PC-IR Linc™

Control your Audio-Video equipment with a computer!

Model #1623PC PC-IR Linc
Congratulations!

Congratulations on purchasing PC-IR Linc, the smallest and easiest gateway for IR automation control. The PC-IR Linc is the easiest way to add IR control from a computer. For years, many home automation enthusiasts have struggled with controlling audio and video devices by computer. Now, you can control a whole-house audio or home theater system from the comfort of your PC.

PC-IR Linc is essentially a powerful learning remote that transmits IR signals in response to RS-232 signals. It learns IR codes from your existing remote controls or uses the built-in library of IR codes. All the programming is stored on a Windows-based computer, so there are few memory constraints. Just plug the supplied power adapter into a standard wall receptacle and place the PC-IR Linc into position, it is that simple.

The PC-IR Linc has two internal IR blasters but its flexibility can also be increased by using Mini Stick-On IR Emitters, SmartHome #8170S and #8171S. A level of intelligence can also be added to the PC-IR Linc by using it with one of the Smarthome Probes. Probes may be used for many purposes including detecting the power status of an AV device.

Key Features
• Two built-in IR blasters
• Built-in IR sensor for learning IR signals from existing remote controls
• Three jacks for attaching additional emitters (single/double or blast)
• External power sensing when used with Smarthome Probes
• Small sized with front panel status indicators
• Non-volatile memory. Contents will be retained after a power outage.

Other Complementary Smarthome Products
The PC-IR Linc is ready to be used in a stand-alone application with a computer. However, when teamed up and used with other Smarthome automation products, you can transform the whole home's automation system to the same level and sophistication normally found in multi-million dollar homes.

IR Linc
Forget about using multiple remotes to control the stuff in your house. Now you can control everything in your home entertainment center with the same keypads that controls your lights! Most audio/video components won't turn on simply by applying power. But this remarkable unit translates PLC signals into IR codes that your home audio and video components can understand.
### Parts included with PC-IR Linc

- The PC-IR Linc controller box
- AC Adapter (12-Volts DC, 300mA)
- Double headed Stick-on IR Emitter
- CD-ROM Software
- Serial Cable

### Overview

- During playback, the **Active** indicator is used to show that IR signals are being transmitted. During programming, it will indicate that the unit is ready to learn an IR signal.
- The two **IR/Learn** blast emitters emit IR light to control the AV devices. During programming, they sense the IR light from the teaching remote.
- The **Probe** indicator is used to indicate when a Smarthome probe is detecting an ON condition.
- The three **IR Out** jacks for optional external IR emitters.
- The **Probe** jack will accept the Smarthome Probes to monitor the power status of equipment.
- The **Powerlinc/RS232 Cable** jack connects the serial cable between the PC-IR Linc and a computer.
- The **12VDC, 300mA** is for the power 12-volt adapter included in the kit.

### Quick Start Instructions

#### Learning an IR Command

1. Click on the "Learn" button.
2. Enter a file name for the command.
3. The red "Active" indicator will begin to blink rapidly.
4. Point the remote control at the PC-IR Linc.
5. Press and hold the button on the remote control until the red "Active" indicator turns off.
6. The IR Linc status bar will turn blue if the command was successfully learned or red if the command was not learned.

(See page 8 for more detailed instructions)

#### Using a built-in IR command

1. Click and select an entry on the "Select Device Type" menu.
2. Click and select an entry on the "Select Brand" menu.
3. Choose a number from the "Select Code" menu.
4. Choose the **IR function** to be sent.
5. Click the "Send" button to have the IR Linc transmit the command.

(See page 7 for more detailed instructions)
Optional Accessories for the PC-IR Linc

A level of intelligence can also be added to the PC-IR Linc by using it with one of the Smarthome Probes. Probes may be used for many purposes including detecting the power status of an AV device.

<table>
<thead>
<tr>
<th>TV Detector 8012</th>
<th>Light Detector 8013</th>
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<tbody>
<tr>
<td><img src="image" alt="TV Detector 8012" /></td>
<td><img src="image" alt="Light Detector 8013" /></td>
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<tr>
<td>Senses the presence of the high frequency RF emissions of a TV when it is on. Place the white &quot;Whip&quot; near the rear of the set.</td>
<td>This sensor can be placed over the location of an LED or any other light source to sense if the AV device is on.</td>
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<thead>
<tr>
<th>Digital Input Low Voltage Detector 8015</th>
<th>Video Detector 8016</th>
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<tbody>
<tr>
<td><img src="image" alt="Digital Input Low Voltage Detector 8015" /></td>
<td><img src="image" alt="Video Detector 8016" /></td>
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<tr>
<td>This probe can be attached to any device that generates a 3-28 volt (AC or DC) signal. Some AV equipment have low-voltage outputs that may be used to detect the device’s power status.</td>
<td>Detects the presence of a baseband video signal when connected to the VIDEO OUT jack. Can’t be used with video gear that outputs a blank or blue screen when switched off (or in stand-by).</td>
</tr>
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<table>
<thead>
<tr>
<th>Contact Closure 8018</th>
<th>Extra Emitters</th>
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<tbody>
<tr>
<td><img src="image" alt="Contact Closure 8018" /></td>
<td><img src="image" alt="Blast IR Emitter #8174" /></td>
</tr>
<tr>
<td>This probe is ideal for detecting the condition of a dry-contact switch. Some AV receivers have dry-contact relays open or close when powered on or off.</td>
<td>Using Mini Stick-On IR Emitters or Blast Emitters can increase the PC-IR Linc’s flexibility. The #8174 Blast Emitter will have a range of four to seven feet when used with the PC-IR Linc.</td>
</tr>
</tbody>
</table>
Installation
The PC-IR Linc should be installed in a location that has a standard 120-volt household receptacle readily accessible. If external Mini Stick-On IR Emitters are not being used, place the IR Linc in a location that allows the built-in IR blasters to be within line-of-site of the equipment. When Mini Stick-On IR Emitters are used, the PC-IR Linc can be placed in any location since the built-in IR blasters will not be used. Once the location has been finalized, place the PC-IR Linc in that location, plug in the AC adapter and connect the serial cable to the computer. Plug in any Mini Stick-On IR Emitters and/or probes into the appropriate jacks. The PC-IR Linc is now ready for use.

Installation Tips:
1. The built-in IR blaster’s light can sometimes be reflected. Therefore, direct line-of-site may not be necessary depending on the reflecting surface or objects the PC-IR Linc is facing and the distance to the equipment. Experimentation with bouncing the IR signal off of surfaces and objects may allow the IR Linc to be placed in a location, other than direct line-of-site.

2. Mini Stick-On IR Emitters may be used with the built-in IR blasters. Plugging in Mini Stick-On IR Emitters does not disconnect the built-in IR blasters. Using this combination method allows PC-IR Linc to control equipment that is in direct line-of-site and A/V gear using Mini Stick-On IR Emitters.

3. While the PC-IR Linc can be placed in an inconspicuous location when Mini Stick-On IR Emitters are used, the unit should be readily available for programming. The “Active” and “Probe” indicators can be used as a visual indication of IR transmissions and equipment status.

4. Be careful plugging in external emitters on the rear of the unit. If an emitter is plugged into the Probe jack, it will be instantly destroyed!

5. When using stick on emitters, it’s important that to find the IR sensor on the equipment and place the emitter directly over the sensor. Use a flashlight to look into the display or bezel of the equipment to find the sensor. Sometimes, using the original remote control and covering the front of the equipment with an object or thick cloth can help locate the sensor. Try placing a computer mouse pad over the equipment and working from right to left, move the mouse pad (to the left and exposing the right) while shooting the remote at the equipment until a response from the equipment to the IR signals is observed. For example, holding down the volume button on the remote control as the mouse pad is moved to the left. When the unit begins increasing the volume, the approximate location of the IR sensor on the equipment has been found. Next, use the same technique starting at the top of the equipment to find the exact center of the sensor. Now that the approximate vertical and horizontal of the sensor is known, use a flashlight to find exactly where it is.

Place the stick on emitter over this location!

Once the IR Linc is installed, the unit can be programmed with IR commands.
Software Installation

The software provided with the PC-IR Linc can be installed on any PC-based computer running Microsoft® Windows 95® or higher. Five megabytes of hard drive space is required for the installation.

1. Place the CD into your CD-ROM drive. After a few moments, the setup program will automatically start.
2. In a few moments the setup wizard will appear.
3. Follow the on-screen instructions to continue and complete the installation.
4. After installation is complete, an icon will be created in the program menu under the Smarthome.
5. Open the folder and click the icon to run the program.

Getting Started with the PC-IR Linc Software

Before getting started take a few moments to get familiar with the PC-IR Linc operating window.

This window will open when the program is first started. Across the top are three pull-down menus; "File", "Tools", and "Help". The left half of the window is labeled "Library IR" and the right half is "Learn IR". Just below the "Library IR" section are the "IR Linc Status" line and the "Probe Event" boxes.

Clicking on the pull down menu labeled "File" will open it as shown on the left. In the pull down menu is the "Exit" command. Clicking this command will close the program.

The "Tools" pull-down menu will show four commands; "Com port" "Clear all learned IR" "Probe On Event" "Probe Off Event"

Clicking on the Com Port command allows the com port to be changed. The default setting is com port 1. To change the port, enter the number of the com port to be used (2, 3, 4, etc.) and click on the "OK" button. The window will close and the com port will be updated in the software.
Clicking on the "Clear all learned IR" command will clear all the learned IR in memory and learned IR command selector box in the lower half of the window. Remember that deleted IR commands cannot be retrieved. Clicking on either "Probe On Event" or "Probe Off Event" will open probe event boxes that will be discussed later in the probe section.

Clicking on the "Help" pull down menu will display the "Contents" and "About" commands. Clicking on the "Contents" command will open a window that includes information on how to obtain technical support on this product. The "About" command will open a window that shows information about the program.

Sending IR Commands from the Built-in Library
The left half of the window labeled "Library IR" is used to access the built-in library of IR commands. Four drop-down menus are available:

- 'SELECT DEVICE TYPE'
- 'SELECT BRAND'
- 'SELECT IR KEY'
- 'SELECT CODE'

Two buttons - "Save IR" and "Send"

To send an IR command from the built-in library
1. Click on the "SELECT DEVICE TYPE" drop-down menu. A list of products that can be controlled will be displayed. To select a device, move the mouse pointer over it so that it is highlighted and then click it.
2. Click on the "SELECT BRAND" drop-down menu to view a menu that contains a list of manufacturers for the device selected in step 1. Move the mouse pointer over the manufacturer's name so that it is highlighted and then click it.
3. The "SELECT CODE" menu will list the different IR codes for products made by the chosen manufacturer. For each manufacturer, there will be at least one and perhaps multiple codes or transmission protocols. Some experimentation with each code may be needed in order to find the one that controls the equipment. Start by selecting the first code in the pull down menu.
4. Choose the IR function that will be transmitted by clicking the "SELECT IR KEY" drop-down menu. This menu contains the different IR keys that can be transmitted (power, mute, volume up, volume down, channel up, channel down, etc.).
5. Click the "Send" button to have the PC-IR Linc transmit the IR command. As it transmits, the red "Active" indicator will briefly blink to indicate that the IR code is being sent. If the command did not control the device, click on the "SELECT CODE" pull down menu and select the next code. Click the button labeled "Send" again and observe if the PC-IR Linc was able to control the AV device. Continue to do this until the proper code is found.

Setting up Folder/Desktop Icons for Library IR IR Commands
Once the proper IR command is found, the PC-IR Linc software allows the data to be saved in a folder or on Window's desktop. Click on the "Save IR" button a window allows a name to be assigned to the command. Once the name has been entered, click the "Save" button.
The file will be saved in the directory where the program is located and will have a "ir" extension. A different directory can be selected by choosing one from the "Save in:" box at the top of the window. From there, it can be moved to another folder or place it on the desktop.

PC-IR Linc will instantly send the IR command when the icon is clicked. The only restriction is that the IR Linc software must be closed before an IR command can be sent from the icon. Double clicking an icon while the PC-IR Linc software is running will not send an IR command.

Learning an IR Command with the PC-IR LINC Software

In some cases, the IR signals necessary to control the AV device may not be in the PC-IR Linc's internal memory. On the right side of the program, the "Learn IR" functions have the tools necessary to learn IR commands into the IR Linc.

To learn an IR command:

1. Click on the button labeled "Learn".
2. A window appears and asks what the learned IR file will be called. The program automatically comes up with a name "IR Key" followed by a number. Click "OK" to accept the default name or enter a different name to describe the command.
3. The red "Active" indicator will begin to blink rapidly. This indicates that PC-IR Linc is ready to learn an IR command.
4. Point the remote control at the two built-in IR blasters on the front of PC-IR Linc.
5. Press and hold the button on the remote control until the red "Active" indicator turns off. If no IR command is received within about 5 to 6 seconds, the red indicator will turn off and the PC-IR Linc will exit the learning mode.
6. The status bar will turn blue if the command was successfully learned or turning red if the command was not correctly learned.

If the learning process failed, the learning process must be repeated. If the learn was successful, the IR command name assigned will appear in the text window. To learn other IR commands repeat the above procedure.

To send a learned IR command:

1. Select the command from the "LEARN IR" window.
2. Click the "Send" button or double-click on the highlight name. Right clicking on the selected command will display an alternative list of options.
3. The PC-IR Linc will transmit the IR command and the red "Active" indicator will blink.
To delete an IR command:
1. Select the command from the "LEARN IR" window.
2. Click the "Delete" button.
3. The command will be deleted from memory and the "LEARN IR" Window.

Remember that any deleted IR commands cannot be retrieved. The maximum amount of IR commands that can be learned is 65,535 but this can also be limited by the amount of hard drive space available. A learned IR file can also be renamed by clicking on the "Rename" button.

Setting up Folders/Desktop Icons for Learned IR Commands
This works in the same way as was previously discussed in the built in library section. The only difference is that the "Save IR" button is clicked in the "Learned IR" section.

Learning Tips:
• The remote should be level with the PC-IR Linc and directly in front on it. The emitter on the front of the remote should be located directly between the two built-in IR blasters on the front of the PC-IR Linc and located about 1 to 2 inches from them.
• The remote should have fresh strong batteries. If commands are not being learned correctly or it takes multiple tries, try changing the batteries.
• Since the green "Probe" indicator is used to indicate status during learning cycles, the probe be disconnected during learning.
• The IR learning time is fixed at no more than five seconds.
• Sunlight, florescent light sources and plasma screen monitors can interfere with IR reception. The best learning will occur in darkened rooms.
• The length of time the teaching remote's button is held down can have an effect on learning success. In some cases, the button may need to be held down longer than normal for the PC-IR Linc to successfully sample the signal. Other times, it may only need to be held down less than a second.

Using a Probe With the PC-IR LINC Software
The PC-IR Linc can use external a Smarthome probe to help determine an AV device’s power status. The green “PROBE” indicator provides a visual confirmation of the probe status. The PC-IR Linc software also deals with the probe status in two ways. First, the PC-IR Linc software has a visual confirmation of the Probe’s status. The bar at the top of the window will indicate the status of either “Probe Off” or “Probe On”.

Secondly, the window has a section labeled "Probe Events".
This section contains two boxes that can be used to hold file names. The "Probe On Event" will hold a command that will take place when the probe turns from off to on. The "Probe Off Event" is for an IR command that takes place when the probe turns from on to off.

To place a file in either of these boxes:
1. Locate the file on the computer.
2. Click and hold the file and drag it over to the PC-IR Linc probe action box of the PC-IR Linc software.

Now when the probe status changes, the file associated with that probe action will open and execute.

An alternative to the drag and drop method can be found in the Tools menu as discussed on page 6. The tools menu contains two selections labeled "Probe On Event" and "Probe Off Event". When "Probe On Event" is selected from the tools menu, a window opens and asks a specific file. Once a file is located and selected, the window will close and the file selected will be placed in the "Probe On Event" box. This same procedure is preformed for the "Probe Off Event" box if necessary.

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### Troubleshooting & Technical Support

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause &amp; Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The PC-IR Linc appears to be locked up.</td>
<td>Remove and reset the power. Disconnect all the emitters and the probe, and unplug the unit for three minutes, then reconnect. Also, make sure other software isn't tying up the computer's COM port (like Palm Pilot Hot Sync).</td>
</tr>
<tr>
<td>How can I get the power ON command to only be issued if the AV device is off?</td>
<td>Some AV devices have discrete IR signals for power on and off. If the remote control has these buttons, use them.</td>
</tr>
<tr>
<td>I am having problems learning one of my remote controls into the unit.</td>
<td>There could be several factors causing this problem. Check the tips on page 9. The remote's IR frequency may be beyond the normal 40kHz. Excessive IR light or brightly lit room could cause problems. Teaching PC-IR Linc in a dark room produces the best results.</td>
</tr>
<tr>
<td>Can the IR Linc be used on 230-volt systems like those found outside of North America?</td>
<td>Yes, it can be used on 230-volt electrical systems. You will need to replace the AC adapter that ships with the PC-IR Linc with an adapter locally obtained. The PC-IR Linc needs an adapter that outputs 12 volts DC and at least 200 mA. The power plug's polarity is tip positive.</td>
</tr>
<tr>
<td>Sometimes the signals from the built-in blaster don't trigger the AV device.</td>
<td>Using the blast emitters on the front of the PC-IR LINC is the least reliable method of controlling AV devices. We don't recommend bouncing IR signals off walls, doors, or other surroundings. Additionally, external IR light interference from sunlight, fluorescent lights, and plasma screen monitors may hamper reliable operation. By using Mini Stick-on emitters, most IR light reliability problems can be overcome.</td>
</tr>
<tr>
<td>I plugged the emitter into the &quot;Probe&quot; jack accidentally, now it does not work.</td>
<td>Sadly, you have destroyed the emitter. The &quot;Probe&quot; jack's voltage is a little too much for the emitter to handle. Sorry about this, but we warned you about this back on the installation section (step 4) on page 5.</td>
</tr>
<tr>
<td>I can't see my Mini Stick-on Emitters blink when a command is sent.</td>
<td>Most brands of Mini Stick-on Emitters don't produce visible light. Check with your supplier or Smarthome for visible emitters, sometimes called &quot;Blink Emitters&quot;.</td>
</tr>
</tbody>
</table>
Still having trouble....
If these solutions have been tried, the manual has been reviewed and you still cannot resolve an issue you’re having with the PC-IR Linc:

- Search our on-line knowledge base at: http://smarthome.custhelp.com
- E-mail: tech@smarthome.com
- Call our Technical Support Dept. at 949-221-9200

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Our Marketing and Customer Service teams surveyed our customers, like you, and our engineers have invented new and better wall switches and plug-in modules. We include more features, higher load handling, and better signal sensitivity for a superior user experience. While in some cases, they cost more; we hope you’ll agree that not having to replace a dead module every couple years is worth the added expense and reduced aggravation. Please visit a retailer or distributor for the complete line of automation products from Smarthome Design.
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 Smarthome'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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