



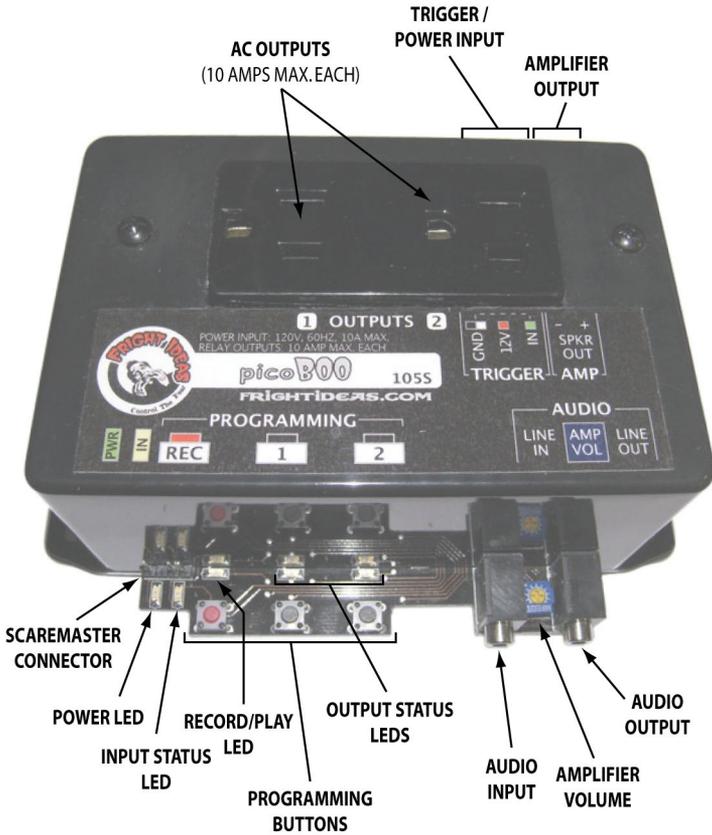
picoBoo FI-105s

OPERATING MANUAL
V1.0 (May 8, 2010)



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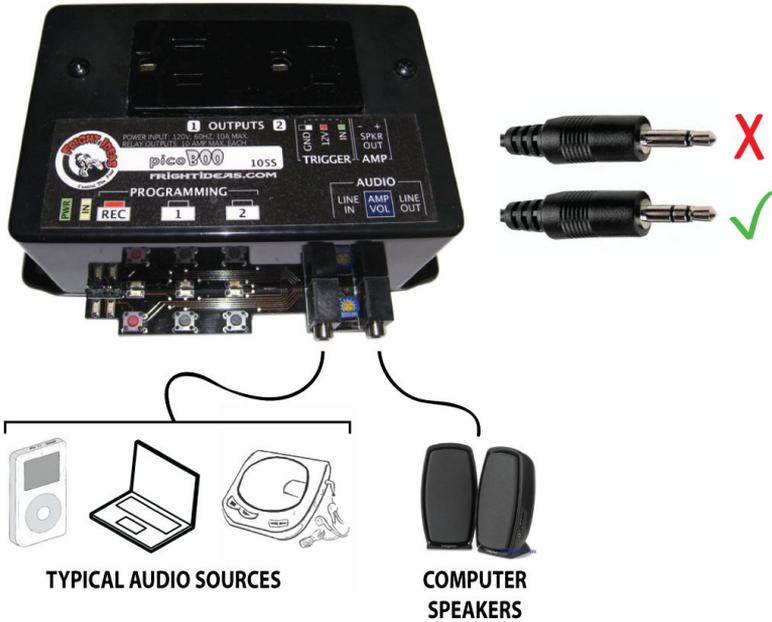
Getting Familiar with your picoBoo



Getting Set Up for Recording Audio

To begin recording you will need the following connected to the picoBoo:

- A powered speaker or speakers connected to the picoBoo's Audio Line-Out.
- An audio source such as an iPod, Computer, or CD player connected to Audio Line-In.
- A stereo audio cable to connect your audio source to the picoBoo's Audio Line-In.



Once the above is connected, press play on the audio source and you should be able to hear the sound faintly through the connected speaker. **DO NOT** turn up the source volume so your speakers are really loud! Use this sound only as a guide so you know when to start and stop recording. Once the sound is recorded and the picoBoo plays it back, it will be much louder than it is now.

You will have to experiment with the volume of your sound source to see what gives you the best recorded sound quality. If the source is too loud, the recording will sound distorted. If it's too low you may not be able to turn the sound up loud enough even with your speakers at full volume. Do a few test recordings. Keep adjusting the source volume and then previewing the sound from the picoBoo until you're happy with the quality and volume level.

Volume Levels for Common Sources

Source	Volume Level
Computer	20% to 70%
iPod or Portable CD Player	75%

Recording the Audio

The ambient sound must always be recorded first. Once you are happy with how it sounds you can move on to recording the scare sound. The scare sound can then be recorded and re-recorded as needed. If the ambient sound is ever changed the scare sound will have to be re-recorded, even if it does not need to be changed.

Sound Length

Record as long an ambient sound as possible, as this sound will be looped while the picoBoo waits to be triggered. The looping point will be heard less often if the ambient sound is long. Make sure to leave enough room for your scare sound, as you have 2 minutes total space for your sounds.

Recording and Previewing

To record the ambient sound hold "REC" and press "1". Press "REC" again to stop recording. To record the scare sound hold "REC" and press "2". To preview the sound, make sure you stop the source if it is playing, then press either "1" to preview the ambient sound, or "2" to preview the scare sound. Pressing "1" or "2" again while the sound is playing will stop it.

Recording More Scare Sounds

Record your ambient and first scare sound as explained above. To record each additional scare sound, hold both "1" and "2", then press "REC". Repeat this for up to 10 scare sounds, the total length must still remain under 2 minutes. If you mess up you'll have to start over at the first scare sound by holding "2" and pressing "REC". To preview your additional scare sounds, first tap "2" to listen to the first scare sound, then tap "1" and "2" at the same time to listen to the additional sounds one at a time.

Turning Off Ambient Sound

To turn off the ambient sound, make sure that an audio source is connected to the Audio Line-In, hold "REC" and press "1". Then within 3 seconds, press "REC" again.

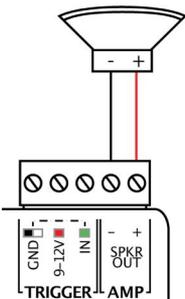
Using the Internal Amplifier

The picoBoo has an internal 10 watt audio amplifier that can be used to drive standard speakers. Car speakers or horn speakers are typical. Horn speakers are inexpensive and work well for screams and other mid to high pitch sounds. Standard 4 or 8 ohm speakers are best if you are playing music or lower pitch sounds.

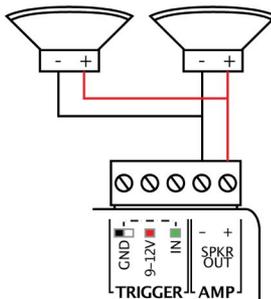
If you hear the audio cutting out as it plays, the internal power supply is likely overwhelmed. Gradually turn down the volume until the cutting out stops.

Below are three popular configurations for connecting speakers to the picoBoo.

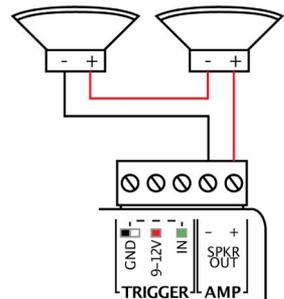
ONE 4, 8, OR 16 OHM
SPEAKER



TWO 8 OR 16 OHM
SPEAKERS



TWO 4 OHM
SPEAKERS



Connecting the Outputs

The outlet receptacle on the picoBoo is split into two separate outputs. Turning on output 1 will turn on the left side, while turning on output 2 will turn on the right. Pretty much anything that plugs into a standard 120 volt wall plug can be controlled by the picoBoo.

The picoBoo is internally fused at 10 amps, so keep the total current draw below this value. Do not try to control large motors, these have a very high start-up current that will almost certainly blow the fuse.

For certain applications it might be useful to turn an output off rather than on once the picoBoo is triggered. For example, you'd like to connect a light to the picoBoo and you'd like it to be on while the ambient music is playing. When the picoBoo gets triggered you want the light to go off. You can do this to one or both of your outputs by setting them to normally-closed. See the Settings section for more details.

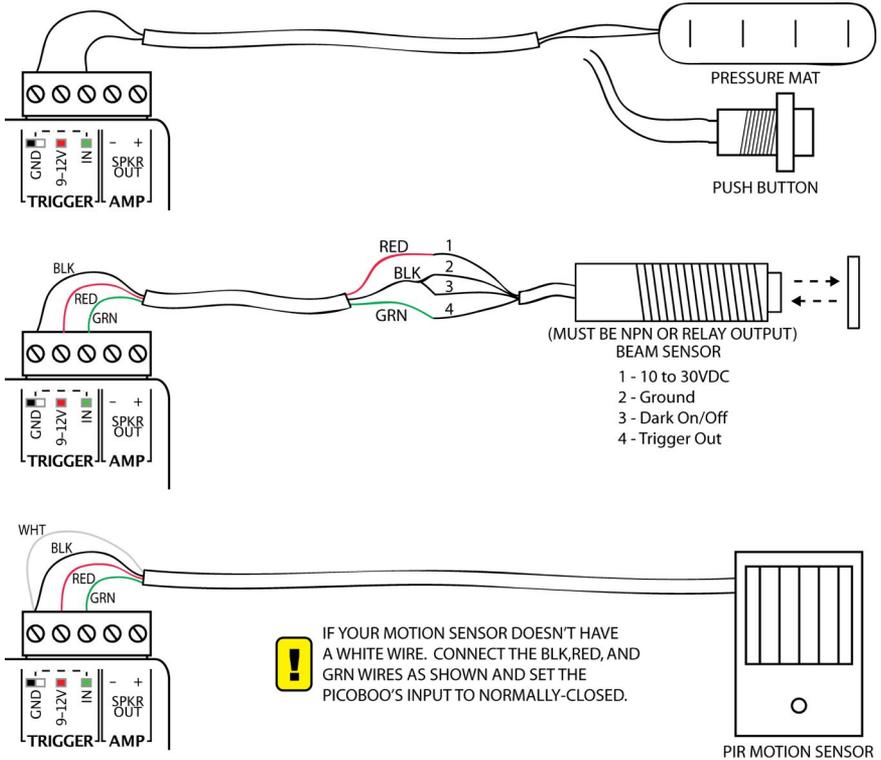


Recording the Output Animation

1. Make sure there is no audio cable connected to the picoBoo's Audio Line-In.
2. Press "REC". The red light will turn on and the scare sound will start playing.
3. Press the "1" and "2" output buttons to turn on the outputs as you want them to turn on. Synchronize your actions with the sound. You can press each button as many times as you want.
4. Press "REC" again to stop recording. The scene is automatically saved. Press "2" or trigger the input to preview the scene.

Wiring the Trigger

The picoBoos are designed to work with low-voltage sensors or contact closures only. **DO NOT** use typical outdoor motion sensors found at local hardware stores. The picoBoo will trigger when the IN terminal is connected to the GND terminal. As illustrated below, this can be accomplished in several ways.



Using PIR Motion Sensors

Some motion sensor's outputs are normally-closed, meaning it connects the IN to GND when there's no motion, and disconnects it when there is. If this is the case, you must set the picoBoo's input to normally-closed. See the Settings section on the next page for details on how to do this.

If you are unsure if your motion sensor is normally-open or normally-closed, connect it using the third diagram above. Power up the picoBoo, wait a few minutes for the motion sensor to warm up. Trip your sensor as you watch the yellow input light on the picoBoo. If the yellow light turns ON when the motion sensor activates, it's normally-open. If it turns off, it's normally-closed. If it does nothing there is a wiring problem.

Settings

Setting the Input Type to Normally-Closed or Normally-Open

1. Power down the picoBoo, wait 10 seconds.
2. Hold the "1" and "2" buttons to set the input to normally-closed, or just "1" to set it to normally-open.
3. Power up the picoBoo while holding the button(s).
4. When the red light flashes a few times, you can let go of the buttons. The setting is now changed.

Setting Outputs to Normally-Closed

1. Power down the PicoBoo, wait 10 seconds.
2. Hold "REC" and the button(s) of the output(s) you want to set to normally-closed.
3. Power up the PicoBoo while holding the buttons
4. When the red light flashes a few times you can let go of the buttons. The setting is now changed.

To set the outputs back to normally-open, simply repeat the above holding just "REC".

Write-Protecting Your Audio and Animation

Once the picoBoo is programmed to your liking you can write-protect it to make sure the "REC" button is not accidentally pressed, changing or deleting your program. The write-protect setting can be toggled on or off using the following steps:

1. Power down the picoBoo
2. Hold the "2" button and power up the picoBoo.
3. When the red light flashes a few times the write-protect has been toggled.

Troubleshooting

TROUBLESHOOTING TABLE	
Problem	Solution
"REC" light keeps flashing or the motion sensor won't trigger scare	- The motion sensor is warming up, wait 2 minutes, or - Input is set to normally-closed when it should be normally-open (see Trigger section for more details).
Can't record animation	- picoBoo is write-protected, disable write-protection (see Settings section for more details), or - Audio source is still connected to Audio Line-In, disconnect.
Sound cuts out when output turns on or off	- Put diodes or capacitors on your solenoids (see Relay Outputs section for more details).
Sound cuts out when using the internal amplifier	- The power supply may be underpowered. Try reducing the volume or swapping out the power supply with one of higher wattage.

Specifications

SPECIFICATIONS TABLE	
Audio	
Capacity	120 seconds
Quality	8kHz sample rate, mono (roughly equivalent to AM radio)
Storage Type	Internal Analog Flash
Physical	
Length	5.75"
Width	3.25" enclosure only, 4.25" including connectors
Height	2.5"
Weight	1.3 Lbs (0.59Kg) including power cable
Electrical	
Operating Voltage	120 VAC
Power Consumption	10 amps max. (1200 watts)
Power Cable	6 feet long
AC Outputs	10 amps max. each. 10 amps total
Internal Fuse	10 amp Fast Blow 5x20mm