

## Installation Instructions

### RETRO-M

#### Retrofit Intercom & Music Distribution System



Thank you for purchasing an Intrasonic Technology product. Our products are built to provide you with years of high quality sound.

If you need assistance with the installation or operation of this product, please contact our Customer Service Support team at 1-877-435-0670. You may also get information on this and other Intrasonic Technology products on our website at [www.intrasonictechnology.com](http://www.intrasonictechnology.com)

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## Safety Instructions

- To reduce the risk of electrical shock, the system must be installed by a qualified installer or dealer.
- Please read the instruction manual in its entirety before installing.
- Please do not attempt to remove or repair your existing system or the Intrasonic Technology Retro system. Call a qualified installer or dealer.
- The apparatus shall not be exposed to dripping or splashing from liquids. No objects filled with liquids, such as vases shall be placed on the apparatus.
- Before performing **any** work on the existing system or the Intrasonic Technology Retro system, make sure the power is turned off.
- Do not expose outdoor units like the Patio or Door unit to direct water exposure. Direct water exposure could cause premature failure and performance issues.
- Use only Intrasonic Technology certified replace parts.



- **NOTE: THE RETRO-M MASTER MUST BE INSTALLED IN AN EXISTING APPROVED INTERCOM HOUSING OR THE I1000H HOUSING TO MEET LOCAL ELECTRICAL CODES AND SAFETY REQUIREMENTS.**

- ATTENTION - POUR RÉDUIRE LE RISQUE DE CHOC ÉLECTRIQUE, NE PAS RETIRER LE COUVERCLE (OU L'ARRIÈRE). NON UTILISATEUR À L'INTÉRIEUR. VOIR À UN PERSONNEL QUALIFIÉ.

- **CAUTION** - TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL.

- **Don'ts**

- Expose any parts of the Intrasonic Technology Retro system to moisture.
- Install any room, patio, or door station closer than 10 feet from each other or back to back on the same wall. This could cause system feedback.
- Perform any work on the system without turning the system power off first.

- **Do's**

- Use a qualified installer or dealer.
- Use with Intrasonic Technology approved products.
- Use a dedicated 110VAC line to the master. Not using a dedicated line could cause popping, humming or buzzing noises in the system.
- Use a dedicated line with its own disconnect device.
- Locate away from any heat sources.
- Label all wires.
- Only one auxiliary input can be installed per system.
- Wiring must follow NEC 640 and 725 for audio wiring.
- All holes must be filled with wires and any remaining area must be filled and sealed.

- **Warnings**

- An apparatus with Class 1 construction shall be connected to a MAINS socket outlet with a protective earthing connection.
  - Un appareil avec la construction de la classe 1 sera relié à une sortie de douille de FORCES à un raccordement
- To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.
  - Pour empêcher des dommages, cet appareil doit être solidement fixé au plancher/au mur selon les instructions

## Wiring

The Intrasonic Technology Retro system is designed to work on the existing wiring. If the existing wiring contains 3, 4, 6 or more wires, you will need to select 3 of the wires for each room, patio and door station. Runs need to be 350 feet each or less. If the existing system is still operating, it is a good idea to test the system and all stations to make sure the existing wires are not damaged.

## Maximum Number of Stations









The system will handle the following number of stations;

- 11 room stations
- 2 patio stations (can be used for room stations)
- 2 door stations
- 1 auxiliary input unit

## 8 Ohm Speakers

The Intrasonic Technology Retro system is an 8 ohm based system. External speakers need to high efficiency speakers. Speakers rated at less than 8 ohms could degrade performance or even damage the system.

## Tools Needed

-  Tape measure
-  Wire stripper and cutter
-  Hammer
-  Drill
-  Screw drivers
-  Tin Snips
-  Volt/ohm meter
-  Pry bar

## Getting Started

First determine the make and model of the system you are replacing. This includes room, patio and door stations. Also if there are any ceiling speakers, what size they are and if they are 8 ohms impedance. The Intrasonic Technology Retrofit system requires the use of 8 ohm speakers. This will allow you to acquire the correct replacement components and adapter plates.

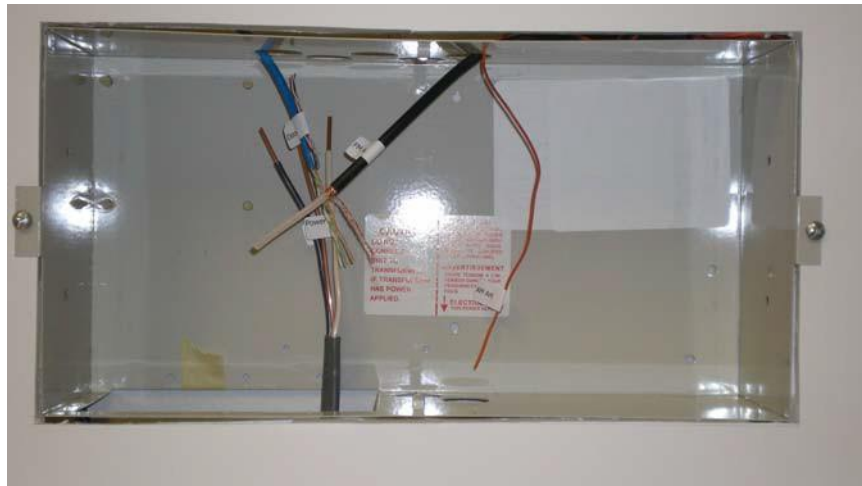
Make sure the power is off to the existing system.

Taking out the existing system can be a messy process. Bring some "drop cloths" to put under the units to be removed.

Perform a test on the existing system operation to make sure the wiring is complete and undamaged.

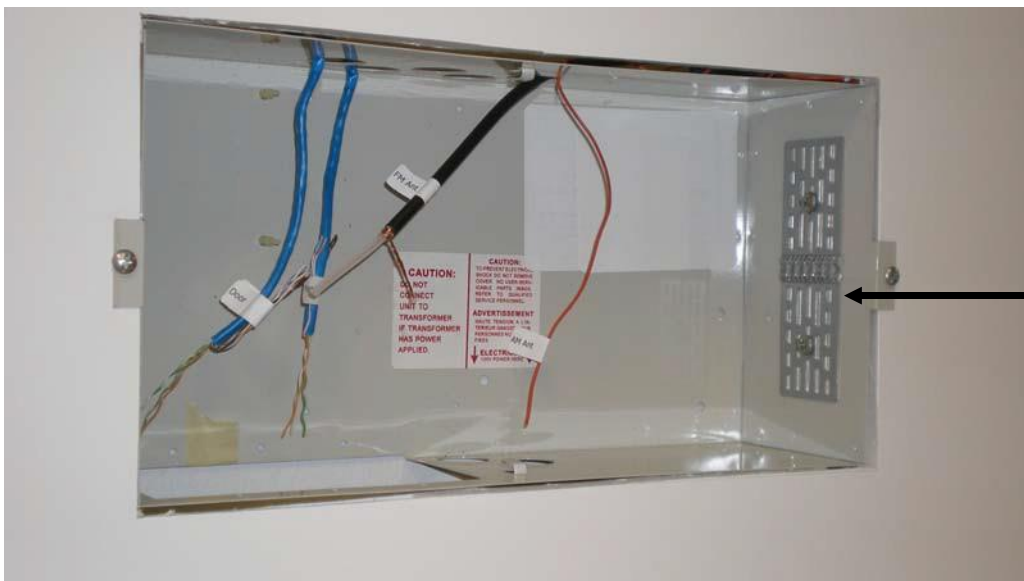
## Removing the Old Master

- If the existing system is still operational, run a test by playing the radio and testing the intercom functions to each room, patio and door station. If one or more of the stations do not function, this could be a sign that there is faulty wiring.
- If one of the stations does not function properly, try swapping the defect station with a working station. If the defective station works in the new location, and the working station now does not work in its new location, this is a sign that there is trouble with the wiring. If the defective station does not work in the new location, this probably means the station is defective.
- Make sure the **power to the existing system is turned off.**
- Remove the master unit from its housing.
- If you encountered wiring issues in the operational test above, this would be a good time to perform a continuity and short test on the existing wiring.
- Check to see if the existing wires are marked. There should be wires for each room, patio and door station, antenna (both AM & FM) and power. If these are not already marked, place a tag on each wire showing what station it goes to or what it is used for. If you are not sure of the use, the printed circuit board where the wire is connected is normally marked with connection details.
- Once all the wires are marked, you can disconnect all the wires and remove the master unit from its housing.



With the master removed, the housing should look something like this with all the wires disconnected and marked.

- The Intrasonic Technology Retrofit system is designed to work with most existing housings. To determine if you can use the existing wall housing measure the inside height and width of the existing housing. If it measures between 14 1/8 inches to 14 3/8 inches in width and at least 5 3/4 inches high, you should be able to use the existing housing.
- If you find that you can not use the existing housing, you will need to remove the old housing and install an Intrasonic Technology I1000H Rough-In kit.
- Some old systems have the power coming in to a box that hangs from the bottom of the wall housing that contains one or two transformers. The Intrasonic Technology Retrofit system does not use transformers. You will need to carefully remove these transformers, bring the Romex up into the housing for connection to the Intrasonic Technology master. Note: Do not remove the old transformer housing and if there was a cover you will need to save it. The cover should be replaced once the Romex is wired to the Intrasonic Technology wires.
- If you are using the original housing, you will need to install the Intrasonic Technology mounting straps. These come with Retrofit RETRO-M master. Be sure to install them with the flat side facing the chassis. As closely as possible mount them with the mounting screw hole centered between the top and bottom. If there are holes available you can use them to screw the mounting straps to the chassis. But be careful not to mount them too far towards the back. The mounting strap needs to be no more then 1/2" from the front end of the chassis. If there are no holes, drill holes to mount the mounting strap.

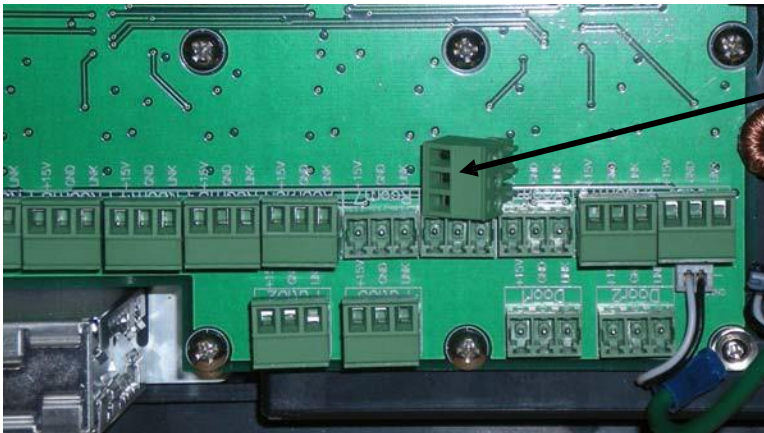


Mounting strap centered between top and bottom of housing. Set back from front edge is 1/2 inch max.

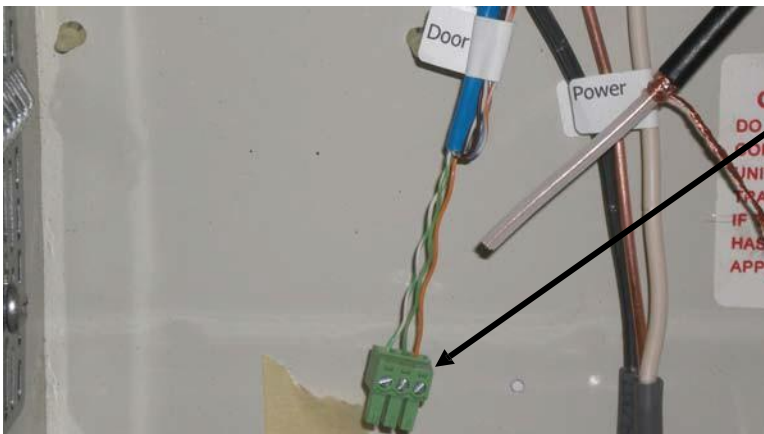
The view above shows the existing master housing with the right side strap installed. When mounting the left side strap, make sure the left and right straps are level. This will insure that the master is level when installed.

## Wiring in the Master Station

- ✦ Determine how many room, patio and door stations you will be installing. Remove the appropriate number of green connectors from the rear of the master printed circuit board
- ✦ Strip the existing wires ¼ inch for all the stations.
- ✦ For each station there are connections marked "+15V", "GND" & "LINK". Select a wiring pattern or color code system to use throughout the entire system. In other words, let's say you have selected red, black and white wires. Now setup a color code that you wire all red wires to the +15V, all black wires to the GND and all the white wires to the LINK. The one important thing to remember the same wire color scheme must be used on the end of the wires in the master housing and on the other end at the individual room, patio and door stations.
- ✦ Leave the station wires with the connectors attached hanging in the master housing, while you proceed to connect the rest of the wires.



This view shows the removable connectors on the back of the master printed circuit board.



This view shows one of the green connectors attached to the existing wires.

## Wiring in the Master Station

- Prior to starting the wiring, align the plastic adapter frame to the existing rough-in box. TIP: Hold in place by placing masking tape on the corners.



- To wire the power you will need a licensed Electrician. The existing Romex will need to be wired to the power leads on the Retrofit master, the connections placed in the old power or transformer box and the cover replaced. DO NOT TURN ON POWER.
- Proceed to wire the AM and FM antennas to the rear of the master.
- Now you can plug in the removable connectors you wired to the existing wires for the room, patio and door stations. The receptacles on the master printed circuit board are marked for "room" "door" and "Patio". Plug in the existing wires into the appropriate receptacle.

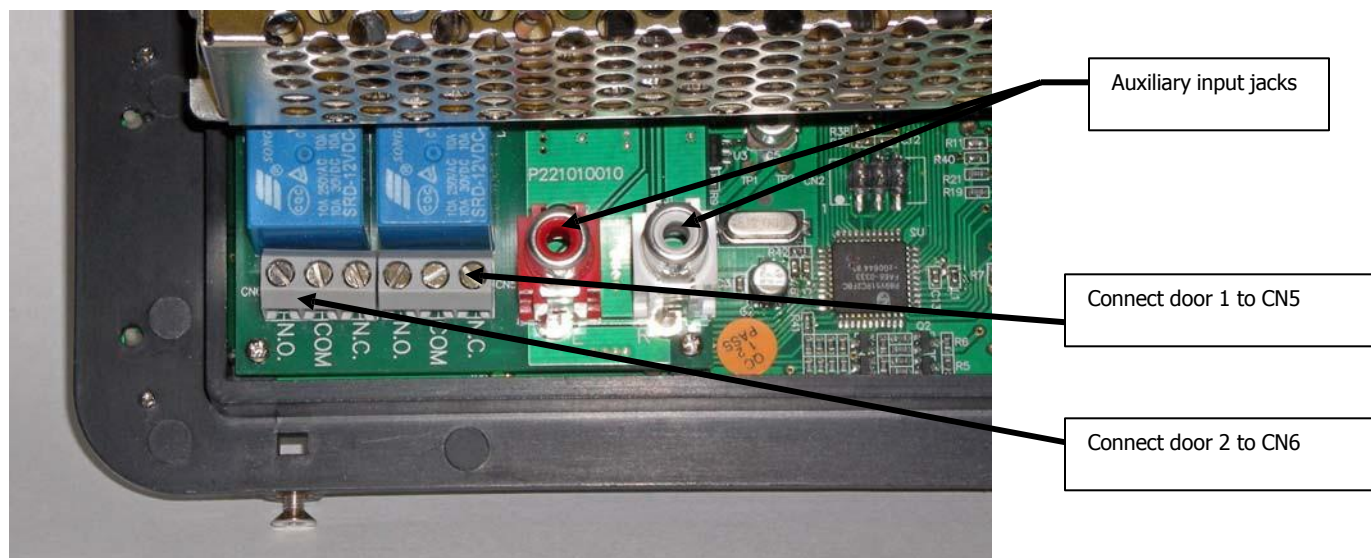


### AUX Input

- If you are installing the optional auxiliary input wall plate, you need to plug the wires from the AUX wall plate into the two (red & white) phono jacks on the back of the master printed circuit board.

### Door Release Connection

- If you are connecting to an electronic door release mechanism, connectors CN5 and CN6 provide both "Normally Open" and "Normally Closed" contacts for this function. The most common use is the normally open contacts that would close and allow power from the bell transformer to activate the release mechanism. Make the appropriate connections at CN5 for door 1 and CN6 for door 2.



### Installing the Master in the Wall Housing

- Before installing the master, check that all wires are connected, there are no wires touching or close to each other that could cause shorts, there are no strands loose that could cause shorts and any unused existing wires are safely covered and moved out of the way.
- Place the Intrasonic Technology master over the rough-in box and align the two mounting holes over the holds in the rough-in housing. Insert one of the 2 inch mounting screws provided and proceed to tighten for 2 to 5 turns. Once started insert the second mounting screw and proceed to tighten. Tighten both mounting screws firmly but do not over tighten.



- Finish the master assembly by attaching the outer face plate and tightening the 3 screws on the bottom of the face plate.

**Important Note:**

On the back of the master, the green station connectors are numbered from 1 to 13. Connectors 1 through 9 are for room stations only. Connectors 10, 11, 12 and 13 can be used for either a room station or a patio station. But for proper operation when using these 4 ports, you must select either room or patio on switch SW1-4 located on the back of the main printed circuit board.

### Removing the Old Room and Patio Stations

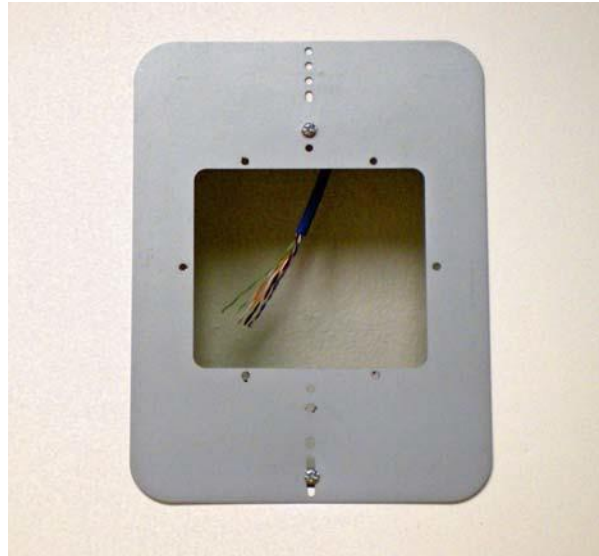
- Because there are numerous old makes and models of existing intercoms, it is impossible to describe in specific detail the process to remove the old room stations. The steps listed below are general steps that may or may not apply to the specific make and model you are replacing.
- Remove the room station from the wall.
- Disconnect the wires attached to the old room station and set it aside.
- Leave any existing room station rough-in installed. The Intrasonic Technology Retrofit adapter plate RETRO-5RV or RETRO-5RVH or RETRO-8AT will mount to existing rough-in.



Once the old room station has been removed and the wires disconnected, the existing station hole with the existing rough-in should look something like the above picture.

### Installing the new Room and Patio Stations

- There are 2 adapter plates, one for vertical mounting and one for horizontal mounting with each room station. Select the appropriate adapter plate and attach it to the existing mounting ring with screws.



The view above shows the vertical adapter plate installed on the mounting ring.

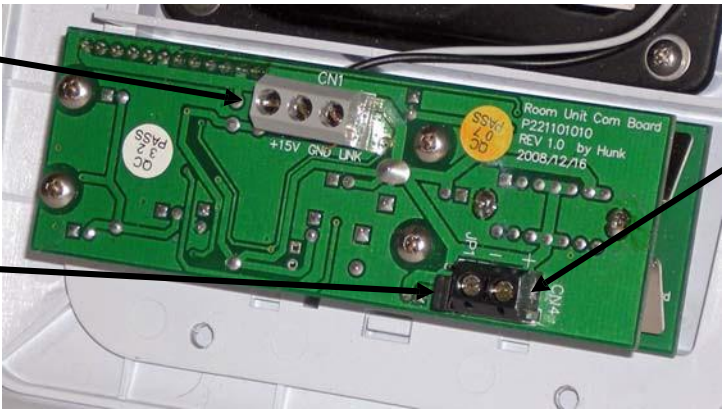
Mount the plastic adapter frame to the metal adapter plate with the screws provided.



- When installing the new Intrasonic Technology Retrofit master station, you selected 3 wire colors from the existing wires. Please select those same 3 color wires and attach them to the same terminals (+15V, GND, LINK) on the back of the room station. Remember it is important to use the same color wire for each of the 3 terminals at both ends of the wire.
- If you are attaching the room station to existing ceiling or in-wall speakers, you will need to attach the wires from these speakers to the connector CN4 on the rear of the room station.
- Make sure if there are 2 ceiling or in-wall speakers that they are wired in series.
- Many existing systems use 25 ohm and 45 ohm speakers. If the existing speakers are either 25 or 45 ohms, they will need to be changed out for 8 ohm speakers. The Intrasonic Technology speakers are designed to work with this Retrofit system and provide maximum performance and volume. Other 8 ohm speakers may be used, but performance may be affected.
- Be sure to move JP1 to correct position when connecting external speakers. Use terminals 1&2 for internal speaker and terminals 2&3 for external speakers

Connect existing wires, 3 colors, to CN1

When connecting external ceiling and in-wall speakers, you must move jumper JP1 to correct position. Use terminals 1&2 for internal speaker and terminals 2&3 for external speakers



Connect external ceiling or in-wall speakers to CN4

Now attach the new room station to the adapter plate with the 4 screws provided. Be careful not to over tighten these screws.



The last step would be to snap the dress ring on to the room or patio station.



As mentioned earlier, these steps are generic only. There are too many possible variations to be able to be specific with installation details. Because of this, from time to time there may be additional cutting, drilling or possible sheetrock work that may be required to install any retrofit system.

Every effort has been made to make the adapter plates as universal as possible. But if you find that the provided adapter plate does not have the correct holes for a specific retrofit application, you can simply drill additional holes in the adapter plate to match the application.

### Removing the Old Door Station

- Remove the screws holding the old door station
- Carefully pull out the old door station
- Disconnect the wires from the old door station and set it aside
- Leave the existing door station mounting box installed



### Installing the New Door Station

- When installing the new Intrasonic Technology Retrofit master station, you selected 3 wire colors from the existing wires. Please select those same 3 colors and attached them to the same terminals (+15V, GND, LINK) on the back of the door station. Remember it is important to use the same color wire for each of the 3 terminals on both ends of the wire.
- Now attached the door station to the existing mounting box using the screws provided.



As mentioned earlier, these steps are generic only. There are too many possible variations to be able to be specific with installation details. Because of this, from time to time there may be additional cutting, drilling or possible sheetrock work that may be required to install any retrofit system.

Every effort has been made to make the adapter plates as universal as possible. But if you find that the provided adapter plate does not have the correct holes for a specific retrofit application, you can simply drill additional holes in the adapter plate to match the application.

- When replacing larger door stations such as a Nutone door station, it will be necessary to use an adapter plate. The Intrasonic Technology part number for this plate is RETRO- DAP.
- Simply screw the adapter plate to the existing door station mounting box, attach the wires as previously described and mount the Intrasonic Technology door station to the adapter plate with the screws provided.



Door adapter plate P/N RETRO-DAP



## Trouble Shooting Guide

Problem or Question	Solution
Cannot hear music at the room stations	<p>Check that radio volume in the master settings is turned up</p> <p>Check that the master is not set to audio off</p>
Cannot hear room intercom	<p>Check that intercom volume in the master settings is turned up</p> <p>Check system wiring</p>
What happens if the power goes off?	<p>Like most electronic devices, when the power is lost the equipment will not operate. The Intrasonic Technology Retro System has a battery backup that should keep the owner selected settings during most power outages</p>
Where is the battery backup and how do I replace it?	<p>The battery backup is located behind the front panel on the master station. Simply loosen the screws holding the front panel and remove the front panel. In the upper right corner there is a square cover with a single screw. Remove the screw and remove the battery behind it. Watch the battery polarity and put the new battery in using the same direction as the old battery. The replacement battery number is CR2032. After installing the new battery replace the square cover plate and screw holding the plate. Then replace the master face plate and tighten the three screws on the bottom of the master face plate.</p>
I cannot hear my music source plugged into the aux wall plate	<p>If a music source is plugged into the master docking station, then the system will automatically select that source to be distributed. If you want to distribute the Aux wall plate source, make sure there is no music source plugged into the master docking station.</p>
Various operation issues	<p>To trouble shoot the system when you are having various issues, remove the master from the wall. Unplug all the room, patio and door stations from the main printed circuit board on the rear of the master. Check that the master is functioning properly. Then one at a time plug in each room, patio and door station, checking after each one is plugged in for the issue. If there is either bad wiring or a defective station, the issue will appear when the defective station (or station with bad wiring) is plugged back in.</p>

## **Intrasonic Technology 2 Year Limited Warranty**

Intrasonic Technology warrants its products to be free of manufacturing defects for two years from the date of closing or actual installation. This warranty only applies to products purchased from authorized dealers and distributors. If proof of installation cannot be supplied, the manufacturing date code may be substituted. This warranty extends to the original user or subsequent owner of the product during the warranty term. Intrasonic Technology will replace or repair the product at its option at no charge with a rebuilt or new product. All products with manufacturing defects must be returned to Intrasonic Technology.

If an Intrasonic Technology product is determined to have a defect, please call our toll free number (877-435-0670) before any attempt to dismantle or repair the product. Any attempt to dismantle or repair the product will void the warranty.

An RMA (Return Material Authorization) will be required prior to returning a product to Intrasonic Technology. To obtain an RMA number, call our toll free number (877-435-0670) and speak with a customer service representative. All products returned without an RMA number will be refused.

The limited warranty is in lieu of any other warranty, expressed or implied and any other obligations or liability on the seller's part. The limited warranty does not cover service calls, damage caused by improper installation, acts of God, or violation of building or electrical codes.

Intrasonic Technology will not be liable for consequential, incidental or other damage arising in connection with use or inability to use this product. In no event shall Intrasonic Technology's liability hereunder exceed the cost of the product covered hereby. No person is authorized to assume for Intrasonic Technology or obligate Intrasonic Technology for any other liability in connection with the sale of this product. Some states do not allow exclusion or limitation of consequential, incidental damage, so the above limitation or exclusion may not apply. This limited warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state.