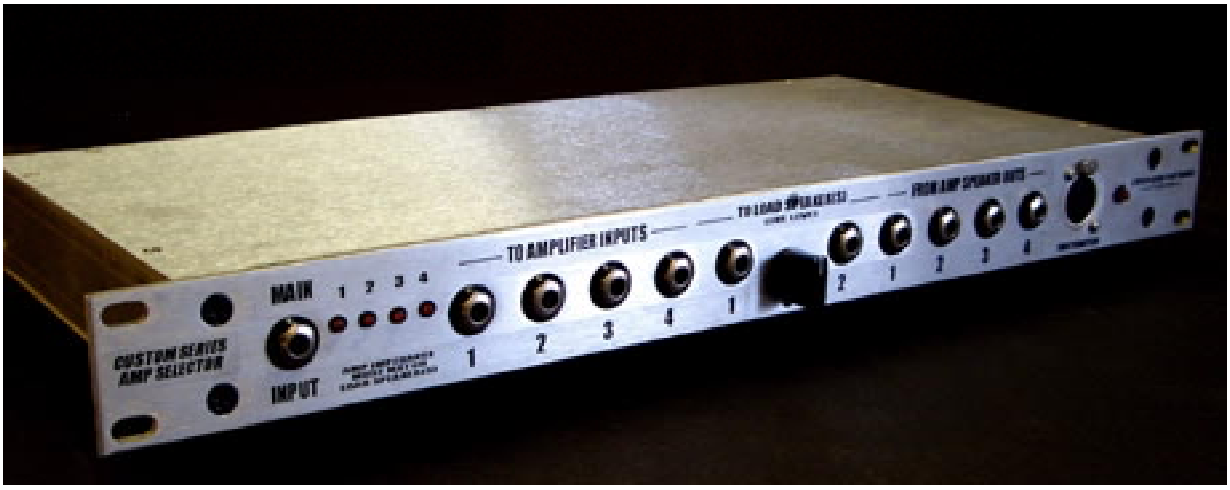
CUSTOM AUDIO ELECTRONICS INC.

MIDI AMP SELECTOR

4X1

Preliminary Operating Guide



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Introduction

Imagine having a multiple amplifier system with each amp having its own sonic character. Perhaps one set clean, another for a slight amount of crunch, then maybe one for heavy rhythms, then one with your favorite high gain sound. They could all be different, even from different manufacturers. Let's take this a step further. How about safely switching these amps into the same cabinet?? And how about a line level from each to drive effects?? You can have all that more with the Midi Amp Selector 4x1 from Custom Audio Electronics, Inc.

Features:

- Safely switch up to 4 amplifiers into the same cabinet or load device!
- Unique priority circuit only allows 1 amp on at a time!
- Protection circuitry safely guards unselected amps.
- Provides line level outputs with a level control to drive effects and power amps.
- Front panel LED's indicate status of each amp.
- Super low noise buffer circuit provides impedance matching and eliminates passive pickup loading.
- Remote controlled by the dedicated midi foot controller. Can also respond to midi program change commands.
- Remote power supply for lowest noise.
- Dedicated rear panel tuner output. Tune silently when no amps are selected.

Benefits:

- Sonically transparent passive switching elements provide unsurpassed clarity while uniquely switching up to four amplifiers (one at a time) into a common speaker system or load device.
- Easily allows for the popular system configuration of a center dry cabinet with stereo effects cabinets (a stereo power amp and effects would be required). This is also known as the "Wet/Dry" configuration. See Diagram.
- Provides a line out for the selected amp regardless of type. No need to modify amps for line outs and effects loops. Even non-master volume amps work fine!!
- Eliminates the need for multiple speaker cabinets and/or load devices when using multiple amps.

THIS AMP SELECTOR IS FOR USE WITH TUBE AMPS ONLY!

Contact CAE if you need to use it with solid state amps as a modification to the protection circuitry must be made.

WARNING!!!

The Amp Selector 4x1 switches high (speaker) level signals. Failure to properly connect this device may cause damage to the amplifiers and/or the Amp Selector itself. Always use high quality speaker cable when connecting the amplifier speaker outs to the Amp Selector and from the Amp Selector to the speaker cabinet or load device. Use high quality shielded cable to connect the Amp Selector to the amplifier inputs.

Custom Audio Electronics Inc. accepts NO responsibility for damage caused by improper connecting to and from this device.

Grounding the Amp Selector

Care must be taken to adequately ground the Amp Selector, not only to provide shielding from hum and noise, but also to prevent any shock hazard. Since the Amp Selector utilizes an isolated 12VDC remote power supply, it's chassis is connected to AC ground via it's connection to the mounting rails of a rack.
Custom Audio Electronics, Inc. recommends that the Amp Selector be fastened to a rack enclosure utilizing a power conditioner, such as a Furman PL-8 , insuring it's chassis is connected to AC (third pin) power ground.
In some cases it may be necessary to remove the paint from the back of the Amp Selector's rack ears to insure a positive connection to the rack rails it is secured to. The same is true for the rack rails themselves - proper connection here should provide adequate shielding and shock protection. Audio isolation transformers are utilized to insure a safely grounded system, while eliminating ground loops (hum).

Each of the 4 Amp Sends is transformer isolated to insure a quiet interface to multiple amps.
In some cases there may be a rear panel ground lift switch installed, usually connected to Amp 1 Send, to establish earth ground if the amp selector is not connected to an earth grounded rack.

Description of Amp Selector 4x1 Front Panel (viewed from left to right)

1. 1/4" phone jack. Main input . Has priority over rear panel input jack.
2. LED Amp Select status indicators x4.
3. 1 /4" phone jack. Amp 1 send. Connect to input of Amp 1. This jack sends signal present at either front or rear panel input to Amp 1 when activated by Amp 1 remote control.
4. 1/4" phone jack. Amp 2 send. Connect to input of Amp 2. This jack sends signal present at either front or rear panel input to Amp 2 when activated by Amp 2 remote control.
5. 1/4" phone jack. Amp 3 send. Connect to input of Amp 3. This jack sends signal present at either front or rear panel input to Amp 3 when activated by Amp 3 remote control.
6. 1/4" phone jack. Amp 4 send. Connect to input of Amp 4. This jack sends signal present at either front or rear panel input to Amp 4 when activated by Amp 4 remote control.
7. 1/4" phone jack. "TO LOAD SPEAKER(S) 1" (in parallel with #2 ; see #9 below). Connect to cabinet(s) or load device. Be sure the total load connected matches the amps.
   Ex: Two 16ohm cabinets would equal an 8ohm load (set all amps to 8ohm). Two 8ohm cabinets would be a 4ohm load (set amps to 4ohm). Of course you can connect just one cabinet. Just be sure to match the cabinet impedance to the amps.
8. Line Level Control . Provides continuously variable line level adjustment from whatever amp is selected. Range of adjustment is from Off to -14db.
   This control allows you to take a line level signal from the entire amp, including its output stage, for post amp effects processing via power amps. This is also known as the "Wet/Dry" configuration.
   Also can be used for distribution of your amp sound(via power amps) to multiple locations on large stages.
   This buffered line level signal appears ar the rear panel Line Out Jacks.
   Both rear panel line out jacks are in parallel and can be used at the same time.
9. 1/4" phone jack. "TO LOAD SPEAKER(S) 2 "(in parallel with #1 ; see #7 above). Connect to cabinet(s) or load device. Be sure the total load connected matches the amps' impedance settings.
   Ex: Two 16ohm cabinets would equal an 8ohm load (set all amps to 8ohm). Two 8ohm cabinets would be a 4ohm load (set amps to 4ohm). Of course you can connect just one cabinet. Just be sure to match the cabinet load impedance to the amps.
10. 1/4" phone jack. Connect to Amp 1 speaker out jack. ***Warning! A speaker or load device must be connected to either or both of the "to load cspeakers" jacks (#7&9) or damage to the selected amp will result!!***
    Also, the impedance of the amp must be the same as that of the load (speakers) connected. (See example above).
11. 1/4" phone jack. Connect to Amp 2 speaker jack. Functions the same as Amp 1, when selected.
12. 1/4" phone jack. Connect to Amp 3 speaker jack. Functions the same as Amp 1, when selected.
13. 1/4" phone jack. Connect to Amp 4 speaker jack. Functions the same as Amp 1, when selected.
14. 4 pin XLR Footswitch input/Midi in. Connect to CAE Amp Selector Midi Footswitch.This connector uses the CAE standard wiring configuration for its midi foot controllers: Pin 1= (-) Common ;Pin2 =(+) 12VDC; Pin 3= Midi in (midi connector pin 4) Pin 4= Midi in (midi connector pin 5)

Description of Amp Selector 4x1 Rear Panel (viewed from right to left)

1. 1/4” phone jack. Active (buffered) input to the Amp Selector. This input provides a high input impedance (500KΩ) to prevent excessive loading of passive instrument pickups.
   Low noise and sonically transparent, the buffer can be internally adjusted to provide from 0 to +10 db of gain.
   Note: This buffer is necessary to drive the isolation transformers.

2. Tuner Output. Connect a tuner to this output, and tune silently when no amp is selected.

3. 2 - 1/4” phone jacks. Amp Selector line outputs (x2) .Signal present at these jacks is a line level signal derived from the selected amp’s output via the padded level control on the front panel. This is a buffered low impedance signal useful for splitting the signal to multiple effects processors and/or power amp inputs.

4. Midi out jack. While the Amp Selector 4x1 responds to midi input via the front panel XLR footswitch jack, it ALSO outputs program change commands from this midi out jack.
   These program change commands are fixed and cannot be changed . Midi channel is 1.
   Commands sent are as follows:
   Amp 1 = Program change #1
   Amp 2= Program change #2
   Amp 3 = Program change #3
   Amp 4 = Program change #4
   Deselect any active amp: Program change #13

4. DC power jack. Accepts 12volts DC from external power adapter supplied with the unit. Current required is at least 500ma. Barrel connector pin is 2.1mm /Pin (+)

Mutually Exclusive Protection Feature

The Amp Selector 4x1 utilizes a mutually exclusive circuit which protects the amps that are not selected as well as only allowing one amp to be used at a time. This is a must when using a single load device (speaker cabinet) with multiple amplifiers.
Unselected amps are safely protected by shorting the speaker outputs to prevent the amp’s output transformers from seeing an infinite load (open circuit).
Signal TO the amplifier is of course, disconnected as well.