Pyra-Sum

Passive Summing Mixer

Manual v1.3

1. INTRODUCTION

Congratulations! You are the proud owner of a UTA Pyra-Sum passive summing mixer! A multi stage summing mixer that allows you to recreate the summing architecture of a large format console.

As I continue to evolve as a record maker, I am constantly thinking of new ways to refine the workflow and tools I use to better achieve the results I am chasing with greater flexibility and efficiency. After working on the custom built UTA large format consoles for 10 years, I could no longer deny that the large format analogue console workflow could not compete with the speed and flexibility of a hybrid setup. As much as I adore the sound and power of the UTA custom consoles, I was ready to move on and embrace the world of hybrid mixing. As I dreamed up my ultimate hybrid mixing setup I immediately ran into a problem. No one had made a passive summing mixer product that really captured what was essential for me about mixing on a large format console. I can not mix the way I did on a large console with only 1 or 2 stereo busses. Starting in the 90s, myself and all of the other mixers I know have been mixing with a multi-layer bussing architecture. I couldn't imagine a hybrid setup really working without it. I built my own custom prototype at my home in Topanga and then expanded on that for the Pyra-Sum product now being made by UTA. This hybrid setup is how I will definitely be mixing for the next 10 years or more and I hope you will find it inspiring and useful as well.

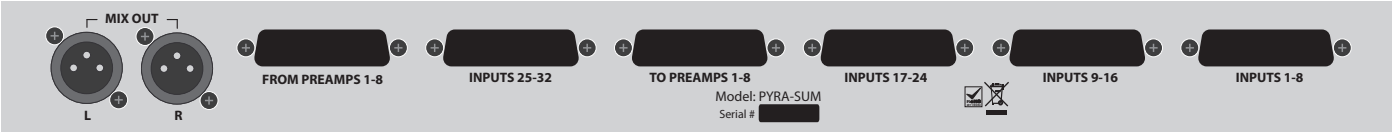
-Eric Valentine

2. PLACEMENT OF THE UNIT

The Pyra-Sum is a 1RU rack mount device that is 100% passive. It does not plug into an outlet and generates no heat. Feel free to mount other equipment immediately above or below. No ventilation space is needed.

3. AUDIO CONNECTIONS

REAR PANEL CONNECTIONS



• **INPUTS 1-8, 9-16, 17-24, 25-32 -** These DB25 connectors should be connected to the line level outputs of your DAW, ideally, via a patch bay so you can insert outboard effects before they arrive at the Pyra-Sum mixer inputs.

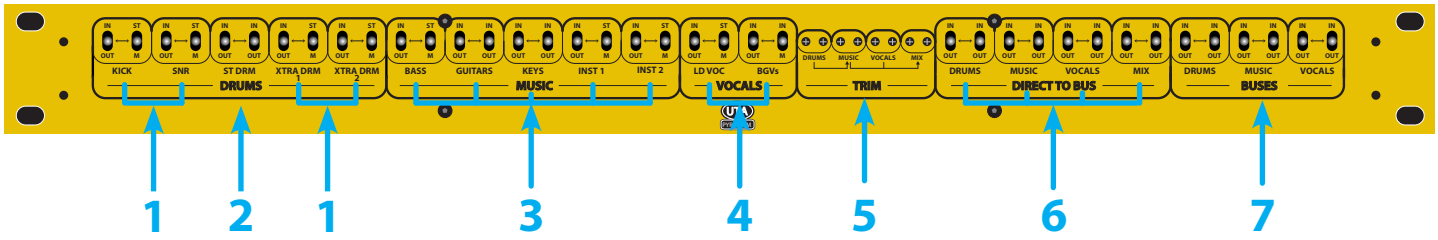
• **TO PREAMPS 1-8 -** This DB25 connector should be connected to the inputs of the mic preamps being used to make up the 35dB of gain that is lost in the passive summing network.

• **FROM PREAMPS 1-8 -** This DB25 connector should be connected to the outputs of the mic preamps being used to make up the 35dB of gain that is lost in the passive summing network.

• **MIX OUT L/R -** These XLR connectors are included as a matter of convenience so you can easily plug the final mix outputs into the device being used for capturing the mix (digital recorder or tape machine). The signal coming out of these outputs is the exact same signal coming from the mic preamps used to boost the level on the "MIX" buss.

*All DB-25 connectors follow the "TASCAM" pinout standard.

4. FRONT PANEL CONTROLS



DESCRIPTION OF FRONT PANEL CONTROLS

1. DRUM BUSS ON/OFF TOGGLE (W MONO OPTION) - These pairs of toggle switches simply turn on or off the incoming signals that are fed to the "drum" buss. These pairs of toggles have the option of functioning in mono. If the right switch is in the down or "M" position, the signal plugged into the left side will be sent to both the left and the right sides of the buss. This allows you to conserve outboard equipment if you are working with a mono signal. The left toggle will turn off the signal being sent to both the left and right sides of the buss.

2. DRUM BUSS ON/OFF TOGGLE (NO MONO OPTION) - This pair of toggle switches simply turn on or off the left and right sides of a stereo incoming signal.

3. MUSIC BUSS TOGGLES - These 10 toggle switches turn on or off the signal being sent to the MUSIC BUSS. The same rule applies as above. Where you see an "M" under the right toggle, you will have the mono option.

4. VOCAL BUSS TOGGLES - These 4 toggle switches turn on or off the signal being sent to the VOCAL BUSS. The same rule applies as above. Both of these stereo inputs have the "Mono Option"

5. BUSS LEVEL TRIM POTS - These trim pots allow you to fine adjust the level being sent to the mic preamps so the left and right sides can be perfectly balanced.

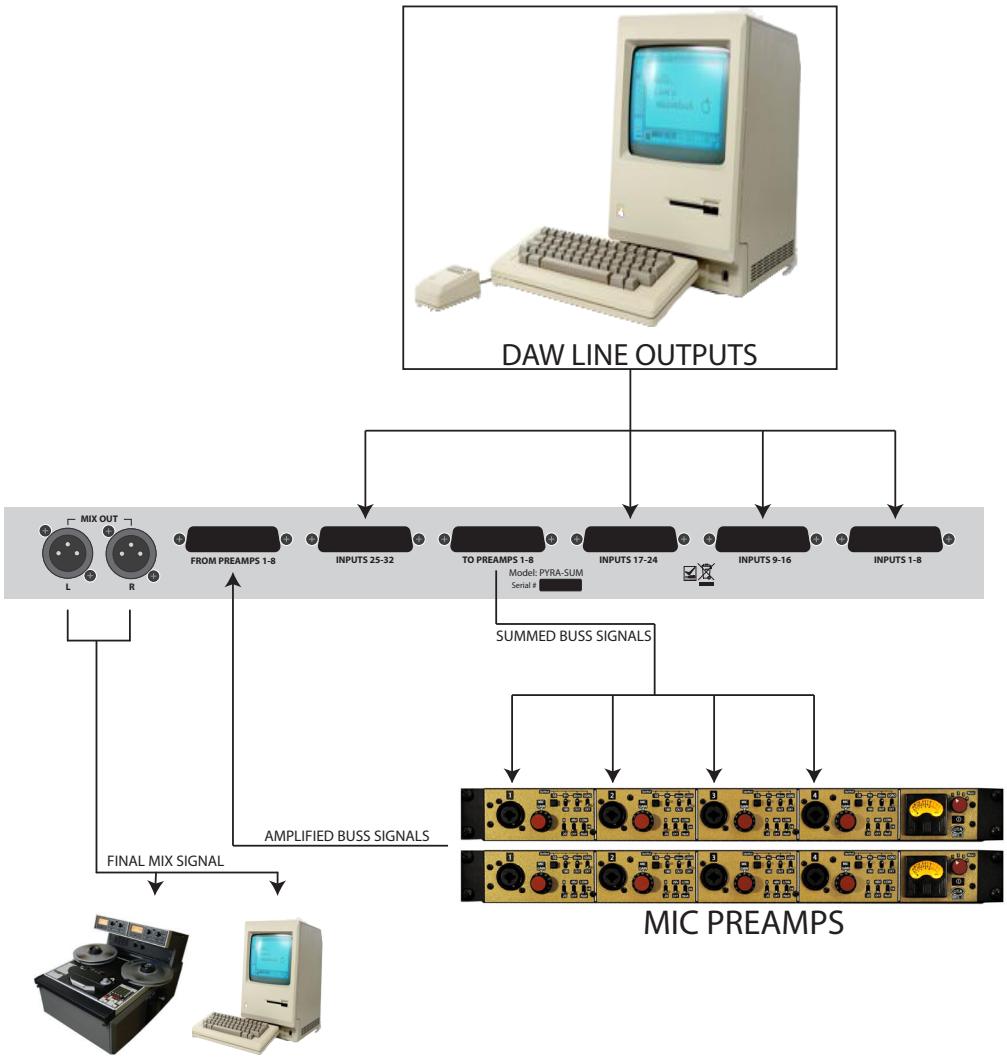
6. DIRECT TO BUSS (DRUMS, MUSIC, VOCALS, MIX) - These toggles allow you to turn on or off signal being sent directly to each of the busses as they are named. These inputs can be used for parallel processing in your mix.

7. BUSS CUT SWITCHES - These toggle switches allow you to mute either the left or right sides of any of the "DRUM", "MUSIC" or "VOCAL" sub busses. The "DRUM" cut switches follow the "Mono" functionality to accommodate mono drum mixes.

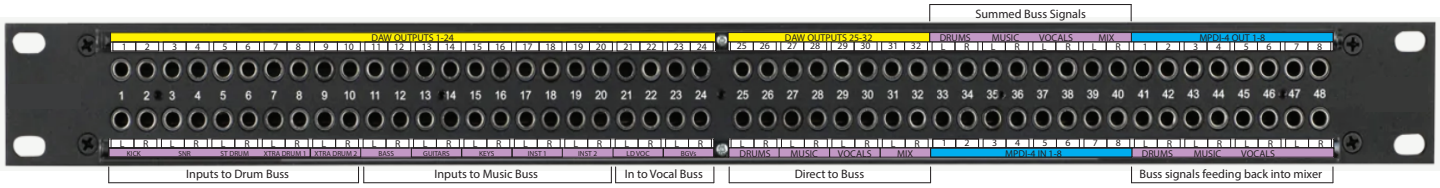
5. EXAMPLE SETUPS

EXAMPLE #1
(ADDING COLOR TO YOUR BUSSES)

This is the most basic setup and application of the Pyra-Sum mixer. This setup simply adds color to your summing busses based on the mic preamps you decide to use to make up the gain. It is important to know that the Pyra-Sum mixer does need to be paired with other equipment to function as a mixer. You will need 8 channels of mic preamps to make up the gain of the 4 stereo busses. The graphic below shows the signal flow of this basic setup.



Below you can see what we feel is the best way to setup a patch bay in this basic configuration. The upper row normals to the lower row. The outputs of the DAW automatically feed into the Pyra-Sum inputs without any patching. The same happens with the summed busses feeding into the mic preamp inputs as well as the mic preamp outputs feeding back into the Pyra-Sum buss returns.



EXAMPLE #2
(ADDING OUTBOARD GEAR)

The below graphic shows the signal flow when incorporating outboard analog gear (equalizers/compressors/etc). With the addition of outboard gear, the inclusion of a patch bay is very helpful, if not essential. We have also found that as soon as compressors are being used, it is very helpful to have a way to control/automate the level after the compressor. We recommend incorporating a level automation system such as the WesAudio ngLEVELER (shown in the picture below).

DAW

Line level DAW outputs go to your patchbay

Outboard effects are inserted via the patchbay before the level automation device

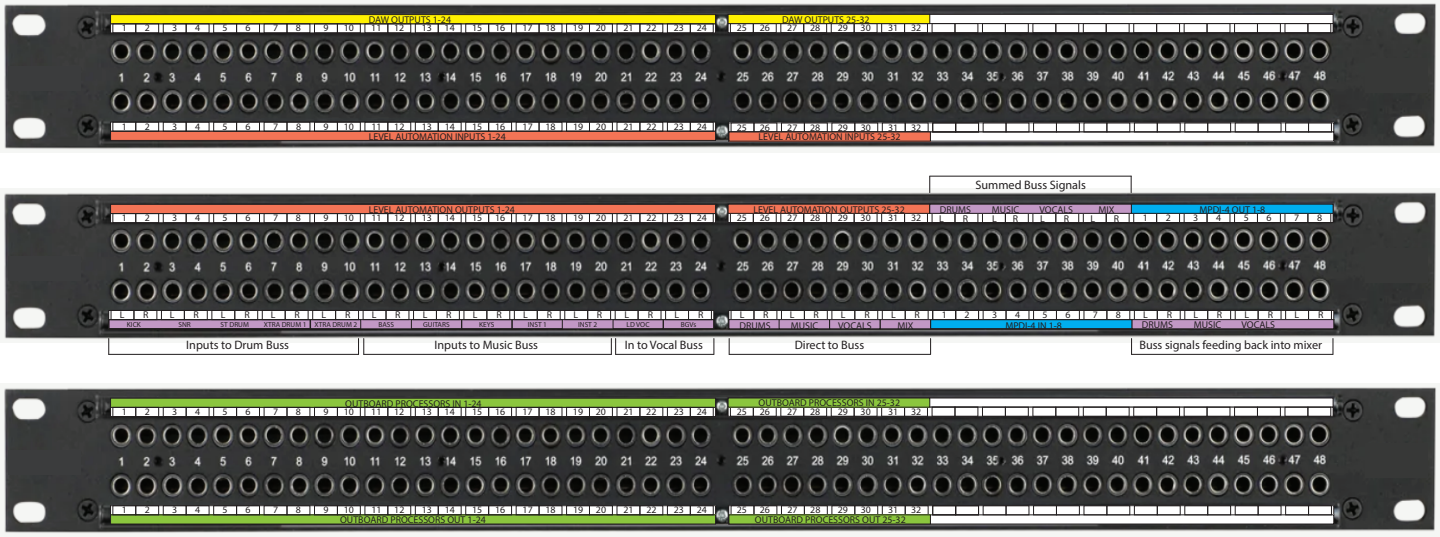
Effected line level DAW outputs normal to level automation device via the patchbay

Signal from the level automation device is normalled to the Pyra-Sum inputs via the patchbay

Summed buss outputs are normalled to the preamp inputs. Preamp outputs are normalled to the "from preamp" inputs via the patchbay

Final Mix Buss outputs are sent to the recording device that captures the final mix (tape machine or DAW)

In this patch bay setup for Example 2, The output of the DAW normals to the input of the level automation device. This is where you would insert any outboard processing devices (between the DAW output and the level automation input). With the level automation after the compressor, you can control the level of the signal being sent to the buss without changing how it is being compressed. The output of the level automation device then normals to the input of the Pyra-Sum Mixer. The remaining Pyra-Sum patch points are the same as described in example #1. Presumably, you will have outboard analog processors that show up in your patch bay so they can be inserted in the path. Those are shown in the bottom (green label) patch bay.



EXAMPLE #3
(CREATING A CONSOLE)

The signal flow graphic below shows how you can emulate a console channel strip with simple patch bay normalization. The DAW outputs normal to compressors, which then normal to EQs which then normal to the inputs of the level automation device, which functions like a fader in the console. The outputs of the level automation device normal to the inputs of the Pyra-Sum mixer and then remaining patch bay points for Pyra-Sum are the same as described in examples #1 and #2.

DAW

Line level DAW outputs go to you patchbay

Outputs of the DAW normal to inputs of compressors

Outputs of the compressors normal to the inputs of EQs

Outputs of the EQs normal to the inputs of the level automation device

Signal from the level automation device is normalled to the Pyra-Sum inputs via the patchbay

Summed buss outputs are normalled to the preamp inputs. Preamp outputs are normalled to the "from preamp" inputs via the patchbay

Final Mix Buss outputs are sent to the recording device that captures the final mix (tape machine or DAW)

In the patch bay layout below, you can see how the DAW outputs normal to the inputs of the compressors, then the outputs of the compressors normal to the inputs of the EQs, then the outputs of the EQs normal to the inputs of the level automation device, then the outputs of the level automation device normal to the inputs of the Pura-Sum mixer. The patch bay points for the mic preamps are the same as the previous setups.

This configuration emulates a large format console with full channel strip processing. Without even touching a patch cable, Once you assign a signal to a particular output, a compressor, EQ, and fader will be in the path ready to be adjusted for the mix.

6. SPECIFICATIONS

INPUT IMPEDANCE .....10Kohm balanced
OUTPUT IMPEDANCE .....200ohm balanced
OUTPUT LEVEL(To Preamps) .....-35dB
TRIM RANGE .....+/-2dB

7. BLOCK DIAGRAM