

BooBox 4

OPERATING MANUAL

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BooBox 4 and the ScareMaster

Currently the ScareMaster can be used to program the animation in the BooBox 4, sounds must still be recorded using an external audio source as described in *Recording Sounds*. This feature will be added to the ScareMaster very soon via a free firmware update available on our website.



Getting Started

Connect the included power supply to the BooBox 4, then use the included patch cable to connect the BooBox 4's programmer port to the ScareMaster's "To Controller" port. The ScareMaster does not need a power supply, it will get power from the BooBox 4.

Selecting a Scene

On the screen you should see the current scene you are editing in the top-left corner. "In-0" is input 1's scene, to select another scene hold the PLAY button for a few seconds then use the A slider to scroll through the available scenes. The current length of the scene is shown in the bottom-right corner as you scroll through. Let go of PLAY when you see the scene you'd like to edit.

Recording a Scene

Press REC to start recording, whatever you do on the outputs will be recorded. Press REC again to stop recording.

Playing a Scene

Press PLAY to view the scene.

Recording Complicated Scenes

Hold ENABLE and tap the output buttons to disable various outputs from recording. This way you don't have to program all the outputs at once. Once you are finished recording an output, disable it, then on the next recording pass it will play back rather than record.

Saving Your Scenes

To save the scene into the BooBox's memory, either enter the menu by holding ENABLE and tapping PLAY, then select "Save Scene", or use the shortcut of holding ENABLE and tapping REC. The ScareMaster can now be disconnected and your scenes are safely stored in the BooBox 4's internal memory.

NOTE: Once a scene is recorded into the BooBox 4 using the ScareMaster, the unit is automatically write-protected. If the unit is to be programmed manually in the future, write-protect will have to be disabled first.

Recording Sounds

To begin recording you will need the following connected to the BooBox 4:

- A set of powered speakers or amplifier connected to LINE OUT, or a speaker connected to the SPKR output.
- A line-level audio source such as a CD player, computer, iPod, tape deck, etc., connected to the picoBoo's LINE IN using a 3.5mm stereo audio cable, do NOT use a mono cable.

Once the above is connected try pressing play on the audio source, 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 BooBox 4 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 it will sound poor and 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 BooBox 4 until you're happy with the quality and volume level.

Sound Length

The BooBox 4 can hold a total of 4 minutes of sound between its three scenes, each sound should be no longer than 3 minutes. If you are recording an ambient sound, record as long an ambient sound as possible, this sound will be looped while the BooBox 4 waits to be triggered. The looping point will be heard less often if this sound is long. The length of the two scare sounds is less critical, just make sure it's long enough to play for the entire length of the animation you want to record. If they're a little too long that's fine, the BooBox 4 will not play the entire sound unless you record animation past the end of the sound.

Recording a Sound

The input 1 sound must always be recorded first, once you are happy with how it sounds you can move on to recording the input 2 sound, and then finally the ambient sound. To record a sound ...

1. Press PLAY on the audio source and then on the BooBox 4 hold "REC" and press ...
 - a. "1" to record the input 1 sound
 - b. "2" to record the input 2 sound
 - c. "3" to record the ambient sound
2. You can let go of the REC button when the REC light turns on. Let it record for the duration of the sound.
3. To stop recording press REC again, the REC light will turn off. Repeat until you are happy with the result.

Previewing a Sound

1. Make sure the audio source is stopped, then on the BooBox 4 press ...
 - a. "1" to preview the input 1 sound
 - b. "2" to preview the input 2 sound
 - c. "3" to preview the ambient sound
2. Press the same button again to stop the sound or allow it to play through and it will stop on its own.

Don't Want Sound?

If you don't want a sound in a certain position, just record silence for less than 3 seconds. If a sound is less than 3 seconds in length then the BooBox 4 won't attempt to play it. For example, if you don't want an ambient sound, first make sure the audio cable is connected to the LINE IN jack, then hold REC and press "3", then within 3 seconds press the REC button again.

Connecting Speakers

There are two options for connecting speakers to the BooBox 4. You can use either of the following methods or use both at the same time if you're feeling crazy.

1. Connect an amplifier or pair of powered speakers to the BooBox 4's LINE OUT. Do NOT use a mono cable in the picoBoo's LINE OUT jack.
2. Use the BooBox 4's internal amplifier with a 4 or 8 ohm speaker.

Recording Animation (without a ScareMaster)

Once you have your sounds recorded you can begin recording the scare scene's outputs. Make sure you disconnect the audio source from the LINE IN before you start.

If you are having problems recording and are using a motion sensor for a trigger, disconnect the motion sensor and read ahead to learn how to change your input to normally-open. Change back to normally-closed when you're done.

The BooBox 4 has three scenes you can record animation for, scare inputs 1 & 2, and the ambient scene. The ambient scene loops while the BooBox 4 is waiting to be triggered. Useful if you are using the BooBox 4 to control a prop and you'd like the prop to be making some subtle movements while it waits for the main show.

Selecting a Scene

On power-up, the default scene that will be recorded when you press REC is Input 1. If you want to record to a different scene follow the steps below.

1. Hold the REC button until the REC light starts flashing and the 1-3 lights light up.
2. While still holding REC, press the button for the scene you'd like to record. Pressing "1" will select the Input 1 scene, "2" will select the Input 2 scene, and "3" will select the Ambient scene.
3. Release the REC button. The selected scene will now be recorded each time you press REC.

Recording the Scene

Once your scene is selected, follow the steps below to program the animation.

1. Press "REC", the REC light will turn on and the scare sound will start playing.
2. Press the 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 and hold them for as long as you want, whatever you do on those buttons will be recorded for up to 3 minutes.
3. Press "REC" again to stop recording, the scene is automatically saved.
4. Press the scene's button, ie "1", "2", or "3" to preview the scene you'd just recorded.

NOTE: You must record animation for the ambient scene, even if it's blank, otherwise the ambient sound will not play.

Trigger Inputs

There are many different types of triggers, choosing the right one for your setup will help make your scare more effective. Below is a quick summary of some popular triggers ...

TRIGGER TYPES			
TRIGGER	PROS	CONS	CONTACT
PIR Motion Sensor	<ul style="list-style-type: none">- Very affordable- Unaffected by fog machines- Easily installed	<ul style="list-style-type: none">- Triggering time can vary a bit	4 wires = Normally Open 3 wires = Normally Closed
Beam Sensor	<ul style="list-style-type: none">- Triggering time is instant and consistent	<ul style="list-style-type: none">- Can be a bit pricey- Installation can be tricky at first- Affected by fog machines	Normally Open
Pressure Mat	<ul style="list-style-type: none">- Relatively affordable- Simple installation	<ul style="list-style-type: none">- Patrons can often spot the mat- Patrons may not step on mat- Hiding and protecting the wire and mat	Normally Open
Pushbutton	<ul style="list-style-type: none">- Actor can judge best time to trigger	<ul style="list-style-type: none">- Need an actor	Normally Open

Using PIR Motion Sensors

If your PIR Motion Sensor has four wires, it uses a normally-open contact, there is no need to change your contact type for this sensor. With these sensors, the white wire goes in the same terminal as the black one. For most other PIR sensors you'll have to set the contact type to normally-closed.

PIR motion sensors have a built-in delay of about 2 minutes when they are powered up. During this delay the BooBox 4's "1" or "2" input light will blink to indicate it is waiting for the sensor to warm up. This is normal, once the sensor is warmed up the BooBox 4 will begin operating normally.

Determining your Trigger's Contact-Type

If you are unsure of what contact-type your trigger is then you can figure it out quite easily. Connect your trigger/sensor using the diagrams in this manual. Power up the BooBox 4, if your trigger is a motion sensor wait a few minutes for it to warm up. Trip your sensor/trigger as you watch the yellow input light on the BooBox 4, if the yellow light turns ON it's a N.O. contact, if it turns off it's N.C., if it does nothing there is a wiring problem.

Setting the Contact Type to Normally-Closed (N.C.) or Normally-Open (N.O.)

Please see *Normally-Closed Inputs* in the Changing Settings section of this manual.

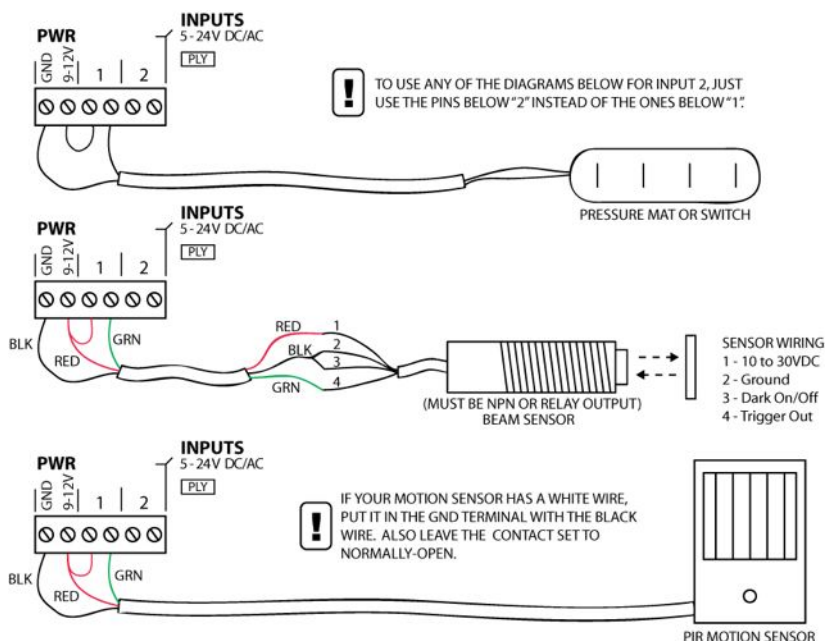
Input 1 Trigger Pre and Post Delays

If your trigger can't be placed in the perfect spot, you may want the BooBox 4 to delay a bit before starting the scare scene. You can set a pre-delay anywhere from 1 second to 30 minutes. You'll notice the BooBox 4 will blink the "PLAY" light to indicate it's delaying. If you'd like the BooBox 4 to ignore the trigger for a bit after it's run a scene, program a post-delay.

Setting the Inputs 1 Trigger Delays

1. Hold the REC button until the REC light flashes and lights 1-3 turn on.
2. While still holding the REC button, press the "4" button, lights "1" and "2" should be lit.
3. Don't let go of REC yet, press "1" to select pre-delay, "2" to select post-delay.
4. Finally you can let go of the REC button.
5. Now press the REC button to start recording your delay, the REC light should turn on
6. Let it record for as long as you want the delay to be, then press REC again to save your delay
7. To remove a delay, repeat the above recording a delay of less than one second in length

Input Wiring Diagrams



Terminal Block Outputs

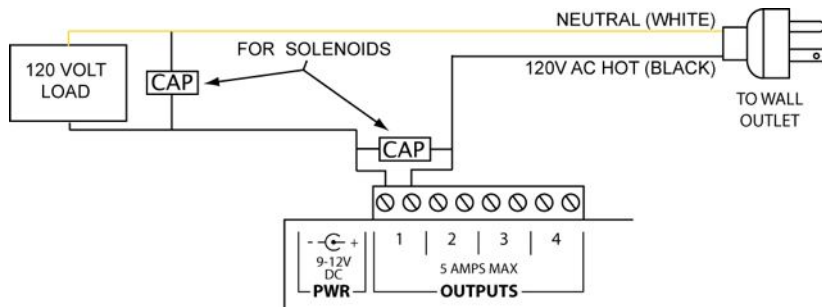
The outputs are simple contact closures. The outputs do not supply voltage, if you would like them to you must wire voltage into one of the terminals. If you plan to use 120 volts then it is your responsibility to take the appropriate safety precautions with wiring. Each relay can handle 5 amps @ 125 volts.

Controlling Solenoids or Large Relays

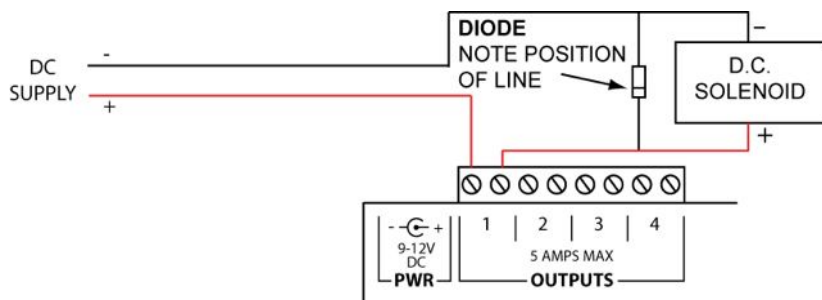
Solenoids and Large Relays create a lot of interference, this can wreak havoc to nearby electronic devices. If you notice the sound is stopping unexpectedly when controlling one of these devices, this is most likely your problem. The solution depends on whether you are using AC or DC solenoids. For AC solenoids you need to use a capacitor, the best place to install it is as close as possible to the solenoid, if that's not possible then across the terminal block may work as well. For DC solenoids you need to use a diode, standard 1N400X diodes will work fine, the only place to install these is across the solenoid. See the diagrams below for more information.

Some Radio Shack part numbers for capacitors are 272-1053 or 272-1051, for diodes use 276-1103 or 276-1102.

AC Load or AC Solenoids



DC Solenoid Diagram



Changing Settings

See the table below for the various options you can adjust on your BooBox 4. For an example of the process see "Setting Write-Protection" below.

1. Hold REC on startup until the PLY light stays lit, then let go of REC.
2. Press the 1-4 buttons to turn on or off the lights until they match the setting you want to adjust. Settings are shown in the table below in **bold** type. For example, to adjust Interruptible Inputs you would turn lights 1 and 2 ON.
3. Press REC, the REC light will turn on and the 1-4 lights will change to represent the current state of the setting you are changing. Using buttons 1-4, toggle the lights until the setting is to your liking. For example, following the example above, if we wanted input 2 to be interruptible, we would turn on only light 2.
4. Press REC again to save the setting, all lights except PLY will turn off indicating the setting has been changed. You can select another setting and make more adjustments by going back to step 2, or press REC again to exit and resume normal operation.

OPTIONS AND OPERATING MODE LEGEND

SETTING	LIGHTS					
	PLY	REC	1	2	3	4
Normally Closed Outputs	<input type="checkbox"/>		<input type="checkbox"/>			
Turn on the lights for outputs you want N.C.	<input type="checkbox"/>	<input type="checkbox"/>				
Normally Closed Inputs	<input type="checkbox"/>			<input type="checkbox"/>		
Turn on the lights for inputs you want N.C.	<input type="checkbox"/>	<input type="checkbox"/>				
Interruptible Inputs	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
If you want an input's scene to be interrupted if the other input is triggered during playback, turn the lights for that input ON.	<input type="checkbox"/>	<input type="checkbox"/>				
Operating Mode (see note 1)						
Normal	<input type="checkbox"/>	<input type="checkbox"/>				
No Input 1 Scare Sound	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Input 2 Trigger-controlled Scare Length	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		
Momentary Inputs (see note 1)	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
If you want the input's scene to play only for as long as the input is triggered, looping if necessary, turn the lights for that input ON.	<input type="checkbox"/>	<input type="checkbox"/>				
Write-Protect	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Not Write-Protected	<input type="checkbox"/>	<input type="checkbox"/>				
Write-Protected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Factory Defaults	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Once REC is pressed, all options and scenes will be set to factory-defaults and the unit will reset.						

"☐" = light ON

Notes: 1. Depending on the version of your BooBox 4's firmware, this feature may or may not be available. If the REC light does not come on when trying to switch Operating Modes, use Momentary Inputs instead. The reverse also applies, they are just different ways of accomplishing the same thing. To get *No Input 1 Scare Sound* on units without the *Operating Mode* option, just don't record a scare sound.

Setting Write-Protection

1. Power down the BooBox 4, then power it back up holding the REC button until the PLY light turns on.
2. Press buttons "1" and "3" so the lights turn on, then press REC, the REC light should turn on.
3. Now press the "1" button, turning the light on if you want write-protection, or off if not.
4. Press REC twice, both the PLAY and REC lights should turn off.