

HomeVoice™ Multi-Room Kit Basic Instructions

Introduction

To operate HomeVoice™ using this multi-room kit, you must accomplish the following steps:

- Installation of the HomeVoice™ software
- Installation of your microphones
- Setup of the Mixer and Compressor/Limiter Gate

You must provide the following:

- Single gang boxes for each microphone
- 22 - 18 AWG shielded single pair wire (two conductors) WITH A GROUND WIRE
- Solder for connecting the wire to the XLR connector
- Headphones (Recommended not required)

HomeVoice™ Software Installation

If you do not have HomeVoice™ installed, follow the instructions found in the HomeVoice™ **2.1** Installation Guide. No special changes are required for use with multi-room operation.

Microphone Installation

Installation of the PZM-11 microphones is an activity that is unique to every installation. How you do it and where you install the microphones depends on your home and from what rooms you want to have voice control. The PZM-11 microphones are designed to be installed in a single gang box (available at home supply stores). You can install the PZM-11 in the ceiling (recommended) or a wall. Remove the 2 screws holding the back cover. Thread your 22 gauge shielded single pair wire through the black ring on the back cover and make the following connections on the PZM-11:

- #1 Ground
- #2 Red
- #3 Black

Pull your wire through your house to the location of your PC. At the PC end of the microphone cable, solder the following connections to an XLR connector:

- #1 Ground
- #2 Red
- #3 Black

Repeat this activity for each microphone.

Theory of operation:

Multiroom Kit Instructions

The principle function of the equipment supplied is to bring the sound (voice) throughout the house to the central processing unit (computer). The PZM-11 microphones are installed as desired through out the house. The wire brings the signal from the individual microphones to the mixer. The mixer combines the signals input on each channel on to a single buss which is then output as a single signal. The output from the mixer is then fed to the computer sound card. The sound is monitored for recognized commands to act upon.

Due to the higher levels of background noise in some areas in relation to other areas it is sometimes desirable to “gate” the microphone so that it does not provide input unless the input is at a level higher than the “threshold” set. By setting the threshold properly it is possible to filter out background noise from getting mixed into the signal sent to the computer. The drawback to this is that the spoken commands must be at a level greater than the background “threshold” setting.

It is also at times desirable to “limit” the level at which a microphone is applied to the mix. In this way it is possible to control a microphones ability to overpower the other microphones.

As the situations vary widely from one environment to another the specifics of settings on the equipment may vary widely. The information provided below, is a guideline for configuring the equipment provided for “general” home use. We recommend a gradual approach to tuning the system. For the initial installation it is wise to start with just the mixer and leave the “Limiter/Gate” out. In this way it is possible to determine which microphones cause a problem with background noise or over powering levels. In some situations there may be no problems and the “Limiter/Gate” may not be desired.

In general we recommend the application of the “Limiter/Gate” to the two noisiest rooms in the house. The kitchen, family room or home theater.

Setup

Your HomeVoice™ Multi-room kit includes a RM81 Mix Max Mixer, RP252 Compressor/Limiter Gate, 2 Mini-Mic PreAmps, microphones and patch cables. This to allow for multiple microphones to be combined into one signal for input to your PC. The following steps describe the setup of these components:

Setup for Mixer Only System

1. Unpack the RM81 and check for damage, but do not plug into an outlet or turn the power on yet.
2. Attach the microphones XLR connector to a channel input on the back of the RM81.
3. The PZM-11 microphones require a phantom power supply. The dip switches on the rear of the RM81 (between Channel 8 and MAIN OUT determine which microphones will be supplied with this power. The RM81 is shipped with all dip switches in the up or OFF position. For every microphone attached to the RM81, which requires phantom power, place the dip switch corresponding to the microphone channel in the down or ON position.
4. On the rear of the RM81 there is a jack labeled MAIN OUT. Use the supplied to 1/8" cable to connect the MAIN OUT from mixer to the 1/8" microphone connection on the sound card in your PC.
5. Check all connections and plug in and turn on the RM81, the microphones are now being mixed into one source and passed to the computer.

You should now be receiving sound from the microphones to the computer. For initial tuning of the system it is recommended that you use a set of headphones to listen to the sound output from the mixer. By doing this it is possible to tune the levels of the microphones to an even level or to tune certain microphones to a higher or lower level.

Setup of the Mixer and Compressor/Limiter/Gate on Specific Channels (Recommended)

(See Attached Drawing for Connection Details)

1. Unpack the RM81 Mixer, RP252 Limiter/Gate and the Mini-Mic Pre-Amps, check for damage, but do not plug units into an outlet or turn the power on yet.
2. Determine which channels are to be "gated".
3. The PZM-11 microphones require a phantom power supply. The dip switches on the rear of the RM81 (between Channel 8 and MAIN OUT determine which microphones will be supplied with this power. The RM81 is shipped with all dip switches in the up or OFF position. For every microphone attached to the RM81, which requires phantom power and are not to be gated, place the dip switch corresponding to the microphone channel in the down or ON position.
4. For the microphones to be "gated" attached the XLR connector from the Microphones to be "gated" to the XLR inputs of the MP13 Mini-Mic Preamps.
5. Attach the microphones XLR connectors from the other "non-gated" microphones to a channel input on the back of the RM81. Note, which room the microphone supports and what channel it is connected to.
6. Connect the 1/4" jack on the output of the Mini-Mic Preamp, to the 1/4" in jack on the channel of the mixer. Phantom power is not enabled on this channel of the mixer. Push in the phantom power button on the preamp to enable phantom power for the microphone.
7. On the rear panel of the RM81, there is a MAIN OUT connector. Use the supplied to 1/8" cable to connect the MAIN OUT from the mixer to the 1/8" microphone connection on the sound card in your PC.
8. Check all connections and plug in and turn on both the RM81 the RP252 and the preamps. The microphones are now being mixed into one source. However the microphones being "gated" are only in the mix if the levels exceed the threshold set on the RP252 channel settings.

Using the Limiter/Gate to “gate” all channels on the mixer.

1. Unpack the RM81 and the RP252, check for damage, but do not plug units into an outlet or turn the power on yet. Attach the microphones XLR connector to a channel input on the back of the RM81..
2. The PZM-11 microphones require a phantom power supply. The dip switches on the rear of the RM81 (between Channel 8 and MAIN OUT determine which microphones will be supplied with this power. The RM81 is shipped with all dip switches in the up or OFF position. For every microphone attached to the RM81, place the dip switch corresponding to the microphone channel in the down or ON position.
3. On the rear of the RM81 there is a ” jack labeled MAIN OUT. Use the supplied ” to ” cable to connect from the ” MAIN OUT to the ” INPUT on channel 1 of the RP252.
4. On the rear panel of the RP252, there is a ” OUTPUT connector for channel 1. Use the supplied ” to 1/8” cable to connect the ” OUTPUT from channel 1 to the 1/8” microphone connection on the sound card in your PC.
5. Check all connections and plug in and turn on both the RM81 and the RP252, The microphones are now being mixed into one source, passed through the RP252 and fed to the microphone input on the PC. This options gates all the microphones attached to the RM81.
6. The rear panel on the RP252 also has two ” jacks labeled SIDE CHAIN , INPUT and OUTPUT these connections are for chaining more than one RP252 together. The ” OUTPUT connector can be used to attach headphones to monitor initial sound levels during the setup procedure. This can be useful when determining which microphones need to be amplified and sound gate level settings for maximum pickup. The microphone volumes can be adjusted individually on the RP81. With this setup the RP252 sets the threshold levels for all the microphones. To Gate two microphones individually refer to **Sound gate setup and Mixer configuration for gating two microphones** section. Read the manuals supplied with the equipment to fully understand the operation of the RM81 and RP252.

Basic Settings for Compressor/Limiter/Gate

1. For each channel of the Compressor/Limiter/Gate to be used the "Active" button must be in, the Active LED will light red.
2. The "Stereo button in the middle of the Compressor/Limiter/Gate should be out, off.
3. The five controls to the left of the "Active" button control the Compressor/Limiter functions. The "Threshold" control should be set to the threshold at which point you want the Compressor/Limiter to start clamping down on the signal to "limit" the amount of sound the channel can output. This will need to be set by testing. The higher the threshold the more sound it will allow through. **Note:** the Compressor/Limiter will not stop all sound from exiting the channel. It will only limit it so as not to exceed the threshold set.
4. The "Ratio" determines the setting for how "hard" the Compressor/Limiter will act on the signal, this should be set to Infinity:1.
5. The "Attack" setting determines how fast the Compressor/Limiter will attack the signal once it exceeds the threshold. This should be set to as short, quick, as possible .2 ms.
6. The "Release" is how fast the Compressor/Limiter will let go of the signal, this should be a slow as possible, 40db/sec.
7. The "Output Gain" can be used to amplify the signal leaving the Compressor/Limiter. Normally this is not required and this can be set at 0.
8. The next two controls to the right of the "Active" button control the Gate functions. The Gate Threshold determines a what point the gate will allow sound through. When the sound is below the threshold, the Below LED will be lit. At this point no sound is getting through the gate into the mix. Adjust this carefully to set it at the point which blocks the background "noise" you are trying to remove from the system. This setting can be moved up and down depending on the gain settings of the preamp. When the sound exceeds this threshold the gate allows the sound into the mix.
9. The "Gate Release" control on the gate determines how fast/slow the gate will turn off or stop the sound once it has turned on. This should be set as slow as possible SLW.

These settings are general guidelines for a basic setup. Some experimentation will be required in order to achieve the best performance for your situation.

Configurations requiring multiple mixers

For configurations requiring more than 1 mixer please consult the mixer documentation on how to chain multiple mixers together. By proper cabling as described in the documentation it is possible to chain multiple mixers together to provide the desire number of channels required.

If further assistance is needed please contact Applied Future Technologies, Inc. at 1-303-403-0457, or send an E-mail to aft@appliedfuture.com

Eight Microphone Configuration with 2 Gated Microphones Using 2 Pre-Amps Gate/Limiter and Mixer

