



# PinPAC8-PinSound Installation Manual For:

System Type	Part Number
Williams, Bally, Data East and other systems	330-134
Stern Whitestar	330-135
MAC for Stern Whitestar	330-136

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### Contents

- Warnings and Agreements ..... 2
- 1. What’s included in the PinPAC8-PinSound Kit. 2
- 2. Requirements: ..... 2
- 3. Preparation ..... 3
- 4. Back Box Installation..... 3
- 5. Running the RJ45 cable..... 4
- 6. Coin Door Installation PinPAC8-PinSound Williams, Bally, Data East and Other Systems: .. 5
- 7. Coin Door Installation PinPAC8-PinSound Stern Whitestar (+MAC): ..... 6
- 8. PinPAC8-PinSound MAC for Stern Whitestar Cable Installation ..... 7
- 10. Final Checkout ..... 10
- 16. Final Checkout (MAC) ..... 10
- 11. Recommended Headphones. .... 10



## Warnings and Agreements

**Welcome!** The PinPAC Pinball Person Audio Controller has been designed for simplicity of installation! As with any pinball machine modification and add-on kit there is a required level of expertise for the installation. If you are not proficient in basic pinball parts installation we recommend having our kit installed by someone who is proficient with the basics of pinball repair. Pinnovators requires our kit be installed by an experienced pinball service technician with basic electrical skills. As with any electrical piece of equipment a danger does exist and you must agree to not hold Pinnovators responsible for any injury, damages, etc. before continuing.

**Sound Levels:** Pinnovators recommends running your headphone sound level at a safe level to prevent long term hearing loss. For a good example of recommend sound levels, we recommend following suggestions given by major audio equipment manufacturers such as Apple and their iPod.

[phys.org/news80304823.html](http://phys.org/news80304823.html)  
[www.macworld.com/article/1060274/hearingprotection.html](http://www.macworld.com/article/1060274/hearingprotection.html)

**ESD:** We recommend always discharging the headphone cable by touching it to an exposed metal part of the pinball machine before plugging it into the machine.

**Power Cord:** ALWAYS UNPLUG THE POWER CORD for safety when working on your pinball machine!



**Playfield Propping:** Pinnovators highly advises following playfield propping instruction for your pinball machine. These instructions are typically found inside the Operators Manual for each machine. Failure to follow these instructions can cause fatal injuries or even death. Pinnovators also recommends having an assistant hold a propped playfield in the up position when servicing under the playfield.

## 1. What's included in the PinPAC8-PinSound Kit.

<p>One PinPAC8 Front Panel:</p> <ul style="list-style-type: none"> <li>Williams, Bally, Data East and other systems with DBA door.</li> <li>Stern Whitestar</li> <li>MAC for Stern Whitestar</li> </ul>	
PinSound adapter cable	
Interface Cable	
Positap adapter (For MAC kit only)	

## 2. Requirements:

- The Pinnovators PinPAC8-PinSound family requires a Dollar Bill Acceptor slot on the machine's coin door in the upper location (Williams, Bally, Data East and other systems) or lower location (Stern Whitestar).
- The machine must have a PinSound or PinSound+ board installed.

### 3. Preparation

Unplug the Pinball Machine!



We will use a Jurassic Park system from Data East in this manual although other machines may be used for illustrations. The coin door on this machine had an upper Dollar Bill acceptor plate. Make sure your machine has this plate on the coin door! Please visit the Pinnovators Coin Door Gallery if you need help identifying your coin door

[http://www.pinnovators.com/coin\\_doors/](http://www.pinnovators.com/coin_doors/)

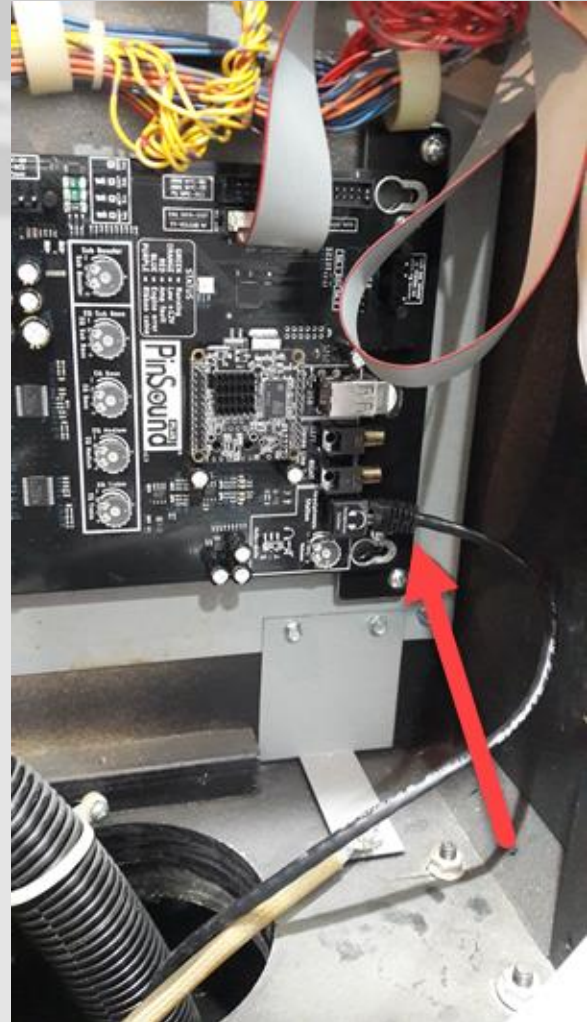
Next, remove the back glass on the system and open the light board to expose the system circuit boards. Jurassic Park from Data East, shown below as an example.

Make sure your PinSound board is installed.



### 4. Back Box Installation

Plug supplied Pinnovators 10 foot RJ45 cable into the RJ45 jack on the PinSound board.

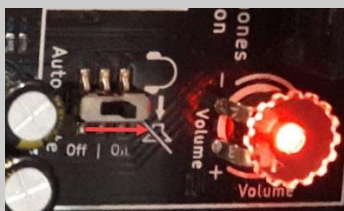
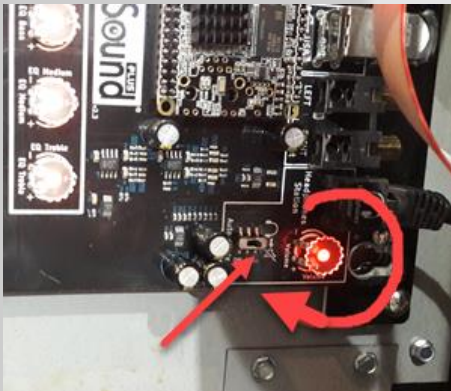




Feed the remaining RJ45 cable down the bottom of the Back Box and into the cabinet.



Slide the "Auto Mute" switch to the "On" position. Adjust the Headphones Station volume to 50% level as a starting point and adjust later as needed for a safe level with no distortion or noise in the headphones. Make sure you have the PinPAC headphone volume control turned up fully as you adjust the max level (after final installation).



Reassemble the Back Box.

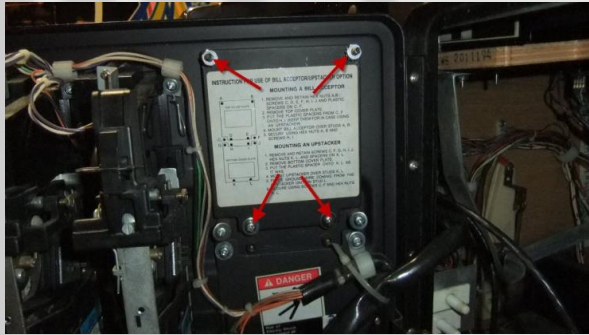
## 5. Running the RJ45 cable

Using a helper, remove the playfield glass and lift up the playfield. Depending on the game, tuck the new cable into the wire harness clips as shown. Leave an extra foot of cable up at the Back Box area if you plan on folding the back box down. In some systems, the cable may not be able to be installed in the wire harness due to length and the position of the sound board. In this case, neatly place the wire on the floor of the cabinet and run it to the coin door area.

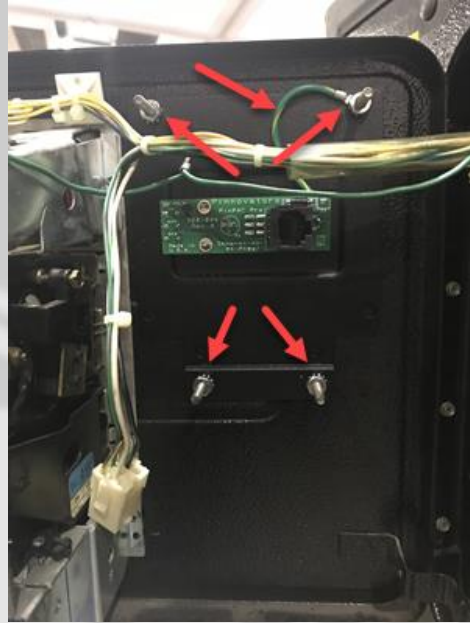


## 6. Coin Door Installation PinPAC8-PinSound Williams, Bally, Data East and Other Systems:

Remove Dollar Bill Acceptor blank plate by unbolting the two or four nuts as shown and / or the two screws below as shown. Note: Save the washers. The washers are used to properly space the length of the screw. Some coin doors have four threaded studs attached to the coin door. The PinPAC8-PinSound Universal plate will fit most coin doors and is secured using the original hardware.



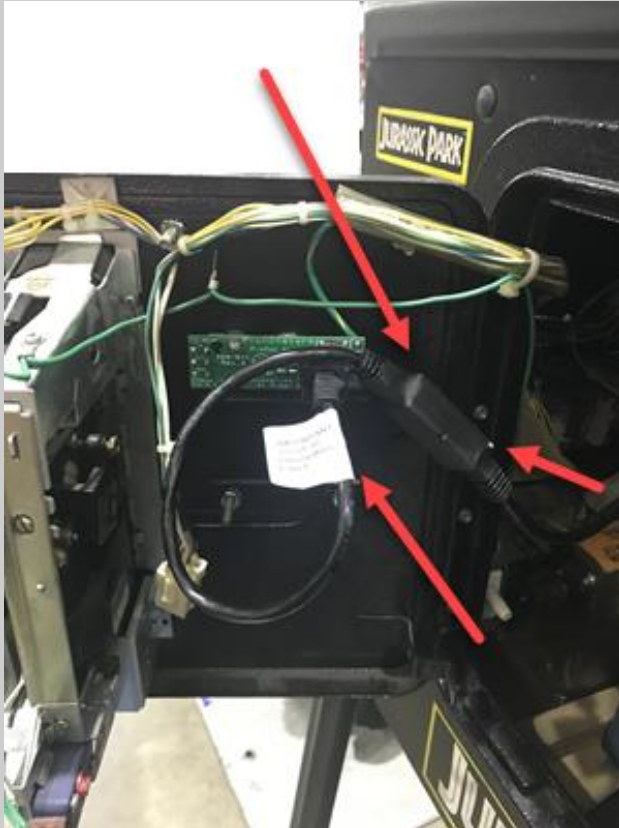
Insert the PinPAC8-PinSound plate as shown below. Position the ESD ground wire (the green wire) under the nearest available threaded stud. Fasten with the original hardware.



Install the PinPac to PinSound adapter cable as shown below.

The end of the cable with the label plugs into the PinPAC Panel. Fully insert the cable until you hear a "click".

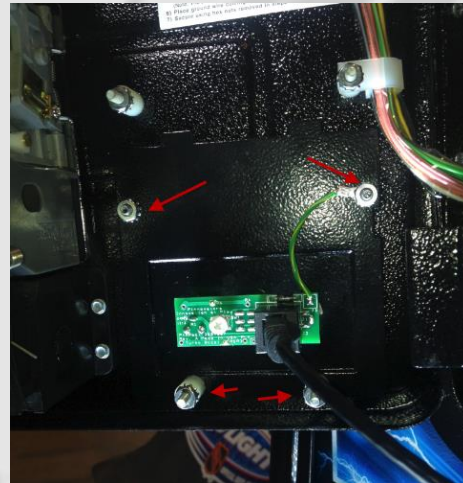
Insert other end of the "10 foot" RJ45 cable into the jack on the adapter.



attached to the coin door. The PinPAC plate will fit Stern coin doors.



Insert the PinPAC plate as shown below. Position the ESD ground wire (the green wire) under the nearest available threaded stud. Fasten with the original hardware. (Note: This picture shows the cable installed but we will install at a later step.)



## 7. Coin Door Installation PinPAC8-PinSound Stern Whitestar (+MAC):

*PinPAC MAC see addendum below.*

Remove Dollar Bill Acceptor blank plate by unbolting the two or four nuts as shown and / or the two screws below as shown. Note: Save the washers. The washers are used to properly space the length of the screw. Some coin doors have four threaded studs

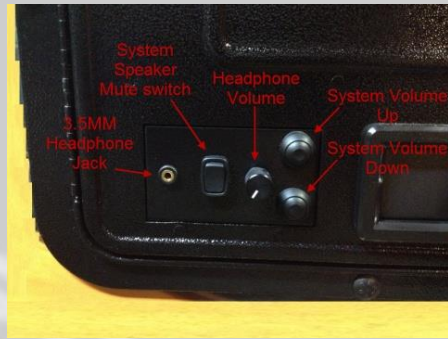
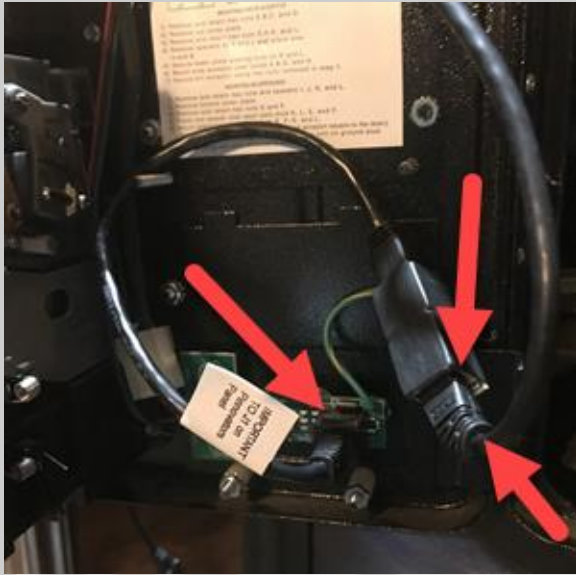
Install the PinPAC to PinSound adapter cable as shown below.

The end of the cable with the label plugs into the PinPAC Panel. Fully insert the cable until you hear a “click”.

Insert other end of the “10 foot” RJ45 cable into the jack on the adapter.



adjusted without opening the coin door.



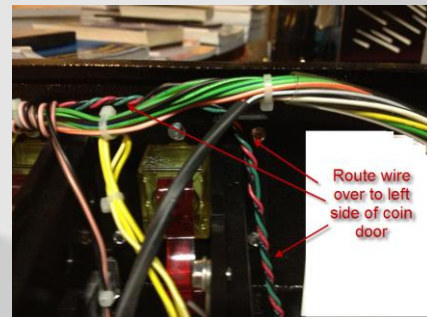
The PinPAC front panel should already be installed according to the installation section above.



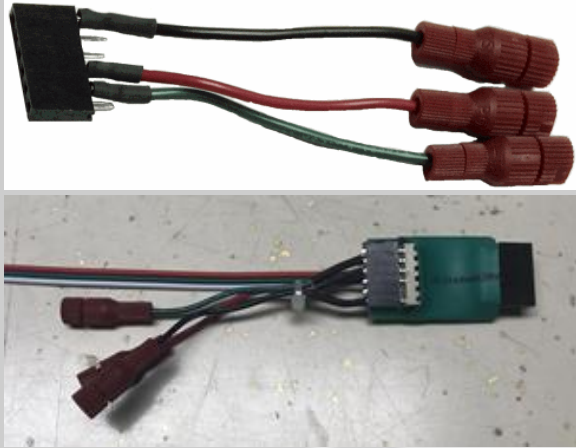
Route the PP8MAC remote cable over the top of the coin slots as shown. Route it down to the system control panel buttons. *NOTE: The three color cable is now a flat three color ribbon cable.*

## 8. PinPAC8-PinSound MAC for Stern Whitestar Cable Installation

The PinPAC Master Audio Controller (MAC) has been designed for Stern Whitestar pinball machines. It allows the system volume to be



If Your MAC kit comes with Posi-Tap adapter shown below, Plug it into the green MAC connector shown below.



This adapter uses three Posi-Tap connectors. The Posi-Tap connectors will be used to cleanly splice into the button signals for the up and down volume control.

This is a picture of the adapter along with a few YouTube video links showing how to install the Posi-Taps. Please watch the video first.

(Note, Pinnovators did not make the videos.)

<http://www.youtube.com/watch?v=NQWYWuNbpg>

<http://www.youtube.com/watch?v=Yiimgl-Rdmw>

Connect the Posi-Tap adapter cable for Stern Whitestar systems as follows:

Posi-Tap Adapter Cable wire	Wire Function	Push Button Panel cable wire:
Black	Ground	Black
Red	Volume Up	Gray/Purple
Green	Volume Down	Gray/Blue

Note: If your MAC kit does not come with the Positap adapter (shown above), continue on.

Note: If your MAC kit does not come with the Posi-Tap adapter (shown above), this means your Positap connectors are attached directly to

the cable coming from the PinPAC panel. Your cable will have a Green, Red and White wire. The wire functions are shown below.

Future kits will integrate the Posi-Taps directly onto the one of the cable

Posi-Tap Adapter Cable wire	Wire Function	Push Button Panel cable wire:	Export Systems
Green	Ground	Black	Black
Red	Volume Up	Gray/Purple	Green/Purple
White	Volume Dn	Gray/Blue	Green/Blue



This is a set of pictures of the MAC installed on a Stern Monopoly game using the Positap adapter cable.



Your Posi-Tap adapter will plug into the connector board at the end of the MAC cable as shown below.

## 10. Final Checkout

Power up the system and start a game. Make sure the front panel switch on the PinPAC Control panel is in the “UP” position. Verify sound can be heard from the Back Box speakers and the lower Cabinet speaker. Switch the switch to the “Down” position and verify the speakers turn off. Insert headphones into the jack and verify levels in headphones can be adjusted with the volume control knob.



## 16. Final Checkout (MAC)

### IMPORTANT:

On Whitestar systems, you will have to operate the Down button first before the Up button will respond.

Operate the System Volume UP button and verify the system volume increases. Operate the System Volume Down button and verify the system volume decreases.

## 11. Recommended Headphones.

Pinnovators tested the PinPAC headphone kits on many different headphones. Our favorite was the beats by dr. dre. We also tested a moderately priced set of headphones ~\$30 and was still blown away by how good the bass response was and how clear the treble was!

Thank your purchase of our product! We hope you get many years of service from it.

The Pinnovators and PinSound Teams.