. Reliable, because every INSTEON device is a two-way repeater. And affordable, not just because of low cost, but because INSTEON also works with legacy X10 devices. An INSTEON home grows in value with every INSTEON device you add, making life more convenient, safe and fun.

Key SignaLinc RF Features
- Setup is easy – SignaLinc RF installs in minutes
- Communicates simultaneously over both radio-frequency and the powerline
- Couples INSTEON messages across opposite powerline phases
- Eliminates RF “dead spots”
- Uses the reliable 900MHz band for superior through-wall transmissions
- Expands INSTEON networks to support large or complex installations
- Has a pass-through receptacle on the front so you don’t lose an outlet
- Shows INSTEON activity with a white status LED
- Approved by the FCC and ETA, manufactured in an ISO 9001:2000 facility
- Warranted for two years
## How to Set Up Signalinc RF

**Caution**

Read and understand these instructions before installing, and retain them for future reference.

SignaLinc RF is intended for installation in accordance with the National Electric Code and local regulations in the United States, or the Canadian Electrical Code and local regulations in Canada. Use indoors only. SignaLinc RF is not designed nor approved for use on power lines other than 120V 60Hz, single phase. Attempting to use SignaLinc RF on non-approved powerlines may have hazardous consequences.

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### Proper Installation of at Least Two SignaLinc RF Signal Enhancers

Prior to installing and using other INSTEON devices, you must properly install at least two SignaLinc RFs, so that INSTEON messages can travel everywhere in your home. Not only do SignaLinc RFs add radio-frequency communication to your INSTEON network, but they also couple together the two separate powerline circuits, known as powerline phases, that most homes are wired with. Please see [SignaLinc RF Installation Tips](#) above for more information and guidelines on optimizing your installation. You can add more SignaLinc RFs as needed for superior performance and maximized coverage of your INSTEON network.

### SignaLinc RF Installation Tips

- Don’t plug SignaLinc RF into an outlet controlled by a switch, because if the switch is inadvertently turned off, SignaLinc RF won’t have power.
- Do not plug SignaLinc RF into a filtered power strip or AC line filter.
- Locate SignaLinc RFs in different areas of the home, keeping them within communication range of each other.
- In multi-level homes, locate SignaLinc RFs on different floors.
- The antennas on all SignaLinc RFs should all be oriented in the same direction. If one antenna is vertical and another is horizontal, range and reliability will be reduced.
- Do not place SignaLinc RF near large metal objects, like a refrigerator, cabinet, or television. SignaLinc RF works best when placed out in the open.
- Don’t stack SignaLinc RF, LampLinc™, ApplianceLinc™, or PowerLinc™ modules together by plugging them into each other. Stacked modules may overheat and stop functioning.
- Don’t use SignaLinc RF to couple X10 signals, because SignaLinc RF does not transmit X10.
Install the First SignaLinc RF

1. Plug the First SignaLinc RF into a convenient wall outlet. Don’t use an outlet controlled by a switch, because if the switch is inadvertently turned off, SignaLinc RF won’t have power. The white Status LED on the side will illuminate steadily, indicating that SignaLinc RF is working.

<table>
<thead>
<tr>
<th>TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose an outlet that is not near large metal objects that might absorb radio-frequency signals.</td>
</tr>
</tbody>
</table>

2. Point the First SignaLinc RF’s antenna toward the floor, so that the antenna is oriented vertically.

3. Put the First SignaLinc RF into Setup Mode by pressing and holding the black **SET Button** on the side for 10 seconds. Don’t let up too soon – 10 seconds is a pretty long time! If you held the SET Button down long enough, then when you let up, the Status LED will begin blinking rapidly, 4 times a second. If the Status LED is on steadily, the First SignaLinc is not in Setup Mode, so try again.

<table>
<thead>
<tr>
<th>TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>A surefire way to put the First SignaLinc RF into Setup Mode is to plug the Second SignaLinc RF into the pass-through outlet on the First SignaLinc RF, then press the SET Button on the First SignaLinc RF until the Status LED on the Second SignaLinc RF starts blinking slowly. You can then let up on the SET Button and unplug the Second SignaLinc RF.</td>
</tr>
</tbody>
</table>
Install the Second SignaLinc RF

1. You have about 9 minutes to perform these steps before Setup Mode on the First SignaLinc RF will time out automatically. If the First SignaLinc does time out, simply put it back into Setup Mode and you will have another 9 minutes.

2. Locate another unswitched outlet, preferably on the other side of your home, and plug the Second SignaLinc RF into it.

3. Point the Second SignaLinc RF’s antenna toward the floor, so that the antenna is oriented the same way as the First SignaLinc RF’s antenna.

4. Observe the Status LED on the Second SignaLinc RF.
   A. If the Status LED blinks rapidly – 4 times a second, the same rate as the first unit – the two SignaLinc RFs are communicating with each other and plugged into outlets on opposite powerline phases. This is what you want – both powerline phases can now communicate with each other via the two SignaLinc RFs. Finish up at Step 5.
   B. If the Status LED blinks slowly – once every two seconds – the two SignaLinc RF modules are communicating with each other, but they are plugged into outlets on the same powerline phase. Try moving the Second SignaLinc RF to another outlet until its Status LED blinks rapidly, 4 times a second.
   C. If the Status LED stays on steadily, the two SignaLinc RFs are not communicating with each other. Unplug the Second SignaLinc RF and go to Step 2.

   **NOTE**
   If you can’t locate a pair of outlets on opposite powerline phases, contact your local installer or SmartHome Tech Support at 1-800-SMARTHOME (800-762-7846) for further assistance.

5. Tap the black SET Button on the First SignaLinc RF to exit Setup Mode. The Status LEDs on both SignaLinc RFs will stop blinking and illuminate steadily.

   **NOTE**
   The First SignaLinc RF will automatically exit Setup Mode after nine minutes if you skip this step.

Installing Additional SignaLinc RFs

You can add additional SignaLinc RFs to your INSTEON network to extend its coverage and maximize performance. Simply choose any SignaLinc RF that you have previously installed as the First SignaLinc RF and follow the steps above to confirm that new SignaLinc RFs are communicating with your existing SignaLinc RFs. After the two opposite powerline phases in your home are coupled with at least two SignaLinc RFs, it does not matter which powerline phase you plug additional SignaLinc RFs into.
ABOUT INSTEON

Understanding Why an INSTEON Network Is Reliable

INSTEON messages travel throughout the home via Powerline Carrier (PLC) signals on the existing house wiring, and also via wireless Radio Frequency (RF). As the messages make their way to INSTEON devices being controlled, they are picked up and retransmitted by all other INSTEON devices along the way. This method of communicating, called a mesh network, is very reliable because each additional INSTEON device helps to support the overall network.

To further ensure reliability, every INSTEON device confirms that it has received a command. If an INSTEON Controller does not receive this confirmation, it will automatically retransmit the command up to five times.

Further Enhancing Reliability

As signals travel via the powerline or RF throughout the home, they naturally become weaker the farther they travel. The best way to overcome signals getting weaker is to increase the coverage of the mesh network by introducing more INSTEON devices.

It is possible that TVs, PCs, power strips or other electrical equipment may attenuate INSTEON signals on the powerline. You can temporarily unplug suspected devices to test whether the INSTEON signal improves. If it does, then you can plug in filters, such as Smarthome’s FilterLinc™ TM#1626, that will permanently fix the problem.

Using Smarthome’s SignaLinc RF to Upgrade Your INSTEON Network

SignaLinc™ RF Signal Enhancers are ideal for improving signal strength and network coverage throughout your home. SignaLinc RF acts like another member of the dual-band mesh network, tying it together by simultaneously retransmitting INSTEON signals across both radio-frequency and the powerline.

In addition, two SignaLinc RFs provide a wireless path for INSTEON signals to travel between the two separate electrical circuits, called powerline phases, found in most homes. Without a reliable method for coupling opposite powerline phases, some parts of your home may receive INSTEON signals intermittently. With at least one SignaLinc RF plugged into one of the powerline phases, and at least one more plugged into the opposite powerline phase, INSTEON powerline signals will be strong everywhere in your home.
About INSTEON and X10

Possible BoosterLinc Interference with INSTEON

If you have installed older Smarthome Plug-In BoosterLinc™ X10 Signal Boosters or certain other BoosterLinc-enabled products, the older BoosterLinc technology may interfere with INSTEON communications.

Plug-In BoosterLinc X10 Signal Boosters, Smarthome #4827, shipped after February 1, 2005, with V3.0 or later firmware, are fully compatible with INSTEON.

The following Plug-In BoosterLinc X10 Signal Boosters use older firmware that may cause interference with INSTEON:

- White BoosterLinc X10 Signal Boosters, #4827, shipped before February 1, 2005, with V2.5 or earlier firmware
- All Gray BoosterLinc X10 Signal Boosters, #4827

Try unplugging the older BoosterLinc X10 Signal Boosters to see if this helps with INSTEON interference. If it does, please call 800-SMARTHOME (800-762-7846) for help with replacing your older BoosterLinc X10 Signal Boosters with newer INSTEON-compatible ones.

The following pre-INSTEON SmartHome products have BoosterLinc technology that you can turn on or turn off when you set the X10 Address for the product. If turned on, the BoosterLinc technology may interfere with INSTEON.

- KeypadLinc™ 6 with Integrated Dimmer, #12073W, #12073WB and #12073WW
- SwitchLinc™ Relay 2-Way, #23883 and #23883T
- ToggleLinc™ 2-Way Dimmer, #23890, and Switch, #23893

**NOTE**

To disable BoosterLinc X10 Signal Boosting on these products:

1. Press and hold the SET Button.
2. Send the X10 Primary Address.
3. Send an X10 OFF Command.

You can send an X10 ON Command in Step 3 to re-enable the BoosterLinc feature.

If you have any of these products and the BoosterLinc feature is turned on, please consult your User's Guide or call 800-SMARTHOME (800-762-7846) for help with turning it off. You may then wish to install newer INSTEON BoosterLinc X10 Signal Boosters, which Smarthome can help you with.

INSTEON's Effect on X10

If your existing X10 devices seem to be working less reliably after installing INSTEON devices, remember that INSTEON devices can absorb X10 signals just as X10 devices do, and that INSTEON devices do not repeat X10 signals. Installing INSTEON-compatible BoosterLinc X10 Signal Boosters, Smarthome #4827, or a SignalLinc Plug-In Coupler-Repeater, #4826, can increase X10 signal levels.

Please call 800-SMARTHOME (800-762-7846) if you have any questions or would like more help.
### TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Status LED on my SignaLinc RF is not turning on at all.</td>
<td>SignaLinc RF is not getting power.</td>
<td>Make sure SignaLinc RF is not plugged into a switched outlet that is turned off.</td>
</tr>
<tr>
<td>The Status LED on the First SignaLinc RF I installed is not blinking after I press the SET Button.</td>
<td>You didn’t hold the SET Button down long enough.</td>
<td>Hold the SET Button down for at least 10 seconds. The Status LED will not begin to blink until after you let go of the SET Button.</td>
</tr>
<tr>
<td>I have tried several outlets and the Second SignaLinc RF’s Status LED is not blinking.</td>
<td>The SignaLinc RFs are out of range from each other.</td>
<td>Plug the Second SignaLinc RF into the First one, then press the SET Button on the First one until the Status LED on the Second one blinks. You can then unplug the Second SignaLinc RF.</td>
</tr>
<tr>
<td>I have tried several outlets and the Second SignaLinc RF’s Status LED is not blinking.</td>
<td>The antennas are not pointing in the same direction.</td>
<td>Install a Third SignaLinc between the first two.</td>
</tr>
<tr>
<td>I have tried several outlets and the Second SignaLinc RF’s Status LED is not blinking.</td>
<td>Something made of metal is blocking the wireless signal.</td>
<td>Orient the antennas on all SignaLinc RFs the same way, preferably vertically or horizontally.</td>
</tr>
<tr>
<td>The Status LED has turned off and does not flicker during INSTEON transmissions.</td>
<td>A surge or excessive noise on the powerline may have locked up SignaLinc RF.</td>
<td>Unplug SignaLinc RF for 10 seconds and reinstall.</td>
</tr>
<tr>
<td>My X10 system performance is not improved by installing SignaLinc RFs.</td>
<td>SignaLinc RF does not retransmit X10 signals.</td>
<td>Install a passive powerline phase coupler for X10 signals, available from Smarthome.</td>
</tr>
<tr>
<td>My X10 system performance is not improved by installing SignaLinc RFs.</td>
<td>Install an INSTEON-compatible BoosterLinc, available from Smarthome.</td>
<td></td>
</tr>
</tbody>
</table>

If you have tried these solutions, reviewed this User’s Guide, and still cannot resolve an issue you’re having with SignaLinc RF, please:

- Search our online knowledge base at [http://smarthome.custhelp.com](http://smarthome.custhelp.com).
- Call our Support Department at 800-SMARTHOME (800-762-7846).
- Email us at tech@smarthome.com.
## SPECIFICATIONS

### SignaLinc RF Specifications

<table>
<thead>
<tr>
<th><strong>General</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smarthome Product Number</strong></td>
<td>2442, INSTEON SignaLinc RF Signal Enhancer</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td>2 years</td>
</tr>
<tr>
<td><strong>Operation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Status LED</strong></td>
<td>White</td>
</tr>
<tr>
<td><strong>INSTEON RF Features</strong></td>
<td></td>
</tr>
<tr>
<td><strong>RF Antenna</strong></td>
<td>3.3” external quarter-wave monopole, articulated</td>
</tr>
<tr>
<td><strong>RF Frequency</strong></td>
<td>904 MHz</td>
</tr>
<tr>
<td><strong>RF Sensitivity</strong></td>
<td>-103 dbm</td>
</tr>
<tr>
<td><strong>RF Modulation</strong></td>
<td>FSK</td>
</tr>
<tr>
<td><strong>RF Range</strong></td>
<td>150 feet, unobstructed line-of-sight</td>
</tr>
<tr>
<td><strong>FCC ID Number</strong></td>
<td>SBP2442</td>
</tr>
<tr>
<td><strong>INSTEON Powerline Features</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INSTEON Powerline Frequency</strong></td>
<td>131.65 KHz</td>
</tr>
<tr>
<td><strong>INSTEON Minimum Transmit Level</strong></td>
<td>3.2 V&lt;sub&gt;pp&lt;/sub&gt; into 5 Ohms</td>
</tr>
<tr>
<td><strong>INSTEON Minimum Receive Level</strong></td>
<td>1 mV&lt;sub&gt;pp&lt;/sub&gt; nominal</td>
</tr>
<tr>
<td><strong>INSTEON Messages Repeated</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>X10 Features</strong></td>
<td></td>
</tr>
<tr>
<td><strong>X10 Messages Repeated</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Operating Conditions</strong></td>
<td>Indoors, 0 to 70°C, up to 85% relative humidity</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>4.0” H x 2.5” W x 1.5” D</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>5 oz</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
<td>120 Volts AC +/- 10%, 60 Hertz, single phase</td>
</tr>
<tr>
<td><strong>Surge Protection</strong></td>
<td>MOV rated for 150 Volts</td>
</tr>
<tr>
<td><strong>Power Plug</strong></td>
<td>3-pin grounded</td>
</tr>
<tr>
<td><strong>Pass-through Outlet</strong></td>
<td>3-pin grounded, 15 Amp maximum</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>Safety tested for use in USA and Canada (ETL #3017581)</td>
</tr>
</tbody>
</table>
FCC Compliance Statement

This device complies with FCC Rules Part 15. Operation is subject to two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may be received or that may cause undesired operation. The digital circuitry of this device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses and can radiate radiofrequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio and television reception. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause such interference, which can be verified by turning the device off and on, the user is encouraged to eliminate the interference by one or more of the following measures:

- Re-orient or re-locate the receiving antenna of the device experiencing the interference,
- Increase the distance between SignaLinc RF and the receiver,
- Connect SignaLinc RF to an AC outlet on a circuit different from the one that supplies power to the receiver, or
- Consult the dealer or an experienced radio/TV technician.

WARNING! Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.
Certification

SignaLinc RF has been thoroughly tested by ITS ETL SEMKO, a nationally recognized independent third-party testing laboratory. The North American ETL Listed mark signifies that the product has been tested to and has met the requirements of a widely recognized consensus of U.S and Canadian product safety standards, that the manufacturing site has been audited, and that the manufacturer has agreed to a program of quarterly factory follow-up inspections to verify continued conformance.

Limited Warranty

Seller warrants to the original consumer purchaser of this product that, for a period of two years 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 User’s Guide. 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, Seller 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 Seller’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, Inc.
ATTN: Receiving Dept.
16542 Millikan Ave.
Irvine, CA 92606-5027

Limitations

The above warranty is in lieu of and seller disclaims all other warranties, whether oral or written, express or implied, including and warranty or merchantability or fitness for a particular purpose. Any implied warranty, including any warranty of merchantability or fitness for a particular purpose, which may not be disclaimed or supplanted as provided above shall be limited to the one year period of the express warranty above. No other representation or claim of any nature by any person shall be binding upon seller or modify the terms of the above warranty and disclaimer. In no event shall seller be liable for special, incidental, consequential, or other damages resulting from the possession or use of this product, including without limitation damage to property and, to the extent permitted by law, personal injury, even if seller knew or should have known of the possibility of such damages. Some states do not allow limitations on how long an implied warranty lasts and/or the exclusion or limitation of damages, in which case the above limitations and/or exclusions may not apply to you. You may also have other legal rights that may vary from state to state.

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