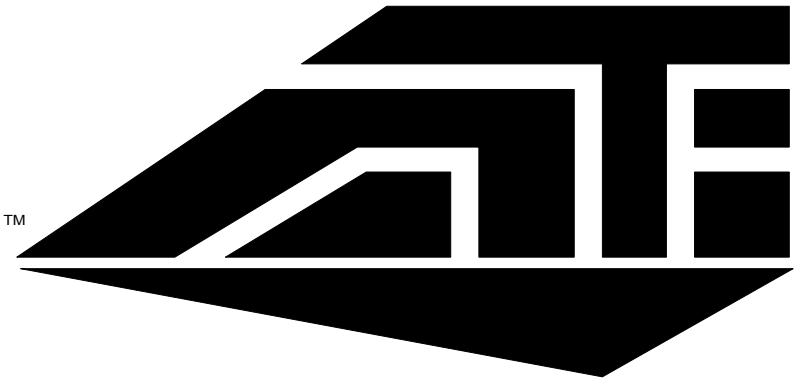

# Paragon II Production Console

## Operations Manual


**Audio Toys, Inc.**

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# Paragon II Production

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## The Paragon Series

Since 1997, Audio Toys Inc. has been supplying the live performance industry with the Paragon II Monitor mixing console. The Paragon II Production console represents a continuation of this intuitive design philosophy. As a result of extensive research, development and hands-on experience by the ATI team, the Paragon II Production console represents a great leap forward with the development of Distributed Intelligence ® reset control. In a Distributed Intelligence ® system, the control of a channel's function is localized. This is analogous to the way engineers de-couple and modularize subsections of an analog circuit. If for any reason there is an operational problem on a module, the rest of the system is unaffected because there is no direct connection to the main system processor. Unlike other systems that rely on an address buss data buss infrastructure to operate, a Distributed Intelligence ® system uses localized memory that is written to and accessed by it's controller. In short, Distributed Intelligence ® assures reliability.

## Applicable Bus Design

In today's world of ever-growing tours, the Paragon II Production console is equipped to handle any FOH, Live to Air or Theater mixing task. Utilizing LCR panning, 8 stereo subgroups, 8 stereo matrix outputs, 2 mono and 2 stereo mix outputs, 8 mono aux and 4 stereo aux outputs, the Production console can create complex mix / zone feeds. There are three variable direct-outputs from every channel that can be used for post fader effect sends or pre fader recording outputs. With the added capability of multiple scene reassignment of groups, mix, aux, and VCA control, the Production console truly supports the mixing requirements of today and the future.

## Channel Dynamics Processing

The signal processing capability of the Paragon II Series is nothing less than spectacular. All input channels contain both an RMS compressor/limiter and a fully parametric noise gate. The simple convenience of having the compressor and gate on board is only surpassed by the sonic quality of not leaving the console via a *connector and cable* to a possibly *inferior headroom device* and then returning to the console again through a *connector and cable*. In addition, the compressor, with an ATI patented key circuit, has been hailed by countless engineers as one of the most transparent around. External triggering is also available to both the gate and compressor.

## Intensive Solo Features

The Paragon II Production offers individual input and output solo level controls. Solo options allow for monitoring of practically every stage of the audio path. Individual channel input meters, gate and compressor state indicators and individual output meters in combination with the 20 segment solo level meters and full master gate and compressor attenuation meters provide visual indication to back up the audio solo system. The VCA soloing and other solo logic functions are incredibly supportive in soloing groups of inputs and then isolating on particular signals inside that group.

## Intuitive Control

Great efforts were taken to make the logic controls as intuitive as possible. Ultimate control of the channel mute is kept locally. The Local On switch will override *ANY* external mute source allowing for quick recovery from an errant mute operation. In addition all of the controls are laid out in a user friendly manner. We make efforts to keep more used controls closer to you, we make sure all like functioning controls are described and grouped as similarly as possible and we use elaborate color coordination of aux send knobs to make finding that send as easy as possible. To reduce panel real estate Tri Color LEDs are used to indicate Group, Mute, and VCA assignment. Mode changes can be made either locally or from the master. In combination with Distributed Intelligence® software control reset of assignments and fader positions is possible.

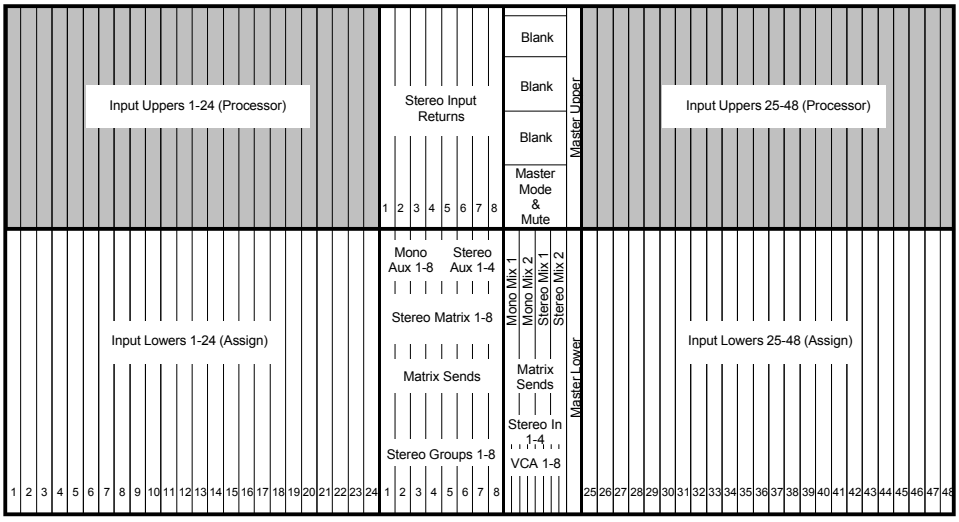
## Internal Jumper Options

In addition to the tremendous flexibility offered by the Paragon II Production surface controls, every module offers a myriad of internal jumper options for further customizing the signal path for the ultimate performance for *your* particular application.

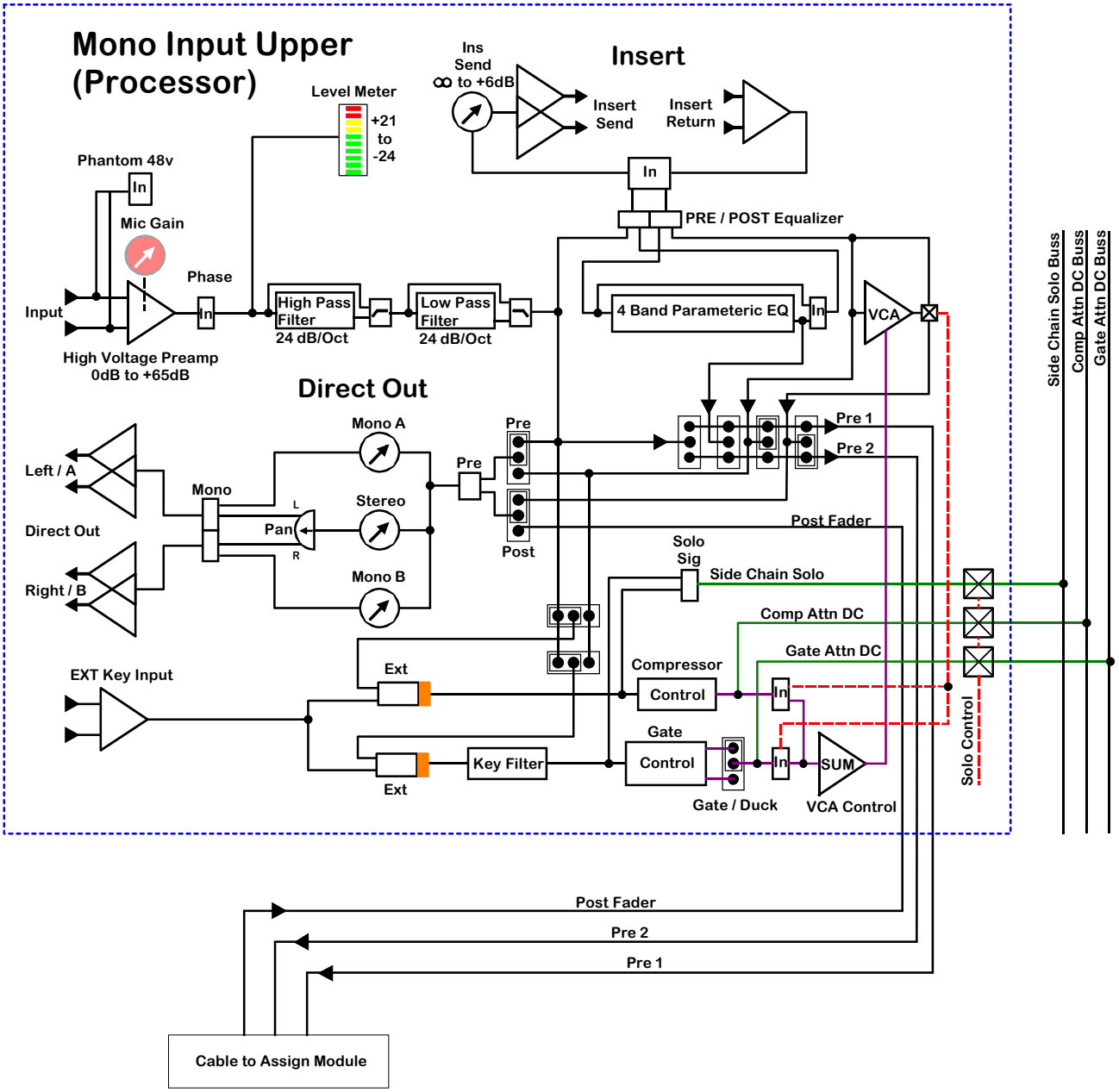
## Highest Audio Quality

At ATI we are committed to providing the sound engineer with the highest possible audio circuits. This is achieved by many different aspects of the design from component selection to PCB layout. All analog audio PCB's are hand routed by our engineers for optimal performance. We spend the extra money on components because we believe that the ultimate benefits in audio quality are well worth it. Congratulations on your purchase of the Paragon II Production Console and don't hesitate to give us at ATI a call. If there is any way in which we can assist you with the performance of your console, we would be more than happy to do so.

# Mono Input Processing Module



# Block Diagram



## Filters

### Low Pass

Variable 24dB/Oct. low pass filter 25KHz to 1.4KHz with in/out switch.

### High Pass

Variable 24dB/Oct. high pass filter 20Hz to 370Hz with in/out switch.

## Stereo Direct Out

### Inner

Stereo Direct Output level control OR 'A' output level control when Mono is selected. Control from infinity to +6dB max. gain.

### Outer

Stereo Direct Output pan OR 'B' output level control when Mono is selected.

### Pre

The signal source for the Direct Output can be jumper selected from a number of points. These include Post Filters, Post EQ/ Insert, Post VCA and Post Fader. The PRE switch allows the PCB jumper selected signals to be front panel selected. See Appendix-1 for more jumper information and standard settings.

### Mono

Switches the Direct Output from stereo to two (A and B) Mono signals with individual level control.

## Input Gain

### Inner

Microphone gain control. Max input level is +24 dBu, gain range is 0 to +65dB.

### Outer

Insert Send level control. Control from infinity to +6dB maximum gain.

### 48 Volt

When depressed applies 48V Phantom voltage to the input. **Note when using phantom power, the ground lift switch on the rear connector panel MUST be in the grounded position (see page 11-1).**

### Phase

When depressed reverses the input polarity.

### Level Meter

Indicates peak signal level post microphone amplifier. The ten segment LED bar meter displays level over a 45dB range from –24dB to +21dB.

## Insert

### In

When depressed channel insert return signal is utilized. The return signal is applied to either the VCA input or the EQ input depending on the position of the Insert Pre switch. The Insert Send jack is always active sending pre or post EQ signal again dependant upon the Insert Pre switch. The Insert Send signal is post the insert level control.

### Pre

When depressed channel Insert Send and Return points are placed before the equalizer section.

## Equalizer

### Peak Bandwidth Control

Controls the bandwidth of the EQ peak or dip. The bandwidth is adjustable from .2 to 2 octaves. When shelving is selected, this control is inactive.

### Peak / Shelving Switch

This switch selects either peak (dip) type equalization or shelving type equalization for each of the four bands.

### Level Control (Inner)

The inner control of the dual concentric adjusts the peak (dip) height or shelving level from 0 to +/- 18 dB for each band.

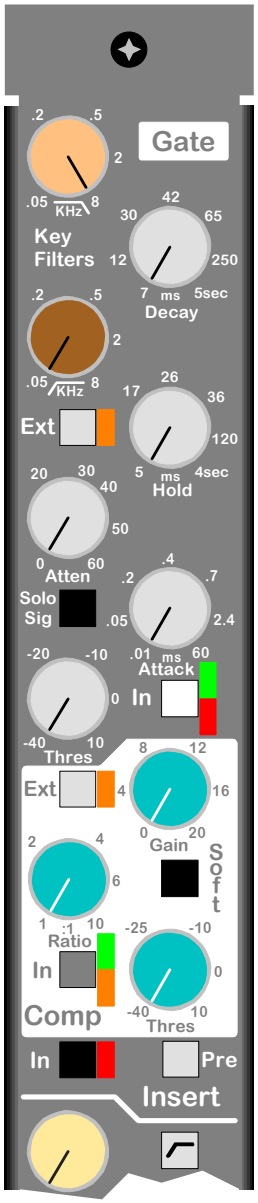
### Frequency Control (Outer)

The outer control of the dual concentric selects the frequency of the EQ peak (dip) or 3dB down frequency of the EQ shelf for each band. Each of the four EQ bands are different but overlapping. Their ranges are as follows:

**Low** Frequency range 30Hz to 460Hz
**Low Mid** Frequency range 150Hz to 2.4KHz
**High Mid** Frequency range 550Hz to 8KHz
**High** Frequency range 1KHz to 16KHz

### EQ In/Out Switch

In the down position, places the four band fully parametric EQ into the signal path. One of the jumper options for the Pre1 and Pre2 signal feeds to the assign module is post EQ but Pre EQ In/Out switch. The signal option is ALWAYS post the equalizer circuit, but allows you the option to have to continuation of the signal path NOT be effected by the equalizer.




## Compressor

### External

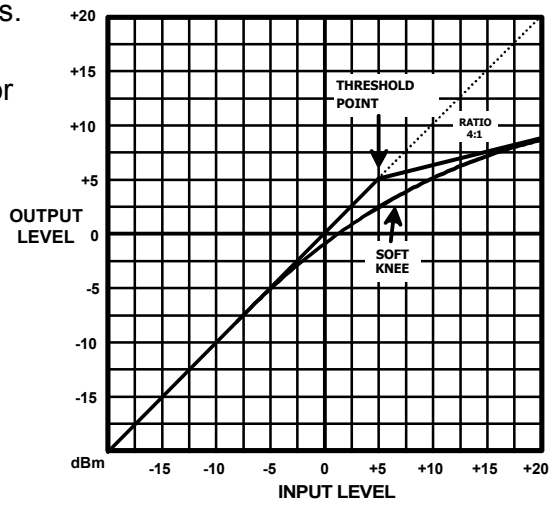
When depressed, the signal connected to the External input will be used in the side chain for the Compressor circuit. Normal side chain signal is jumper selected either post Filters or post EQ & Insert. This jumper is set standard in the post EQ & Insert location (see page 2-10).

### Gain

This control adds a variable 0dB to +20dB of make-up gain to compensate for Compressor loss.

### Ratio

This control sets the Compressor Ratio, which is variable from 1:1 to 10:1




### Soft

When depressed, compressor Threshold knee is “rounded” (see graph).

### In

When depressed channel signal will be effected by the Compressor controls.

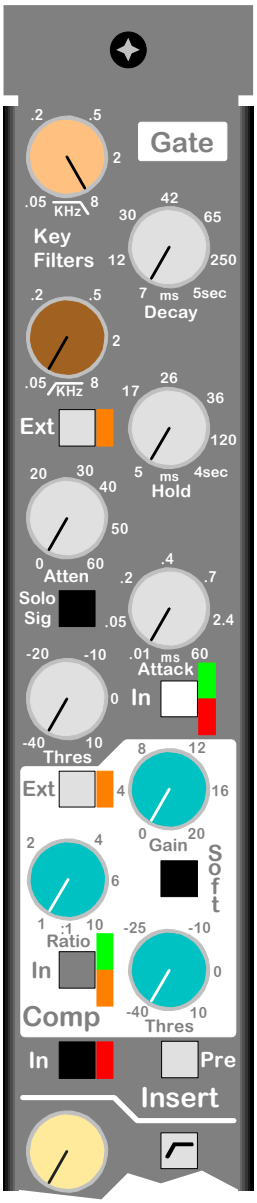
### LED Indicators

Two LED’s beside the In switch indicate: Green for Compressor in circuit but not compressing, Green and Orange for compression up to –6dB, Orange only for compression greater the –6dB, No LED’s for compressor out of circuit. When the channel is soloed, a full attenuation meter is provided in the master section.

### Threshold

The Threshold control sets the signal level above which compression will occur and can be adjusted from -40dBu to +10dBu

**NOTE: If the Compressor In and Gate In are OFF (up position) the VCA (gain cell) in this module is switched out of circuit.**




## Gate

### Key Filter Controls

These controls set the frequency of the hi pass and low pass filters. Both filters are 24dB/octave and are sweepable from 50Hz to 8kHz. Together they create a selective variable band pass filter for the Gate key signal.

### Decay

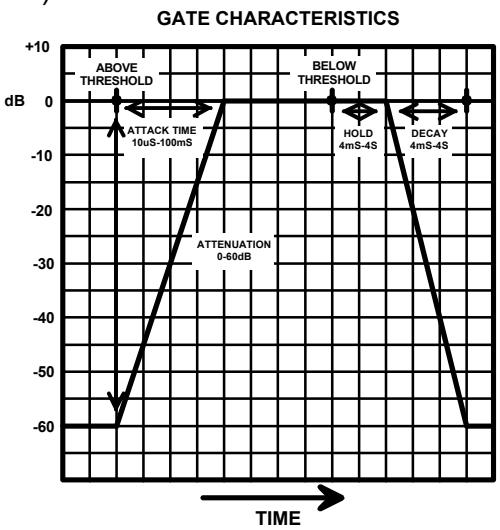
This control sets the fall time for the Gate to reach the set attenuation once the hold time has elapsed. Decay time is variable from 7mSec to 5Sec.

### External

When depressed, the signal connected to the External input will be used in the side chain for the Gate circuit. Normal side chain signal is jumper selected either post Filter or post EQ & Insert. This jumper is set standard in the post Filter position (see page 2-10).

### Hold

This control sets the amount of time the Gate remains open after the signal level drops below the set threshold point before triggering the decay circuit. Hold time is variable from 5mSec to 4Sec.




### Attenuation

This control sets the amount of attenuation applied when the Gate is closed and is variable from 0dB to -60dB.

### Solo Signal

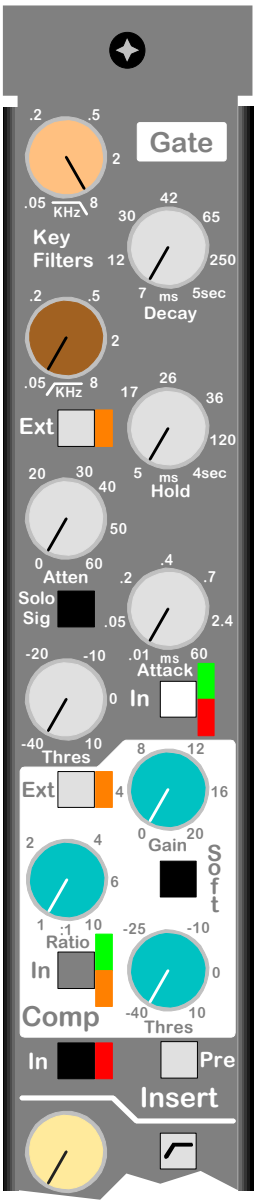
In the UP position the key signal for the Gate, post key filters, feeds the Input Side Chain Solo buss. In the depressed position the key signal for the Compressor feeds the Input Side Chain Solo buss.

### Attack

The Attack control sets the rise time of the Gate and is variable from .01mSec to 60mSec.

### Threshold

This control sets the signal level at which the Gate will open or close, and is variable from -40dBu to +10dBu.




## Gate

### In

When depressed channel signal will be effected by the Gate and it's controls. This circuit is completely independent of the compressor circuit.

### LED Indicators

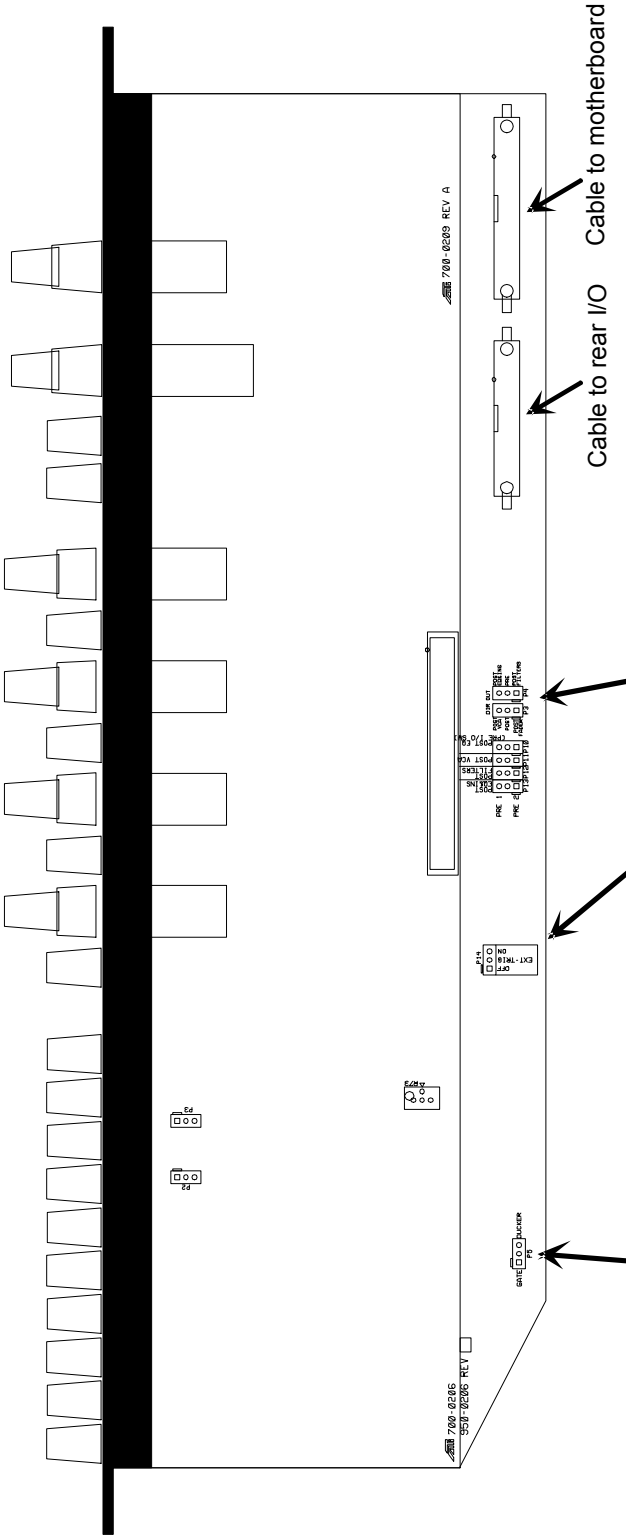
Two LED's beside the In switch indicate: Green for gate in circuit and OPEN, Red for gate closed and No LED's for gate out of circuit. When the channel is soloed there is a full gate attenuation meter in the master section.

**NOTE: There is a jumper provided to allow the gate to be used as a Ducker possibly in combination with the External Key input (see pages 2-8 and 2-10).**

**NOTE: If the Compressor In and Gate In are OFF (up position) the VCA (gain cell) in this module is switched OUT of circuit.**

## Module Removal

To remove the Mono Input Processor Module, first make sure that the console power is turned off. Next using a NO.2 Phillips head screwdriver, remove the two module screws at the top and bottom of the module. Now simply lift the module out of the frame. When the bottom edge of the PCB has cleared the frame, disconnect the two flat cable connects being careful not to lose the cables back into the frame. To replace the module, follow these steps in reverse making sure the console power is turned off first.



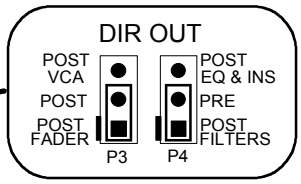

## Direct Output Pre & Post Options

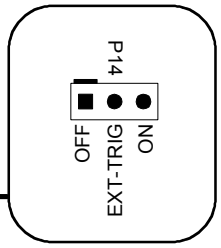
### Pre

The Direct Out Pre signal can be selected to be either post Filter or post EQ & Insert. This is done by moving the jumper at location P4. The jumper is shown and comes standard from the factory in the post Filter location.

### Post

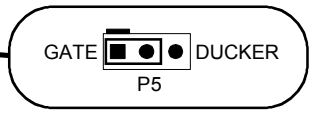
The Direct Out Post signal can be selected to be either post VCA or post Fader. This is done by moving the jumper at location P3. The jumper is shown and comes standard from the factory in the post Fader location. Note that the Fader signal is selected by the Pre2 jumper described on the next page.



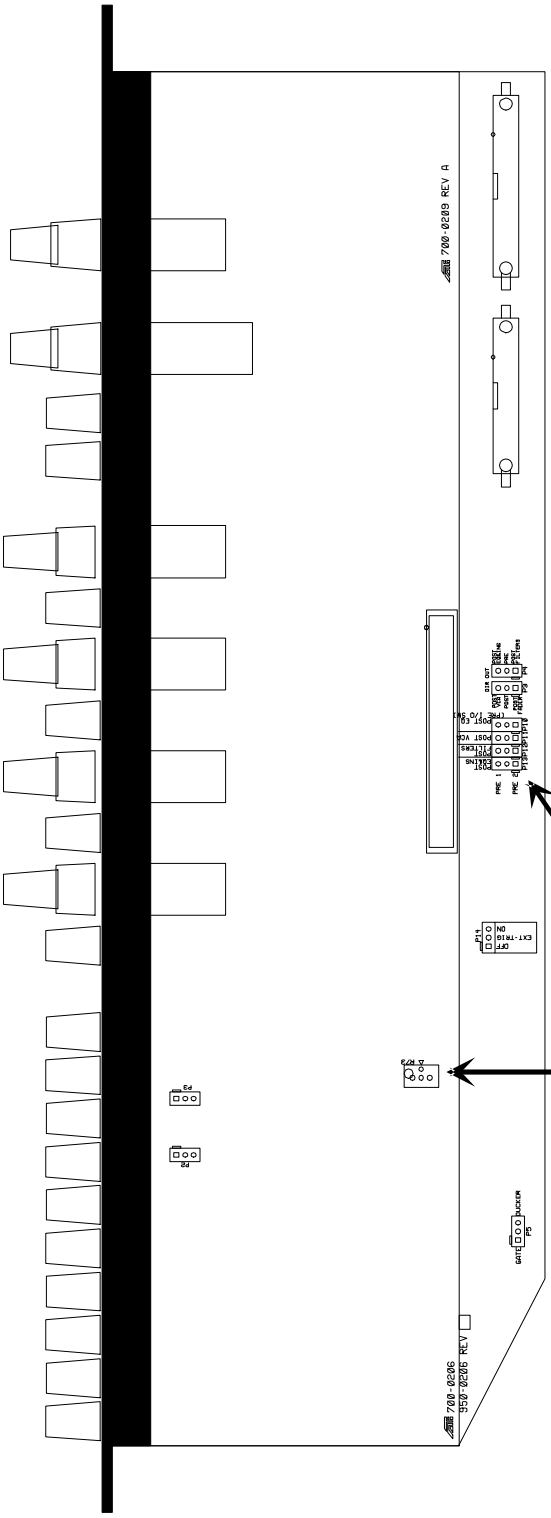

## External Trigger Accept

Placing this jumper in the ON position, the signal plugged into the External Trigger input is injected at nominal input level into the channel path pre VCA. Such an input can be used as an effect return into the channel audio. This jumper as standard is left off the PCB and does not appear prior to REV C assemblies.




## Gate / Ducker

This jumper allows you to turn the Gate into a Ducker. This results in the audio being attenuated when the selected key signal (traditionally the External Audio signal) goes above the Threshold. The jumper is shown and comes standard from the factory in the Gate position.

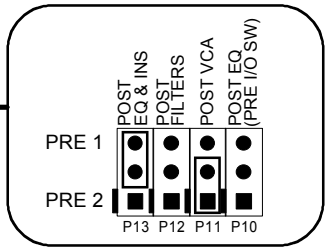


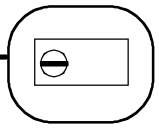

## Pre 1 & Pre 2 Signal Selects

Both Pre 1 & Pre 2 may be selected from any of four different signals: post filter, post EQ (before the EQ In/Out switch), post EQ & Insert, and post VCA. Pre 1 is chosen by placing the jumper in the upper position on the appropriate signal you would like. Pre 1 is shown and comes standard from the factory in the post EQ & Insert position. Pre 2 is chosen by placing the jumper in the lower position. Pre 2 is shown and comes standard from the factory in the post VCA position. This VCA is only for Dynamics control and is not effected by the VCA master faders.

The Pre 1 signal is ONLY utilized by the solo system when “Pre Dyn” is selected (this will be covered in the Master Lower Module section). The Pre 2 signal is the signal going to the top of the fader and is also the Auxiliary Pre signal on the assign module.

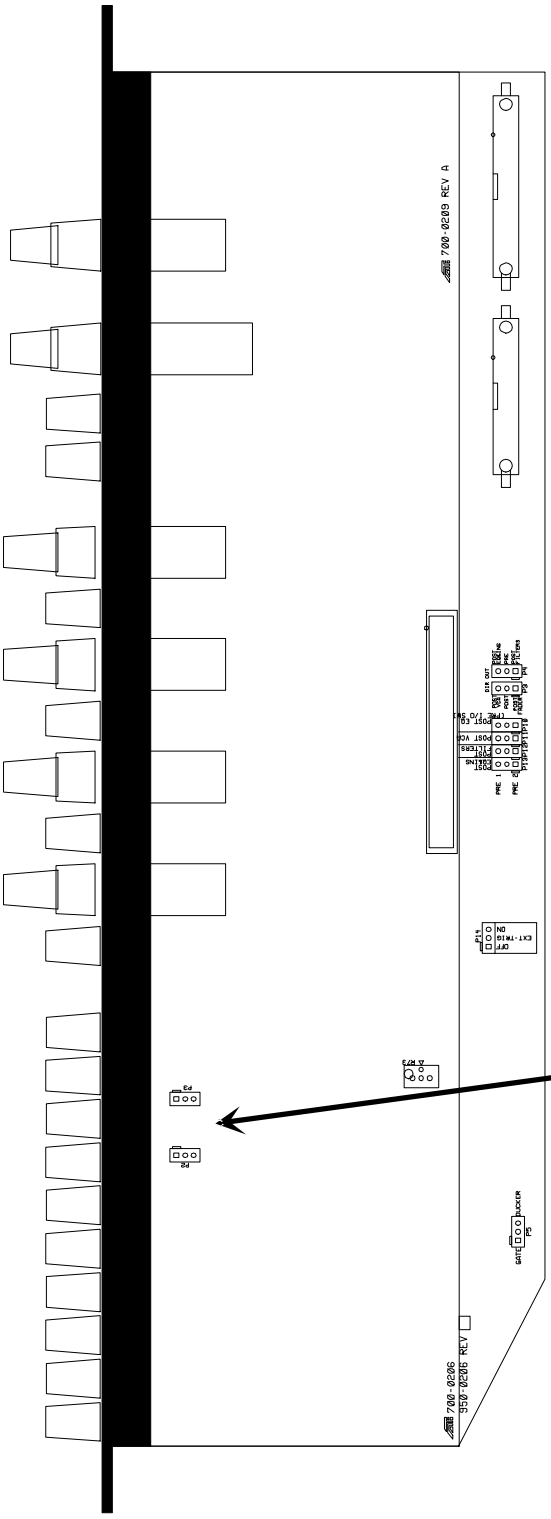
NOTE that assigning two of the four available signals to either Pre 1 (both in a upper location) or Pre 2 (both in a lower location) will result in two signals being shorted together and distortion will result.



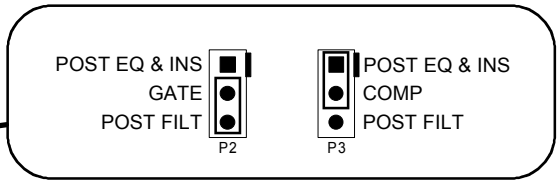
## VCA THD Trim Control

The VCA symmetry trim control R73, is accessible thru a hole on the secondary PCB. A distortion analyzer can be connected to the post Direct Out signal with a +4dB signal level and THD should be trimmed to <.007%. NOTE that the Compressor or Gate MUST be selected otherwise the VCA is bypassed and the trim can not be analyzed.

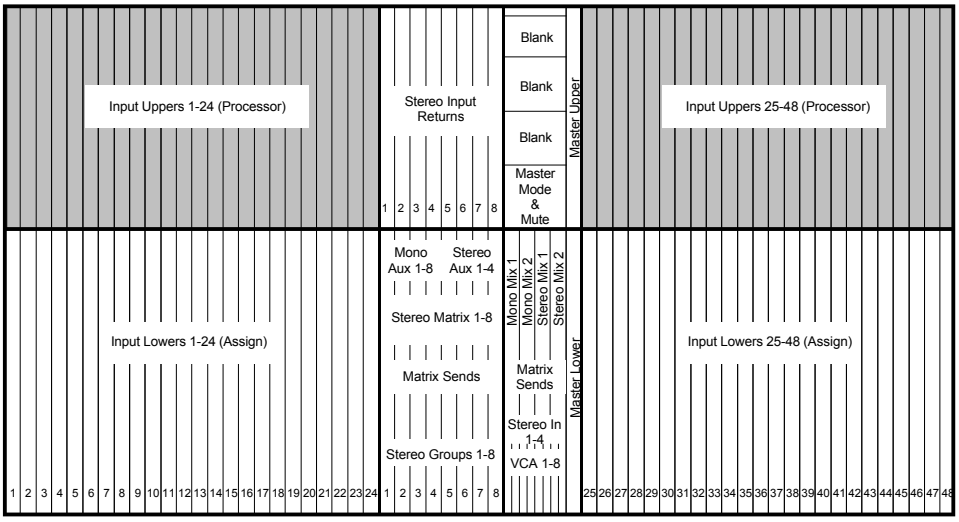



## Compressor & Gate Sidechain Selects

Both the Compressor and Gate internal sidechain signals can be selected to be either post Filters or Post EQ & Insert. The Compressor sidechain signal is set by using jumper P3. This jumper is shown and come standard from the factory in the post EQ & Ins position. The Gate sidechain signal is set by using jumper P2. This jumper is shown and comes standard from the factory in the post Filter position.

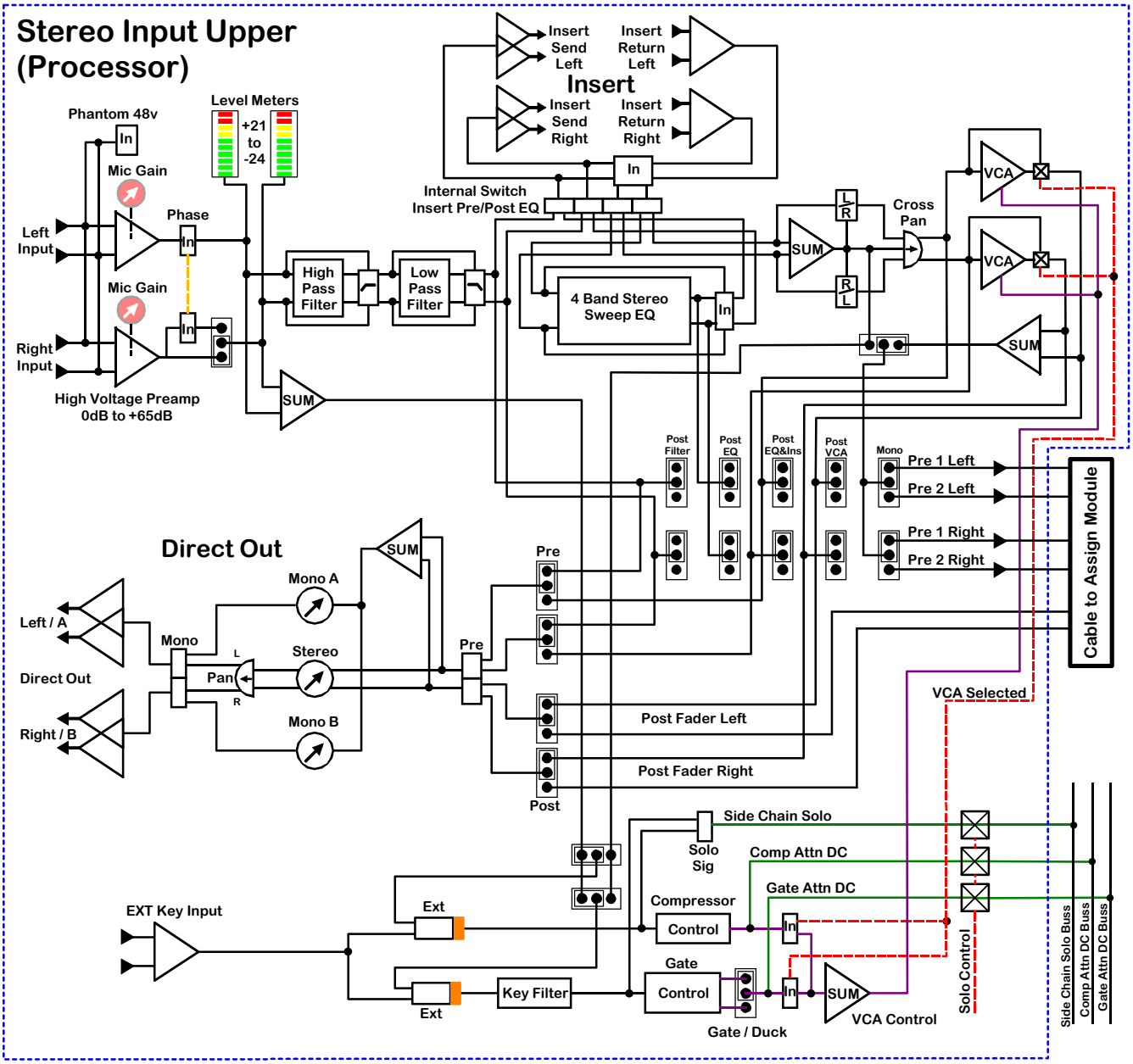


# Stereo Input Processing Module



**Stereo Inputs can be installed in any input slot with a maximum of 24 in a 48 channel frame. Module MUST be installed in combination with a Stereo Assign module and Stereo Rear Input module.**

# Block Diagram



## Filters

### Low Pass

Variable 12dB/Oct. low pass filter 25KHz to 1.4KHz with in/out switch.

### High Pass

Variable 12dB/Oct. high pass filter 20Hz to 370Hz with in/out switch.

## Stereo Direct Out

### Inner

Stereo Direct Output level control OR 'A' output level control when Mono is selected. Control from infinity to +6dB maximum gain.

### Outer

Stereo Direct Output balance OR 'B' output level control when Mono is selected.

### Pre

The signal source for the Direct Output can be jumper selected from a number of points. These include Post Filters, Post EQ & Insert, Post VCA and Post Fader. The Pre switch allows the PCB jumper selected signals to be front panel selected.

### Mono

Switches the Direct Output from stereo to two (A and B) Mono signals, which are a mono sum of left and right, with individual level control.

## Input Gain

### Inner

Left input microphone gain control. Max input level is +24 dBu, gain range is 0 to +65dB.

### Outer

Right input microphone gain control. Max input level is +24 dBu, gain range is 0 to +65dB.

### 48 Volt

When depressed applies +48V Phantom voltage to the input. **Note when using phantom power, the ground lift switch on the rear connector panel MUST be in the grounded position.**

### Phase

When depressed reverses the input polarity of the left input. There is an internal jumper to reverse the right input as well.

### Level Meters

Indicates peak signal level post microphone amplifier. The ten segment LED bar meter displays level over a 45dB range from –24dB to +21dB.

## Insert

### In

When depressed channel Insert Return signal is utilized. The return signal is applied to the VCA input (or the EQ input, internally selectable). The Insert Send jack is always active sending post EQ signal (or pre EQ, same internal switch as above).

### Cross Pan

This control is located post EQ & Insert and allows cross pan or image narrowing of the stereo signal variable from full stereo to mono.

### L to R & R to L

These switches are located post EQ & Insert. The Left to Right switch, when depressed sends the left input signal to both left and right. The Right to Left switch, when depressed sends the right input signal to both left and right. When both switches are depressed, a mono sum of left and right is sent down both left and right.

## Equalizer

The EQ consist of a stereo 4-band sweepable peak/shelve EQ. The High and Low bands are shelving and the High Mid and Low Mid bands are peak (dip).

### Level Control (Inner)

The inner control of the dual concentric adjusts the peak (dip) height or shelving level from 0 to +/- 18 dB for each band.

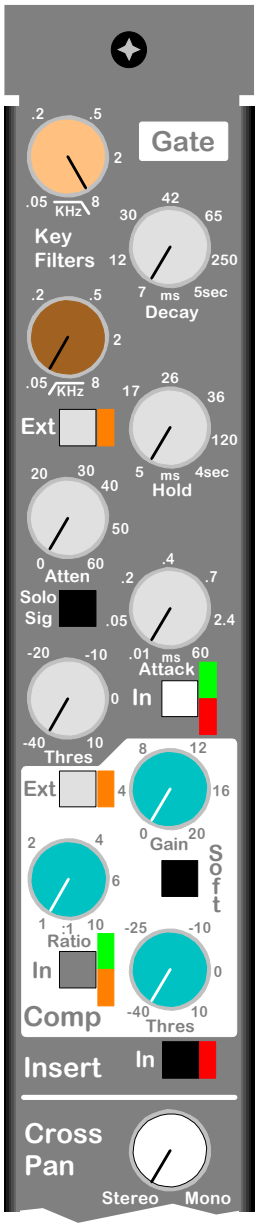
### Frequency Control (Outer)

The outer control of the dual concentric selects the frequency of the EQ peak (dip) for the Mid bands or 3dB down frequency of the EQ shelf for the High and Low bands. Each of the four EQ bandwidths are different but overlapping. Their ranges are as follows:

**Low** Frequency range 30Hz to 460Hz
**Low Mid** Frequency range 150Hz to 2.4KHz
**High Mid** Frequency range 550Hz to 8KHz
**High** Frequency range 1KHz to 16KHz

### EQ In/Out Switch

In the down position, places the four band stereo EQ into the signal path. One of the jumper options for the Pre1 and Pre2 signal feeds to the assign module is post EQ but Pre EQ In/Out switch. The signal option is ALWAYS post the equalizer circuit, but allows you the option to have to continuation of the signal path NOT be effected by the equalizer.




## Compressor

### External

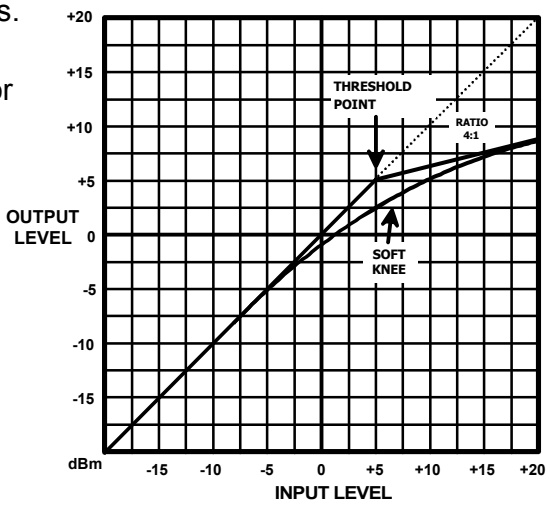
When depressed, the signal connected to the External input will be used in the side chain for the Compressor circuit. Normal side chain signal is jumper selected either post Filters or post EQ & Insert. This jumper is set standard in the post EQ & Insert location (see page 3-10).

### Gain

This control adds a variable 0dB to +20dB of make-up gain to compensate for Compressor loss.

### Ratio

This control sets the Compressor Ratio, which is variable from 1:1 to 10:1




### Soft

When depressed Compressor Threshold knee is “rounded” (see graph).

### In

When depressed channel signal will be effected by the Compressor controls.

### LED Indicators

Two LED’s beside the In switch indicate: Green for Compressor in circuit but not compressing, Green and Orange for compression up to –6dB, Orange only for compression greater the –6dB, No LED’s for compressor out of circuit. When the channel is soloed, a full attenuation meter is provided in the master section.

### Threshold

The Threshold Control sets the signal level above which compression will occur and can be adjusted from -40dBu to +10dBu

**NOTE: If the Compressor In and Gate In are OFF (up position) the VCA (gain cell) in this module is switched out of circuit.**

## Gate

### Key Filter Controls

These controls set the frequency of the hi pass and low pass filters. Both filters are 24dB/octave and are sweepable from 50Hz to 8kHz. Together they create a selective variable band pass filter for the Gate key signal.

### Decay

This control sets the fall time for the Gate to reach the set attenuation once the hold time has elapsed. Decay time is variable from 7mSec to 5Sec.

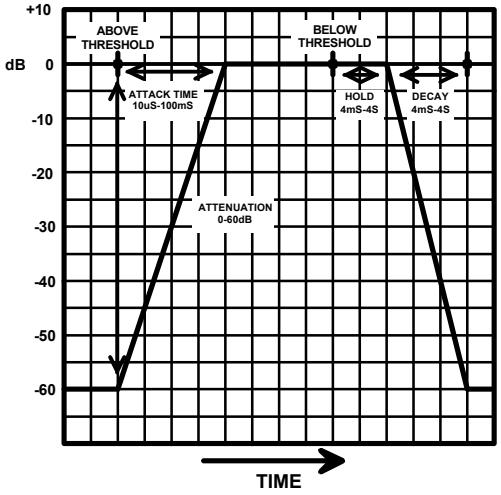
### External

When depressed, the signal connected to the External input will be used in the side chain for the Gate circuit. Normal side chain signal is jumper selected either post Filter or post EQ & Insert. This jumper is set standard in the post Filter position (see page 3-10).

### Hold

This control sets the amount of time the Gate remains open after the signal level drops below the set threshold point before triggering the decay circuit. Hold time is variable from 5mSec to 4Sec.

GATE CHARACTERISTICS




### Attenuation

This control sets the amount of attenuation applied when the Gate is closed and is variable from 0dB to -60dB.

### Solo Signal

In the UP position the key signal for the Gate, post key filters, feeds the Input Side Chain Solo buss. In the depressed position the key signal for the Compressor feeds the Input Side Chain Solo buss.

### Attack

The Attack control sets the rise time of the Gate and is variable from .01mSec to 60mSec.

### Threshold

This control sets the signal level at which the Gate will open or close, and is variable from -40dBu to +10dBu.

## Gate

### In

When depressed channel signal will be effected by the Gate and it's controls. This circuit is completely independent of the compressor circuit.

### LED Indicators

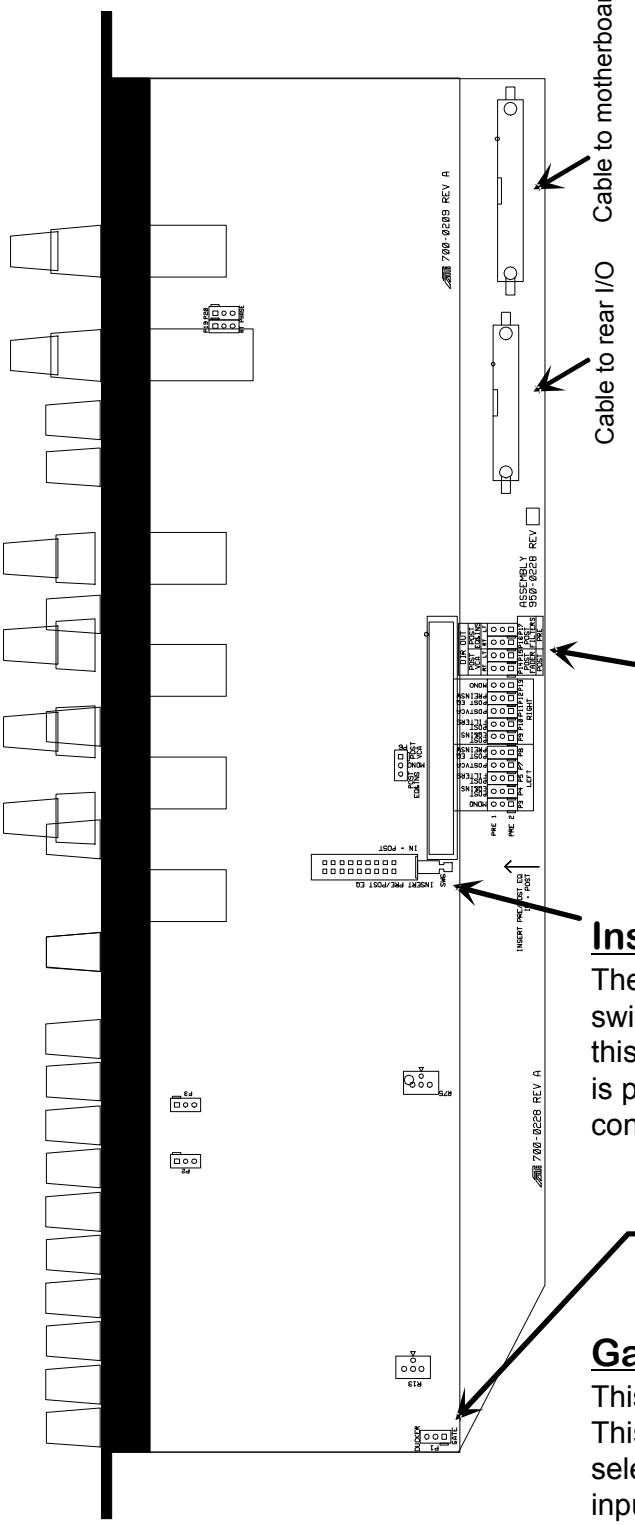
Two LED's beside the In switch indicate: Green for Gate in circuit and open, Red for Gate closed and No LED's for Gate out of circuit. When the channel is soloed there is a full Gate attenuation meter in the master section.

**NOTE: There is a jumper provided to allow the gate to be used as a ducker possibly in combination with the External Trigger input (see page 3-8 and 3-10).**

**NOTE: If the Compressor In and Gate In are OFF (up position) the VCA (gain cell) in this module is switched OUT of circuit.**

## Module Removal

To remove the Stereo Input Processor Module, first make sure that the console power is turned off. Next using a NO.2 Phillips head screwdriver, remove the two module screws at the top and bottom of the module. Now simply lift the module out of the frame. When the bottom edge of the PCB has cleared the frame, disconnect the two flat cable connects being careful not to lose the cables back into the frame. To replace the module, follow these steps in reverse making sure that the console power is turned off first.



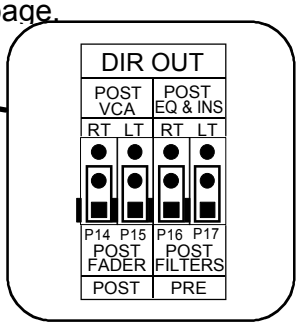

## Direct Output Pre & Post Options

### Pre

The Direct Out Pre signal can be selected to be either post Filter or post EQ & Insert. This is done by moving the jumpers at location P16 (right) and P17 (left). The jumpers are shown and come standard from the factory in the post Filter location.

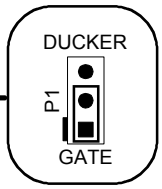
### Post

The Direct Out Post signal can be selected to be either post VCA or post Fader. This is done by moving the jumpers at location P14 (right) and P15 (left). The jumpers are shown and come standard from the factory in the post Fader location. Note that the Fader signal is selected by the Pre 2 jumper described on the next page.



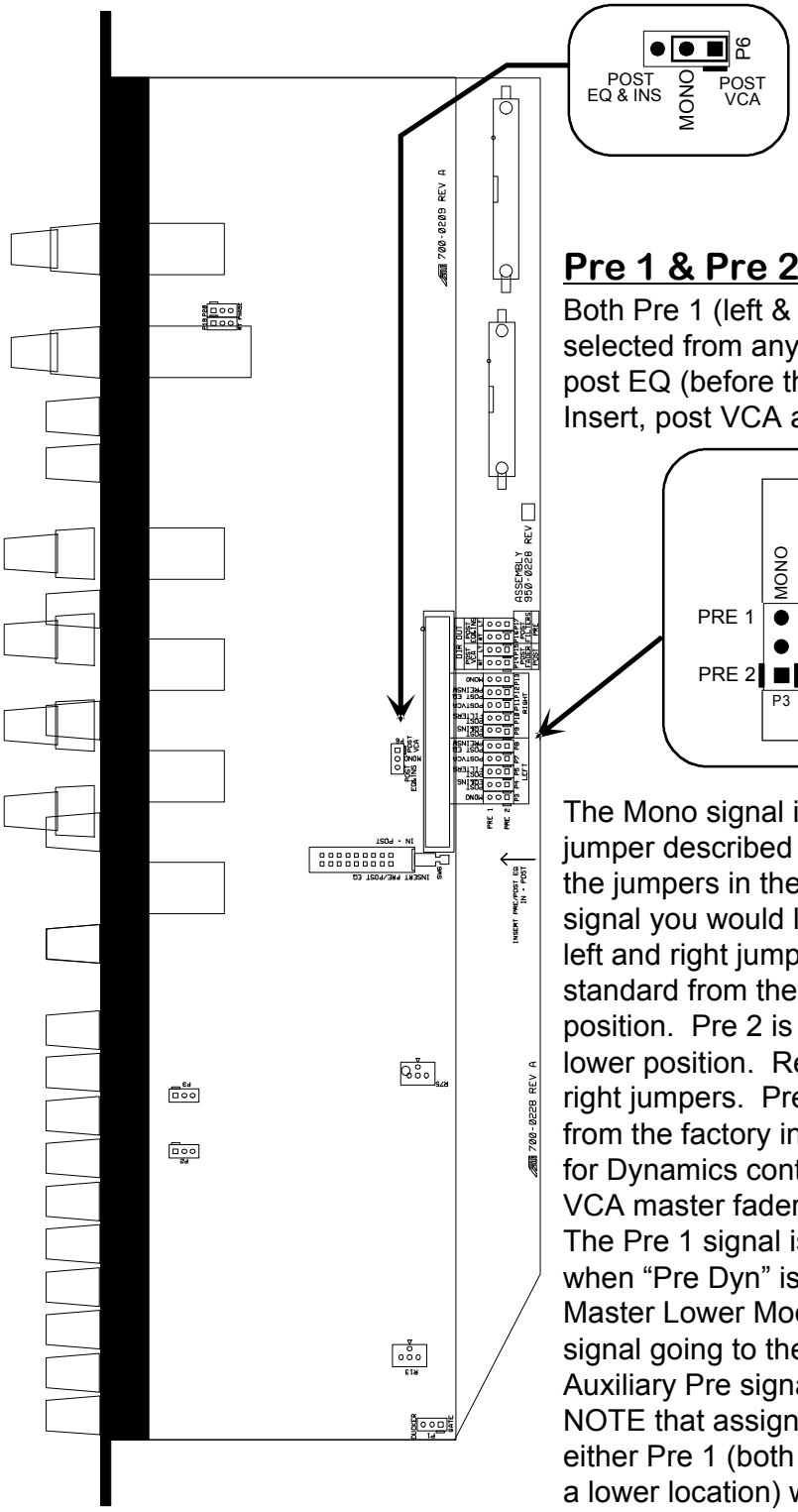

## Insert Pre / Post EQ

The Insert location pre or post EQ is selected by the switch located on the main PCB (700-0228). When this switch is in the in or depressed location the Insert is post EQ. This is the standard from factory configuration.




## Gate / Ducker

This jumper allows you to turn the Gate into a Ducker. This results in the audio being attenuated when the selected key signal (traditionally the External Trigger input) goes above the Threshold. The jumper is shown and comes standard from the factory in the Gate position.

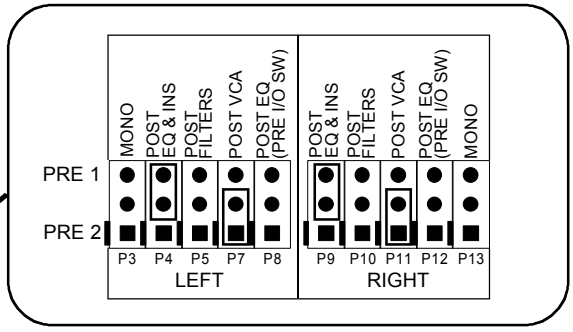



## Mono Signal Select

A Mono sum of left and right is created as one of the Pre 1 & Pre 2 options. This sum can be either post EQ & Insert or post VCA. The jumper is shown and comes from the factory in the post VCA position.

## Pre 1 & Pre 2 Signal Selects

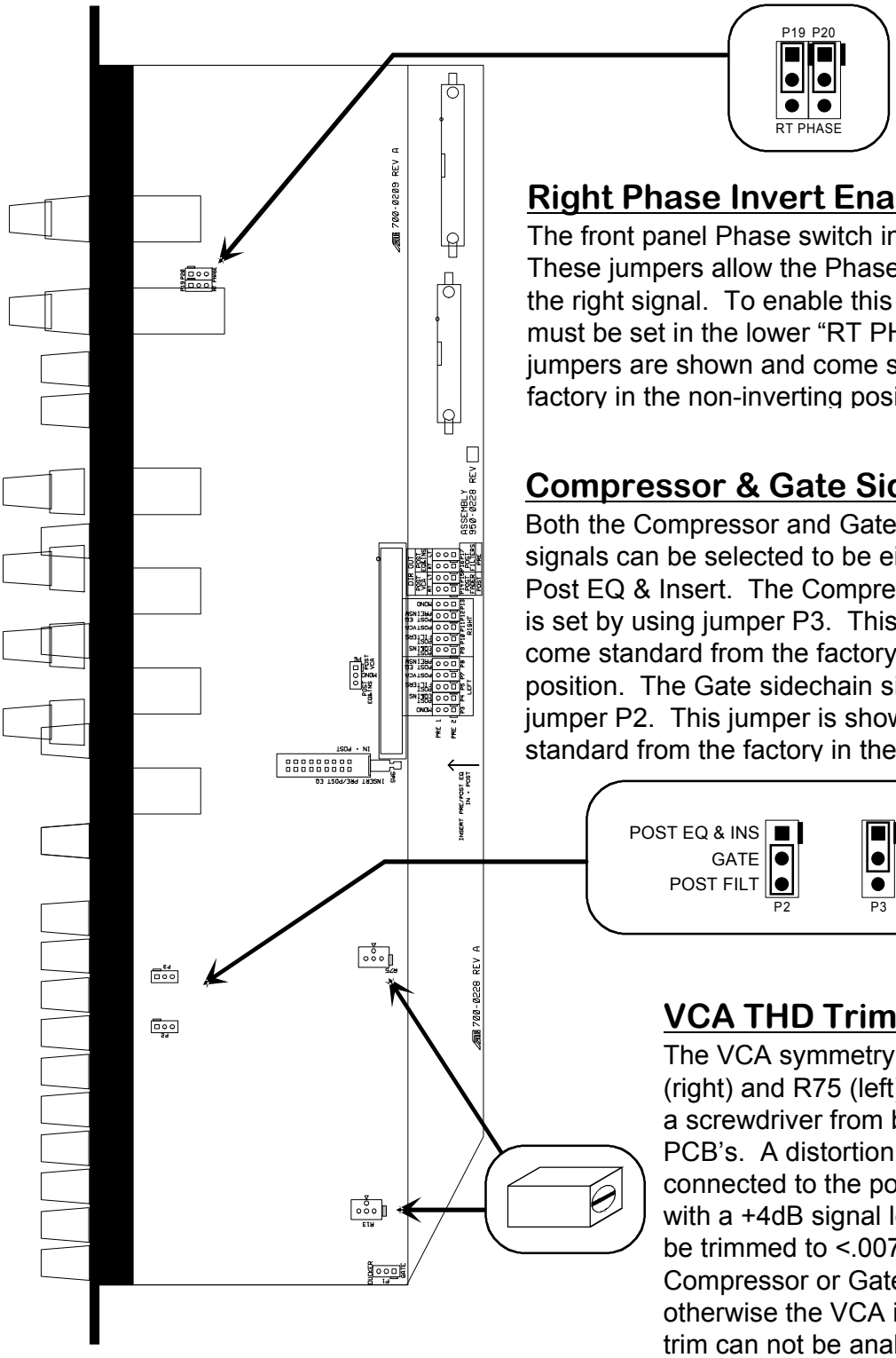
Both Pre 1 (left & Right) & Pre 2 (left & Right) may be selected from any of five different signals: post Filter, post EQ (before the EQ In/Out switch), post EQ & Insert, post VCA and Mono.




The Mono signal is the output from the Mono select jumper described above. Pre 1 is chosen by placing the jumpers in the upper position on the appropriate signal you would like. Remember to change both the left and right jumpers. Pre 1 is shown and comes standard from the factory in the post EQ & Insert position. Pre 2 is chosen by placing the jumpers in the lower position. Remember to change both the left and right jumpers. Pre 2 is shown and comes standard from the factory in the post VCA position. This VCA is for Dynamics control only and is not effected by the VCA master faders.

The Pre 1 signal is ONLY utilized by the solo system when “Pre Dyn” is selected (this will be covered in the Master Lower Module section). The Pre 2 signal is the signal going to the top of the fader and is also the Auxiliary Pre signal on the assign module.

NOTE that assigning two of the five available signals to either Pre 1 (both in a upper location) or Pre 2 (both in a lower location) will result in two signals being shorted together and distortion will result.




## Right Phase Invert Enable

The front panel Phase switch inverts the left signal. These jumpers allow the Phase switch to also invert the right signal. To enable this option, BOTH jumpers must be set in the lower “RT PHASE” position. The jumpers are shown and come standard from the factory in the non-inverting position.

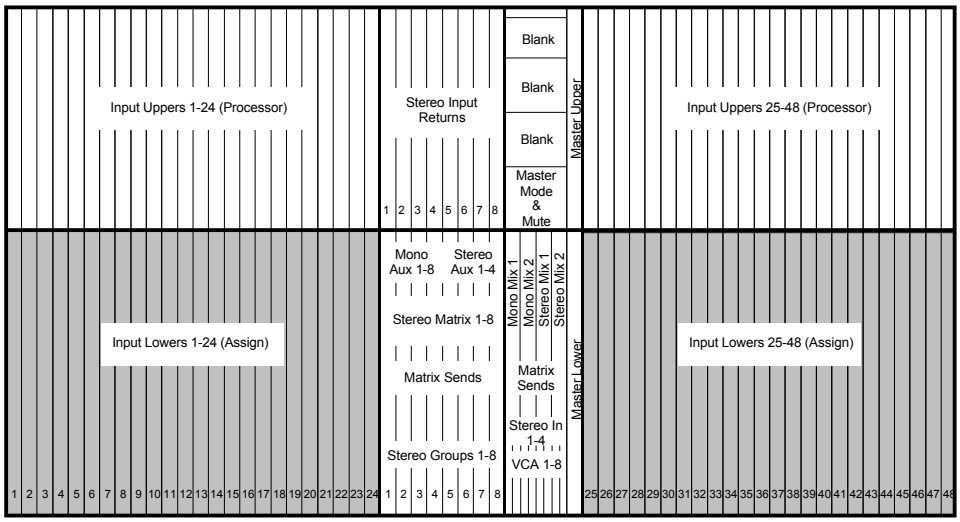
## Compressor & Gate Sidechain Selects

Both the Compressor and Gate internal sidechain signals can be selected to be either post Filters or Post EQ & Insert. The Compressor sidechain signal is set by using jumper P3. This jumper is shown and come standard from the factory in the post EQ & Ins position. The Gate sidechain signal is set by using jumper P2. This jumper is shown and comes standard from the factory in the post Filter position.

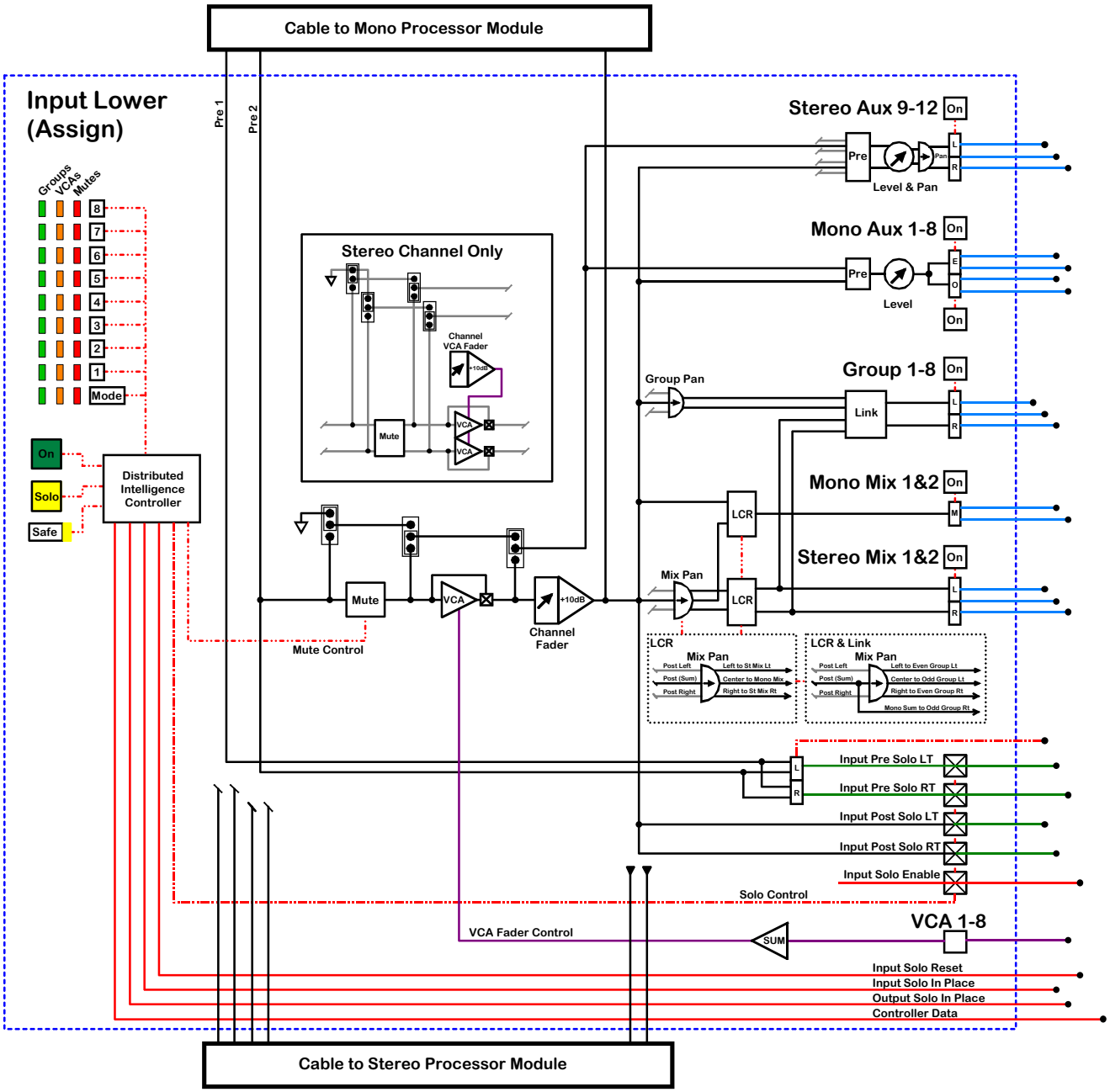
## VCA THD Trim Controls

The VCA symmetry trim controls R13 (right) and R75 (left), are accessible with a screwdriver from between the two PCB’s. A distortion analyzer can be connected to the post Direct Out signal with a +4dB signal level and THD should be trimmed to <.007%. NOTE that the Compressor or Gate MUST be selected otherwise the VCA is bypassed and the trim can not be analyzed.

# Channel Assignment Module



# Block Diagram



## Group / VCA / Mute Assignments

The eight multi-function switches at the top of the assignment module are used for Audio Group, VCA and Mute Group assignment, depending on the selected Mode. The GREEN Mode assigns post fader audio to any of the 8 stereo Audio Groups. The ORANGE mode accepts level and mute control into the module from any of the 8 VCA masters. The RED mode accepts mute control into the module from any of the 8 Mute Group masters. The mode is selected either by the local Mode switch (each depression of the switch will increment the local mode) or by the master global mode switches, see Master Control Module for more details. All of these assignments are re-settable via Distributed Intelligence® Control.

Note: Mute group assignments do not change with scene changes. Mute groups remain constant and can be applied to ANY scene.

## Group Pan Control

The gray group pan control will pan (balance in the case of stereo) the channel post fader signal left and right to the assigned stereo audio group busses. When **LINK** is depressed the group pan is bypassed and the group signals are fed from the **Mix** pan control.

## Mix Assignments

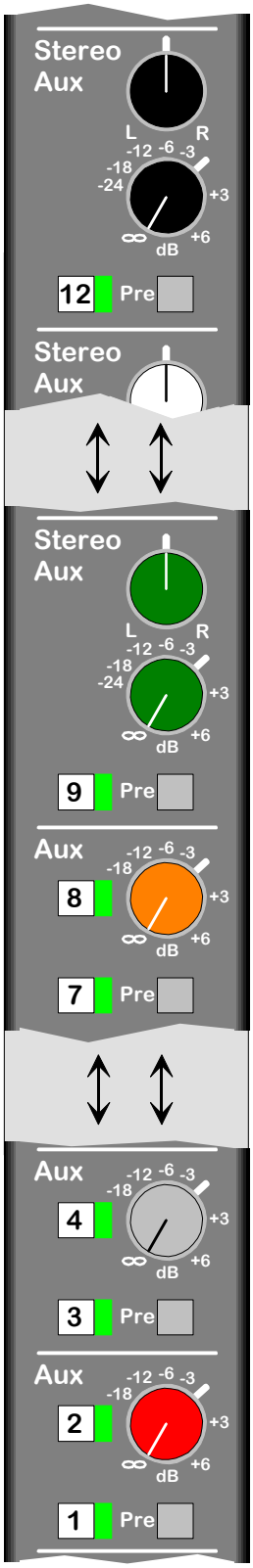
These switches assign post fader audio to the 2 Mono and 2 Stereo Mix busses. For stereo modules, the Mono Mix receives a mono sum of left and right. These assignments are re-settable via Distributed Intelligence® Control.

## Mix Pan Control

The blue mix pan control will pan (balance in the case of stereo) the channel signal left and right to the assigned Stereo Mix 1 or Mix 2 busses. As mentioned above, the mix pan also controls the pan (or balance) to the Group busses when **LINK** is depressed. When **LCR** is depressed, the pan output becomes a true Left-Center-Right pan. The center channel is available for routing to Mono Mix 1 and 2. The Left and Right of the LCR mix are available for routing to Stereo Mix 1 and 2. On Stereo modules, the Center signal is a mono sum of left and right.

## Link + LCR

The combination of these two switches, along with feeding the LCR mix to the Mono and Stereo busses as described above, also directs the following signals to the Stereo Group assignments. Odd Stereo Group busses have the Center of the LCR on right and post fader signal on left. Even Stereo Group assignments have Left and Right signals of the LCR on their left and right busses respectively. This allows the engineer to create four AUDIO SUBGROUPS of the LCR mix.




## Stereo Auxiliary Sends

The four stereo Aux send consists of a level control and a pan. Unity gain is shown by a thick line at about 2 o'clock. When pan is centered signal is fed to the Left and Right Aux busses. All level controls are variable from +6dB to infinity. Pan drop for the Aux is 4.5dB.

### ON

The numbered switches 9-12 are the Aux send assignment switches. These assignments are re-settable via Distributed Intelligence® Control.

### Pre

When depressed, selects a pre fader signal to the Aux buss. This signal is determined by internal jumpers from one of the following three selections: Pre Mute, Post Mute / Pre VCA, Post Mute / Post VCA (Mono module only). The default is Post Mute / Pre VCA.

## Mono Auxiliary Sends

The eight mono Aux sends utilize four level controls. Each of these four level controls feeds signal to two busses via their assignment switches allowing you to assign to either or both in the pair. This is done to make the control surface less cluttered. The idea being that you could use Aux 1 on one channel for a vocal reverb and Aux 2 on a different channel for a snare reverb; save space without sacrificing any level of control.

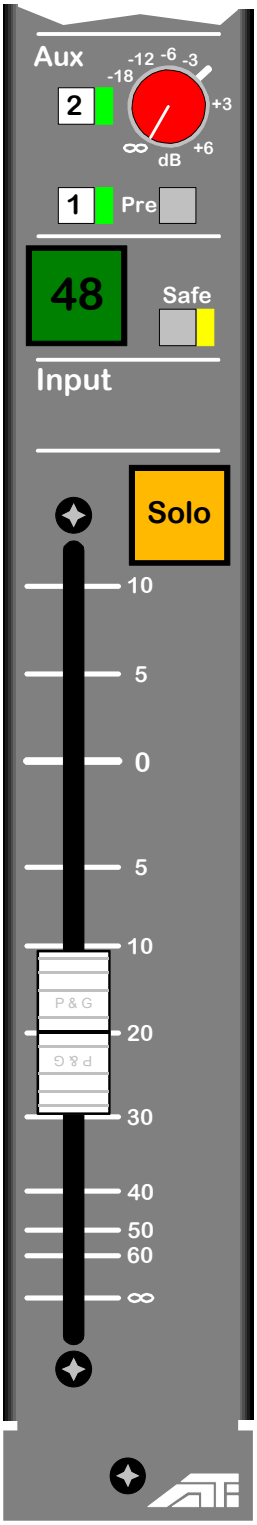
### ON

The numbered switches 1-8 are the Aux send assignment switches. These assignments are re-settable via Distributed Intelligence® Control.

### Pre

When depressed, selects a pre fader signal to the Aux buss. This signal is determined by internal jumpers from one of the following three selections: Pre Mute, Post Mute / Pre VCA, Post Mute / Post VCA (Mono module only). The default is Post Mute / Pre VCA.

**NOTE: It is good general practice to always leave any unused aux sends un-assigned. This de-selects the send from the buss thus reducing noise on the buss and is preferable to setting the level control to full attenuation. Buss switching is done using a constant loading configuration.**




## Channel On / Off

This momentary switch turns the main channel signal feed on and off. The switch is illuminated when ON. This switch will also override any group mute, VCA mute, scene mute or SIP mute that is currently active on the channel. This switch can be reset via Distributed Intelligence® Control.

## Safe

When depressed, all external control, such as group mute or VCA mute, is removed from the channel. The channel on/off switch will revert to the state it was in before the external control was applied. Any future global commands are also ignored when the channel is in safe. These include global mode changes, scene recall via Distributed Intelligence® Control and module reprogramming which will be discussed in the Master Controller Module section. When safe is released, any active mute master will be applied to the channel.

## Channel Fader

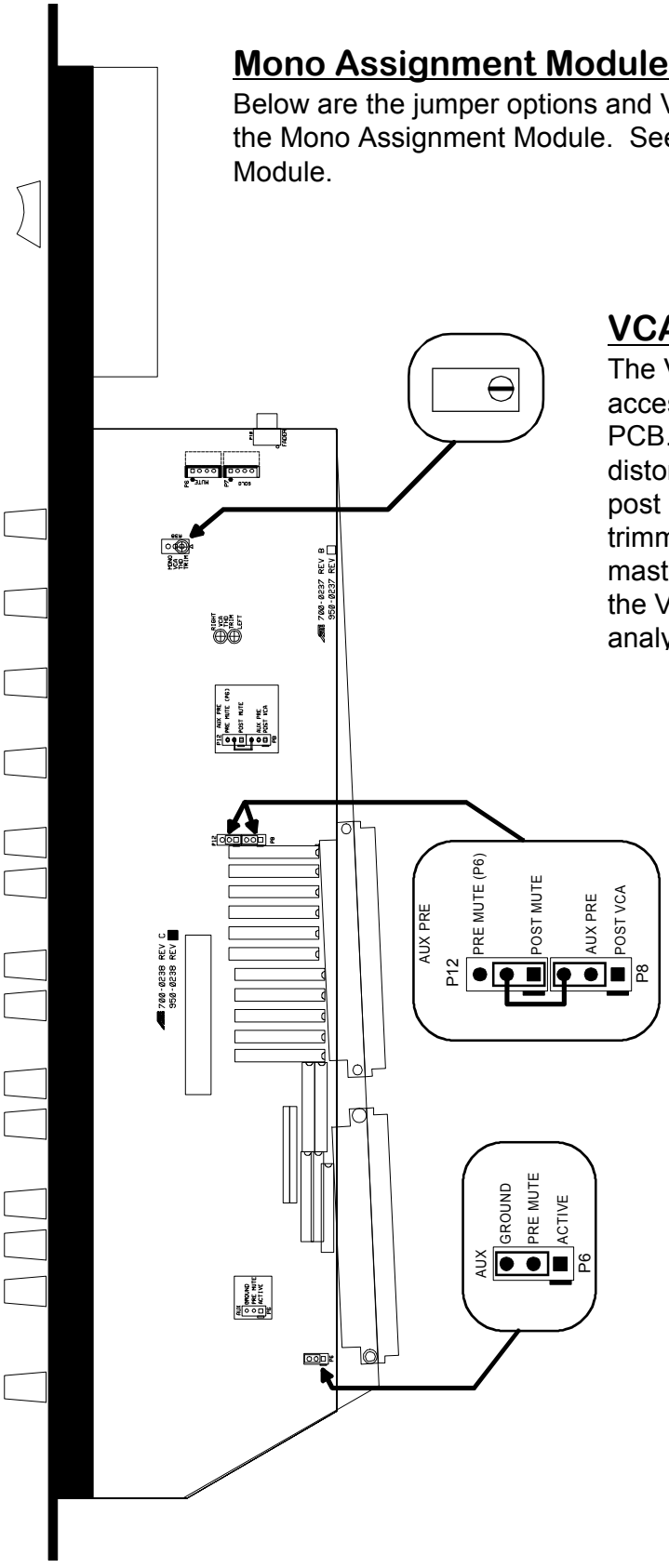
Mono Assign Modules use Penny & Giles 100mm Audio fader with infinity to +10dB gain. The fader stage output feeds all of the post selected auxiliary busses, the stereo group assignments and the mix assignments. Stereo Assign Modules use a Penny & Giles 100mm VCA fader with infinity to +10dB gain. The control output of the fader is combined with any VCA master faders selected on the channel for the overall stage level. NOTE: The mono Assign Module uses a WHITE cap and The Stereo Assign Module uses a BLACK cap. This is the only visible difference between a Mono and Stereo Assign Module. Stereo Assignment Modules MUST stay paired with Stereo Processor Module.
The channel faders have the option of being equipped with a moving fader which would be under Distributed Intelligence® control.

## Solo

Selects the channel audio to the solo system. The signals selected include Pre Dynamics (Pre 1 from upper module), Pre Fader (Pre 2 from upper module), Post Fader, the selected Side Chain signal (Gate or Compressor) and the Compressor and Gate attenuation level. The various solo modes are discussed further in the Master Lower Module section. The channel solo will also be activated by any VCA solo master that the channel is assigned to.

## Mono Assignment Module

Below are the jumper options and VCA symmetry adjustment location for the Mono Assignment Module. See page 4-7 for the Stereo Assignment Module.




## VCA THD Trim Control

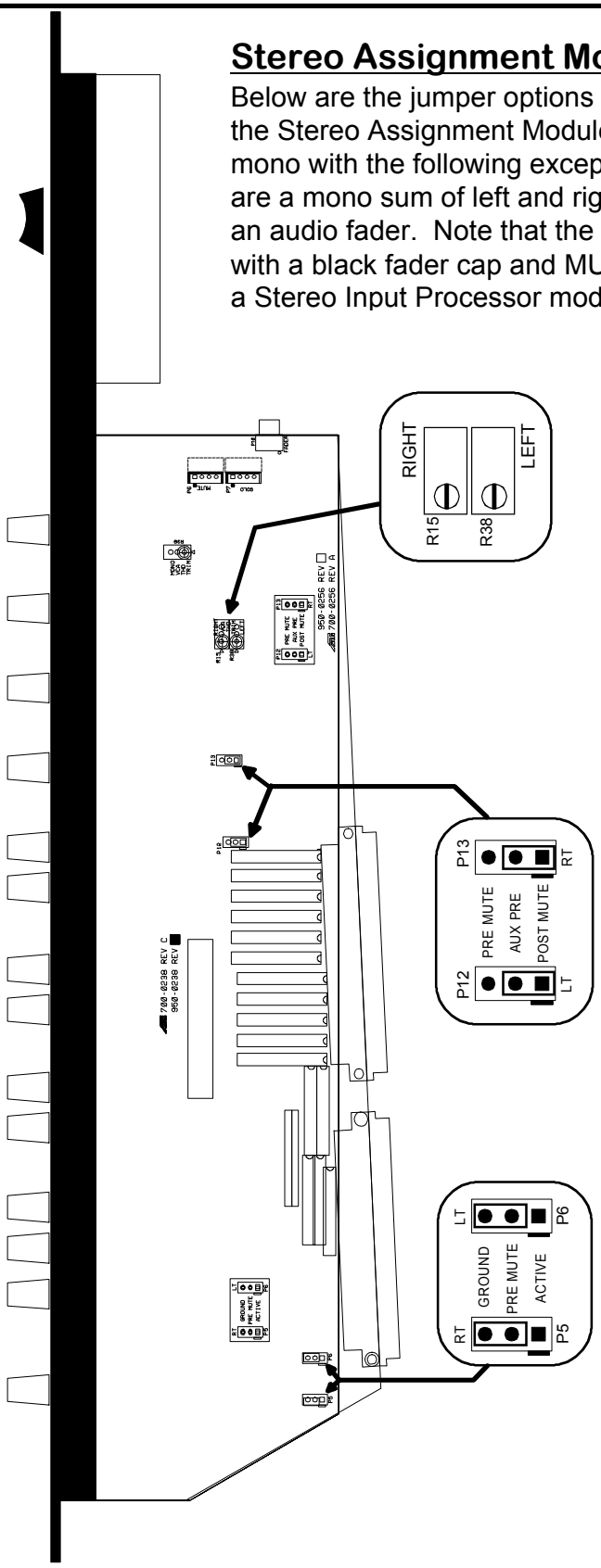
The VCA symmetry trim control R38, is accessible thru a hole on the secondary PCB. Applying a +4db input signal, a distortion analyzer can be connected to the post Direct Out signal and THD should be trimmable to <.007%. NOTE that a VCA master must be assigned to the channel or the VCA is bypassed and the trim can not be analyzed.

## Auxiliary Pre Signal Select

The Auxiliary Pre signal can be selected from one of three different places in the signal path, pre mute, post mute/pre VCA, or post VCA. The jumper at P8 determines whether the signal is post VCA or whichever signal is selected from jumper P12. P12 allows you the choice of post mute/pre VCA or pre mute. If you choose pre mute, make sure that the jumper at P6 is set to active. Otherwise P6 should be set to ground.

## Stereo Assignment Module

Below are the jumper options and VCA symmetry adjustment location for the Stereo Assignment Module. All stereo functions are identical to the mono with the following exceptions; LCR center and mono aux signals are a mono sum of left and right, the channel fader is a VCA fader, not an audio fader. Note that the stereo assignment module is designated with a black fader cap and MUST be located in the same channel slot as a Stereo Input Processor module.

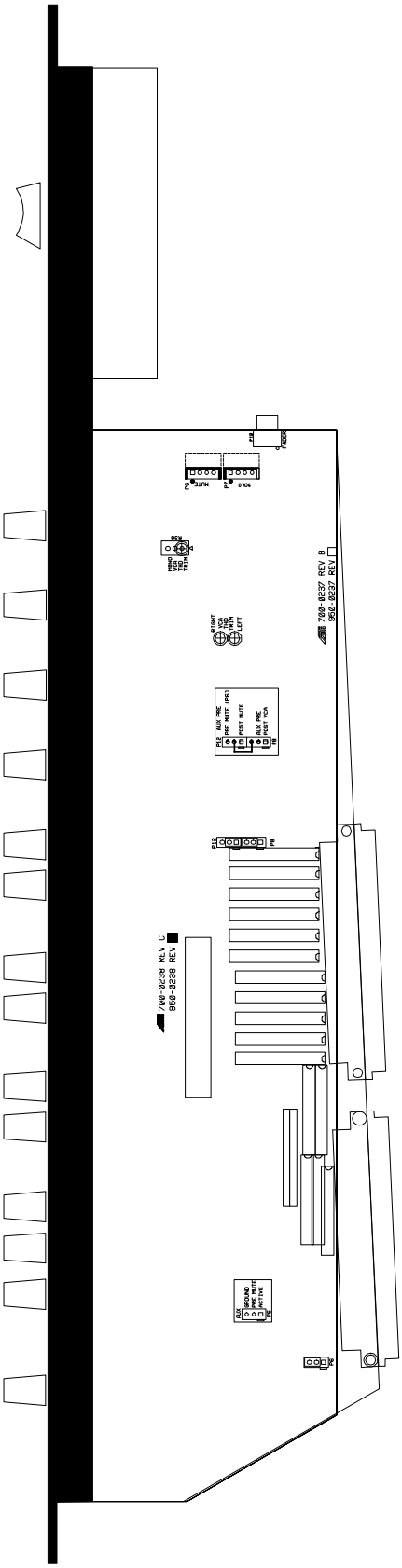



## VCA THD Trim Control

The VCA symmetry trim controls R15, right and R38, left, are accessible thru the two holes on the secondary PCB. Applying a +4db input signal, a distortion analyzer can be connected to the post Direct Out signal and THD should be trimmable to <.007%.

## Auxiliary Pre Signal Select

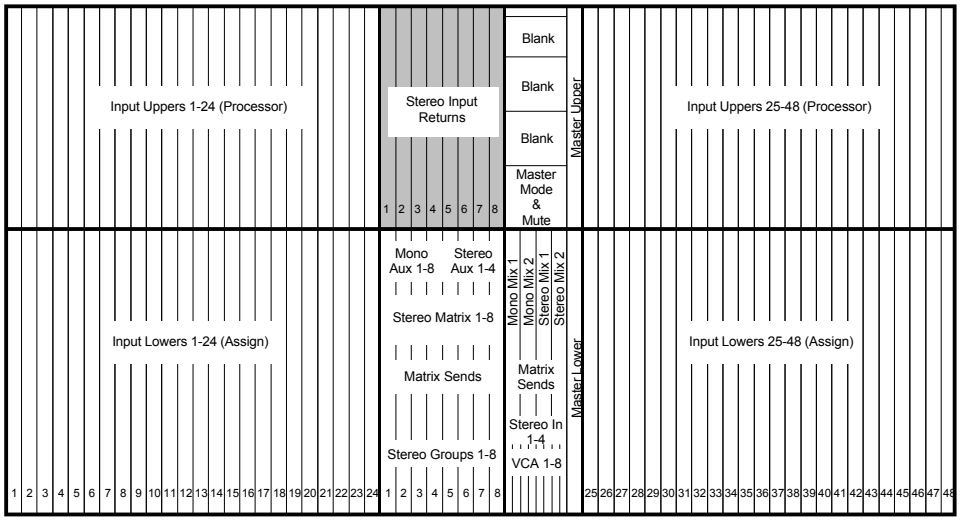
The Auxiliary Pre fader signal can be selected from one of two different places in the signal path, pre mute or post mute. The jumpers at P12 and P13 determine this selection. If you choose pre mute, make sure that the jumpers at P5 and P6 are set to active. Otherwise P5 and P66 should be set to ground. This grounds the pre mute.



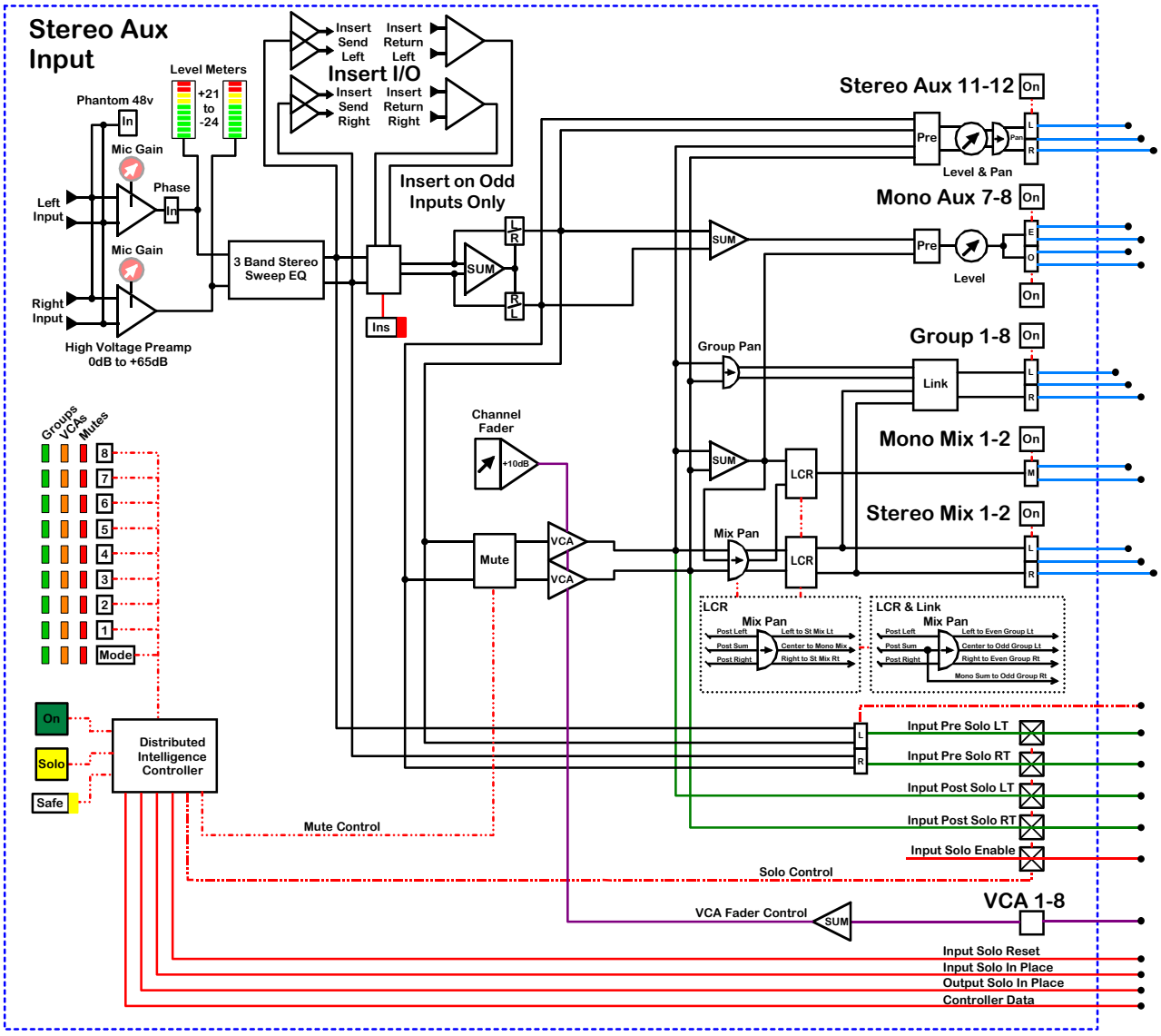
## Module Removal

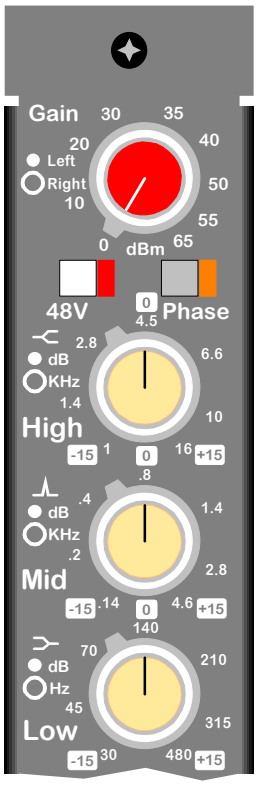
First make sure that the power to the console has been turned off. Then remove the two module screws using a NO.2 Phillips head screwdriver. Next, using the two module removal tools or an equivalent tool, hook through the mounting hole where the module screw goes on both ends and lift evenly. Be careful not to rock the module or only lift one side as this may bend or damage the connector pins. NOTE: If you have the moving fader automation system option installed, there will be an additional connecting cable attached to the PCB below the fader. Simply disconnect the cable when you are able. When replacing the module, gently lower it into place making sure that it is straight and even. When you feel that it has landed properly on the motherboard connectors, give it one final push down. You should feel the connectors seat solidly. If this is not felt, remove the module, check the pins and try again. Modules being placed in the 8th locations (8,16,24,32 etc.) must have the DIN connector mounting clips removed.

# Stereo Input Return Module



# Block Diagram






## Input Gain

### Inner

Left input microphone gain control. Max input level is +24 dBu, gain range is 0 to +65dB.

### Outer

Right input microphone gain control. Max input level is +24 dBu, gain range is 0 to +65dB.

### 48 Volt

When depressed applies +48V Phantom voltage to the input. **Note when using phantom power, the ground lift switch on the rear connector panel MUST be in the grounded position.**

### Phase

When depressed reverses the input polarity of the left input.

## Equalizer

The EQ consist of a stereo 3-band sweepable peak/shelve EQ. The High and Low bands are shelving and the Mid band is peak (dip). The EQ is always active in the signal path.

### Level Control (Inner)

The inner control of the dual concentric adjusts the peak (dip) height or shelving level from 0 to +/- 15 dB for each band.

### Frequency Control (Outer)

The outer control of the dual concentric selects the frequency of the EQ peak (dip) for the Mid band or 3dB down frequency of the EQ shelf for the High and Low bands. Each of the three EQ bands are different but overlapping. There ranges are as follows:

**High** Frequency range 1KHz to 16KHz
**Mid** Frequency range 140Hz to 4.6KHz
**Low** Frequency range 30Hz to 480Hz

## Group / VCA / Mute Assignments

The eight multi-function switches at the top of the assignment module are used for Audio Group, VCA and Mute Group assignment depending on the selected Mode. The GREEN mode assigns post fader audio to any of the 8 stereo Audio Groups. The ORANGE mode accepts level and mute control into the module from any of the 8 VCA masters. The RED mode accepts mute control into the module from any of the 8 Mute Group masters. The mode is selected either by the local Mode switch (each depression of the switch will increment the local mode) or by the master global mode switches, see Master Control Module for more details. All of these assignments are re-settable via Distributed Intelligence® Control.

Note: Mute group assignments do not change with scene changes. Mute groups remain constant and can be applied to ANY scene.

## Group Pan Control

The gray group pan control will alter the balance of the channel post fader left and right signals to the assigned stereo audio group busses. When **LINK** is depressed the group pan is bypassed and the group signals are fed from the **Mix** pan control.

## Mix Assignments

These switches assign post fader audio to the 2 Mono and 2 Stereo Mix busses. The Mono Mix receives a mono sum of left and right. These assignments are re-settable via Distributed Intelligence® Control.

## Mix Pan Control

The blue mix pan control will alter the balance of the channel post fader left and right signals to the assigned Stereo Mix 1 or Mix 2 busses. As mentioned above, the mix pan also controls the balance to the Group busses when **LINK** is depressed. When **LCR** is depressed, the pan output becomes a true Left-Center-Right balance. The center channel is available for routing to Mono Mix 1 and 2. The Left and Right of the LCR mix are available for routing to Stereo Mix 1 and 2. The Center signal of the LCR mix is a mono sum of left and right.

## Link + LCR

The combination of these two switches, along with feeding the LCR mix to the Mono and Stereo busses as described above, also directs the following signals to the Stereo Group assignments. Odd Stereo Group busses have the Center of the LCR on right and post fader signal on left. Even Stereo Group assignments have Left and Right signals of the LCR on their left and right busses respectively. This allows the engineer to create four AUDIO SUBGROUPS of the LCR mix.

## Stereo Auxiliary Sends

The stereo input return module is assignable to two of the four stereo Aux busses via a single level and balance control pot. Unity gain is shown by a thick line at about 2 o'clock. All level control is variable from +6dB to infinity. Pan drop for the Aux is 4.5dB.

### ON

The numbered switches 11 & 12 are the Aux send assignment switches. These assignments are re-settable via Distributed Intelligence® Control.

### Pre

When depressed, selects the post mute and pre fader to the Aux controls. The pre signal on this module is fixed and not jumper selectable.

## Mono Auxiliary Sends

The stereo input return module is assignable to two of the eight mono Aux busses via a single level control. The signal is a mono sum of left and right. Unity gain is shown by a thick line at about 2 o'clock. All level control is variable from +6dB to infinity.

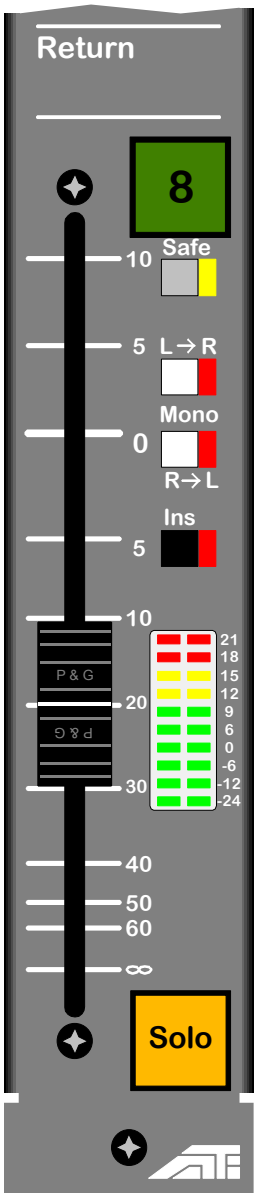
### ON

The numbered switches 7 & 8 are the Aux send assignment switches. These assignments are re-settable via Distributed Intelligence® Control.

### Pre

When depressed, selects the post mute and pre fader to the Aux controls. The pre signal on this module is fixed and not jumper selectable.

**NOTE: It is good general practice to always leave any unused aux sends un-assigned. This de-selects the send from the buss thus reducing noise on the buss and is preferable to setting the level control to full attenuation. Buss switching is done using a constant loading configuration.**




## Channel On / Off

This momentary switch turns the main channel signal feed on and off. The switch is illuminated when ON. This switch will also override any group mute, VCA mute, scene mute or SIP mute that is currently active on the channel. This switch is re-settable via Distributed Intelligence® Control.

## Safe

When depressed, all external control, such as group mute or VCA mute, is removed from the channel. The channel on/off switch will revert to the state it was in before the external control was applied. Any future global commands are also ignored when the channel is in safe. These include global mode changes, scene recall via Distributed Intelligence® Control and module reprogramming which will be discussed in the Master Controller Module section. When safe is released, any active mute master will be applied to the channel.

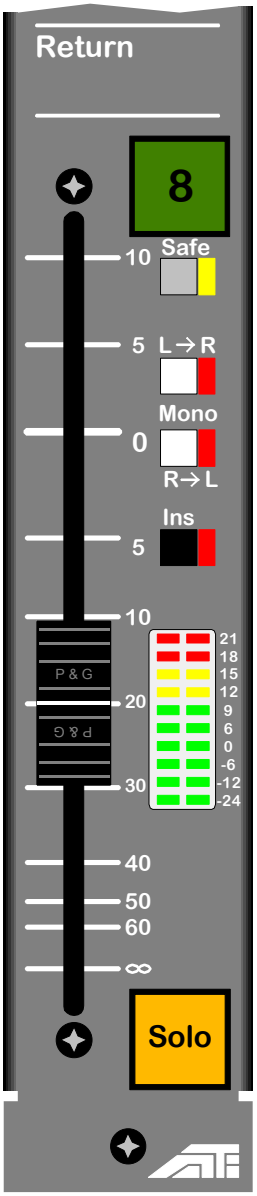
## L to R & R to L

These switches are located post EQ & Insert. The Left to Right switch, when depressed, sends the left input signal to both left and right. The Right to Left switch, when depressed sends the right input signal to both left and right. When both switches are depressed, a –6dB mono sum of left and right is sent down both left and right.

## Insert

When depressed channel Insert Return signal is utilized. The return signal is applied to the VCA input. The Insert Send jack is always active sending post EQ signal. The insert return jack on the rear panel is a shorting jack connected to the insert send. If no connector is inserted and the insert switch is activated, insert send audio will be heard and the signal path will not be interrupted. This switch is re-settable via Distributed Intelligence® Control.

NOTE: Only the ODD stereo input return modules have insert points. If you require insert points on your even stereo input returns, contact your sales representative.




## Channel Fader

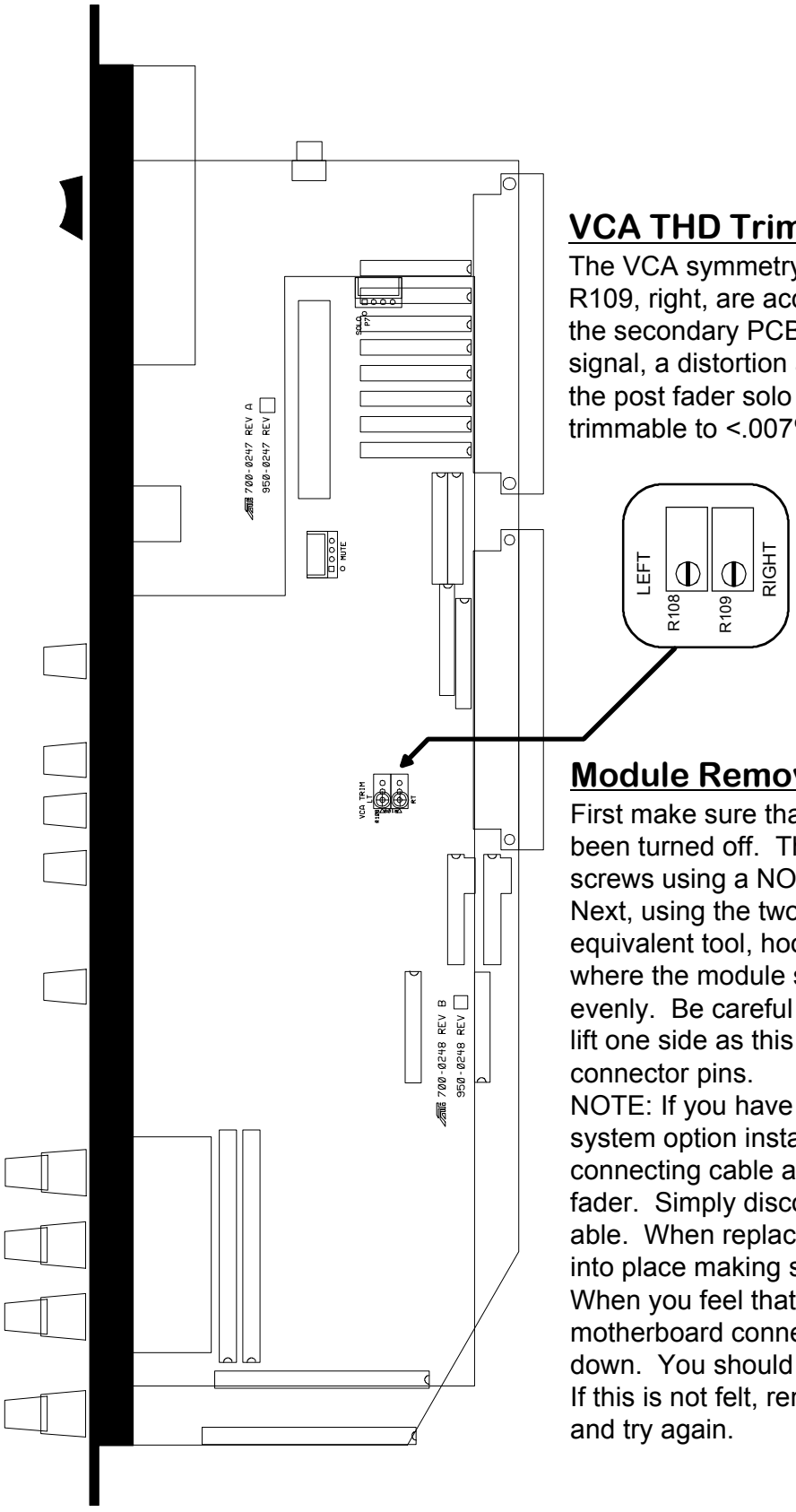
Penny & Giles 100mm VCA fader with infinity to +10dB gain. The control output of the fader is combined with any VCA master faders selected on the channel for the overall stage gain. The fader stage output feeds all of the post selected auxiliary busses, the stereo group assignments and the mix assignments. The faders have the option of being equipped with a moving fader which would be under Distributed Intelligence® control.

## Level Meters

Indicates peak signal level post microphone amplifier. The ten segment LED bar meter displays level over a 45dB range from –24dB to +21dB.

## Solo

Selects the channel audio to the solo system. The signals selected include Post EQ/Pre Insert (Pre Dynamics on Master Lower Module), Pre Fader, and Post Fader. There is no Side Chain signal or Compressor and Gate attenuation level. The various solo modes are discussed further in the Master Lower Module section. The channel solo will also be activated by any VCA solo master that the channel is assigned to.







## VCA THD Trim Control

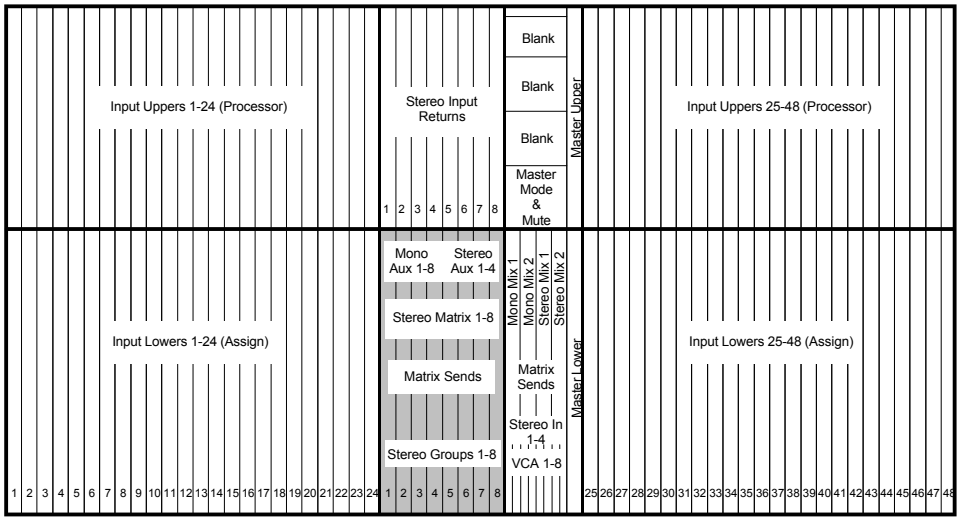
The VCA symmetry trim controls R108, left and R109, right, are accessible thru the two holes on the secondary PCB. Applying a +4db input signal, a distortion analyzer can be connected to the post fader solo signal and THD should be trimmable to <.007%.

## Module Removal

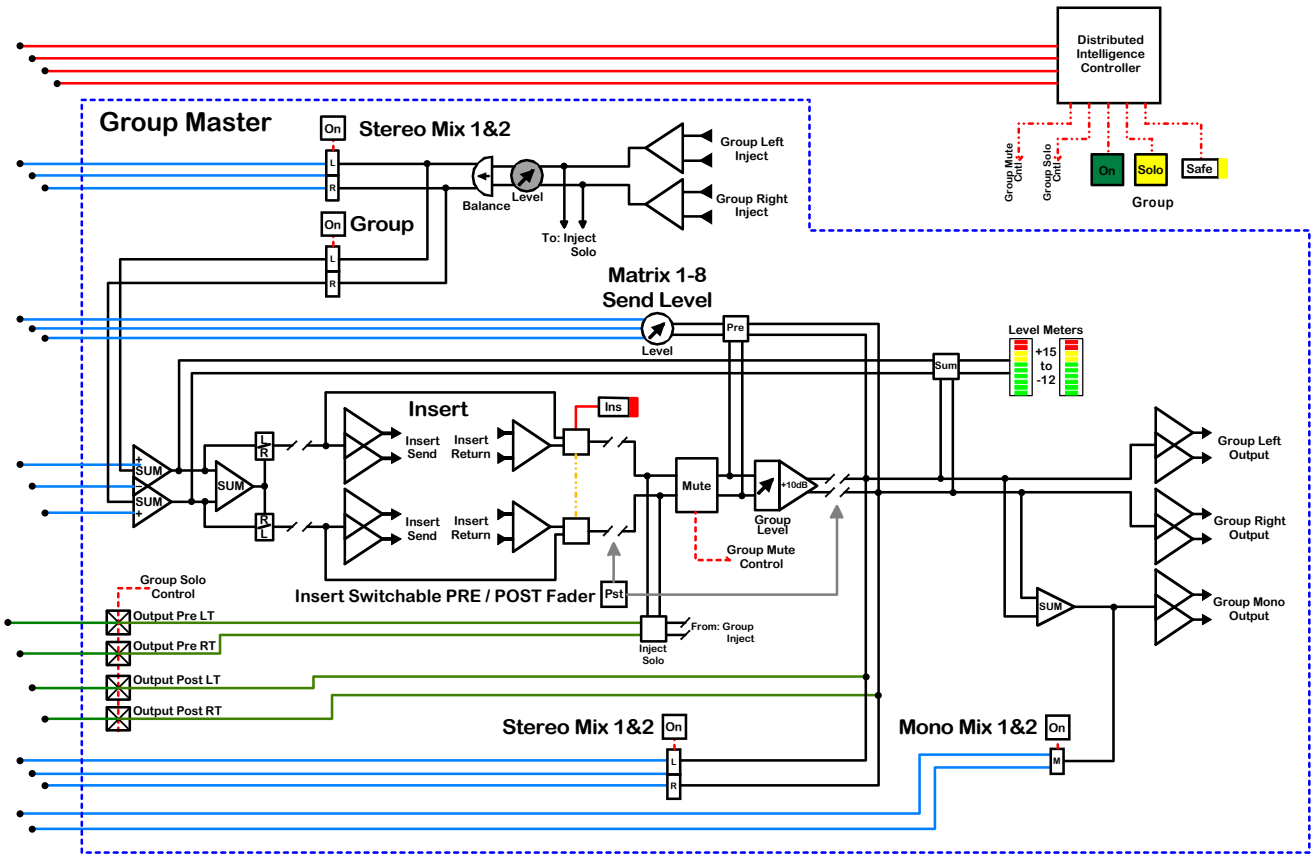
First make sure that the power to the console has been turned off. Then remove the two module screws using a NO.2 Phillips head screwdriver. Next, using the two module removal tools or an equivalent tool, hook through the mounting hole where the module screw goes on both ends and lift evenly. Be careful not to rock the module or only lift one side as this may bend or damage the connector pins.

NOTE: If you have the moving fader automation system option installed, there will be an additional connecting cable attached to the PCB below the fader. Simply disconnect the cable when you are able. When replacing the module, gently lower it into place making sure that it is straight and even. When you feel that it has landed properly on the motherboard connectors, give it one final push down. You should feel the connectors seat solidly. If this is not felt, remove the module, check the pins and try again.

# Group / Matrix / Aux Output Module



# Group Block Diagram



## Group Matrix Sends

These eight level control pots provide adjustment of the post fader group level to each of the eight stereo matrix busses. The level is adjustable from infinity to +6dB.

### Pre

If the Pre switch is depressed, the eight matrix feed signals are changed from post fader to pre fader.

## Group Inject

The eight stereo groups each have an assignable stereo inject. This inject can be used as either an inject to the group or as an extra stereo input to either of the two main stereo mix busses.

### Level Control

Varies the inject signal level to the assigned busses from infinity to +6dB.

### Balance Control

Alters the balance of the inject left and right signals to the assigned busses.

### Mix and Group Assignments

These switches assign post level and balance group inject audio to the 2 stereo mix busses and to the particular module group. These assignments are re-settable via Distributed Intelligence® Control.

### Solo

When depressed, assigns group inject pre level signal to the output pre fader solo buss. See the Master Lower Module section for a further explanation of the various solo modes.

## R to L & L to R

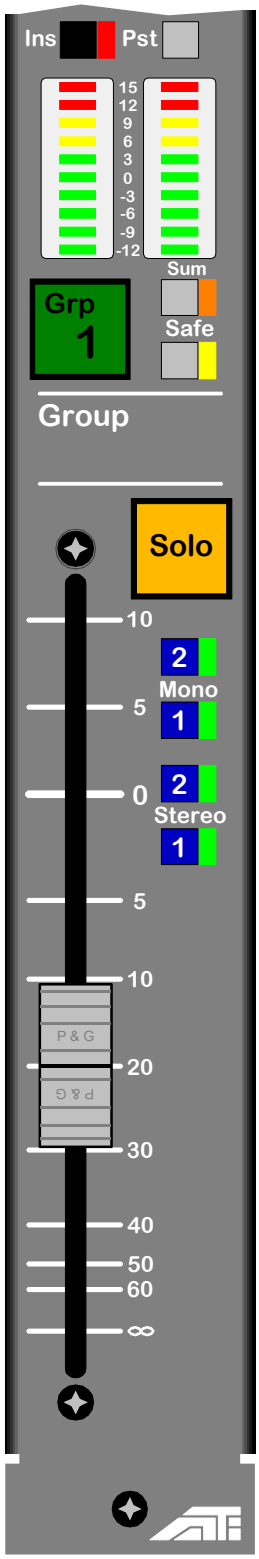
These switches are located pre Insert. The Right to Left switch, when depressed sends the right group sum signal to both left and right. The Left to Right switch, when depressed, sends the left group sum signal to both left and right. When both switches are depressed, a –6dB mono sum of left and right is feed to both left and right signal paths.

## Insert

When depressed, group insert return signal is utilized. The insert send jacks are always active. This switch is re-settable via Distributed Intelligence® Control.

### Post

When depressed, moves the insert point to post fader. This can be advantageous when you which to control the overall output of the group with a compressor regardless of the fader position.




## Level Meters

Indicate peak signal level at the output of the console. The ten segment LED bar meters display level over a 30dB range from –12dB to +15dB.

## SUM

When depressed, displays the summing amplifier output level on the level meters. This allows the operator to monitor the buss level to make sure that it is not being overloaded.

## Group On / Off

This momentary switch turns the main group signal feed on and off. The switch is illuminated when ON. This switch will also override any scene mute or SIP mute that is currently active on the group. This switch is re-settable via Distributed Intelligence® Control.

## Safe

When depressed, all external control is removed from the group section of the module. The group on/off switch will revert to the state it was in before the external control was applied. Any future global commands are also ignored when the group is in safe such as scene recall via Distributed Intelligence® Control which will be discussed in the Master Controller Module section.

## Group Fader

Penny & Gilles 100mm stereo audio fader with gain from infinity to +10dB.

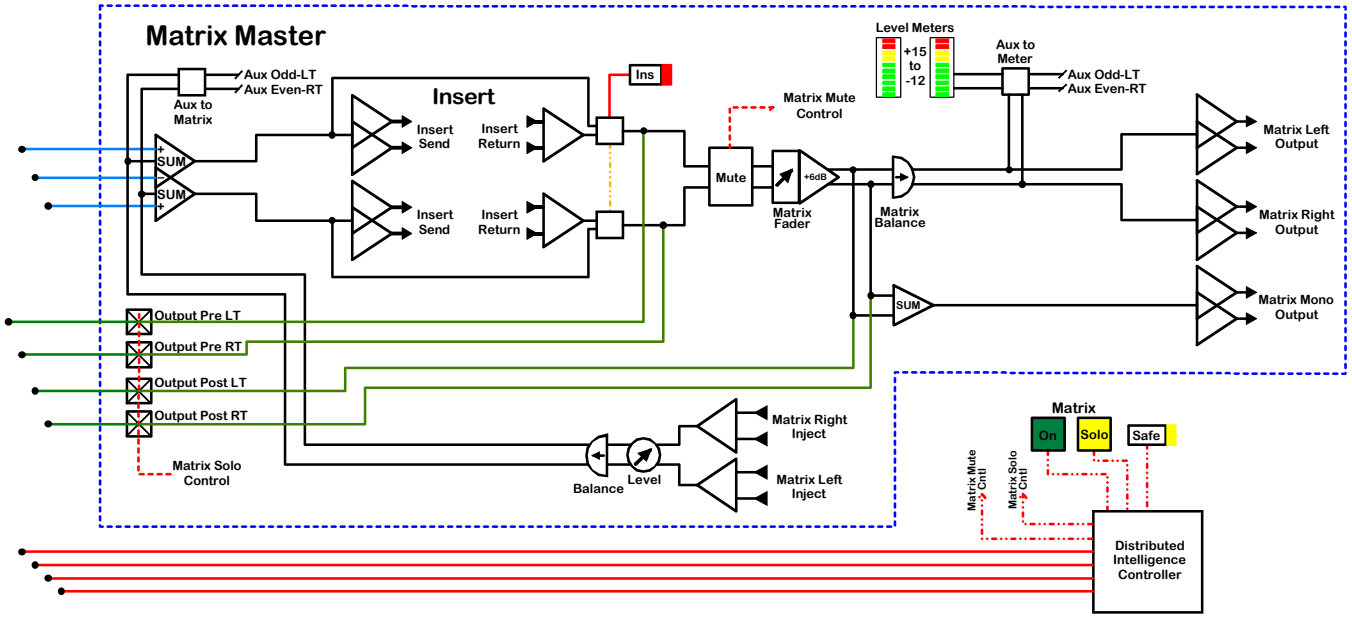
## Solo

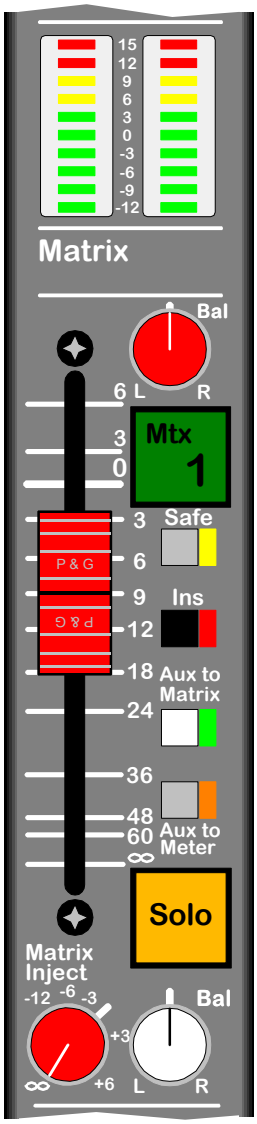
Selects the group audio to the solo system. The signals selected include pre fader (or group inject if selected) and post fader. The various solo modes are discussed further in the Master Lower Module section.

## Mix Assignments

These switches assign post fader audio to the 2 Mono and 2 Stereo Mix busses. The Mono Mix receives a mono sum of left and right. These assignments are re-settable via Distributed Intelligence® Control.

# Matrix Block Diagram






## Level Meters

Indicate peak signal level at the output of the console. The ten segment LED bar meters display level over a 30dB range from –12dB to +15dB. These meters are used to monitor both Matrix and Aux output, see Aux to Meter switch description below.

## Balance

The balance control varies the balance of the left and right matrix outputs. The center position is detented and delivers equal signal out both left and right with no pan drop.

## Matrix On / Off

This momentary switch turns the main Matrix output on and off. The switch is illuminated when ON. This switch will also override any scene mute or SIP mute that is currently active on the matrix. This switch is re-settable via Distributed Intelligence® Control.

## Safe

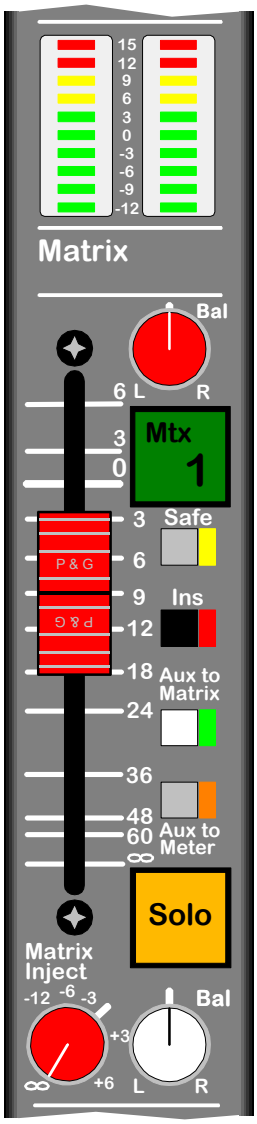
When depressed, all external control is removed from the Matrix and Aux section of the module. The on/off switches will revert to the state they were in before the external control was applied. Any future global commands are also ignored when in safe such as scene recall via Distributed Intelligence® Control which will be discussed in the Master Controller Module section.

## Matrix Fader

Penny & Gilles 65mm stereo audio fader with gain from infinity to +6dB.

## Insert

When depressed, matrix insert return signal is utilized. The insert send jacks are always active. This switch is re-settable via Distributed Intelligence® Control.




## Aux to Matrix

When depressed, routes the associated Aux summing amp output, pre level control, to the matrix summing buss. On modules with dual mono aux masters, the odd aux goes to the matrix left buss and the even aux goes to the matrix right buss.

## Aux to Meter

When depressed, routes the Aux console output level to the meters instead of the matrix output level.

## Solo

Selects the matrix audio to the solo system. The signals selected include pre fader and post fader. The various solo modes are discussed further in the Master Lower Module section.

## Matrix Inject

Each of the eight stereo matrix outputs has a stereo inject. This inject is always active to the buss summing amplifier.

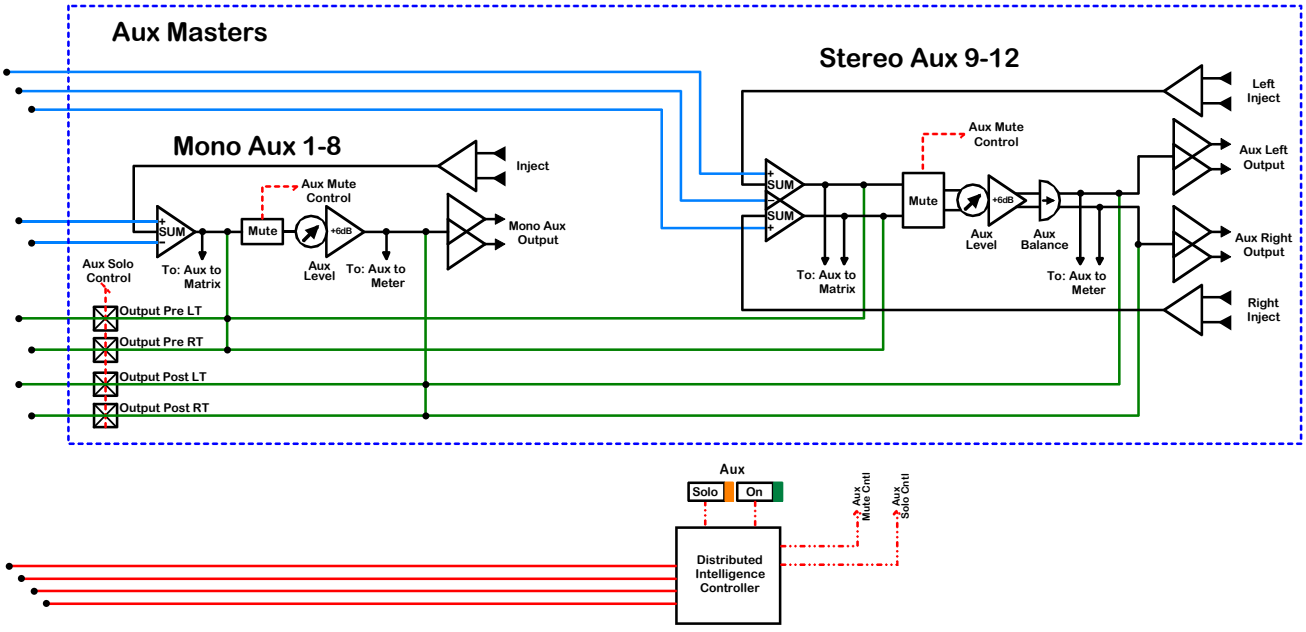
### Level Control

Varies the inject signal level to the buss from infinity to +6dB.

### Balance Control

Alters the balance of the inject left and right signals to the buss.

# Aux Block Diagram



## Mono Auxiliary Masters

The eight Mono Aux Masters (1 - 8) are located at the top of the first four group modules. Each Aux master has a unity level inject that is always active through the jack on the rear panel, see Aux Output Panel in the Rear Panels section of the manual.

### Level Control

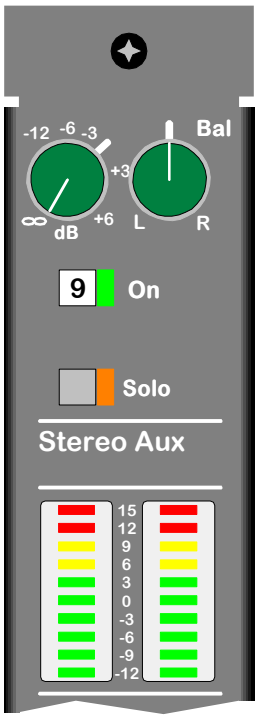
Varies the Aux output level from infinity to +6dB. The output signal level can be monitored on the meters just below the master controls. See Matrix output section for details.

### Aux On / Off

This momentary switch turns the main Aux output on and off. The LED is illuminated when ON. This switch will also override any scene mute or SIP mute that is currently active on the Aux master. This switch is re-settable via Distributed Intelligence® Control.

### Solo

Selects the Aux audio to the solo system. The signals selected include pre fader and post fader. The various solo modes are discussed further in the Master Lower Module section.




## Stereo Auxiliary Masters

The four Stereo Aux Masters (9 - 12) are located at the top of the last four group modules. Each Aux master has a unity level stereo inject that is always active through the jacks on the rear panel, see Aux Output Panel in the Rear Panels section of the manual.

### Level Control

Varies the Aux output level from infinity to +6dB. The output signal level can be monitored on the meters just below the master controls. See Matrix output section for details.

### Balance Control

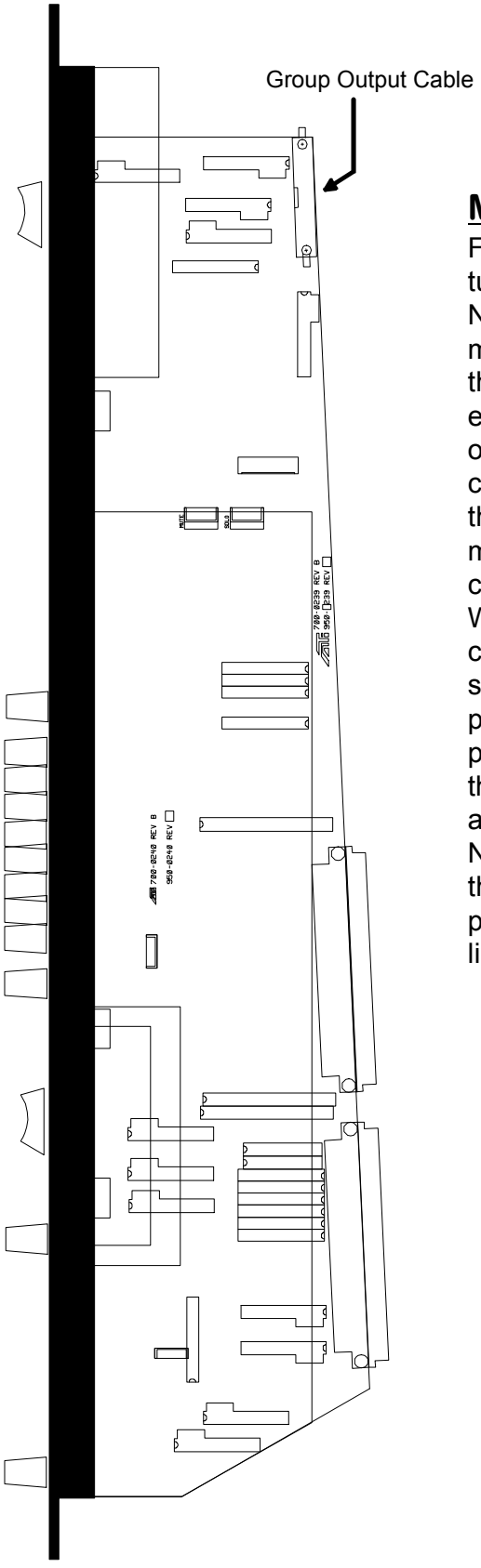
The balance control varies the balance of the left and right matrix outputs. The center position is detented and delivers equal signal out both left and right, 3dB down.

### Aux On / Off

This momentary switch turns the main Aux output on and off. The LED is illuminated when ON. This switch will also override any scene mute or SIP mute that is currently active on the Aux master. This switch is re-settable via Distributed Intelligence® Control.

### Solo

Selects the Aux audio to the solo system. The signals selected include pre fader and post fader. The various solo modes are discussed further in the Master Lower Module section.



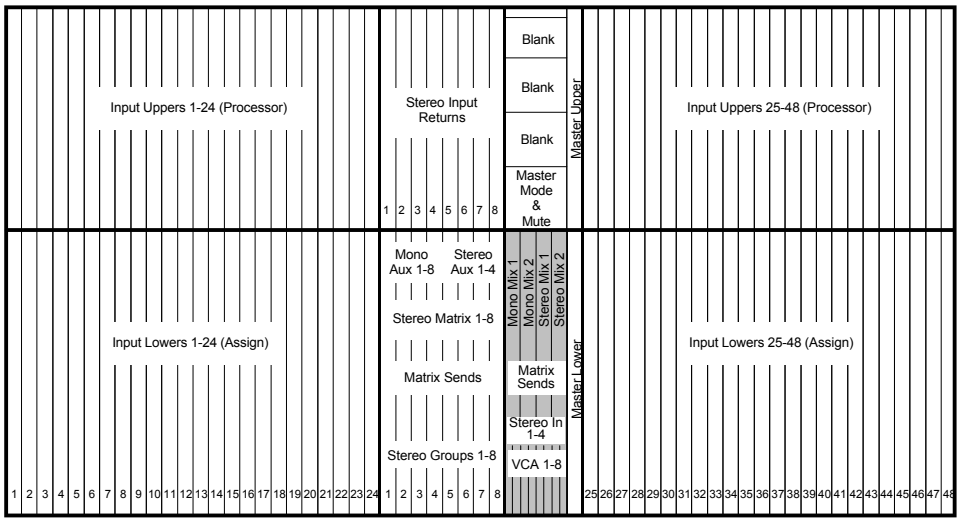

## Module Removal

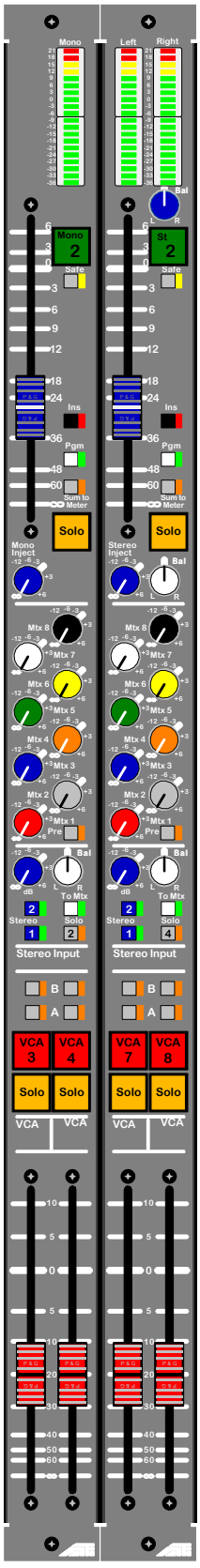
First make sure that the power to the console has been turned off. Then remove the two module screws using a NO.2 Phillips head screwdriver. Next, using the two module removal tools or an equivalent tool, hook through the mounting hole where the module screw goes on both ends and lift evenly. Be careful not to rock the module or only lift one side as this may bend or damage the connector pins. Once the module has been unseated from the motherboard, gently lift it out of the frame. After the module has cleared the frame, disconnect the group output cable from the connector where noted.

When replacing the module, reconnect the group output cable and gently lower it into place making sure that it is straight and even. When you feel that it has landed properly on the motherboard connectors, give it one final push down. You should feel the connectors seat solidly. If this is not felt, remove the module, check the pins and try again.

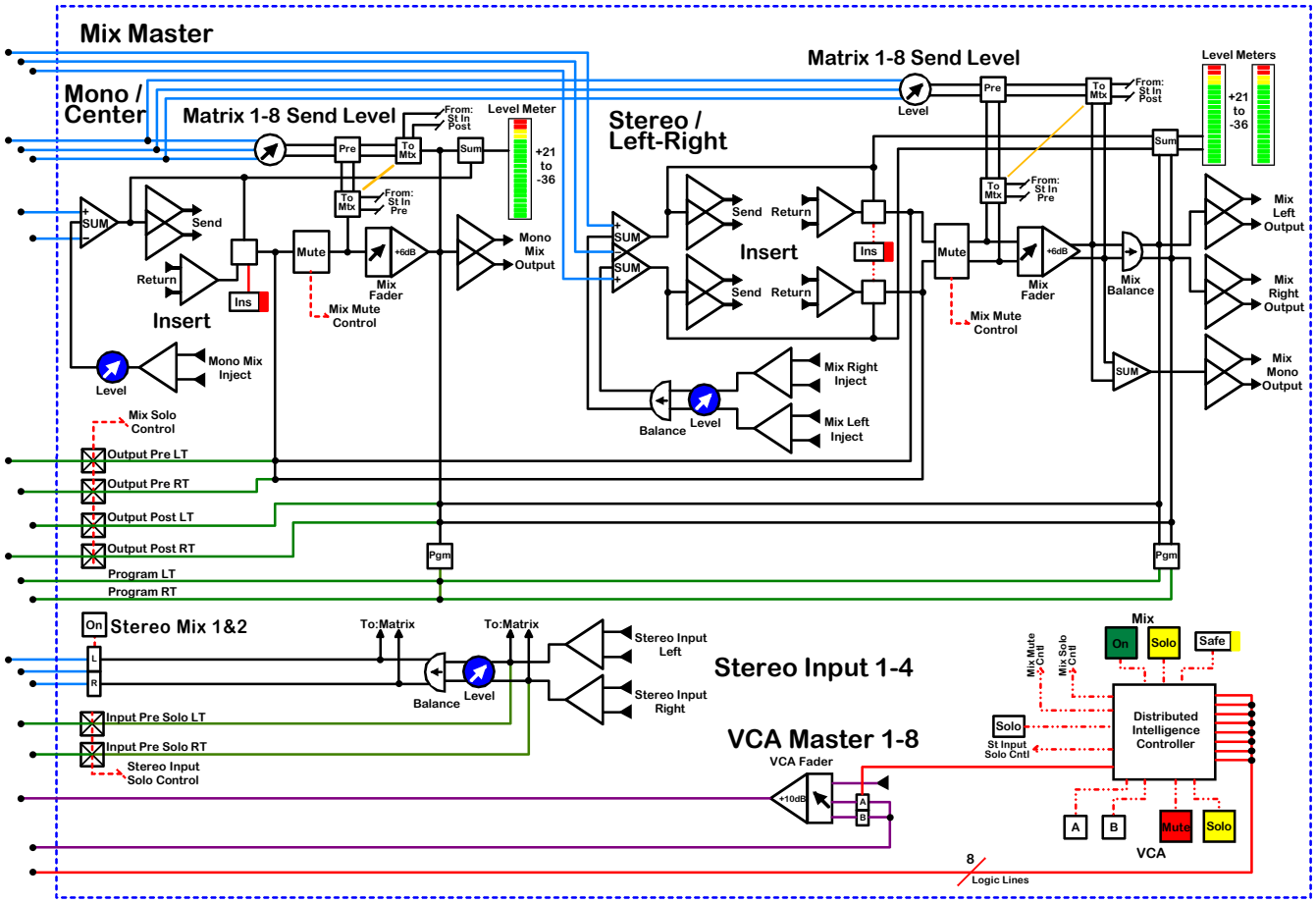
NOTE: There is no individual output module programming that needs to be done before installation. The motherboard programs the slot with the appropriate busses and control lines.

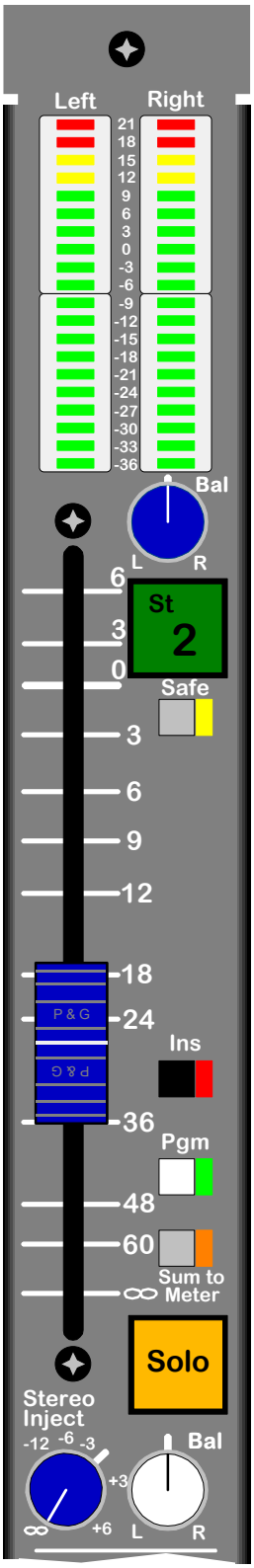
# Mix Master Output Modules



# Mix Block Diagram






## Mix Master Modules

There are two Mono and two Stereo Mix Master Modules.

## Level Meters

Indicate peak signal level at the output of the console or summing amp output, see Sum to Meter switch below. The 20 segment LED bar meters display level over a 60dB range from –36dB to +21dB. The Mono Mix Master modules only have a single 20 segment LED bar meter.

## Balance (Stereo Only)

The balance control varies the balance of the left and right mix outputs. The center position is detented and delivers equal signal out both left and right with no center pan drop.

## Mix On / Off

This momentary switch turns the main Mix output on and off. The switch is illuminated when ON. This switch will also override any scene mute or SIP mute that is currently active on the mix. This switch is re-settable via Distributed Intelligence® Control.

## Safe

When depressed, all external control is removed from the module including the Stereo Input above the VCA controls. The on/off switches will revert to the state they were in before the external control was applied. Any future global commands are also ignored when in safe such as scene recall via Distributed Intelligence® Control which will be discussed in the Master Controller Module section.

## Mix Fader

Penny & Gilles 100mm stereo audio fader (or mono audio fader on the mono mix modules) with gain from infinity to +6dB.

## Insert

When depressed, mix insert return signal is utilized. The insert send jacks are always active. This switch is re-settable via Distributed Intelligence® Control.

## Program

When depressed, routes the mix output signal to the program solo buss. This is for monitoring any of the main mix outputs when no other solo is active. See the Master Lower Module section for more information on the various solo modes.

## Sum to Meter

When depressed, displays the summing amplifier output level on the level meters. This allows the operator to monitor the buss level to make sure that it is not being overloaded. Note that with the mix fader at unity, the sum level will be 6dB lower than the output level.

## Solo

Selects the mix audio to the solo system. The signals selected include pre fader and post fader. The various solo modes are discussed further in the Master Lower Module section.

## Mix Inject

Each of the mono and stereo mix outputs has a mono or stereo inject respectively. This inject is always active to the buss summing amplifier.

### Level Control

This control varies the inject signal level to the buss from infinity to +6dB.

### Balance Control (Stereo Only)

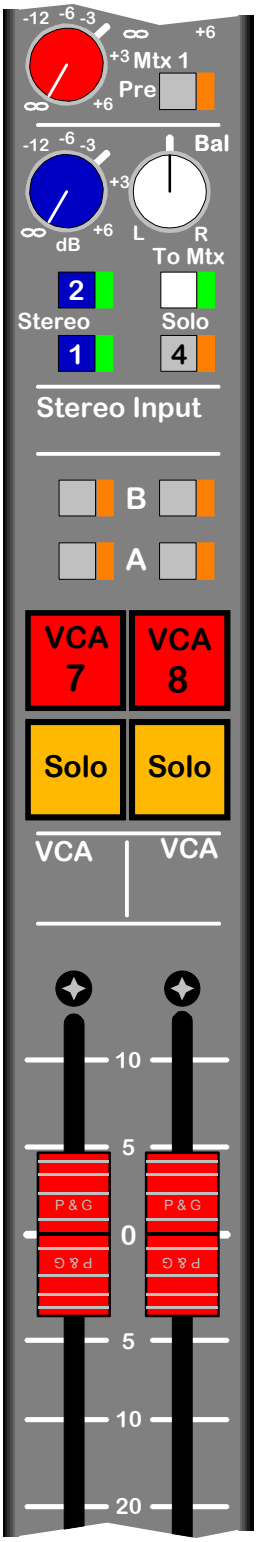
Alters the balance of the stereo inject left and right signals to the buss. The center position is detented and delivers equal signal out both left and right, 6dB down.

## Mix Matrix Sends

These eight level control pots provide adjustment of the mix master level to each of the eight stereo matrix busses. The level is adjustable from infinity to +6dB.

### Pre

If the Pre switch is depressed, the eight matrix feed signals are changed from post fader to pre fader.




## Stereo Line Inputs

There are four line level stereo inputs, one on each of the four mix master modules. Each of these stereo inputs is assignable to either of the two stereo mix master busses as well as directly to the matrix, explained below.

### Level Control

Varies the stereo input signal level to the assigned busses from infinity to +6dB.

### Balance Control

Alters the balance of the stereo input left and right signals to the assigned busses. The center position is detented and delivers equal signal out both left and right, 6dB down.

### Mix Assignments

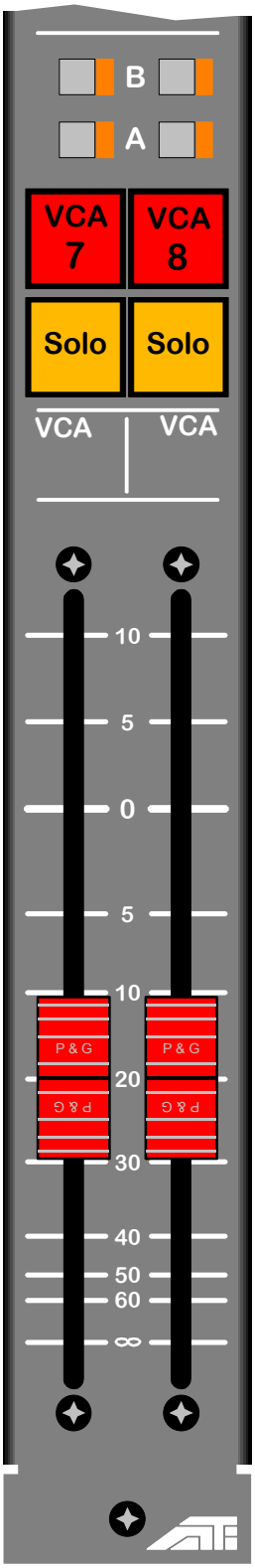
These switches assign post level and balance stereo input audio to the 2 stereo mix busses. These assignments will mute temporarily under a SIP condition like all other inputs and are re-settable via Distributed Intelligence® Control.

### To Matrix

When depressed, changes the signals available to the matrix send pots. The stereo input signal, both pre and post level control selectable as normal, is available instead of the mix master signal.

### Solo

Selects the stereo input audio to the input solo system. The signals selected are Pre Fader only. There is no Post Fader, Side Chain signal or Compressor and Gate attenuation level. The various solo modes are discussed further in the Master Lower Module section.




## VCA Master Faders

The console consists of 8 VCA masters acceptable into any of the input channels and 2 VCA grand masters acceptable into any of the 8 VCA master. The grand masters will be discussed further in the Master Lower Module section.

## Grand Master Assignments

When activated, LED on, places the VCA master under the control of the assigned grand master. This control includes Mute, Solo and VCA level. These assignments are re-settable via Distributed Intelligence® Control.

## Mute

When Active, LED on, all channels assigned to the associated VCA master will mute, similar to a mute group. This switch is re-settable via Distributed Intelligence® Control.

## Solo

When Active, LED on, all channels assigned to the associated VCA master will have there solos activated (If there are no channels assigned to the VCA master and it is soloed, there will be not change in the Master Lower Module solo mode). The resulting solo situation is equivalent to pressing the Solo switch of every channel in the VCA group at the same time.

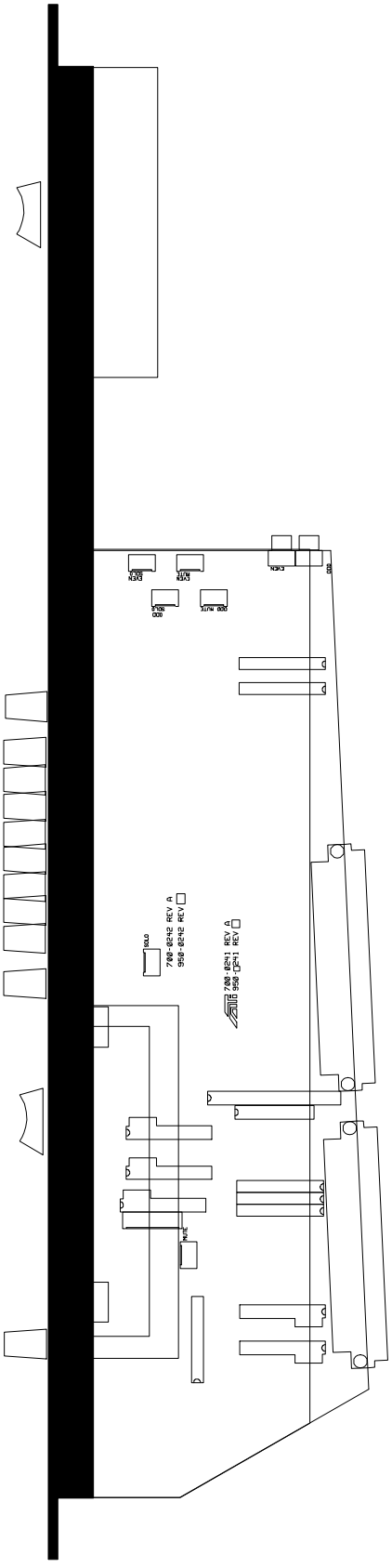
In Solo Reset mode (Solo Add not active) pressing the Solo switch of a channel that was soloed by a VCA solo will cancel the VCA and all other active solos and leave active the channel whose Solo switch was pressed. This can be used to quickly isolate in your monitors a signal that is part of a VCA group.

In Solo Add mode pressing the Solo switch of a channel that was soloed by a VCA solo will deactivate that channel's solo leaving the rest of the VCA group soloed. This can be used to disassemble a VCA group when looking for a particular signal. There are various solo modes, please see the Master Lower Module section for more information.

## VCA Fader

This Penny & Giles fader controls the VCA gain for all channels assigned to the associated VCA master. The normal operating position is at 0dB (nominal), with gain up to +10dB and attenuation to infinity.

The VCA faders have the option of being equipped with moving faders which would be under Distributed Intelligence® control.



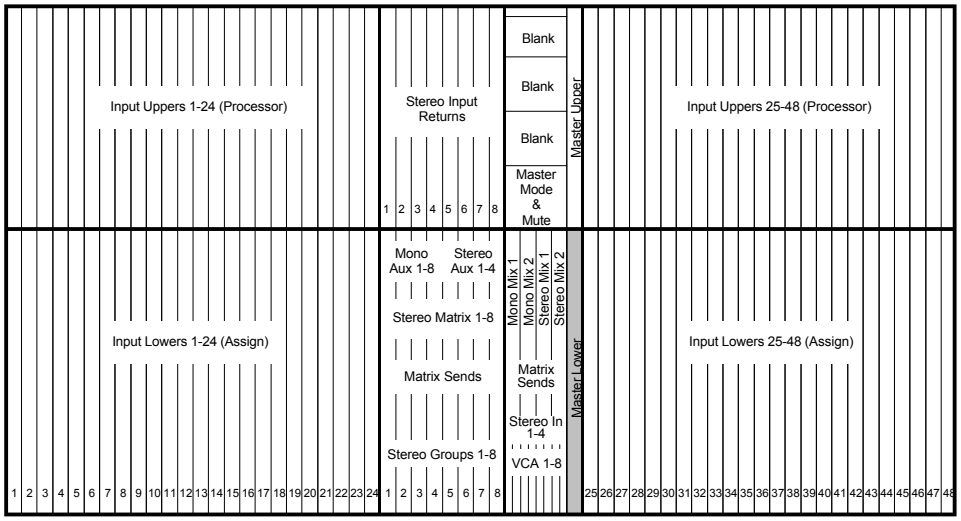
## Module Removal

First make sure that the power to the console has been turned off. Then remove the two module screws using a NO.2 Phillips head screwdriver. Next, using the two module removal tools or an equivalent tool, hook through the mounting hole where the module screw goes on both ends and lift evenly. Be careful not to rock the module or only lift one side as this may bend or damage the connector pins. Once the module has been unseated from the motherboard, gently lift it out of the frame. NOTE: If you have the moving fader automation system option installed, there will be two an additional connecting cables attached to the PCB below each of the VCA faders. Simply disconnect the cables when you are able.

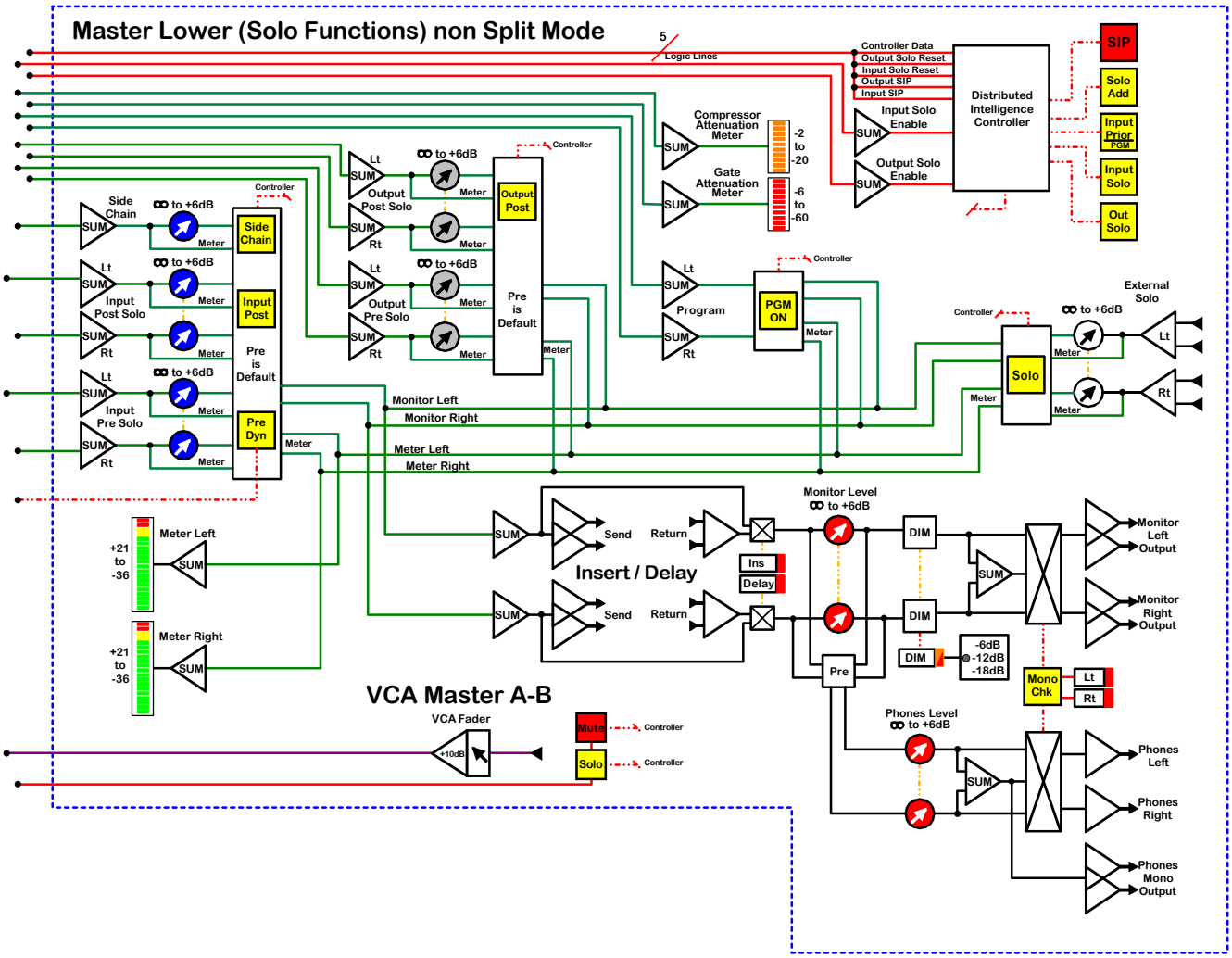
When replacing the module, gently lower it into place making sure that it is straight and even. When you feel that it has landed properly on the motherboard connectors, give it one final push down. You should feel the connectors seat solidly. If this is not felt, remove the module, check the pins and try again.

NOTE: There is no individual mix output module programming that needs to be done before installation. The motherboard programs the slot with the appropriate busses and control lines.

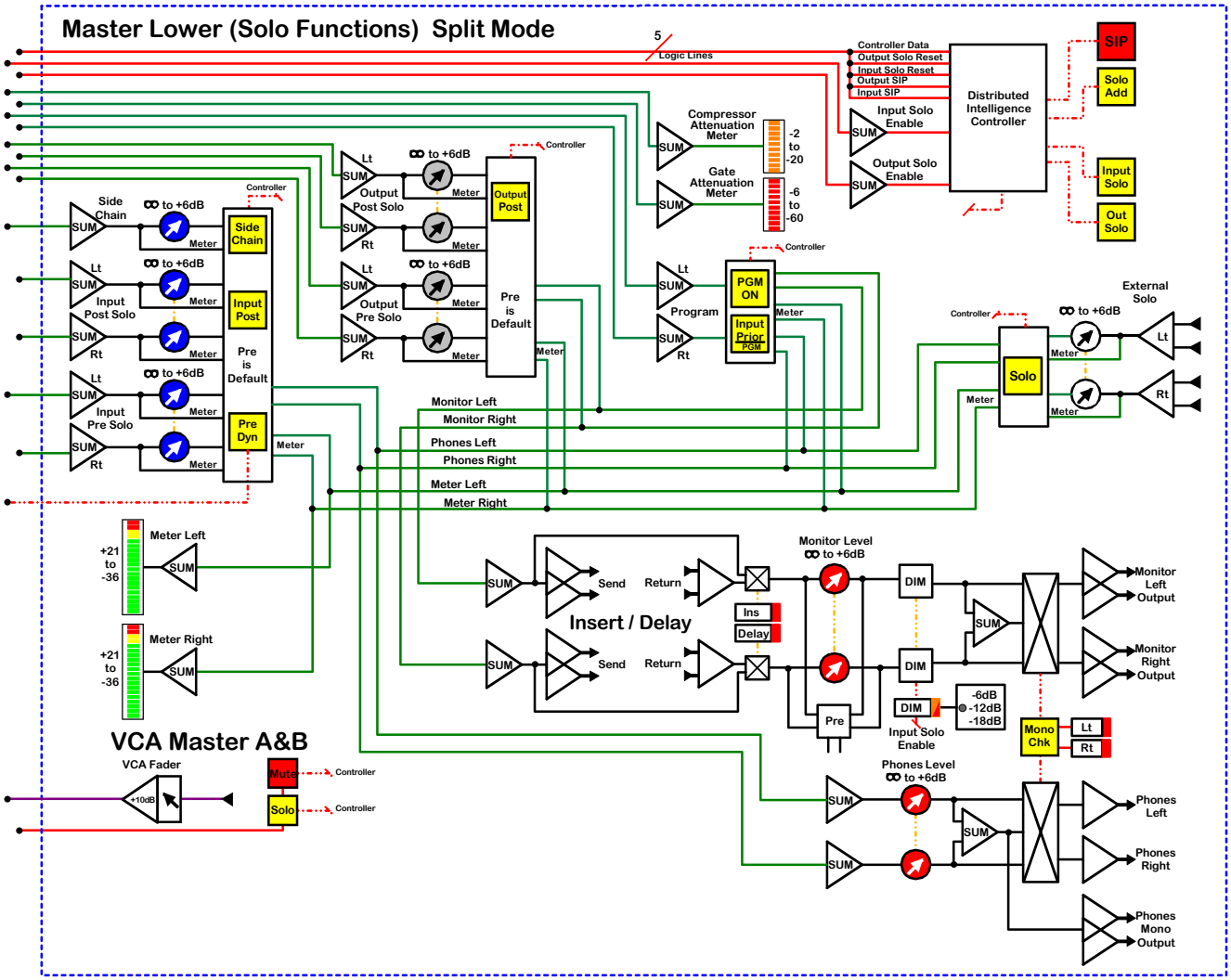
# Master Lower Modules

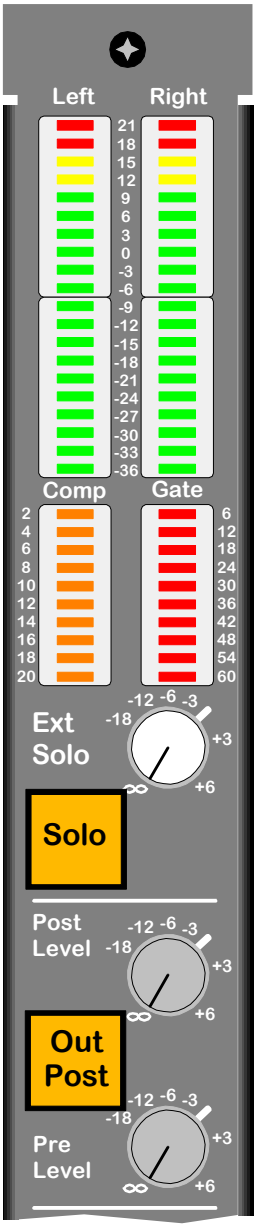


# Master Lower Block Diagram



# Master Lower, Split Mode Block Diagram






## Master Lower Module

The Master Lower Module contains all of the solo and monitoring master controls. The module also contains the two VCA grand master fader controls.

## Solo Master Meters

These two 20 segment LED bar meters show peak level of the current soloed signal. The level displayed is pre any solo level controls. The meters display level over a 60dB range from -36dB to +21dB.

## Comp and Gate Meters

When an input module is soloed, any active Compressor and Gate attenuation is displayed on these two meters. The Compressor meter displays attenuation over a 20dB range from 0dB to 20dB. The Gate meter displays attenuation over a 60dB range from 0dB to 60dB. The Gate attenuation meter scale can also be changed, by an internal jumper, to display attenuation over a 20dB range from 0dB to 20dB.

## External Solo

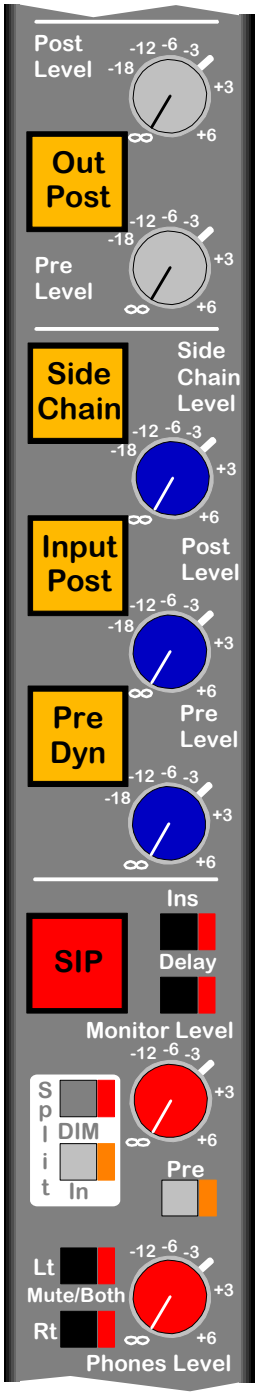
This facility allows an external stereo device (such as a second console) to be added into the solo system of this console as well as the ability to activate this solo from the external device.

### Level Control

Controls the level of the External Solo signal to the monitor system.

### Solo

Activates the External Solo signal to the monitor system and displays the level (pre level control) on the Master Meters. This solo source is treated as an Input Solo by the master controls described later in this section. The Solo can be activated externally by either a switch closer between the tip and ring of a TRS ¼" jack, or by an externally powered switch state (through an opt-isolator). To use the externally powered switch option, two internal jumpers need to be changed to remove the console power from this jack.




## Output Solo

The output solo section allows for the selection and control of either pre fader (default) or post fader output solos. The pre level control signal level is displayed on the master meters unless otherwise covered by a different mode described in this section. Post solo signal is monitored at the console output level. Output pre solo signal is monitored at what would be the console output level given the output fader at unity, i.e. +6dB of the sum level.

### Post Level Control

Varies the output solo post fader signal level to the monitor system from infinity to +6dB.

### Out Post

When active, LED on, the output post fader solo signal is monitored. When not active (default) the output pre fader solo signal is monitored.

### Pre Level Control

Varies the output solo pre fader signal level to the monitor system from infinity to +6dB.

## Input Solo

The input solo section allows for the selection and control of any of four different input solo signals, depending on the module soloed. The four possible signals are Pre Dynamics, Pre Fader (not switch illuminated), Post fader, and Side Chain. The pre level control of the selected signal is displayed on the master meters. Either none or only one of the switches will be active at a time. If Pre Dyn is active, for instance, and Input Post is pressed, Pre Dyn will be deactivated, but will return when Input Post is deselected.

### Side Chain

When selected, LED on, selects the Side Chain signal, if available, of the selected input module to the monitor system. See each individual module section for details of this signal.

### Side Chain Level Control

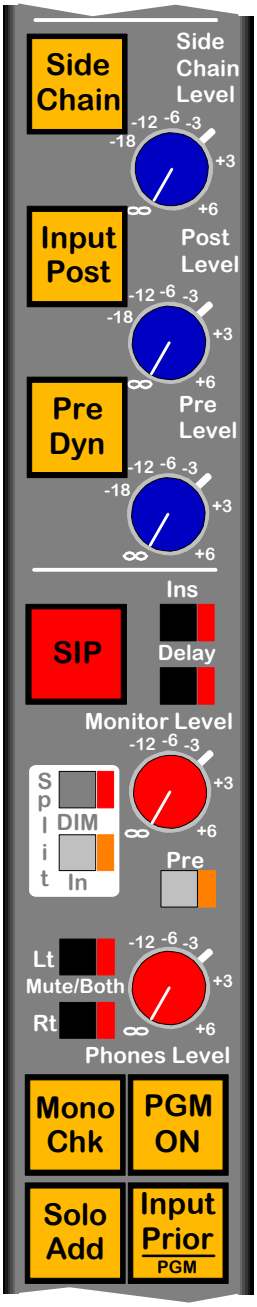
Varies the input side chain signal level to the monitor system from infinity to +6dB.

### Input Post

When active, LED on, the input post fader solo signal is monitored. Input post will be automatically activated when a VCA master is soloed.

### Post Level Control

Varies the input post fader signal level to the monitor system from infinity to +6dB.




## Input Solo cont

### Pre Dyn

When active, LED on, the input pre dynamics, if available, solo signal is monitored. See each individual module section for details of this signal.

### Pre Level Control

Varies the input pre fader or Pre Dynamic, if selected, signal level to the monitor system from infinity to +6dB.

### Insert

When activated, the Insert Return signal is utilized in the monitor system. The Insert Send jacks are always active. When in Split mode, the insert point is only in the Monitor output signal path and not that of the Phones output.

### Delay (optional)

When activated, a stereo digital delay is inserted into the monitor system signal path. The delay time is controlled from the Master Controller Module. When in Split mode, the delay is only in the monitor output signal path and not that of the Phones output.

### SIP (Solo In Place)

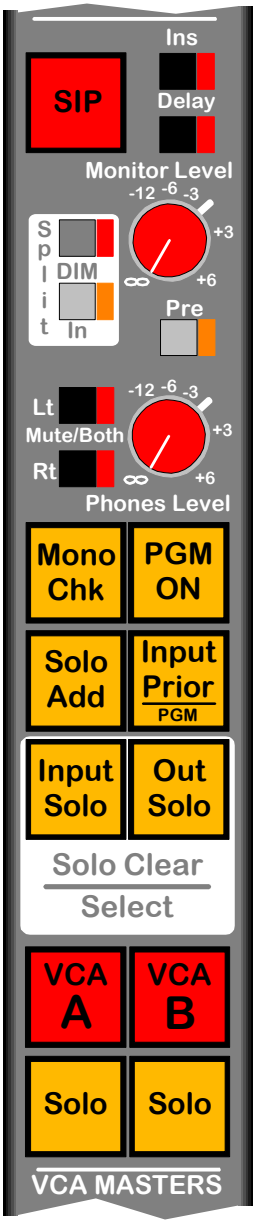
When activated, LED on, will allow an input solo to mute all assignable inputs to the console that are not soloed or have safe selected. This includes all inputs, stereo return, group injects and stereo inputs on the four mix modules. To enter SIP, you must press the Input Solo and Output Solo buttons (these are referred to the “Select” buttons and will be utilized for this purpose later) and then the SIP button. This is necessary so that the SIP mode is not entered accidentally. To exit SIP mode, simply press the SIP button only again.

## Split Mode

The monitor system has the ability to run in a split mode. The main result of being in Split mode is that the input and output solo paths are separated. All input solos including External Solo are feed to the Phones output. All output solos are feed to the Monitor output. Either input or output solos are displayed on the master meters with input solos taking priority. The Program signal can be selected to both the Phones and Monitor outputs. The solo reset busses are split as in Input Priority mode. (see block diagram)

### DIM

This function acts two different ways depending upon whether the console is in Split mode or not. If not in Split mode and the switch is activated, the monitor output only is attenuated by either 6dB, 12dB or 18dB (the level of attenuation is selected by an internal switch on the module). The LED will also illuminate red.




## DIM cont

If the console is in Split mode and there is no input solo active, activating the DIM switch will “arm” the DIM circuit and the LED will illuminate orange. When an input solo is activated, the LED will turn red and the monitor output will be attenuated and described above.

## IN

When active, LED on, the monitor system is in Split mode as described above.

## Monitor Level

Controls the output level from infinity to +6dB of the stereo monitor output at the rear of the console as well as the monitor output headphone jacks located on the front armrest.

## Pre

When activated, LED on, the signal going to the phones level control is taken before the monitor level control. When not selected the phones output is affected by the monitor level control. When the monitor system is in Split mode, this switch is bypassed and always acts as if in the pre position.

## Phones Level

Controls the output level from infinity to +6dB of the Phones headphone jacks located on the front armrest as well as the Phones mono output at the rear of the console.

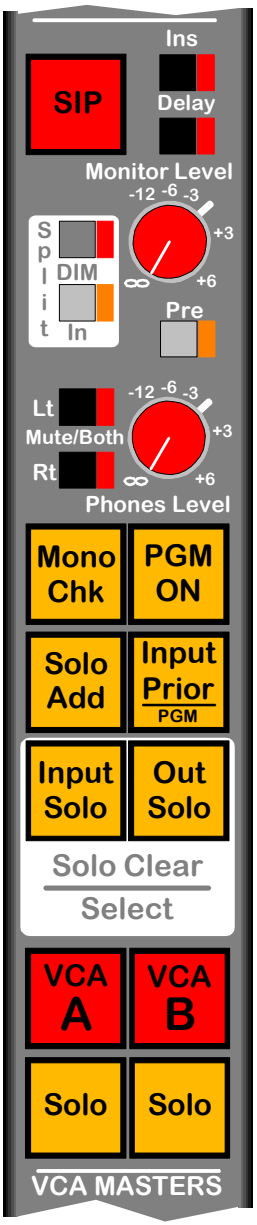
## Lt and Rt

These two momentary buttons perform a dual roll in conjunction with the Mono Check button. When Mono Check is not active, the Lt (left) and Rt (right) buttons act as mutes. When active, LED on, will mute their respective output. This function effects both the Monitor and Phones outputs regardless of Split.

When Mono Check is active, pressing the Lt button will place the left signal on BOTH the left and right outputs. Equally, if the Rt button is pressed, the right signal is routed to both the left and right outputs. In the Mono Check situation, only one of the Lt and Rt buttons can be active at once. For a mono sum of both the left and right signals, see the Mono Check description below.

## Mono Chk (Check)

When active, LED on, creates a mono sum of the left and right signals and routes it to both the monitor and phones outputs regardless of Split.




## Solo Add

When active, LED on, disables the solo auto-cancel feature. Otherwise pressing any solo switch will cancel any other active solo (input or output). To solo multiple channels at once, when not in solo add, simply hold the first selected solo switch down and select any other channel you wish to solo.

## PGM (Program) On

When active, LED on, allows any Mix master output assigned to the program buss, into the monitor system when no other solo is active. When in Split mode, this switch activates the program buss to the Monitor output only. See the Input Priority section for assigning program to the Phones output in Split.

## Input Prior (Priority)

When activated, LED on, establishes a priority allowing an input solo signal to override any output solo signal while allowing the output solo to remain engaged. When all active input solos have been cleared, the monitor system will revert to the remaining active output solo signals. Also in this mode, the solo auto-cancel is separated between inputs and outputs, i.e. inputs will only cancel other inputs and outputs will only cancel other outputs.

When the monitor system is in Split mode, the concept of an input priority is irrelevant because the inputs and outputs have been separated. In that case, this switch becomes the assign of the program signal to the Phones output section.

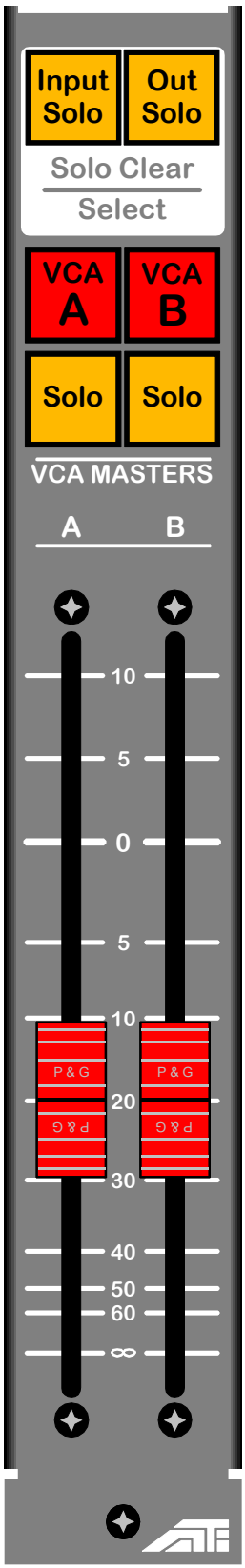
## Input Solo

When illuminated, indicates that an Input Solo is active somewhere on the console. Input Solo module sources consist of mono or stereo input channels, stereo return input modules, an input channel or return soloed by a VCA, a stereo input located on one of the mix master modules, the external solo or the ICOM solo. Pressing this switch will clear all active input solos.

## Output Solo

When illuminated, indicates that an Output Solo is active somewhere on the console. Output Solo module sources consist of any group solo, matrix solo, aux solo or mix master solo. Pressing this switch will clear all active output solos.

NOTE: The Input and Output solo buttons, pressed in combination, will be referred to later to perform various other mode or scene functions.




## VCA Grand Master Faders

The console consists of 2 VCA Grand Masters that can be used to console any of the 8 VCA masters.

## Mute

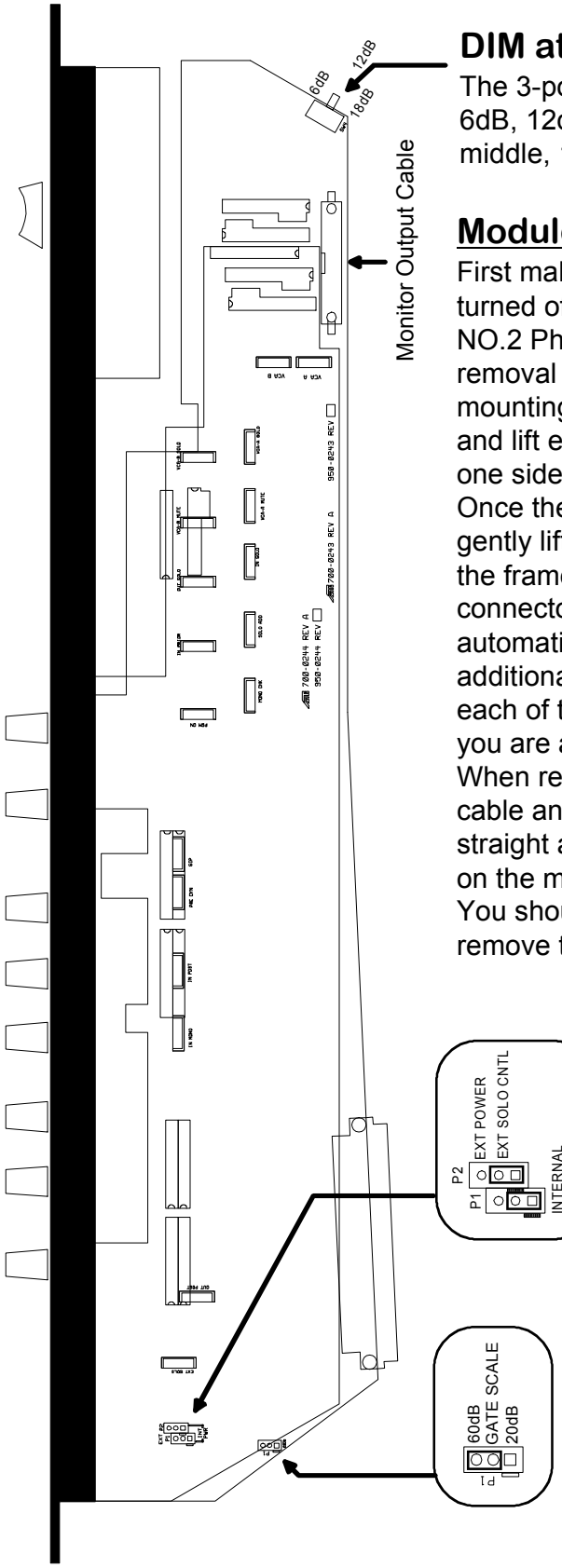
When Active, LED on, all VCA masters assigned to the associated VCA grand master will have its mute activated, similar to a mute group. The mute information is then passed on to the associated input channels. This switch is re-settable via Distributed Intelligence® Control.

## Solo

When Active, LED on, all VCA masters assigned to the associated VCA grand master will have there solos activated. The resulting solo situation is equivalent to pressing the Solo switch of every VCA master in the VCA grand master group at the same time. To see the resulting effect on the input channel solos, see the Mix Master Module section.

## VCA Fader

This Penny & Giles fader controls the VCA gain for all VCA master faders assigned to the associated VCA grand master. The normal operating position is at 0dB (nominal), with gain up to +10dB and attenuation to infinity.
The VCA faders have the option of being equipped with moving faders which would be under Distributed Intelligence® control.




## DIM attenuation select

The 3-position switch selects the DIM attenuation between 6dB, 12dB and 18dB. The switch comes standard in the middle, 12dB position.

## Module Removal

First make sure that the power to the console has been turned off. Then remove the two module screws using a NO.2 Phillips head screwdriver. Next, using the two module removal tools or an equivalent tool, hook through the mounting hole where the module screw goes on both ends and lift evenly. Be careful not to rock the module or only lift one side as this may bend or damage the connector pins. Once the module has been unseated from the motherboard, gently lift it out of the frame. After the module has cleared the frame, disconnect the monitor output cable from the connector where noted. NOTE: If you have the moving fader automation system option installed, there will be two an additional connecting cables attached to the PCB below each of the VCA faders. Simply disconnect the cables when you are able.

When replacing the module, reconnect the group output cable and gently lower it into place making sure that it is straight and even. When you feel that it has landed properly on the motherboard connectors, give it one final push down. You should feel the connectors seat solidly. If this is not felt, remove the module, check the pins and try again.

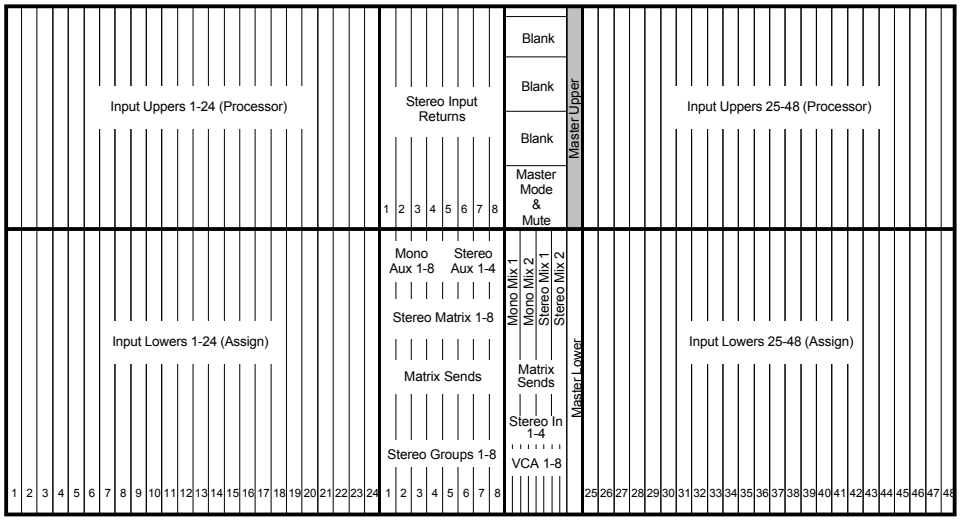
## External Solo Control

The External Solo can be activated by a switch closure using internal console power or from an externally powered switch closure. This is changed by moving both the jumper located at P1 and P2 on the secondary PCB 700-0244. The jumpers are shown and come standard in the Int (internal Power) position.

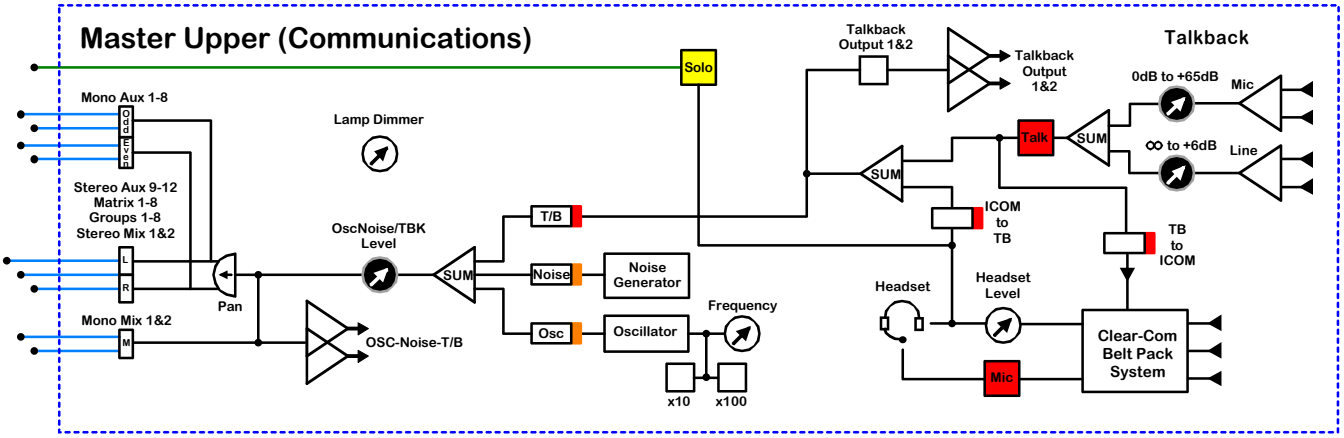
## Gate Atten Meter Scale

The Gate attenuation meter scale can be changed from 60dB to 20dB by moving the jumper located at P1 on the main PCB 700-0243. The jumper is shown and come standard in the 60dB scale position.

# Master Upper Modules

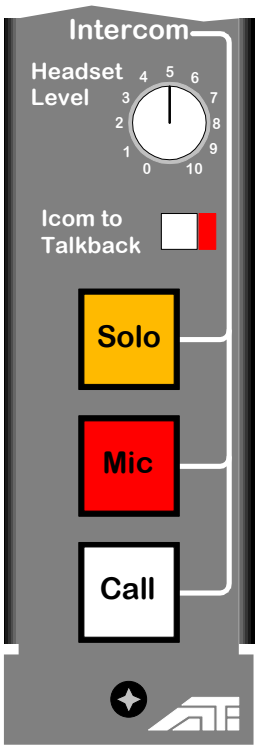


# Master Upper Block Diagram



## Master Upper Module

The Master Upper Module contains all of the communication controls for the console. It has the Intercom station which emulates a Clear-Com belt pack, the Talkback controls and the Oscillator and Pink Noise generator.




## Intercom

The intercom station in the console is designed for direct use with Clear-Com systems. However, by reversing pins 2 and 3 on the Icom line plug into the rear panel, Chaos type systems will also be compatible.

### Headset Level

This control sets the intercom headset volume level and is at full volume in the fully clockwise position. It also controls the intercom signal level sent to the Input Side Chain Solo buss when the solo is active.

### Icom to Talkback

When depressed sends the intercom signal into the Talkback system pre Talkback ON switch to allow for routing to output groups.

### Solo

When active, LED on, sends the intercom signal post the Headset Level control to the Input Side Chain Solo buss. This solo is treated as an Input Solo by the monitor system on the Master Lower module.

### Mic

When active, LED on, activates the Mic on the intercom headset. Also allows any active Talkback signal to go to the intercom line if the Talkback to Icom switch is depressed (see above). The switch is a single press momentary and double press latching system with a single press release.

### Call

Indicates a call on the Intercom line. Pressing this switch also initiates a call on the Intercom line. NOTE: This switch only functions if the ICOM system is energized by an outside power source.

## Talkback

There are three main ways into the Talkback system; the Talkback Mic, the Talkback External Line input and from the intercom system. There are four Talkback Mic inputs, two on the front armrest, one on the rear panel and one on the Master Upper module. **NOTE: there is +20volts phantom power on pins 2 and 3 of all Talkback Mic connectors at all times.**

### Talkback Output 1 and 2 assign switches

When depressed send any active Talkback signal to the appropriate rear output connector.

### Talkback Level

### Inner

Talkback Mic gain control. Max input level is +24dBu, gain range is 0 to +65dB.

### Outer

Talkback External Line input level control. Max input level is +24dBu. Level is adjustable from infinity to +6dB.

### Talk

When active, LED on, all current Talkback inputs are sent to either of the two Talkback outputs if assigned and to the oscillator / noise / talkback assignment section. The switch is a single press momentary and double press latching system with a single press release. The Talkback switch can also be activated externally by either a switch closer between tip and ring of a TRS ¼" jack or by an externally powered switch closure via an opto-isolator. To use the externally powered switch option, two internal jumpers need to be changed.

### Talkback to ICOM

When depressed active Talkback signal is available to the intercom system. To be sent to the intercom system, the Talk switch must be active as well.

## Lamp Dimmer Control

Adjusts the level of the overhead lamps. Fully clockwise is lamps at full brightness. **NOTE: The overhead lamps are wired in a series/parallel combination. The two lamps on a common panel are wired in series and then the three panels are wired in parallel.**

## Level and Frequency Control

### Inner

Adjusts the level of the selected Oscillator, Pink Noise or Talkback signal to the rear output connector and to the buss assign switches described below. Level is adjustable from infinity to +18dB.

### Outer

Adjusts the Oscillator frequency over a 1:10 range. When used with the range select switches below, the Oscillator frequency can vary from 18Hz to 20kHz.

## Frequency Range Select Switches

Multiply the Oscillator frequency control range by 10 or 100 as indicated. The 100 multiplier switch will override the setting of the 10 multiplier switch.

## Oscillator / Noise / Talkback Assign Switches

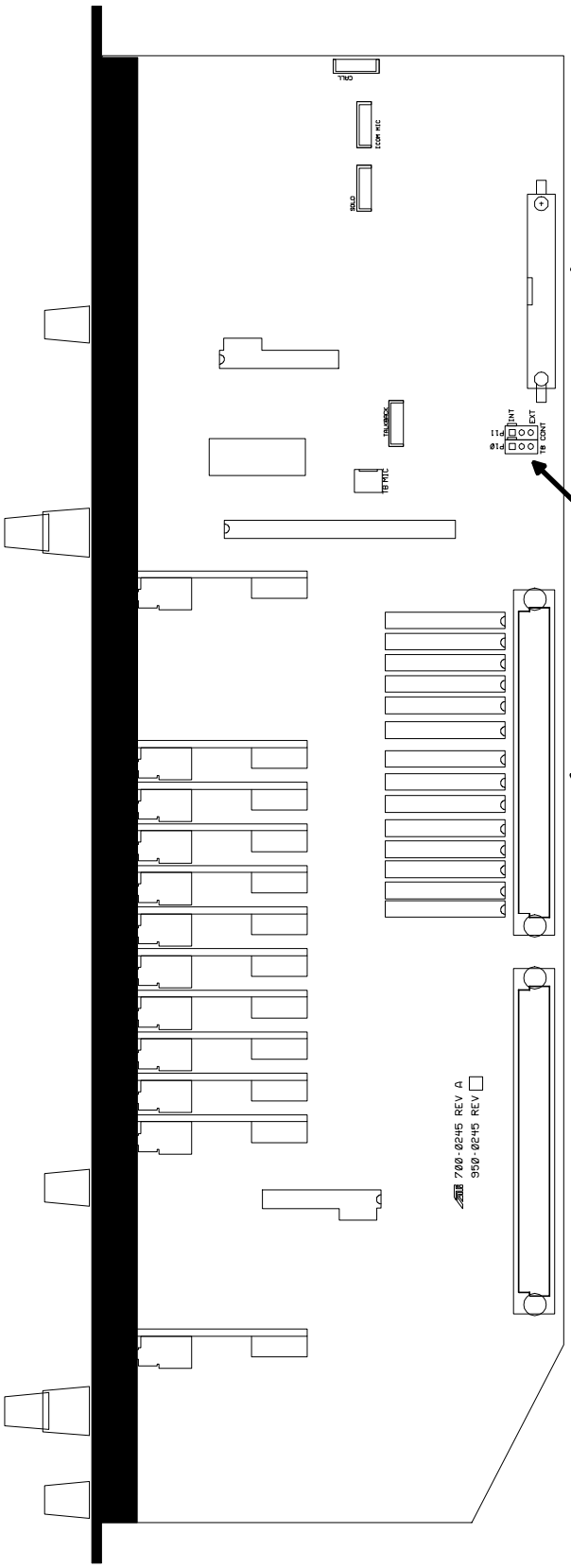
When depressed activates the indicated source, post level, to the rear output jack and to the buss routing switches, post pan, as described below. **NOTE: When the Oscillator and Noise switched are NOT depressed, the generators for the indicated switches are turned off.**

## Pan

Varies the selected Oscillator, Pink Noise or Talkback signal to the left/odd and right/even of the assigned busses.

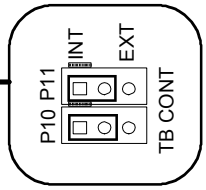
## Oscillator / Noise / Talkback buss assign switches

When depressed, assigns the selected Oscillator, Pink Noise or Talkback signal, post level and pan control to the indicated busses. The mono Aux assignments feed the busses in pairs beginning with the number on the switch, i.e. the “1” switch feeds Aux 1 and Aux 2, the “3” switch feeds Aux 3 and Aux 4 etc.




## Talkback External Control

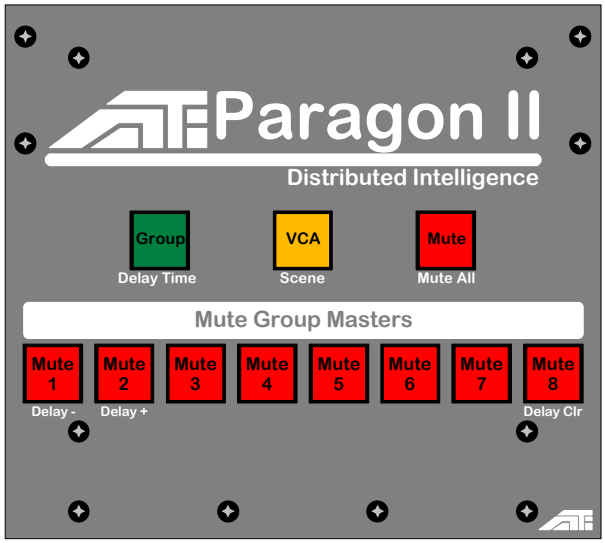
The Talkback system can be externally activated by a switch closure using internal console power or from an externally powered switch closure. The power is changed by moving both the jumpers, located at P7 and P9, on the PCB 700-0245. The jumpers are shown and come standard in the Int (internal Power) position.

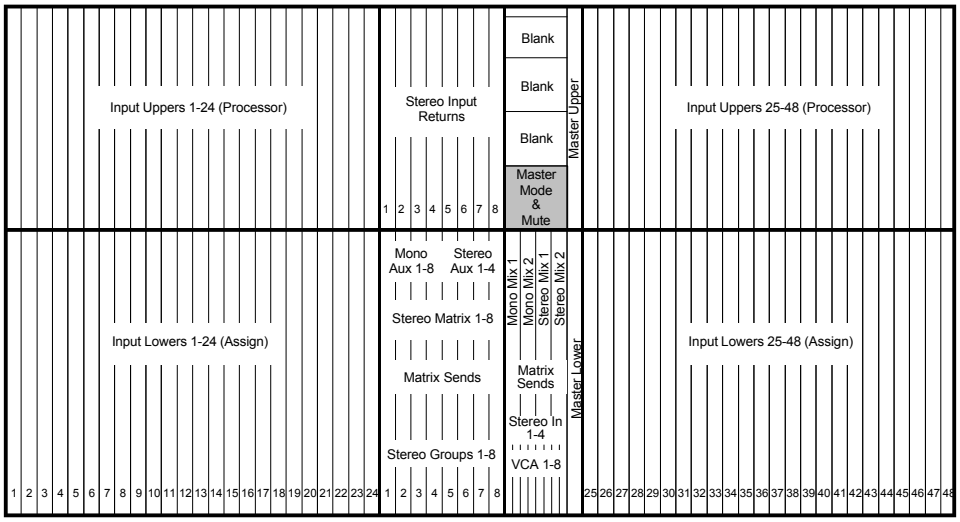


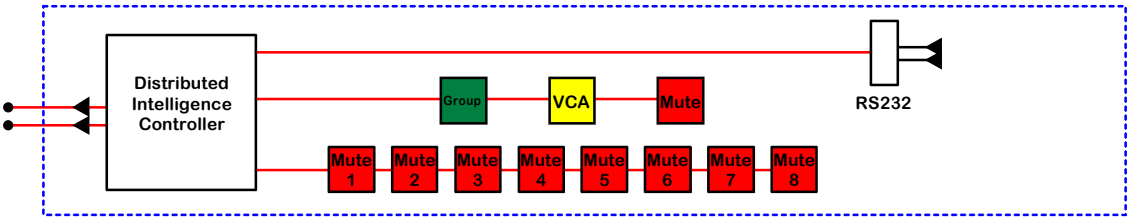

## Module Removal

To remove the Master Upper Module, first make sure that the console power is turned off. Next, using a NO.2 Phillips head screwdriver, remove the two module screws at the top and bottom of the module. Now gently lift the module from the console frame. Once the module has cleared the frame, disconnect the three cables connected where shown above. To replace the module, follow these steps in reverse making sure that the console power is turned off first.

# Master Controller Modules



## Master Controller Module

The Master Controller Module is the central communication system for the Distributed Intelligence® controller network. The basic functions of global mode changing and mute group masters are handled here. In addition there is the ability to perform limited scene recalls, delay time programming, system wide performance options and much more.

## Global Mode Switches

These switches globally select between one of three modes of the multi-function assign switches on each of the input channels.

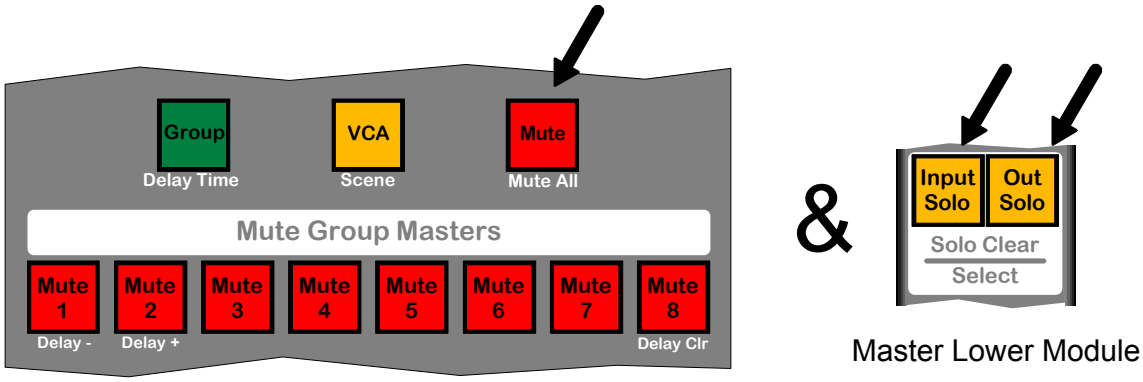
## Mute Group Masters

These eight switches serve several different functions. Their primary function are as mute group masters. When active, LED on, all channels assigned to the associated group will mute. When acting as mute group masters, any combination of mutes can be active at the same time.

The second function of the mute group master switches is as 8 quick scene recall buttons. A scene is recalled simply by pressing the appropriate button. In this mode, only one switch will be able to be active at a time. The details on how to change between mute and scene mode, as well as how to program the scenes, will be covered later in this section.

## Mute All

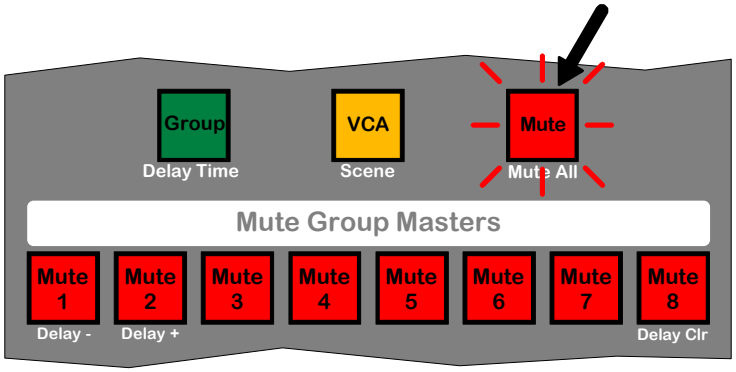
In addition to the 8 mute groups, there is a built in Mute All function that mutes all of the console inputs as well as all of the outputs. Mute All is activated by pressing all three of the Input Solo, Output Solo and Mute mode buttons as indicated below.

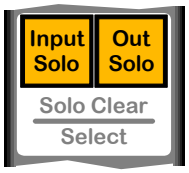



Activating Mute All

## Mute All cont.

Mute All is indicated by the Mute switch flashing. The release the console from Mute All, simply press the mute switch again. Any mute groups which were active before entering Mute All, will continue to be so when Mute All is released.



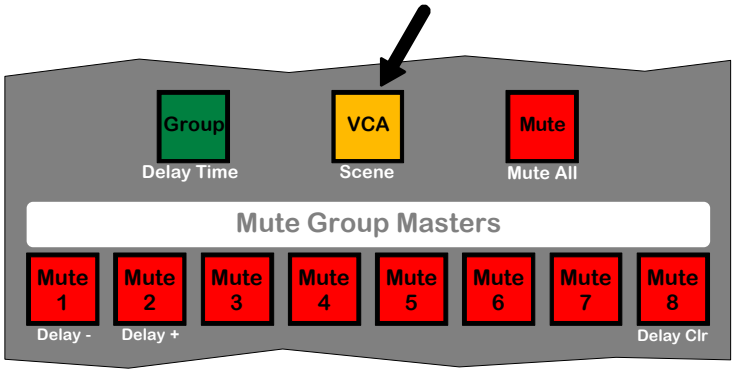




Master Lower Module

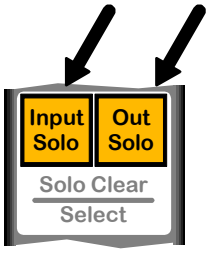
Releasing Mute All

## Scene Recall Mode

As mentioned earlier in this section, the 8 Mute Group Master switches can also function as 8 individual scene recall buttons. To switch between the standard Mute Group mode and the Scene Recall mode, you must press all three of the Input Solo, Output Solo and VCA mode buttons as indicated below.




&

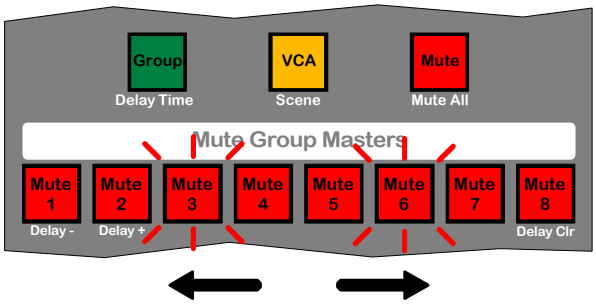



Master Lower Module

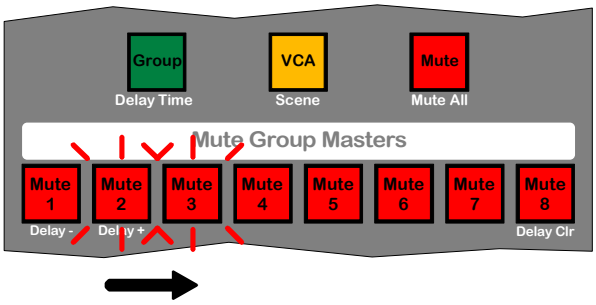
Toggle Mute / Scene Mode

## Scene Recall Mode cont

Mute Group mode is indicated by the 8 mute group switch LEDs flashing in a pattern beginning from the center (4 and 5) and moving out to the end (1 and 8). Scene Recall mode is indicated by the LEDs flashing in a row from 1 to 8. The active mode is stored at power down and will be indicated again every time the console power is turned on. This is mostly so that the user knows what mode the console is in at that time.

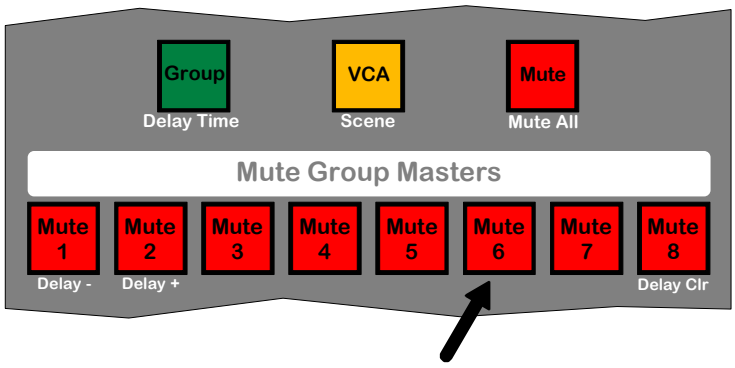



Mute Group Mode

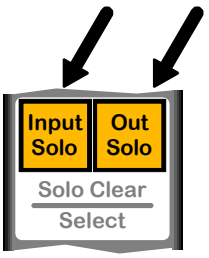



Scene Recall Mode

To record a scene to one of the 8 buttons, set the console's recordable controls to the state you wish to record. Then press all three of the Input Solo, Output Solo and the Mute Group Master button for the location you wish to record to. The example below records the current console setup to location 6. Repeat this process for each of the memory locations you wish to program to. Then to recall the stored scene, just press the master switch number you wish to recall.




&



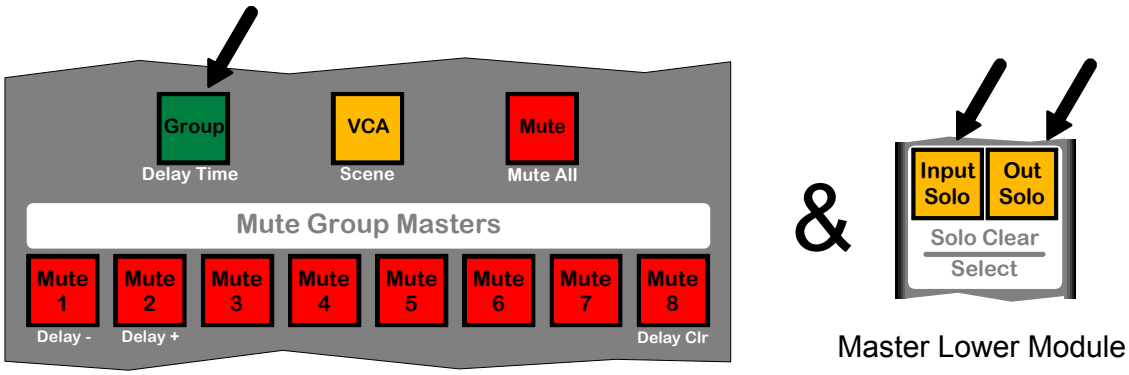

Master Lower Module

Record a Scene

Recorded scenes are preserved when the console is changed back to Mute Group mode, as well as when the console power is turned off.

## Delay Time

The delay time of the optional stereo digital delay is programmed from the master controller module. To enter delay time programming, press all three of the Input Solo, Output Solo and Group mode buttons as indicated below.

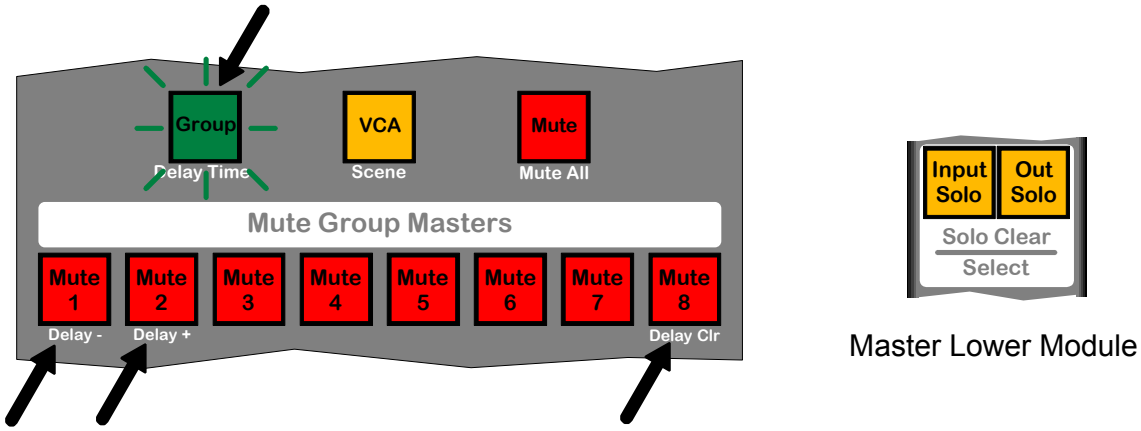



Master Lower Module

Activate Delay Time Programming

Delay Time programming mode is indicated by the Group mode switch flashing. To increment the delay time by 1mSec press Mute Group Master switch 2. To decrement the delay time by 1mSec press Mute Group Master switch 1. To increase or decrease the delay time by a larger rate, press and hold the appropriate button. To zero the delay time press Mute Group Master switch 8.

When you are finished altering the delay time, press the Group mode switch again to exit.



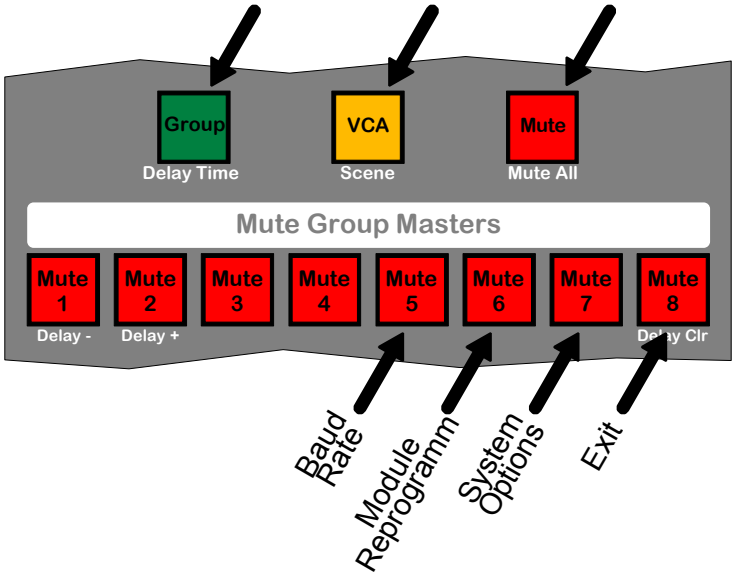

Master Lower Module

Delay Time Programming

## System Edit Mode

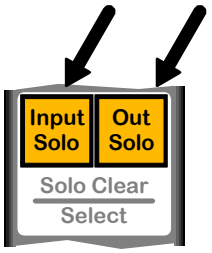
There are several system level options that can be adjusted from the Master Controller module. These include baud rate of external connection, module reprogramming and more. **NOTE: Please read this section carefully before attempting any changes to the system setup. Incorrect use of these functions can cause performance problems with the digital control of your console.**

To enter the System mode you must press and hold for at least 5 seconds all five of the Input Solo, Output Solo and all three mode buttons as indicated below. When you have successfully entered this mode, all three of the mode switch LEDs will be lit.
Once in System Edit mode, the master buttons 5-8 will be lit. Each of them gains access to a different edit function. Pressing 8 will exit from system edit mode and back to standard console operation. The other functions are listed below.




System Edit Mode

&




Master Lower Module

## Baud Rate Setup

Pressing button 5 enters the baud rate setup section. This is for the communication to a computer via the RS-232 port on the rear of the console. This port can be used for module reprogramming or scene communication which is covered in a later section. The current Baud Rate will be displayed on buttons 1 thru 4. From this pattern the rate can be determined from the table below.

| Buttons | | | | |
|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **Baud Rate** |
| Off | Off | Off | Off | 600 |
| On | Off | Off | Off | 1200 |
| Off | On | Off | Off | 2400 |
| On | On | Off | Off | 4800 |
| Off | Off | On | Off | 9600 |
| On | Off | On | Off | 19.2 K (default) |
| Off | On | On | Off | 38.4 K |
| On | Off | On | On | 57.6 K |
| Off | On | On | On | 115.2 K |
| On | On | On | On | 230.4 K |

Button 6 will toggle the RS-232 port on or off. If button 6 is lit, then the port is disabled. Button 8 will return back to the system edit mode main page. Press any of the buttons to toggle them on or off to change the desired setting. NOTE: 19.2 K is the default speed.

## Module Reprogramming

Pressing button 6 from the original setup page and holding it for at least 3 seconds will allow you to enter the module reprogram section. Buttons 1 thru 7 should be flashing and button 8 will be lit solid. Please be very careful while in this section as any type of error during the reprogramming process could result in corrupting one or more of the program files. **NOTE: Once reprogramming has begun, it should not be interrupted until done, when all Master Upper LEDs go out.**

There are two different ways to reprogram the modules. The first involves uploading an individual program into the master module from an external computer then distributing out this program by pressing button 1. This operation will only be done by an ATI technician.

The second reprogramming option, and the likely way to update module programs in the field, involves retrieving programs from the serial EEPROM device on board. In this event, ATI would supply you with an 8-pin DIP serial EEPROM device and instruction on where to place this device on the master controller module's main PCB. Once this chip is in place, you would enter reprogramming mode as described above and would then reprogram any or all of your modules by pressing the appropriate button. Button 8 will return back to the system edit mode main page. The mute button to module program correlation is as follows:

- Mute Button 2 for Stereo Input Return Modules
- Mute Button 3 for Group Modules
- Mute Button 4 for Mix Modules
- Mute Button 5 for Master Lower Module
- Mute Button 6 for Master Upper Module
- Mute Button 7 for Channel Assign Modules
- Mute Button 8 to return back to the system edit mode main page

This will reprogram all of the modules of the selected type. Again, once reprogramming has begun, the console should not be interrupted until done, i.e. don't press any buttons.

Reprogramming is complete when all of the buttons on the master controller module go out. At this point the console should be powered down and then powered up again (please restart your console now). When power is back on, the master controller will be back in normal operations (mode change and mute groups). If you wish to reprogram another module, please re-enter system edit mode and follow the appropriate instructions above.

## System Options

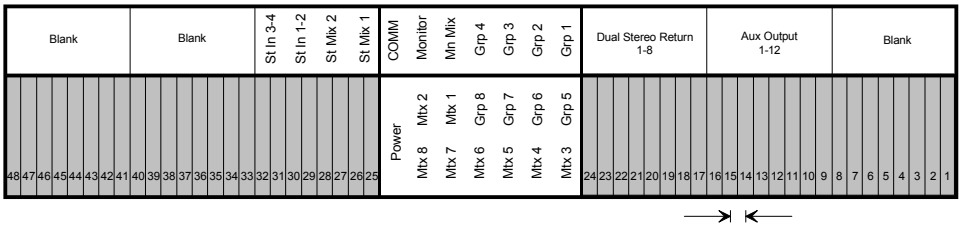
Pressing 7 from the original setup page will cause the user to enter the System Option mode. The master switches are as follows.
Button 1 disables Fader snapshot drive when lit.
Button 2 enables slow fader moves when lit.
Button 3 Enables Mute All on power-up when lit.
Button 4 is reserved.
Button 5 is reserved.
Button 6 enables Console Linking.

Pressing any of these buttons will toggle the state. Button 8 will return back to the system edit mode main page

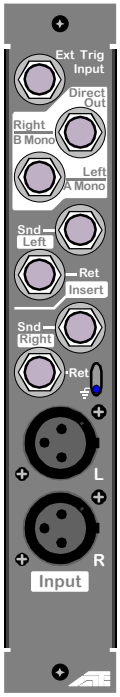
## Module Slot Addressing

Pressing the VCA button when in system option mode will cause the Master program to enter Address Allocation Mode. Mute Button 1 will be lit. Pressing the VCA button will cause the Address to increment in a binary code from 1 to 127 (01 to 7F hex with Mute 1 being the LSB). Pressing a Solo on a module will assign the current displayed address to the soloed module. On the Group Modules, this is the Group Solo, on the Mix and Master Lower Modules, this is the left (odd) VCA Solo. When the Module Address is assigned, it is displayed on the module when entering this mode, and when the displayed address matches the assigned address of the module, the Multifunction LEDs (on the Channel and Return Modules) turn orange. On the Group and Mix Modules, the Insert button is lighted when the address matches. The Master Lower does not use an address assignment, as it is already allocated a special frame address from the Master Upper.

# Mono and Stereo Rear Input Module




1.4 Inch Panel Spacing




## Ext Trig Input

A balanced audio TRS input for Gate and/or Compressor side-chain signal.

## Direct Output

Left / A and Right / B balanced audio TRS outputs for the channel Direct Output.

## Insert

Balanced audio TRS Send jack(s) and balanced audio TRS Return jack(s) for audio Insert point.

## Ground Lift

When in the Lower position will connect the console ground to Pin 1 of the XLR. When in the upper position, console ground is separated from Pin 1. **NOTE: if 48V Phantom power is being supplied from the console, this switch MUST be in the lower, grounded position.**

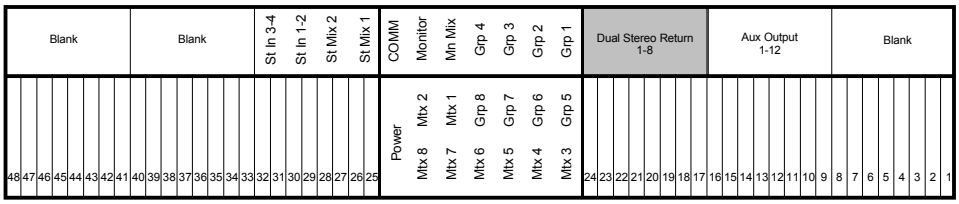
## Input

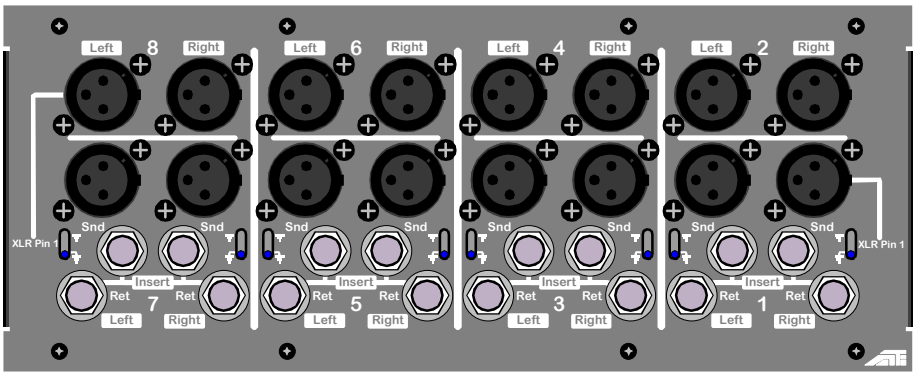
Main channel input XLR, single XLR for mono, two XLR's (left and right) for stereo. Maximum input level is +24dB. Pin 2 is in phase (hot).

## Module Removal

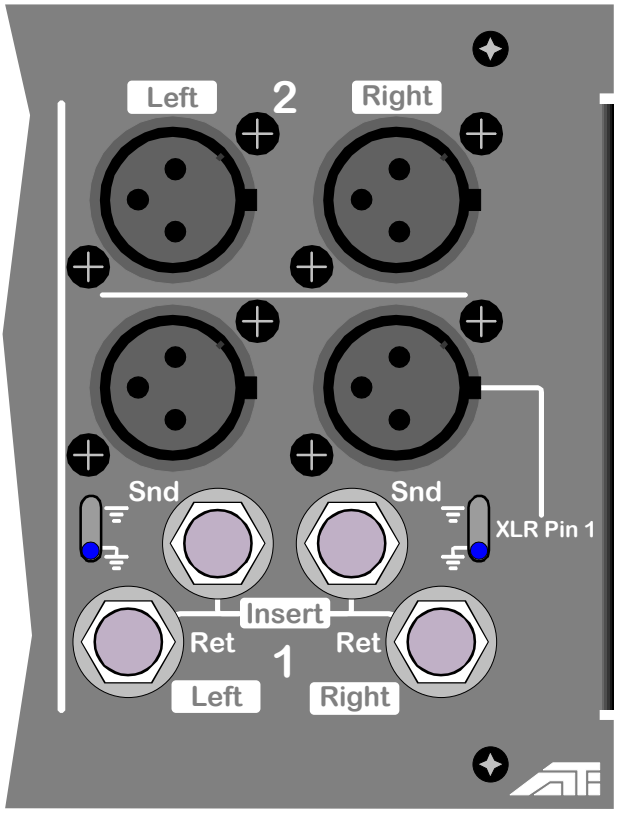
First remove the input upper module (see page 2-7 for mono and 3-7 for stereo). Next using a No. 2 Phillips head screwdriver remove the two mounting screws. Carefully pull out the module and expose the ground wire. Remove the ground wire screw. To replace a module, follow these instructions in reverse.

# Stereo Input Return
# Rear Input Panels




2.5 Inch Section Spacing




## Even Input

Two female XLR's feed the left and right of the Even stereo return in the Dual Stereo Input module. Maximum input level is +24dB. Pin 2 is in phase (hot).

## Ground Lift

The Even return Ground Lift switch is on the left portion of the input section. When in the Lower position will connect console ground to Pin 1 of the XLR. When in the upper position, console ground is separated from Pin 1. **NOTE: if 48V Phantom power is being supplied from the console, this switch MUST be in the lower, grounded position.**

## Odd Input

Two female XLR's feed the left and right of the Odd stereo return in the Dual Stereo Input module. Maximum input level is +24dB. Pin 2 is in phase (hot).

## Ground Lift

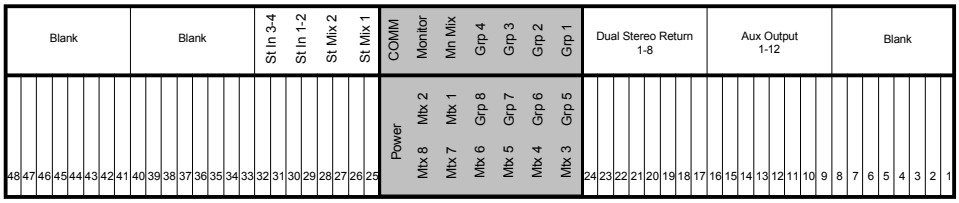
The Odd return Ground Lift switch is on the right portion of the input section. When in the Lower position will connect the input stage amp ground to Pin 1 of the XLR. When in the upper position, input stage ground is separated from Pin 1. **NOTE: if 48V Phantom power is being supplied from the console, this switch MUST be in the lower, grounded position.**

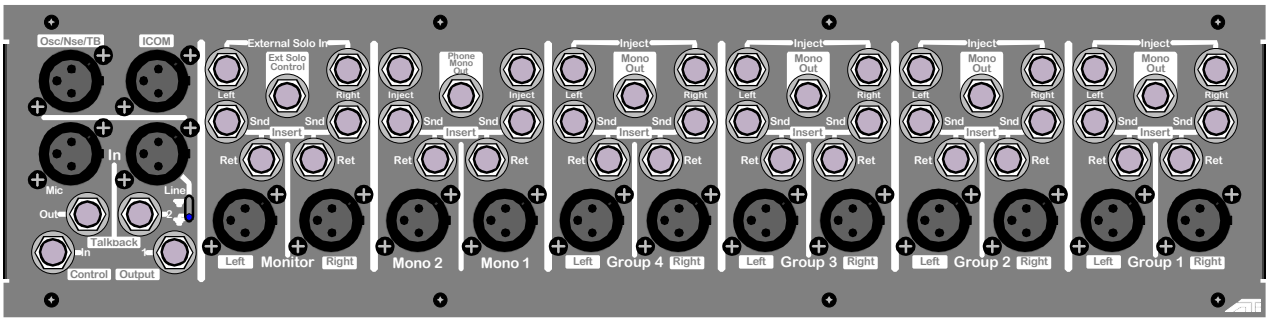
## Insert

Balanced audio TRS Send jacks and balanced audio TRS Return jacks for audio Insert point of the odd return.

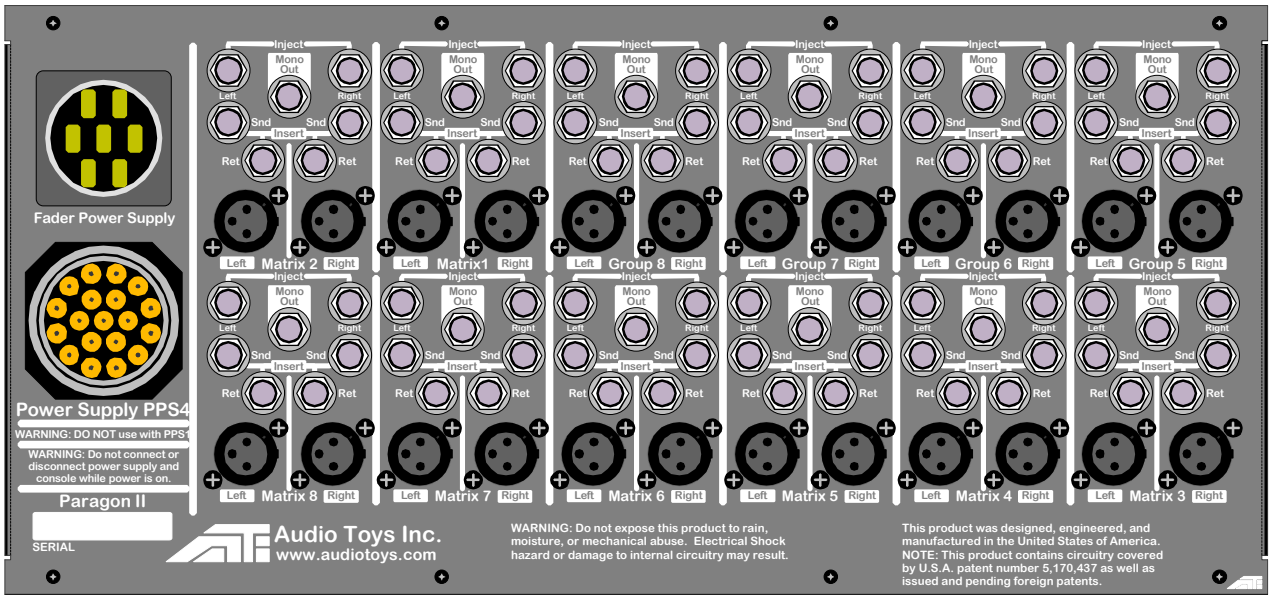
**NOTE: An optional rear panel housing the Insert Points for the Even Returns is available.**

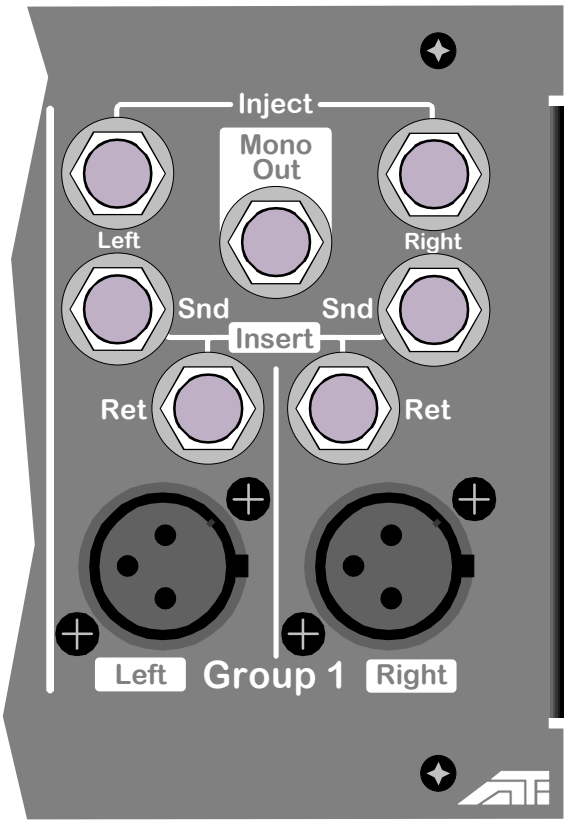
# Group, Matrix, Mono Mix, Monitor, Communications Rear Output Panel




2.5 Inch Section Spacing






## Group & Matrix Outputs

### Inject

Two balanced ¼" TRS jacks for feeding audio directly into the associated group or matrix summing amp. The Inject level and routing (group only) are controlled on the module itself, see section 6. Maximum input level is +24dB.

### Mono Out

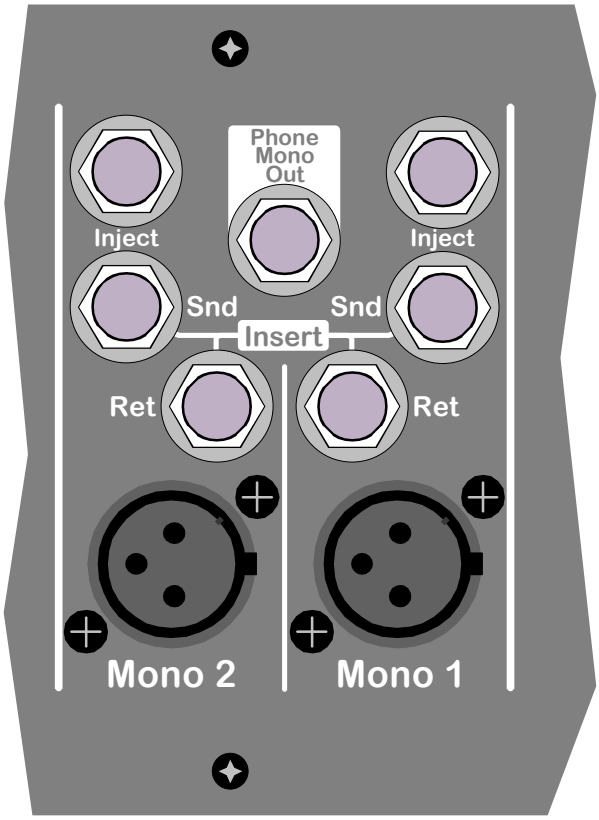
Balanced TRS audio output of group or matrix mono signal. Maximum output level +28dB.

### Insert

Balanced audio TRS Send jacks and balanced audio TRS Return jacks for audio Insert point of the associated group or matrix.

### Group or Matrix Output

Two Male XLR's feed the left and right main group or matrix output signal. Maximum output level is +28dB. Pin 2 is in phase (hot).




## Mono Mix Outputs

### Inject

Balanced ¼" TRS jacks for feeding audio directly into the mono mix summing amp. The Inject level is controlled on the module itself, see section 7. Maximum input level is +24dB.

### Phone Mono Out

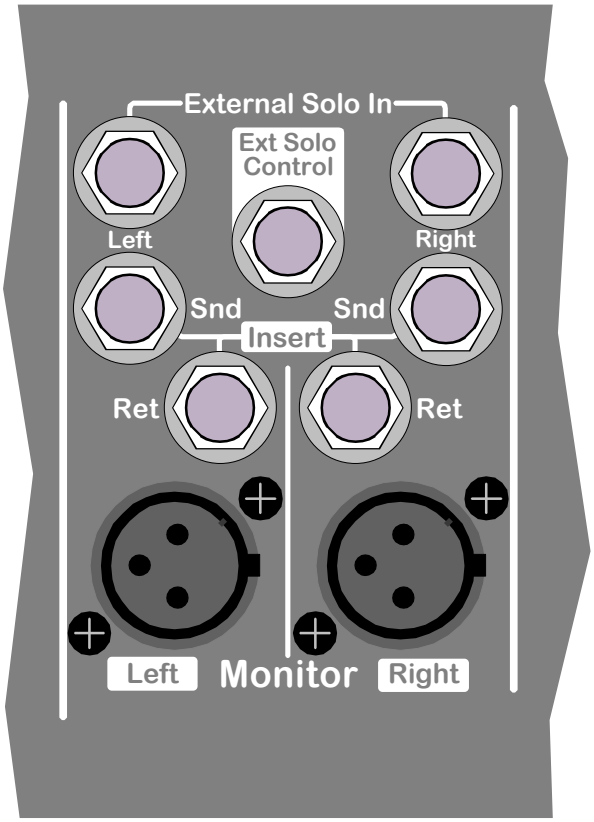
Balanced TRS audio output of a mono sum of the Phones signal from the Master Lower Module. See section 8 for more information on the Phones Output options. Maximum output level +28dB.

### Insert

Balanced audio TRS Send jacks and balanced audio TRS Return jacks for audio Insert point of the mono mix outputs.

### Mono Mix Output 1 & 2

Male XLR's feeds the mono mix output signal. Maximum output level is +28dB. Pin 2 is in phase (hot).



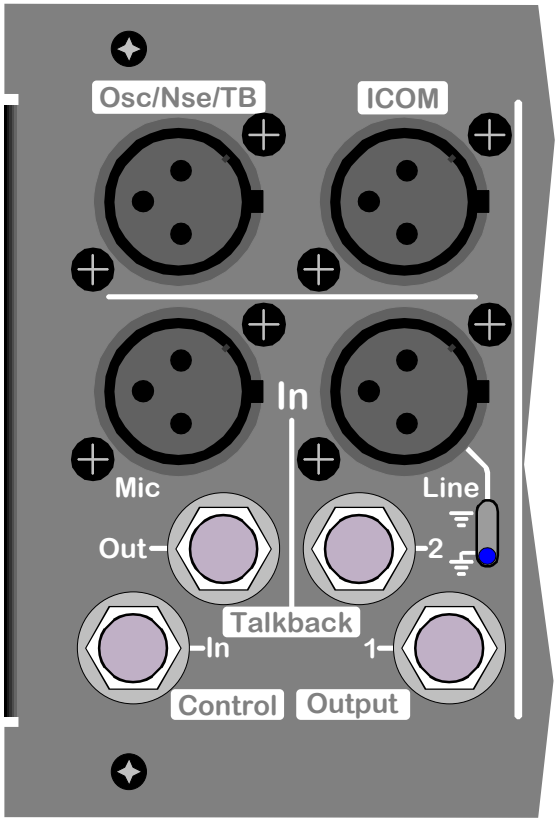

## Monitor Output

### External Solo In
Two balanced ¼" TRS jacks for External Solo audio input. Maximum input level is +24dB.

### External Solo Control
TRS jack for External Solo Control input. Shorting Tip and Ring will activate solo. An externally powered switch closer can also be used, see section 10.

### Insert
Balanced audio TRS Send jacks and balanced audio TRS Return jacks for audio Insert point of the monitor output.

### Monitor Output
Two Male XLR's feed the monitor left and right output signal. Maximum output level is +28dB. Pin 2 is in phase (hot).




## Osc/Nse/TB
Balanced TRS audio output of the Oscillator, Pink Noise and Talkback portion of the Master Upper Module. Maximum output level is +28dB.

## ICOM
Female XLR for connecting external intercom systems to be connected to the console intercom station. This connector is setup for Clear-Com type intercoms. To connect a Chaos type intercom system, pins 2 and 3 must be flipped.

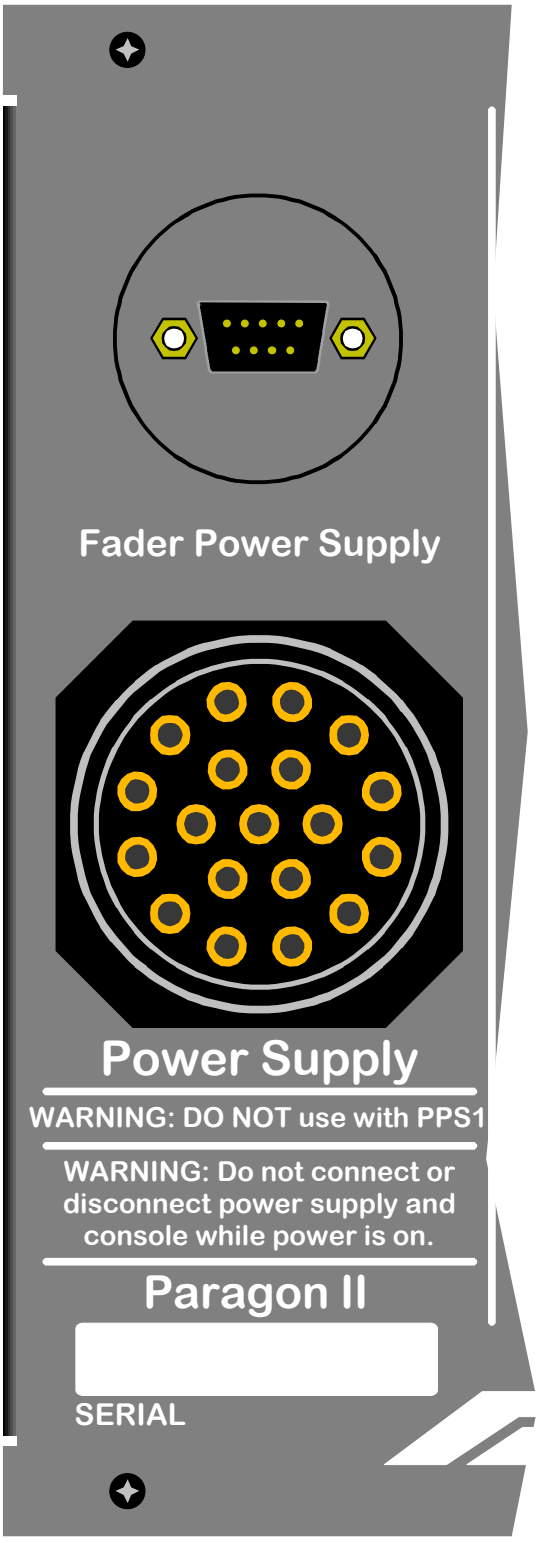
## Talkback Mic In
Talkback Mic input XLR, paralleled with XLR on Master upper module and two XLR's on front armrest. Maximum input level is +24dB. Pin 2 is in phase (hot).

## Talkback Line In
Female XLR for an external line input to the Talkback system. Maximum input is +24dB.

## Ground Lift
When in the Lower position will connect the Talkback Line input amp ground to Pin 1 of the XLR. When in the upper position, Talkback Line input amp ground is separated from Pin 1.

## Talkback Control In and Out
The TRS jack for Talkback Control Output receives an opto-isolated logic output of the Talkback system state. For the TRS jack for Talkback Control input, shorting Tip and Ring will activate solo. An externally powered switch closer can also be used, see section 11.

## Talkback Outputs 1 and 2
Two balanced TRS jacks feed the Talkback 1 and Talkback 2 output signals. Maximum output level is +28dB.




## Fader Power Supply location

This location will house either the RS-232 connector for the Distributed Intelligence System (as shown), see section 10 for an explanation of its uses. Or, if the moving fader option is purchased, there will be a power connector for the fader motors in this location.

## Power Supply Input

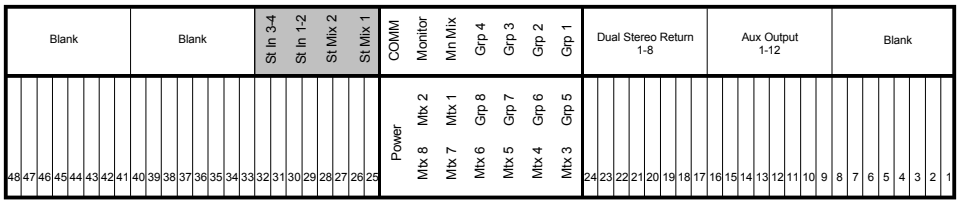
19-Pin Veam connector for DC-power input. Pin numbers are as follows:

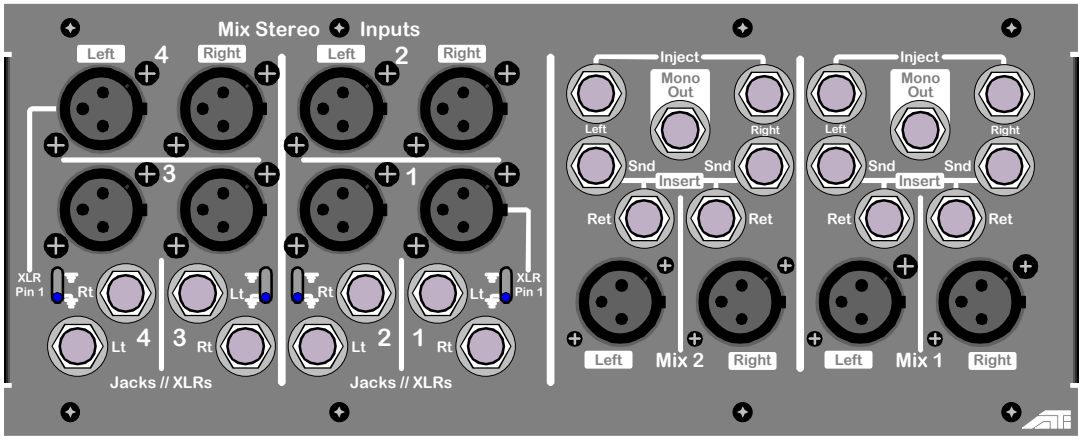
1 AC Chassis Ground
2 Neg 20 Volt Return
3 Pos 20 Volt Return
4 Positive 20 Volts
5 Positive 20 Volts
6 Negative 20 Volts
7 Negative 20 Volts
8 Positive 48 Volts
9 Negative 48 Volts
10 Pos 24 Volt Return
11 Pos 48 Volt Return
12 Pos 5 Volt Return
13 Neg 20 Volt Return
14 Pos 20 Volt Return
15 Positive 24 Volts
16 Positive 24 Volts
17 Pos 24 Volt Return
18 Neg 48 Volt Return
19 Positive 5 Volts

## Console Serial Number

Please know this number when calling the factory for any service questions.

# Stereo Mix Outputs and Mix Stereo Input Panel




2.5 Inch Section Spacing

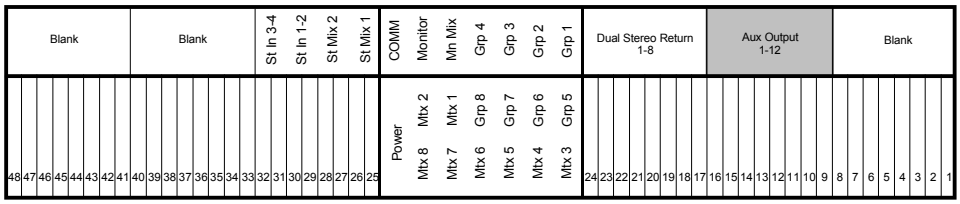
## Stereo Mix 1 and 2

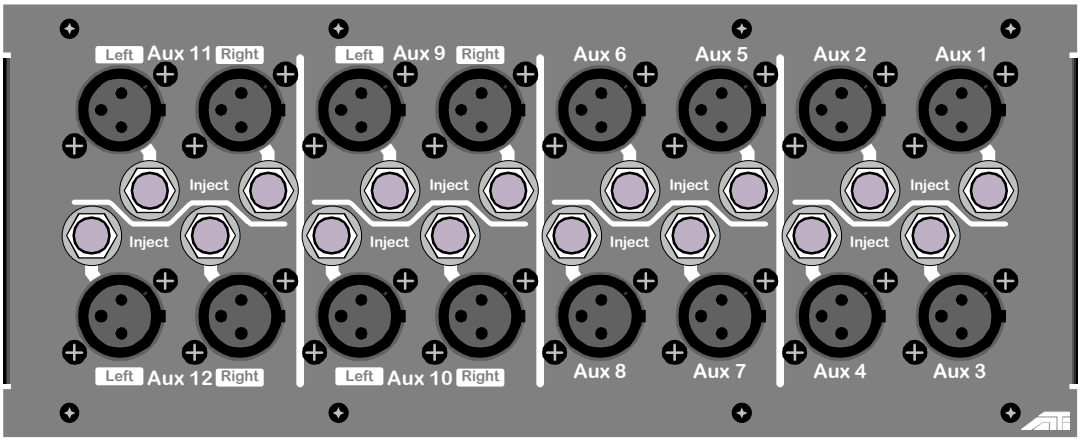
These output fields have the same connector layout as a group and matrix output (see page 11-5).

## Mix Stereo Inputs

Two female XLR's feed the left and right signals to each of the four stereo inputs. Balanced audio TRS jacks parallel the XLR connectors for each of the inputs.
The ground lift switch for each input connects the console ground to pin 1 of the XLR when in the lower position. When in the upper position, console ground is separated from pin 1. NOTE: this only effects the XLR inputs. The TRS inputs always have the sleeve connected to console ground.

# Auxiliary Output Panel




2.5 Inch Section Spacing

## Aux Output

Male XLR's feed either mono (aux 1-8) or left and right for stereo (aux 9-12) main Aux output signal. Maximum output level is +28dB. Pin 2 is in phase (hot).

## Inject

Balanced ¼" TRS jacks for feeding audio directly into the associated aux summing amplifier. Maximum input level is +24dB.

# Distributed Intelligence® Scene Control Software

## Introduction

The Distributed Intelligence® Scene Control (DISC) software from ATI is a companion to the Paragon II Production console. DISC is designed to allow access to the 256 scenes capable of being programmed and recalled in the Distributed Intelligence® system of the console. This communication is done via the serial port of any Windows OS computer using a RS232 serial connection.

DISC also allows for extensive scene information to be stored and manipulation. The user can name scenes, group a number of scenes into a song, add cue notes to a scene and reorder scenes or songs in numerous different orders which can be saved and recalled at a later date.

The user is not required to use DISC with the Paragon II Production console, it can be used simply as a stand alone program to help organize show cues and notes. The Show file and supporting files can also be imported into Microsoft excel or other spread sheet application for “off line” manipulation.

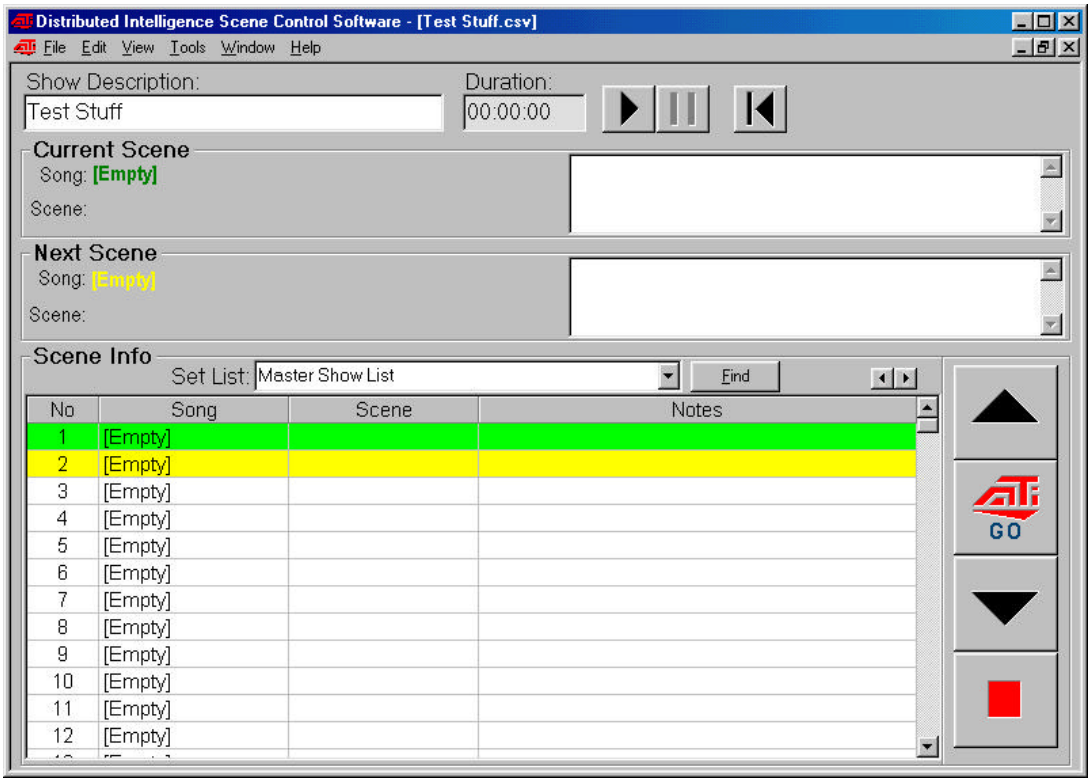
## Installation

The ATI DISC software installation program is on the CD. Double click the .exe file or go to the start menu and run, browse to your CD drive and select the file. Follow the instructions and complete the installation.

## Getting Started

To begin the program, go to the Start menu, under programs you will find an “Ati” folder with the program “DISC” inside. The program begins with no show file open. Click on the *File* pull down menu and select a *New Show*. You will be prompted for a file name and location. The default location is in the main directory created at installation. The main Show file has a .csv extension that represents a comma delimited file. This is done for importing and manipulation via Microsoft Excel or some similar spread sheet application which we will discuss in depth later.

After a file name is entered, the main screen will be displayed as seen below. Your file name is by default entered in the *Show Description* field. This is a text field for any extra information that you want to write down to describe this particular show file for easier identification.




To the right of the *Show Description* field is a *Timer*. This is a count up timer that can be used to time the length of a show or any other event that you need to time. It is controlled by the buttons to the right. The forward arrow starts the timer and the pause button stops the timer. The back arrow will reset the timer to zero. The last time is saved with the show file so it can be referenced later.

Below the Show Description and Timer is the *Current Scene* field. This is where Song name, Scene name and Notes of the current scene are displayed. The Current Scene is also highlighted green in the Scene Info window. When active, the notes of the Current Scene can be edited in the Current Scene window.

The Next Scene window is just below the Current Scene window and has all of the same features and information as the Current Scene window with the following difference. The Next Scene is highlighted yellow in the Scene Info window.

Below the Current and Next Scene windows, as already mentioned, is the Scene Info window. This is where the detail and order of the scenes is displayed. The current and next scenes are indicated with green and yellow highlighting respectively. You are able to search for any scene using the find button. Columns can be reordered and scene order can be manipulated either on the Master Show List or any of the user created Set Lists. This is also the area where scene information is edited and new scenes are inserted it. Many of these functions will be covered in other sections of this manual.

Finally to the right of the Scene Info window are the control buttons. They are used to scroll up and down the next scene selection indicator, to execute the selected next scene and to record, if not is show mode, either an update to the current scene or to a new scene.

## Scene Format

For the purposes of this manual, we will define a scene as a single preset of the console controller switch states and fader positions (option) of the Paragon II Production console. All of this state and position information is stored locally on each of the modules in the console. This is the philosophy behind the Distributed Intelligence ® design. Each of these scenes has a number associated with it that refers to the location in memory where the information is stored. This scene number is all that is transmitted by the master controller in the console to each of the modules. In turn, this is also the only information that is transmitted from the computer to the console thus minimizing the amount of information needing to be communicated and eliminating the need to rely on a single element for ALL of the scene information.

### Scene Number

The Paragon II Production console is capable of storing 256 scenes. Thus there are 256 scenes in each show file of the DISC software. There are four elements that make up the information for each scene. The first is the Scene Number. This is a unique number from 1 to 256 that, as described above, relates the scene information in the DISC software to the memory location on each of the modules in the Paragon II Production console. This is the only element of the scene information that you can not manipulate because of the direct connection with the console's memory locations. These numbers also do not serve a significant role in the manipulation of scenes in the DISC software. Although a new show file starts with the Scene Numbers in numerical order, they do not need to stay that way as we will describe later and can be removed from view.

## Song & Scene Name

The second and third elements of the scene information are the song and scene name. You are not required to enter information in either of these fields. The purpose behind the two different fields is to be able to associate multiple scenes together under a common Song Name. These multiple scenes can be cut and pasted, along with other edit and sequence functions, as a single block because of their Song association. These advantages will be explained further when we talk about building set lists from individual Scenes or Song groupings.

You can have as many or as few scenes associated with a Song name as you would like. When the edit functions are utilized on a song basis, only those scenes connected to a continuous occurrence of the same Song Name, not interrupted by a different Song Name, will be included. If there is another instance of the same Song Name further down the list, it will NOT be included as part of the edit function.

## Notes

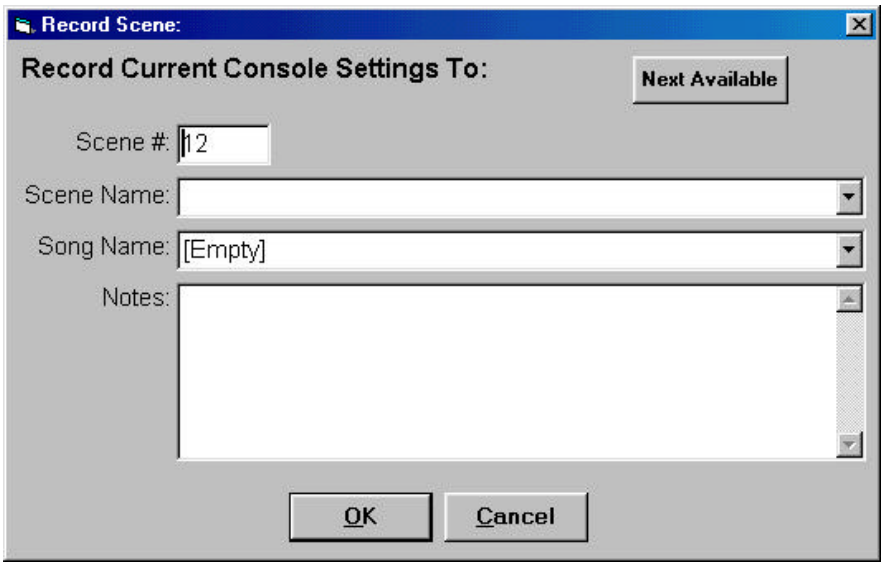
The fourth element of the scene information is the Notes field. This is available to make note of any special tasks that need to be remembered in connection with the execution of the scene. This field also does not need to have any information entered. This is the only field that can be edited “on the fly”. Information in this field can be changed in either of the Current Scene or Next Scene windows. This way you can quickly make a note for a scene during rehearsal or even the show without having to enter the Scene Detail window.

## Scene Info

Now that we have defined the format of the scene, it is time to start building a show file. When a show file is opened, you will notice that every scene is labeled “[Empty]” in the Song name field. This let both you and the software know that nothing has been recorded in this scene location. This is important when searching for an available scene to record to.

## Recording a Scene

Once you have the console controls set, press the record button (red square) in the lower right hand corner of the screen. If the record button is not visible, you may be in “Show Mode”, selectable from the View pull down menu. This is explained later in the manual. When you press the Record button, the Record Scene window will appear, shown below.




The default scene number and other information displayed will be the Current Scene. This is done thinking that you will likely be updating settings to this scene. If this is the case, simply press ok and you are done.

In the likely event you have set up a new scene and would like to record it to a new location, simply press the Next Available button. This will automatically locate the next “[Empty]” scene number and select it for this new scene to be recorded to. The Song Name from the Current Scene (if applicable) remains in the Song Name field so you do not have to retype it if this new scene is going to be part of the current song. Otherwise select the field and write over this name if you want to create a new song.

If you wish to associate the scene you are recording with some other song on your list, or if you would like to record over any other created scene, pull down menus for both Scene Name and Song Name are available. These pull down menus contain all previously entered names are displayed in alphabetical order.

If you wish to access a known scene number directly, you may do that as well. For instance, if you know that you want to record this setting in Scene Number 25, just type the number into the Scene # field and the scene will be recorded there.

Once you have a scene number and entered a Song and Scene Name (if desired) you may also enter notes at this time. Notes can also be entered or modified later via the Edit Scene Detail window or directly in the Notes box on either the Current or Next Scene window.

When all information is set, press the OK button. This will transmit the record command to the console and make the recorded scene the Current scene. The record is now complete.

## Master Show List

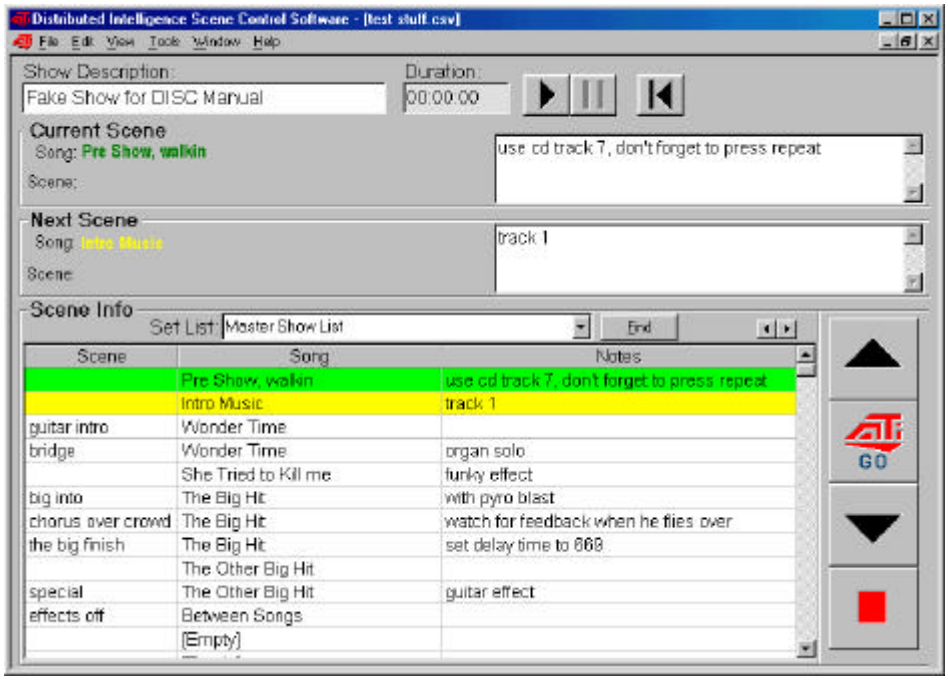
As you record more and more scenes, you will be building your Master Show List. The Master Show List contains a line for all 256 scenes that the Paragon II Production Console can recall. The list begins in Scene Number order, but as was discussed before, does not need to stay that way.

You can reorder the Master List in several ways, the first is by selecting a single scene and group of scenes, selected scenes are highlighted in yellow, and performing any of the available edit functions on it (them). The edit functions are available either by right clicking or via the Edit pull down menu.

While we offer these options, we do not suggest that you use these features as a way of organizing your scenes into the set list order each night. These features are suggested more for adding extra scenes into a song grouping, removing unneeded scenes, and general list tidiness. We recommend using the Set List feature to create varying set lists from night to night. The Set Lists are also saved so you can recall them later. The details of Set Lists will be covered in the next section.

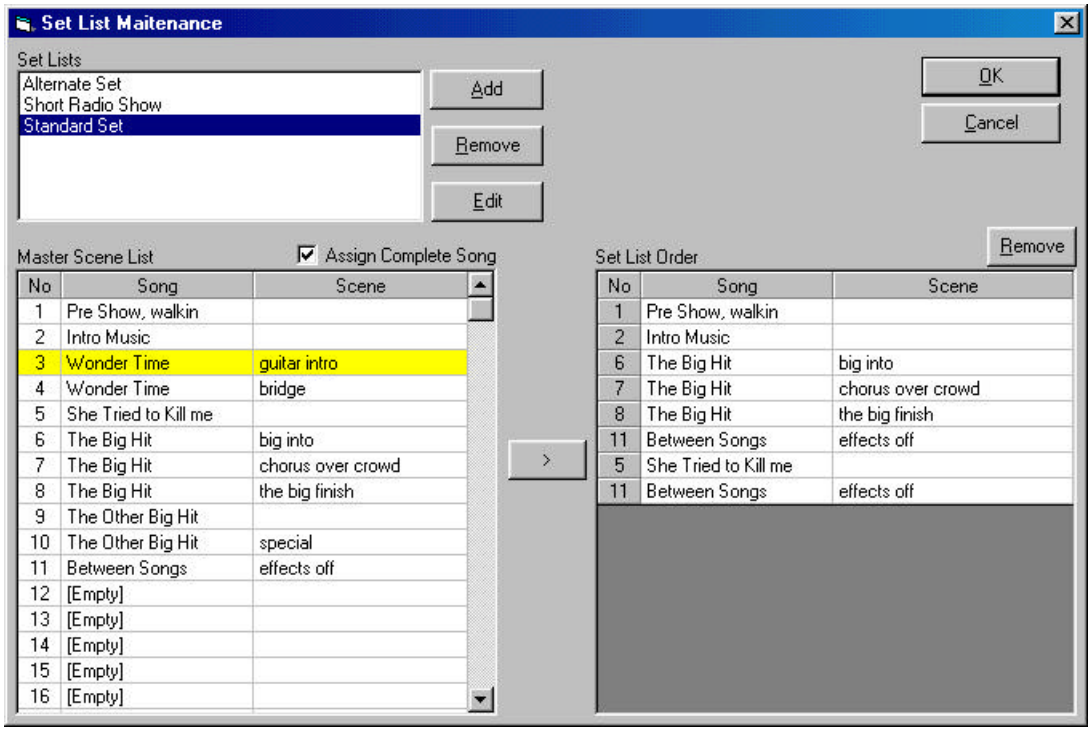
It is important to note that you can NOT delete a scene from the Master List. This list MUST always have the 256 lines to correspond to the 256 scene memory locations within the Paragon II Production console. One of the edit options is Empty Selection. This effectively clears the scene location in the software only and makes it available for recording a new scene into.

Column width within the Scene Info window can be adjusted. You can reorder the columns by dragging the header into the desired position. The left and right arrows in the upper right corner of the Scene Info window allow you to remove from view columns starting with the right most column. Use the left arrow to bring removed columns back into view. Below is an example some column manipulation.



## Set Lists

Set Lists are ways of creating sub-lists of the scenes that have been created on the Master Show List. To create a set list you must go into the Set List Maintenance window. This is done from either the Edit pull down menu or at the bottom of the Set List pull down in the Scene Info window. The Set List Maintenance window is shown below.




The upper left section shows the currently available Set Lists. You can Add a new list, Remove a list or Edit the name of an existing list.

Once you have selected the Set List you wish to modify, select a scene from the Master Show List that you wish to add, and press the right arrow. Your selection will appear in the Set List Order window at the bottom of the list.

You can insert your selection anywhere within the list by selecting the scene on the Set List side directly below where you would like to insert the new scene from the Master List. Then select the scene you wish to add from the Master List and press the add arrow.

Scenes are removed from the Set List Order by simply selecting them and pressing the Remove button.

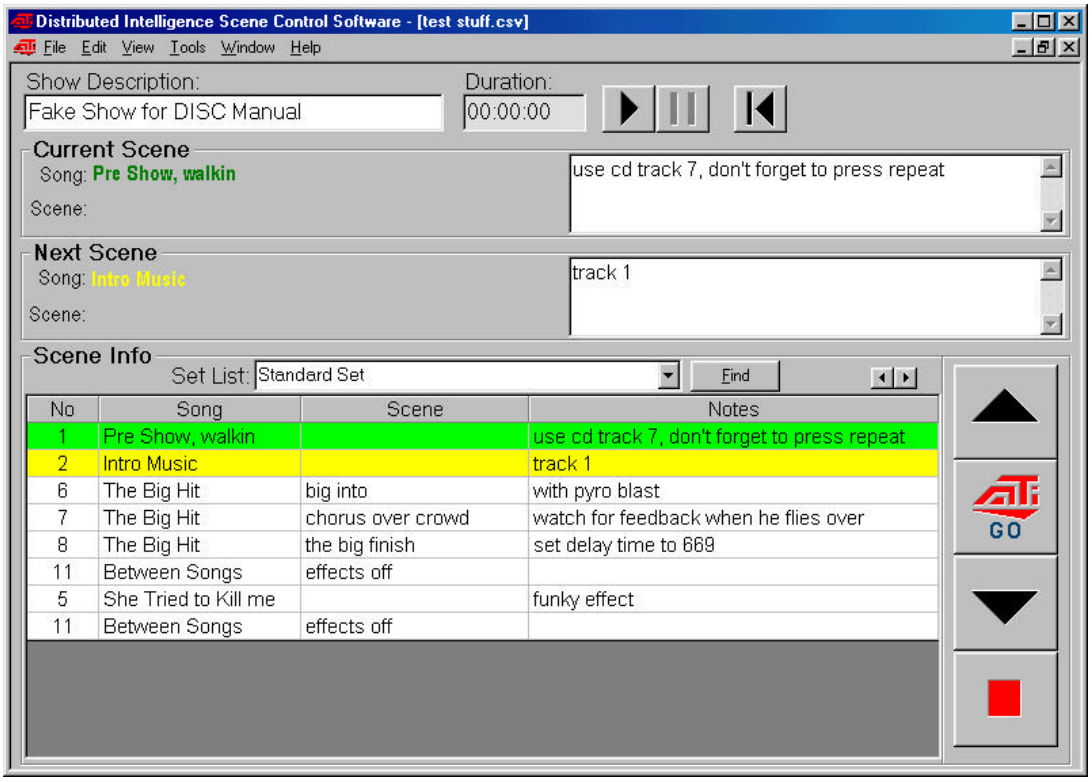
Above the Master Scene List window is the check box labeled Assign Complete Song. When checked, the entire Song related to your scene selection will be Added or Removed. Earlier we defined a Song only those scenes connected to a continuous occurrence of the same Song Name, not interrupted by a different Song Name. This feature is very helpful when you have created several songs with more than one scene associated to them. It will move all of your scenes as a song block by selecting any one of the scenes within the desired song.

As you can see, Set Lists are a great way of creating different combinations of scenes for different shows and is safer than moving things around within the Master Show List. An

additional advantage is that, as you can see from our example, the same scene can be used multiple times within a Set List. This is done by adding the desired scene to the Set List at each desired location. From the example above, the scene named “Between Songs / effects off” has already been used twice and will probably be used every time the artist will talk between songs. This approach only uses one space in console memory but turns into multiple scenes in the Set List, this is better than having to go back and search for the scene during the show.

Once you have created a Set List, return to the main window by pressing OK. If you choose the cancel option, changes made to the currently selected Set List will not be saved. Choosing a different Set List to edit in the Set List Maintenance window will lock in the changes made so far.

Back in the main window, use the Set List pull down option to select one of your created set lists. Below we have recalled the Set List that we created above.




The first thing you will notice is that there are only as many scene lines as there were scenes assigned to the set list. That is because this is a defined subset of our Master Show List, with duplicates. The record and edit functions are also severely limited within a Set List. You are only able to record changes to the Current Scene, i.e. update the information of the scene. The Next Available or Scene Number select options are not available in the Record window. If you need to create a new scene, you must first return to the Master Show List to create it. Then you can add it into the appropriate Set List or Lists.

In addition, all of the Cut, Paste and Insert edit options are not permitted. All Cut and Paste actions must also be done within the Master Show List or the Set List Maintenance Window.

## Pull-Down Menus

The following is a review of the functions within each of the available pull-down menus in the DISC software.

**File Menu**

| | |
|---|---|
| New Show | Creates a new show file |
| Open Show | Opens an existing show file. |
| Close | Closes current show file, will prompt to save if changes were made. |
| Save | Saves current show file. |
| Print | Prints via Windows printer driver the complete current Set List selection, either Master or Set. |
| Print Setup | Opens the Windows print setup window. |
| Exit | Closes current show file, will prompt to save if changes were made, and then exits the program. |

**Edit**

| | |
|---|---|
| Edit Scene Detail | Opens scene detail window to edit. |
| Insert New Scene Above | Inserts next available empty scene number between the highlighted scene and the scene above on the Master Show List. |
| Insert New Scene Below | Inserts next available empty scene number between the highlighted scene and the scene below on the Master Show List. |
| Cut Selection | Selects the highlighted scene for moving. The scene is not actually “cut” until the paste command is executed. This is done because there must always be the full 256 scenes on the Master Show List. |
| Cut Selected Song | Same as Cut Selection but will move entire song associated with the highlight scene. |
| Copy Scene Detail | Copies to the clipboard the Song Name, Scene Name and Notes of the highlighted scene. |
| Paste Selection Above | Places the cut scene or song between the highlighted scene and the scene above on the Master Show List. |
| Paste Selection Below | Places the cut scene or song between the highlighted scene and the scene below on the Master Show List. |
| Paste Detail | Pastes from the clipboard the Song Name, Scene Name and Notes that were copied there. |
| Empty Selection(s) | Clears the highlighted scene or scenes of all scene detail information and marks them as [Empty] so they are available to be used as new. |
| Sort By | Allows you to sort the Master Show List by Scene Number or Song Name. |
| Go To | Opens the Find Scene window. |
| Set List Maintenance | Opens the Set List Maintenance window. |

**View**

| | |
|---|---|
| Show Mode | When checked, removes the record button from view and limits the Edit option as when working from a Set List. In addition, in Show Mode, double clicking on a scene immediately executes the scene as opposed to opening the scene detail window when not is Show Mode. |

**Tools**

| | |
|---|---|
| Settings | Opens the Setting window where you can select the Com port that you are communicating through. You can also select the Baud rate (default is 19200). Auto Save, if selected will automatically save your Show file every 10 minutes. |

**Window**

The current version of the software does not support multiple files being open simultaneously. Therefor there are no available options in the Window menu.

**Help**

| | |
|---|---|
| About Software | Opens about window with software version and contact information. |

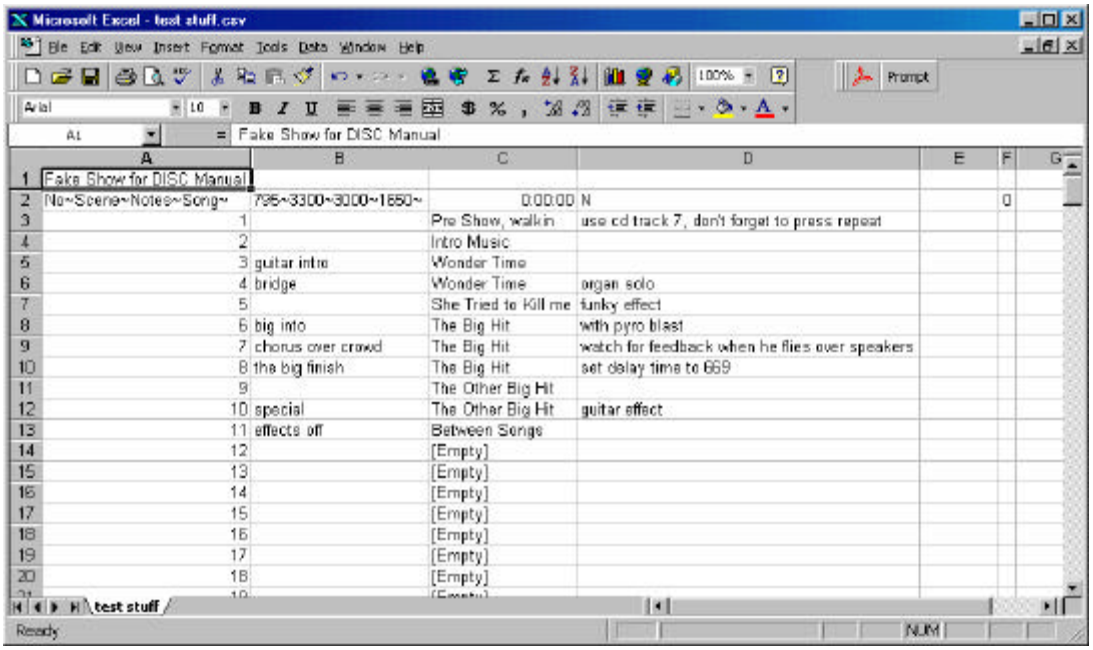
## File Formats

As mentioned earlier, the main Show file is saved as a .csv file for easy importing into Excel. There are several other files that are associated with a show file which can be viewed and manipulated from programs other than the DISC software if you choose.

The main show file is saved as a .csv format that can be opened directly into Excel or any other spread sheet application. All detail information is stored here along with general show file information. The information contained in the cells is as follows:

A1 Show Description field.
A2 Column order by header title.
B2 Width of each column from left to right.
C2 The last save time on the timer clock.
D2 The statues of the Show Mode flag. “N” equals NOT in Show Mode, “Y” equals in Show Mode.
E2 Shows the visible state of the four columns. With nothing shown, as below, all columns are visible. With the right most column hidden, there is a “3~”. With the two right columns removed, there is a “2~3~”. Etc.
F2 This field is the active Set List. “0” represents the Master Show List, and then the numbers increment as the set lists are displayed in alphabetical order in the Set List pull down view.

All of the scene detail begins at row 3. All 256 scenes are displayed in scene number order with the scene number in column A, Scene Name in column B, Song Name in Column C and Notes in Column D. Below is the Excel file for the Show File we have been working with thus far.




The second file that is created as part of the show file is a .bak file with the same name as the main .csv file. This is simply a backup copy of the .csv file and is updated every time you save the main .csv file.

The third file that is created is the Master Show List scene order file. This is a text file with the scene number of each scene listed in the order of the current Master Show List. This file is named the show file name followed by two “at” signs .txt. So for the above file it is “test stuff@@.txt”.

The final files are the individual set list scene order files. They are similar in format to the Master Show List scene order file. There is one for each created Set List. These files are named by a combination of the show file name and the set list name separated by the “at” sign .txt. So for the Standard Set that we created earlier, the file name would be “test stuff@Standard Set.txt”.

## Distributed Intelligence Control Review

The following is a review of the controls that are able to be reset by the Distributed Intelligence® Control system.

## Channel Assignment Module (mono & stereo)

- 8 Audio Group Assignments
- 8 VCA Assignments
- 2 Mono Mix and 2 Stereo Mix Assignments
- 8 Mono Aux and 4 Stereo Aux Assignments
- Channel Mute Switch
- Fader Position (optional)

## Stereo Input Return Module

- 8 Audio Group Assignments
- 8 VCA Assignments
- 2 Mono Mix and 2 Stereo Mix Assignments
- 2 Mono Aux and 2 Stereo Aux Assignments
- Insert Switch
- Channel Mute Switch
- Fader Position (optional)

## Group / Matrix / Aux Module

- Aux Mute Switch(s)
- Matrix Mute Switch
- Matrix Insert Switch
- 2 Stereo Mix and 1 Group Assignments for Group Inject
- Group Insert Switch
- Group Mute Switch
- 2 Mono Mix and 2 Stereo Mix Assignments for Group Signal

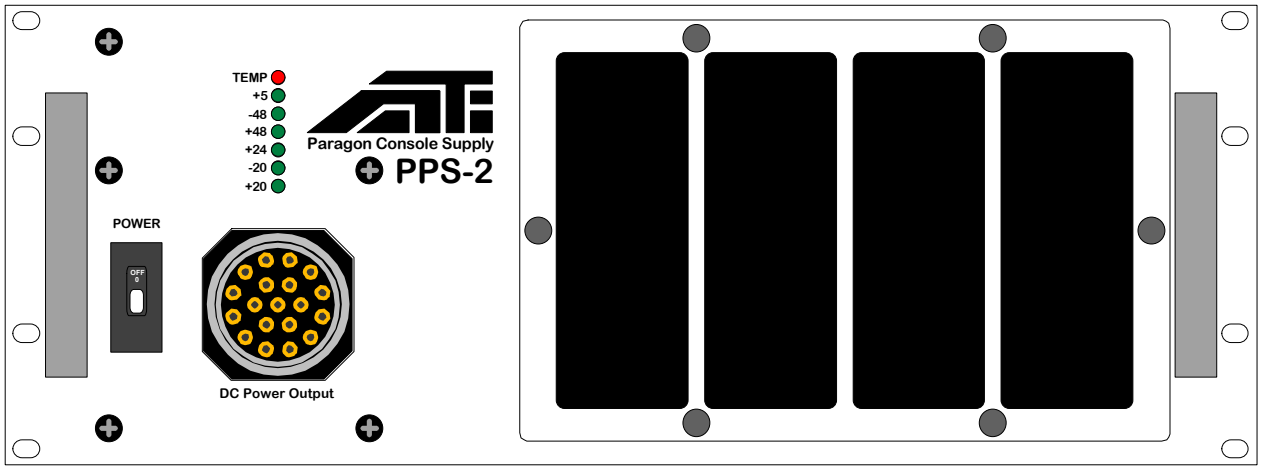
## Mix Master Module (mono & stereo)

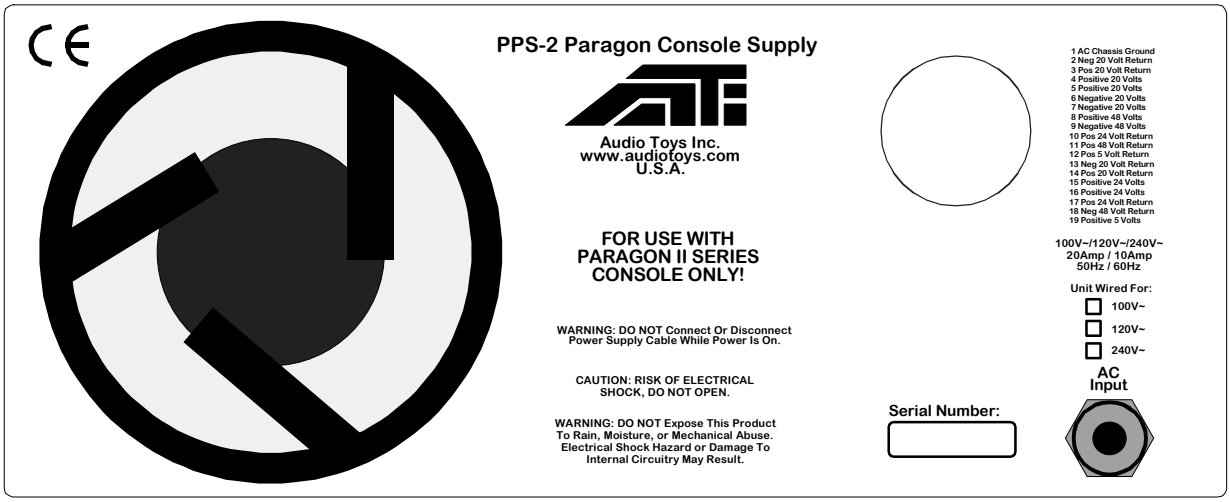
- Mix Mute Switch
- Mix Insert Switch
- 2 Stereo Mix Assignments for Stereo Input
- 4 VCA Grand Master Assignments
- 2 VCA Faders Position (optional)

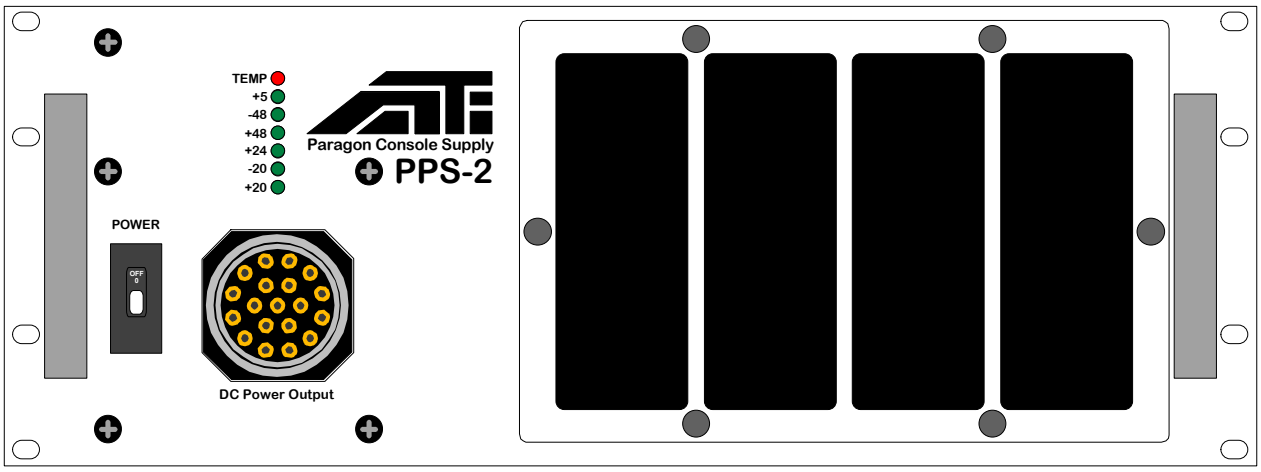
## Master Lower Module

- 2 VCA Grand Master Faders Position (optional)

# PPS-2 Power Supply






## PPS-2 Power Supply

The Paragon II Production console is shipped standard with the PPS-2 model power supply. The console is also compatible with the PPS-4 power supply.
**NOTE: Supply is shipped from the factory wired for 115VAC input voltage!** Cooling occurs from air being sucked in the front of the power supply through the screen and hot air is pushed out the rear exhaust vents. It is important that these areas are kept free of obstructions. The internal cooling fan is designed to change to high speed when the internal heat sink surface temperature reaches 90◦C. **NOTE: Please clean the air input filter screen regularly.**

## Power Switch

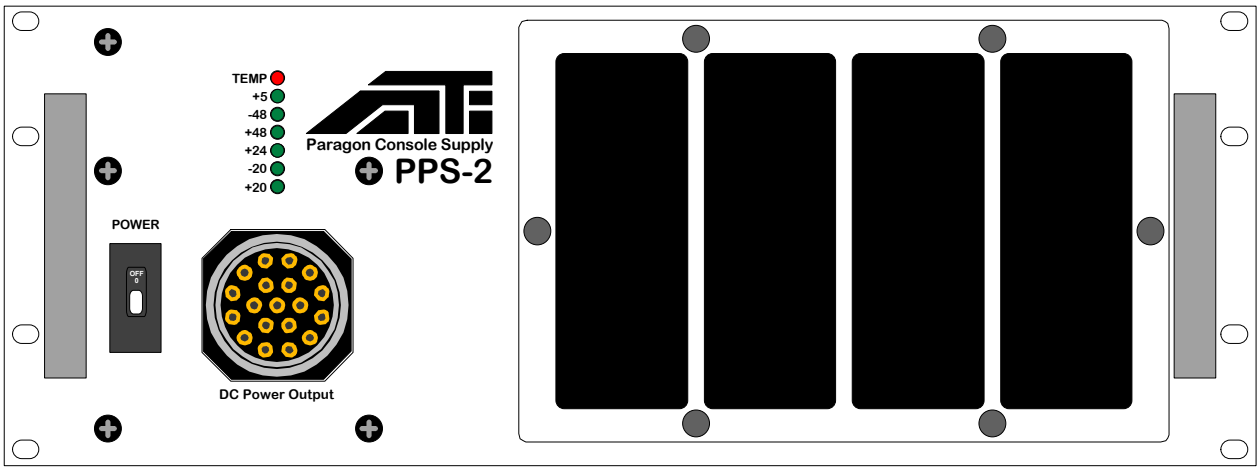
Pressing the switch to the up position turns the supply on. The On switch is also the circuit breaker which is designed to trip in an DC output over voltage situation, an over temperature situation or a VAC input over voltage situation (i.e. plugging a supply wired for 115 VAC input into a 230 VAC outlet).

## Temp LED

The LED is green under normal conditions. It is designed to turn orange when the heat sink surface temperature reaches 100◦C. The LED will then turn red when the heat sink surface temperature reaches 110◦C and the unit will shutdown when the heat sink temperature reaches 120◦C. The supply is designed to operate with ambient temperatures up to 50◦C.

## Output Indicators

Each power rail has an LED which illuminates when the output rail voltage is within 10% of the designed level.

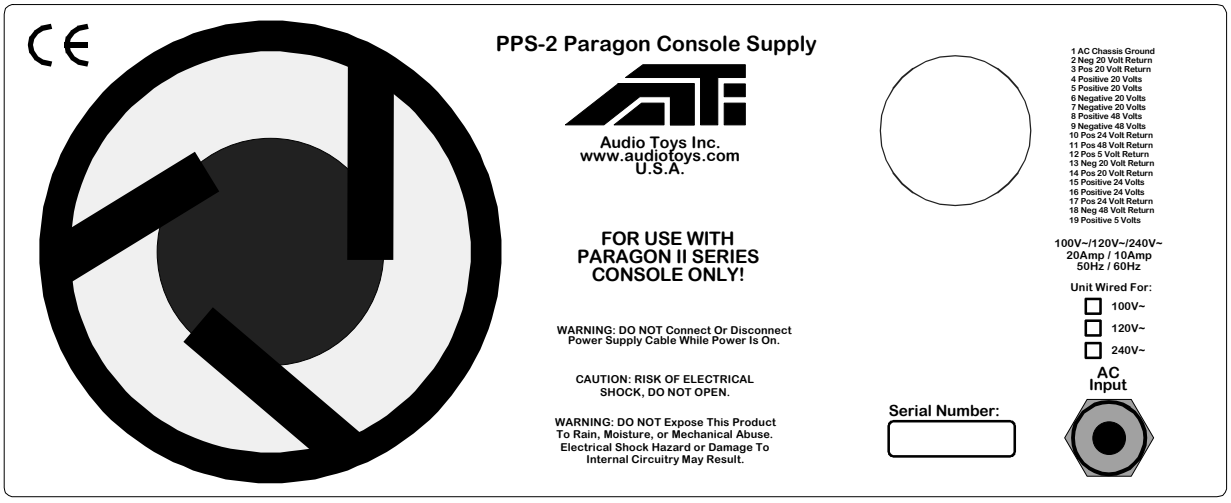



## DC Power Output

Main DC power output to console. See the table at right for connector pin-out. The connector comes standard on the front of the unit. If you require the connector on the rear panel for use with the Power Supply Interconnect Unit or other reasons, the connector can be changed, please consult an ATI service technician for assistance.

**NOTE: Please use only the power cable supplied with the console. (ATI Part # 952-0001) A standard lighting cable will NOT work as a substitute.**

**1 AC Chassis Ground**
**2 Neg 20 Volt Return**
**3 Pos 20 Volt Return**
**4 Positive 20 Volts**
**5 Positive 20 Volts**
**6 Negative 20 Volts**
**7 Negative 20 Volts**
**8 Positive 48 Volts**
**9 Negative 48 Volts**
**10 Pos 24 Volt Return**
**11 Pos 48 Volt Return**
**12 Pos 5 Volt Return**
**13 Neg 20 Volt Return**
**14 Pos 20 Volt Return**
**15 Positive 24 Volts**
**16 Positive 24 Volts**
**17 Pos 24 Volt Return**
**18 Neg 48 Volt Return**
**19 Positive 5 Volts**




## Rear Exhaust Vent

Never block the rear exhaust vent or the power supply may overheat. Also beware not to allow any foreign objects to fall into the supply.

## Rear Mounting Support Points

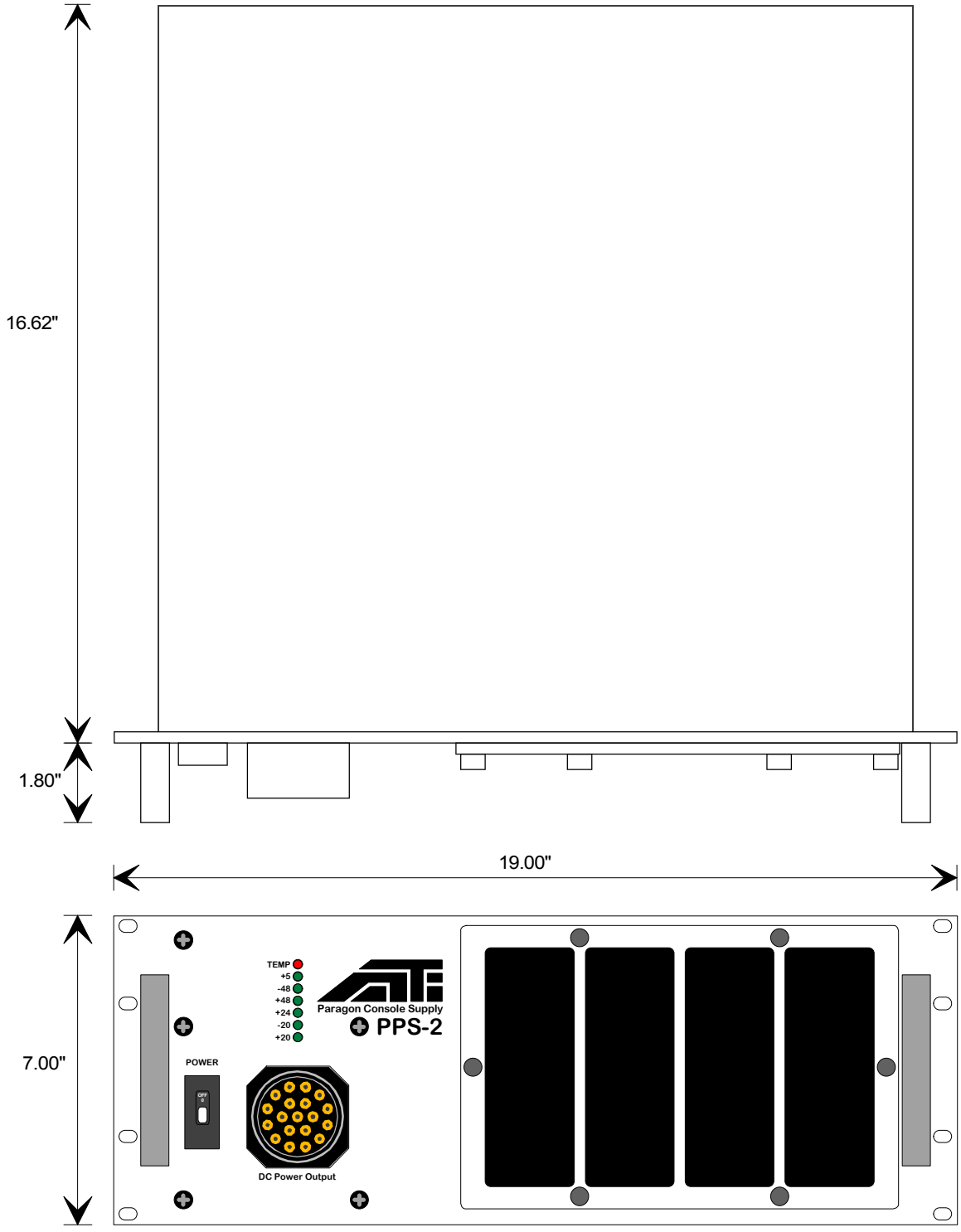
ATI strongly suggest that you rear support your power supplies in your rack. To aid in this, there are four rear mounting points provided in the power supply chassis. They are 10/32 threaded holes.

## Optional DC Power Output

The output connector can be optionally mounted on the back panel. If you need to change the location after delivery, please contact ATI for details.

## AC Input

Power supply power input. **NOTE: Supply is shipped from the factory wired for 120VAC input voltage!** The supply is designed to handle the following inputs: 100/120/240 VAC +10%/-15%.

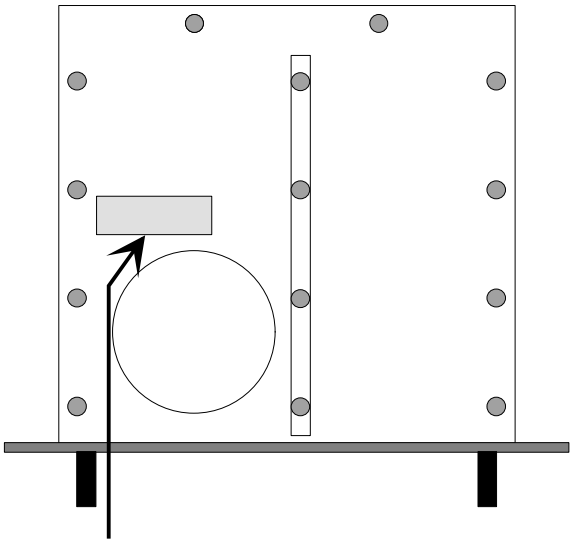



**Weight**
82 LBS

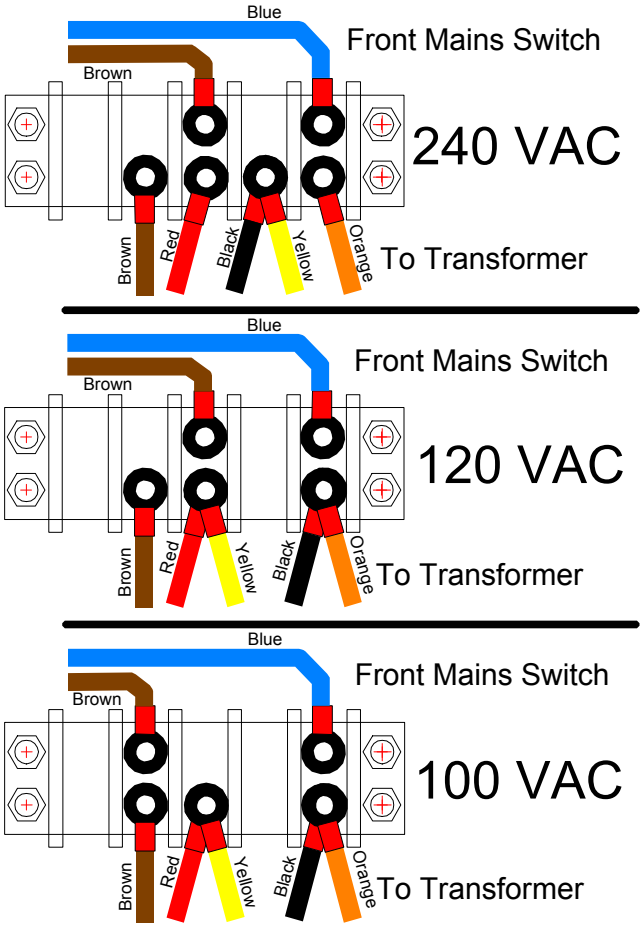
# PPS-2 Power Supply Specifications

| Output Voltage | Max Current | Function |
|---|---|---|
| +48Volts | 2Amps | Mic Preamps & Phantom Power |
| -48Volts | 2Amps | Mic Preamps |
| +20Volts | 20Amps | Main Audio |
| -20Volts | 20Amps | Main Audio |
| +24Volts | 10Amps | All LED's and Lamps |
| +5Volts | 3Amps | All Logic Control |

# PPS-2 Input Voltage Changing Directions



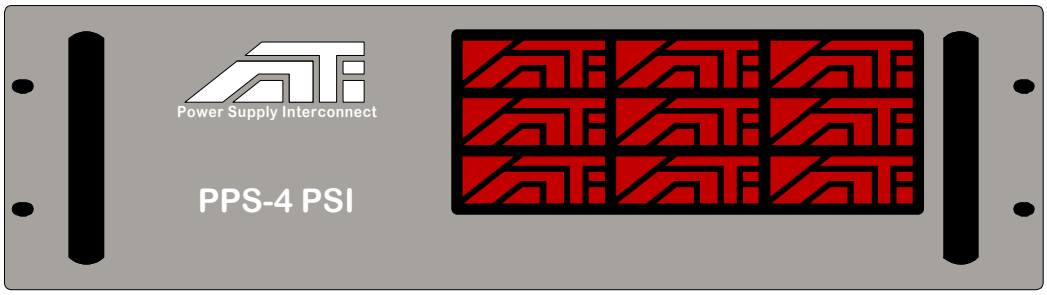
The PPS-2 offers three different input voltage choices, 120 V (standard), 240 V, and 100 V. The current setting should be indicated on the rear panel. If you need to change the selection, please update the markings on the rear panel. See directions below for changing input voltage setting.

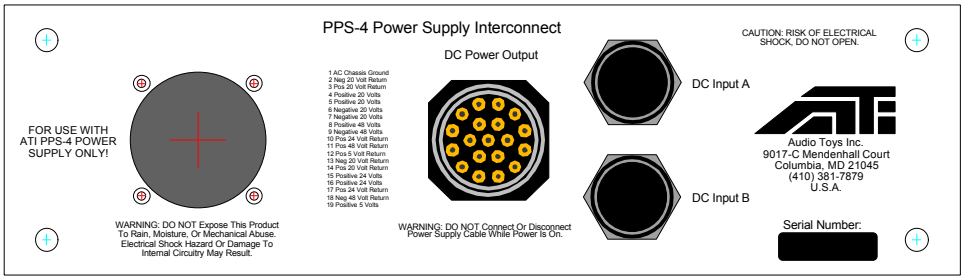



1. Un-plug supply from wall!!
2. Remove 15 large phillips head screws from the top of the supply and remove lid.
3. Locate the main input voltage terminal block. It's location is indicated above.
4. Determine which input voltage range you require and carefully arrange the wires as shown to the left. Note that the 100 VAC require moving the Brown wire from the Mains Switch.
5. When you have finished moving the wires double check that they are all secure. If you would like to confirm you wiring, plug in the supply. Confirm that you are getting the correct input voltage in the front panel meter. With the console NOT connected, turn the supply on. With a multi-meter, carefully measure VAC between the Red and Black wire that go to the transformer, and then between the Orange and Yellow wire. Both should measure 120 VAC.
6. Once you are sure everything is correct, replace the lid and secure with the screws that were removed in step 2.
7. Replace the covering plate.
8. Finally indicate on the rear panel, what the current VAC input wiring is by marking the appropriate box.

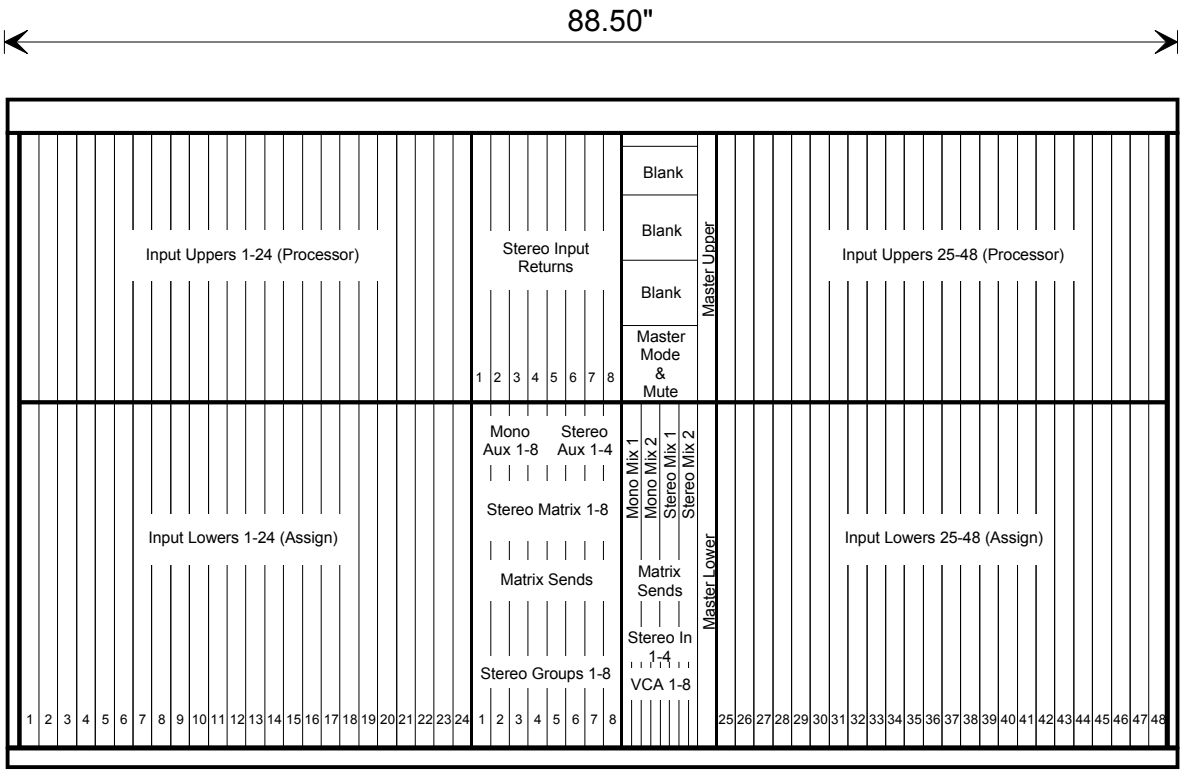
# PPS-4 Power Supply Interconnect

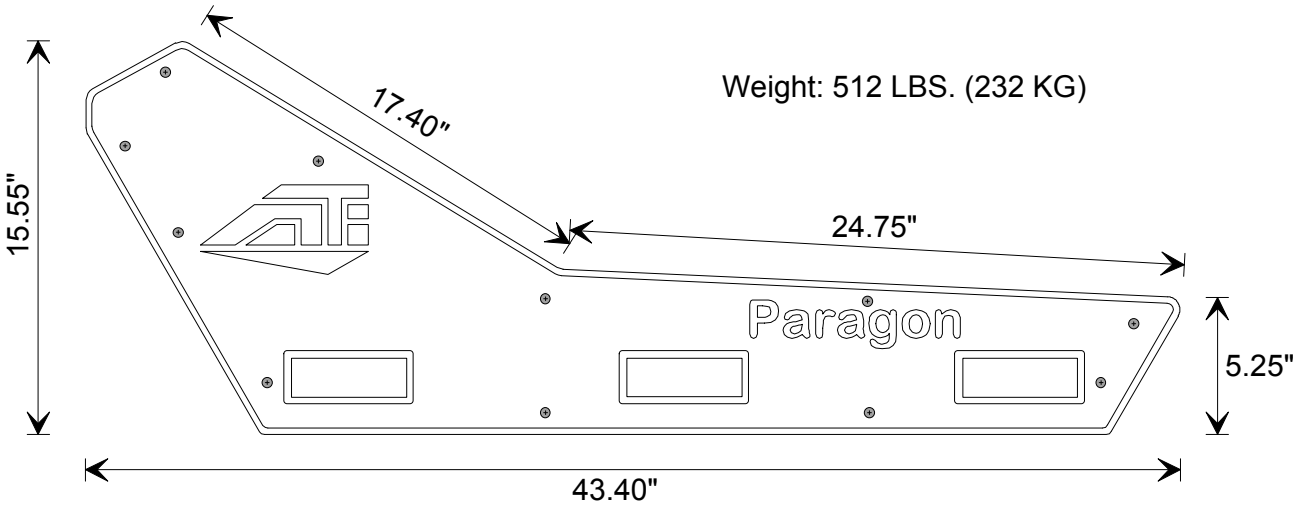
The PPS-4 Power Supply Interconnect box provides a way to passively connect together two PPS-4, PPS-2 or one of each power supplies for redundancy. Each of the two DC inputs has a captive cable with a connector on it which plugs directly to the output of your power supply. Then the long cable from the console is connected to the DC output of the Interconnect box. In this configuration you can either run both supplies sharing the console load, or run one supply with the second immediately ready to take its place. The interconnection is done passively using very low voltage drop diodes. If you would like more information about this unit, please contact your sales representative.



# Paragon II Production 48CH Console Dimensions




Weight: 512 LBS. (232 KG)

# Paragon II Production 48CH Console Specifications

- Maximum Input level – ANY input: +24dBu
- Maximum Output level – ANY output: +28dBu
- Frequency Response: +0dB / -0.5dB 10Hz to 30KHz
- Gain Structure: -2dB internal level, +24dB clip point
- Crosstalk: -70dB at 10KHz
- Noise (20KHz bandwidth): -132dBm E.I.N. (shorted input)
  -129dBm E.I.N. (150ohm input)
- Residual Output Noise: -90dBm
- Group Output w/ fader at unity & all channels assigned: -80dBm
- Distortion: 0.008% THD+N @ +4dBu

## General Specifications

The Paragon II Production standard console is equipped with 48 channel input slots and 8 stereo returns. All inputs have the ATI proprietary high voltage microphone preamp with gain adjustable from 0 to 65dB. Stereo Inputs are available to be installed in ANY input slot with a maximum of 24 in a standard frame. The console is also equipped with either 8 stereo output groups, 8 mono and 4 stereo auxiliary outputs, 2 mono and 2 stereo main mix outputs and 8 stereo matrix outputs.

## Channel Processing (Upper) module

- 41 position Input gain pot with +24dB maximum input level
- Signature ATI high voltage mic preamp (+/- 48 volt power rails)
- ATI's infinite headroom 4 band fully parametric EQ
- Insert send level adjust control from infinity to +6dB
- Insert accept switch, switched pre/post EQ
- Phase reverse switch
- 48V phantom power switch
- Input level meter with a range from –24dB to +21dB
- Variable direct output, switched either stereo or dual mono and switched pre/post signal
- Low pass filter 24dB/oct with in/out switch
- High pass filter 24dB/oct with in/out switch

**Channel Dynamics on every input**

- Patented ATI RMS compressor/limiter
- Fully parametric noise gate
- Gate and compressor side chain solo select

## Stereo Channel Processing (Upper) Module

- Interchangeable with any Mono Input Module
- All features of Mono Input with 4 band sweep EQ
- Left to right and right to left select switches and cross-pan control

## Channel Assign (Lower) Module

- 8 multi-function switches to assign Groups / Mutes / VCA's with tri-color LED and local Mode switch
- Stereo 1 & 2 and Mono 1 & 2 main Mix output assign switches
- Separate Mix and Group pan with link switch
- LCR select switch, left and right to stereo main outputs and center to mono main outputs
- 8 Mono Aux assigns with paired level control and pre/post select switch
- 4 Stereo Aux assigns with level and pan control and pre/post select switch
- Channel on/off switch, overrides any external control (i.e. mutes etc.)
- Channel Solo switch
- Module Safe switch, isolates the module from all external control
- P&G 100mm audio fader, Stereo assign has P&G 100mm VCA fader
- Total of: 8 Stereo Groups, 8 Mute Groups, 8 VCA Groups, 8 Mono Auxes, 4 Stereo Auxes, 2 Mono Main Mix Outputs, 2 Stereo Main Mix Outputs

## Output Module Group/Matrix/Aux

**Stereo Group Output Master**

- Stereo 1 and 2 and Mono 1 and 2 main Mix output assign switches
- P&G 100mm stereo audio fader
- Group on/off switch, overrides any external control (i.e. scenes etc.)
- Nominal Post fader and Mute Mono Output always active
- Group Solo switch
- Group Safe switch, isolates the Group from all external control
- 2 X 10 segment meter show Group Output level from –12dB to +15dB
- Meter Sum switch, selects summing amp output to meter
- Insert accept switch, switched pre/post fader
- Left to right, right to left and mono select switches
- Stereo Inject level and pan control assignable to the local group and stereo main mix outputs 1 & 2
- Inject solo select switch sends inject input to Output Pre solo buss
- 8 Stereo Matrix sends with level control
- Group to Matrix pre fader select switch

## Output Module Group/Matrix/Aux cont.

**Stereo Matrix Output Master**

- P&G 65mm stereo audio fader
- Balance potentiometer
- Matrix on/off switch, overrides any external control (i.e. scenes etc.)
- Matrix/Aux Safe switch, isolates the Matrix and Aux from all external control
- 2 X 10 segment meter show Matrix Output level from –12dB to +15dB
- Matrix Insert accept switch
- Aux to Matrix select switch, feeds Aux sum into Matrix
- Aux to meter select switch
- Matrix Solo switch
- Nominal Post fader and Mute Mono Output always active
- Stereo Matrix Inject level and pan control

**Aux Output Master**

- Mono Master level control
- Stereo Aux level and pan control
- Aux on/off switch, overrides any external control
- Aux solo switch

## Main Mix Output Modules (2 Mono / 2 Stereo)

**Main Mix Mono/Stereo**

- P&G 100mm mono/stereo audio fader
- Balance potentiometer
- Main Mix on/off switch, overrides any external control (i.e. scenes etc.)
- Module Safe switch, isolates the Mix and Stereo Input from all external control
- Nominal Post fader and Mute Mono Output always active
- Insert accept switch
- Program assign switch
- Meter Sum switch, selects summing amp output to meter
- Group Solo switch
- 2 X 20 segment meter show Mix Output level from –36dB to +21dB
- Mono/Stereo Inject level /and pan control
- 8 Stereo Matrix sends with level control
- Mix to Matrix pre fader select switch

**Stereo Input**

- Level and pan control
- Stereo 1 and 2 Main Mix output assign switches
- Stereo Input solo switch
- Matrix assign switch sends input to mix matrix send pots

**VCA controls**

- 2 X P&G 100mm VCA fader
- 2 X VCA Group mute switch
- 2 X VCA Group solo switch

## Master Lower Module

- Monitor and Headphone output level controls
- Headphone control pre/post Monitor level select switch
- Input Pre, Post and Mono solo buss level control
- Input Pre Dynamics, Post fader and Mono (side chain) select switches
- Output Pre and Post solo buss level control
- Output Post select switch
- External solo stereo input with level control and solo switch
- 2 X 20 segment meter show Mix Output level from –36dB to +21dB
- two 10 segment meters show compressor and gate attenuation
- Monitor insert accept switch
- Monitor Digital Delay accept switch

**Switch functions**

- SIP (Solo in Place) mutes all channels except those that are soloed or have safe selected
- Input Solo indicates any active input solo, depress to clear input solos
- Output Solo indicates any active output solo, depress to clear output solos
- Depressing both Input Solo and Output Solo switch, activate alternate select switches (SIP, Delay etc.)
- Solo Add disables solo auto reset
- Input Prior prioritizes Input Solos over Output Solos and separates the Input and Output solo reset busses. In Split Mode, this switch assigns the Program buss to the Headphone Output
- Program On assigns the Program buss to the Monitor output
- Mono Check selects a mono sum to the solo outputs
- Lt switch will mute the left solo output. When Mono Check is active it will send the left signal to both outputs
- Rt switch will mute the Right solo output. When Mono Check is active it will send the Right signal to both outputs
- Split In separates the Headphone Output from the Monitor Output sending Input Solos to the headphone Output and Output Solos to the Monitor Output
- Split DIM will immediately DIM the Solo Outputs selectable 6 to 18dB if Split is not selected. If Split is selected, the monitor output will DIM when an Input Solo is activated.

**VCA Master A and B controls**

- 2 X P&G 100mm VCA fader
- 2 X VCA Master mute switch
- 2 X VCA MAster solo switch

## Master Upper Module

- Clear Com belt pack station with Call switch, Mic switch and headset level
- Solo switch places ICOM signal onto Input Mono solo buss
- ICOM to Talkback switch places ICOM signal into Talkback system
- Talk selects Talkback mic, line and ICOM if assigned to feed Talkback outputs 1 and 2 and Talkback accept switch in the Oscillator section
- Talk to ICOM switch places Talkback mic and line into the ICOM system
- Talkback Outputs 1 and 2 switches activate their respective outputs
- Dual concentric for Osc/Noise/Talkback level and Oscillator frequency
- Routing pan control
- Routing switches for all output busses
- Overhead lamp dimmer control

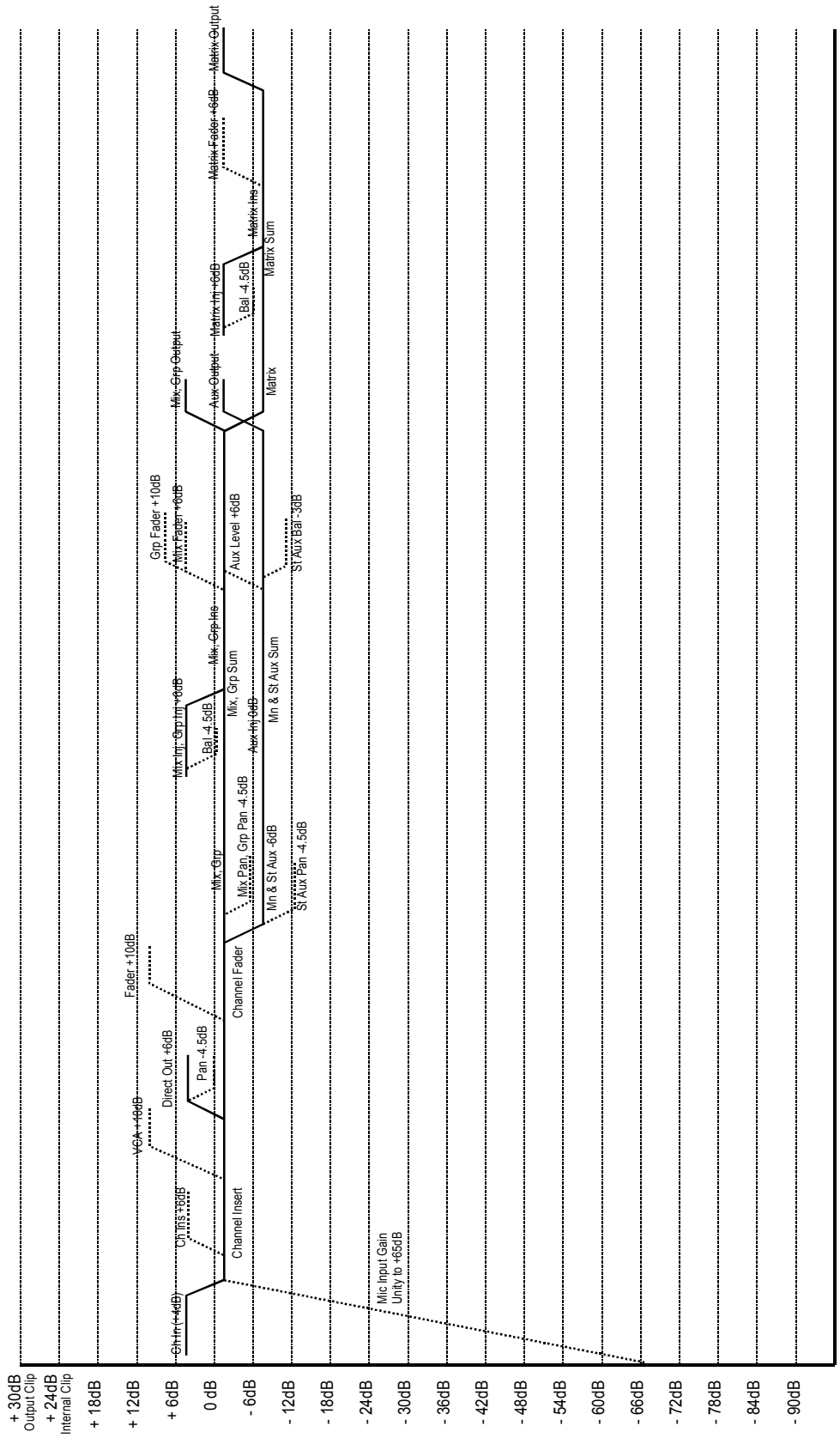
## Stereo Return Module

- Dual Concentric Input gain pot with +24dB maximum input level
- Signature ATI high voltage mic preamp (+/- 48 volt power rails)
- 3 band stereo sweep EQ
- Left phase reverse switch
- 48V phantom power switch
- 8 multi-function switches to assign Groups / Mutes / VCA's with tri-color LED and local Mode switch
- Stereo 1 and 2 and Mono 1 and 2 main Mix output assign switches
- Separate Mix and Group pan with link switch
- LCR select switch, left and right to stereo main outputs and center to mono main outputs
- Mono Aux 7 and 8 assigns with single level control and pre/post select switch
- Stereo Aux 11 and 12 assigns with single level and pan control and pre/post select switch
- Channel on/off switch, overrides any external control (i.e. mutes etc.)
- Channel Solo switch
- Module Safe switch, isolates the module from all external control
- Left to right and right to left select switches
- Insert accept switch
- P&G 100mm fader

## Master Controller Module

- 8 Mute Group Master switches
- Group / VCA / Mute mode select switches change all input multi-functions switches to selected mode
- Group switch with Input Solo and Output Solo Select combination activated Delay time adjustment mode. Use Mute 1 and Mute 2 switches to decrement

## Gain Structure Diagram



# Appendix 1
# Paragon II Production Jumper Options

### Mono Channel Processing Module

On the Right Hand PCB there are seven choices, Pre Dyn (Pre1), Pre Fader (Pre2), Direct Out Pre, Direct Out Post, Gate Function and Gate and Compressor Key Input.
Signals for Pre Dyn (Pre1) and Pre Fader (Pre2) use four 3-pin headers. The options are as follows:

| | |
|---|---|
| Post Filters | After the mic amp and high and low pass filters, pre everything else. |
| Post EQ | After mic amp, filters and EQ ***BEFORE*** the EQ in/out switch, the EQ is always in this path. |
| Post EQ & INS | After mic amp, filters, EQ and Insert including all in/out and pre/post switches but before VCA (processing). |
| Post VCA | Post all processing. |

Pre Dyn (Pre1) and Pre Fader (Pre2) can be any of these signals. "X"s below indicate standard configuration from factory.

| | Post Filter P12 | Post EQ P10 | Post EQ & INS P13 | Post VCA P11 |
|---|---|---|---|---|
| Pre 1 | | | X | |
| Pre 2 | | | | X |

Direct Out Pre and Direct Out Post; They have similar options to Pre1 and Pre2 with one change. There is no "Post EQ" choice, but you do receive a "Post Fader" option which is the Pre2 signal post the fader control. "X"s below indicate standard configuration from the factory.

| P4 | Post Filter | Post EQ & Insert |
|---|---|---|
| Direct Out Pre | X | |

| P3 | Post VCA | Post Fader |
|---|---|---|
| Direct Out Post | | X |

Gate Control allows the gate to function as either a gate or a ducker. "X" below indicates standard configuration from the factory.

| P5 | Gate | Ducker |
|---|---|---|
| Gate Controls | X | |

On the Left Hand PCB there are two jumper to select the audio used in the compressor and gate key circuits. The choices are Post filters and Post EQ & Insert as described above. "X"s below indicate standard configuration from the factory.

| | Post Filters | Post EQ & Insert |
|---|---|---|
| Compressor P3 | | X |
| Gate P2 | X | |

### Stereo Channel Processing Module

On the Right Hand PCB there are thirteen choices, Pre Dyn (Pre1) and Pre Fader (Pre2) Left and Right, Mono, Direct Out Pre and Post left and right, right phase, insert Pre or Post EQ and Gate Function.
Signals for Pre Dyn (Pre1) and Pre Fader (Pre2) use five 3-pin headers for each left and right signal. The options are as follows:

| | |
|---|---|
| Post Filters | After the mic amp and high and low pass filters, pre everything else. |
| Post EQ | After mic amp, filters and EQ ***BEFORE*** the EQ in/out switch, the EQ is always in this path. |
| Post EQ & INS | After mic amp, filters, EQ and Insert including all in/out and pre/post switches but before VCA (processing). |
| Post VCA | Post all processing. |
| Mono | Output of Mono Jumper |

Pre Dyn (Pre1) and Pre Fader (Pre2) can be any of these signals. "X"s below indicate standard configuration from factory.

| LEFT | Post Filter P5 | Post EQ P8 | Post EQ & INS P4 | Post VCA P7 | Mono P3 |
|---|---|---|---|---|---|
| Pre 1 | | | X | | |
| Pre 2 | | | | X | |

| RIGHT | Post Filter P10 | Post EQ P12 | Post EQ & INS P9 | Post VCA P11 | Mono P13 |
|---|---|---|---|---|---|
| Pre 1 | | | X | | |
| Pre 2 | | | | X | |

The Mono option is chosen to be either post EQ & Insert or Post VCA. The "X" below indicates the standard configuration.

| P6 | Post EQ & Insert | Post VCA |
|---|---|---|
| Mono Signal | | X |

Direct Out Pre Left and Right and Direct Out Post Left and Right have the same choices as the Mono module. "X"s below indicate standard configuration from the factory.

| LEFT / P17 | Post Filter | Post EQ&Insert |
|---|---|---|
| Direct Out Pre | X | |

| RIGHT / P16 | Post Filter | Post EQ&Insert |
|---|---|---|
| Direct Out Pre | X | |

| LEFT / P15 | Post VCA | Post Fader |
|---|---|---|
| Direct Out Post | | X |

| RIGHT / P14 | Post VCA | Post Fader |
|---|---|---|
| Direct Out Post | | X |

The Insert point can be changed to either Pre or Post the EQ by pressing the internal switch on the Printed Circuit Board. When the switch is in the IN position, the insert point is Post EQ. This is also the position shipped form the factory.

The right side phase can be inverted by the phase switch by changing BOTH jumpers. The "X" indicates the standard configuration from the factory.

| P19 | Off | On |
|---|---|---|
| Right Phase | X | |

| P20 | Off | On |
|---|---|---|
| Right Phase | X | |

Gate Control allows the gate to function as either a gate or a ducker. "X" below indicates standard configuration from the factory.

| P1 | Gate | Ducker |
|---|---|---|
| Gate Controls | X | |

On the Left Hand PCB there are two jumper to select the audio used in the compressor and gate key circuits. The choices are Post filters and Post EQ & Insert as described above. "X"s below indicate standard configuration from the factory.

| | Post Filters | Post EQ & Insert |
|---|---|---|
| Compressor P3 | | X |
| Gate P2 | X | |

### Channel Assign Module

The Channel Assign Module allows you to select where in the signal path the Aux Pre signal is taken from. This is done by using three jumpers on the mono module and four jumpers on the stereo module. The possible options are Pre Mute, Post Mute - Pre VCA, and Post Mute & VCA (mono only). The Pre Mute line must be activated by one of the jumpers in order to use it. Otherwise this line is grounded to maximize mute kill. See choices below, "X"'s indicate standard configuration.

Mono

| | Active | Ground |
|---|---|---|
| Pre Mute P6 | X | |

| | Pre Mute | Most Mute |
|---|---|---|
| To P8-3 P12 | | X |

| | From P12 | Post VCA |
|---|---|---|
| Aux Pre P8 | X | |

Stereo

| | Active | Ground |
|---|---|---|
| Pre Mute RT P5 | X | |
| Pre Mute LT P6 | X | |

| | Pre Mute | Post Mute |
|---|---|---|
| Aux Pre LT P12 | | X |
| Aux Pre RT P13 | | X |

## Master Lower Module

Note that on the Master Lower Module there is a single jumper to change the scale of the Gate Attenuation meter from 0-60dB to 0-20dB. The jumper is originally set in the 0-60dB position.

| Master Lower | 0-60dB | 0-20dB |
|---|---|---|
| Gate Meter Scale | X | |

On the secondary PCB there are two jumpers which allow the external solo control jack to be driven by an external power source as opposed to a switch closure using internal console power as a reference.

| | External Pwr | Internal Pwr |
|---|---|---|
| Ext Solo Cntl P1 | | X |
| Ext Solo Cntl P2 | | X |

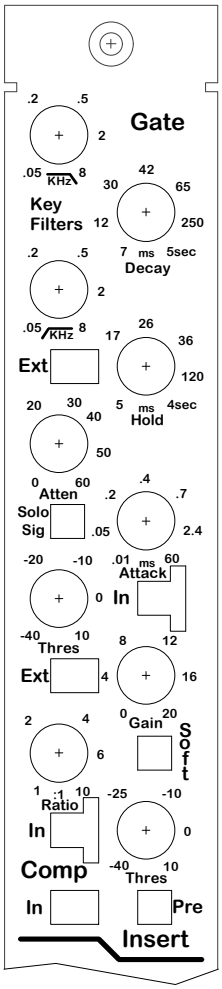
## Master Upper Module

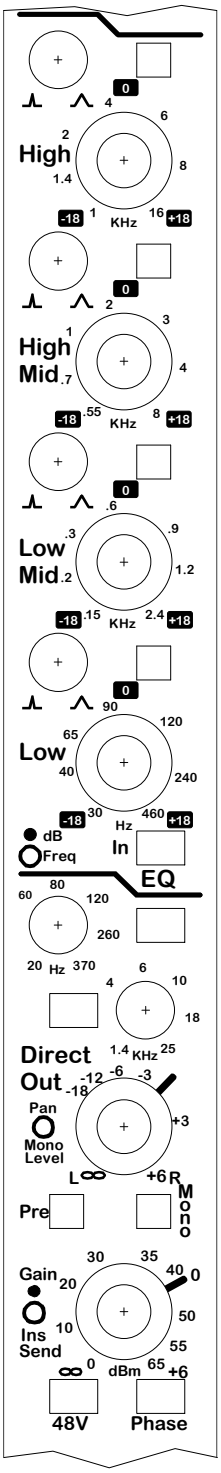
On the main PCB there are two jumpers which allow the Talkback external control jack to be driven by an external power source as opposed to a switch closure using internal console power as a reference.

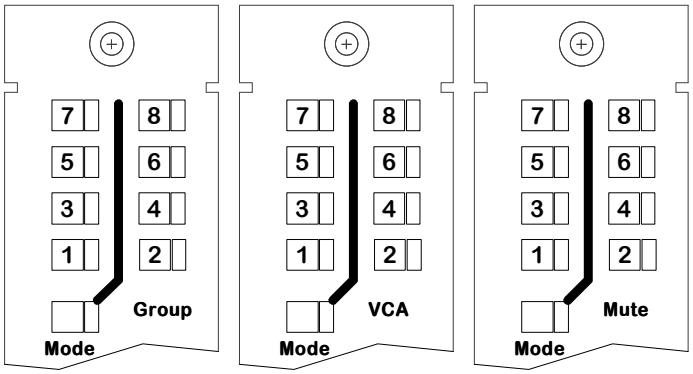
| | External Pwr | Internal Pwr |
|---|---|---|
| Talkback Cntl P10 | | X |
| Talkback Cntl P11 | | X |

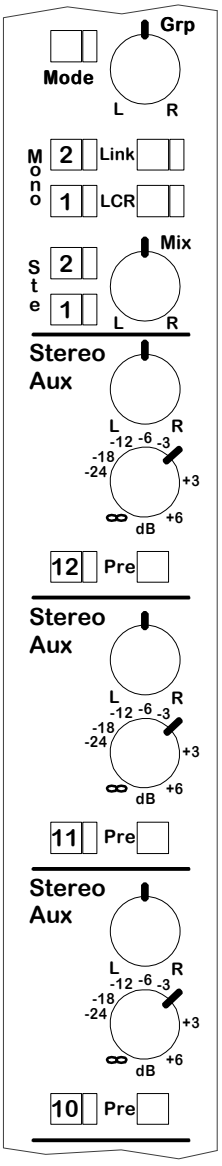
## Paragon II Production
## Mono Input Chart

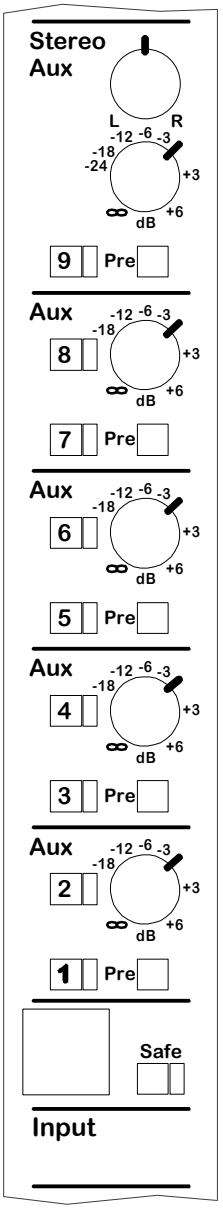
**Notes:**



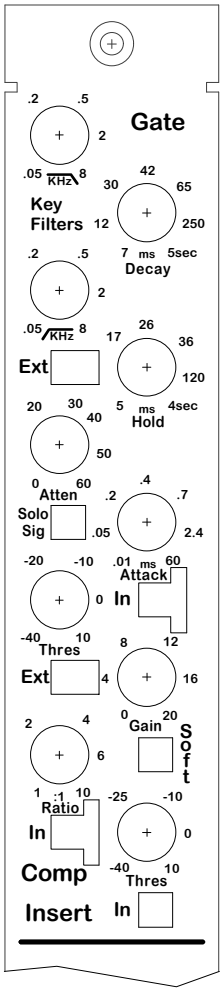



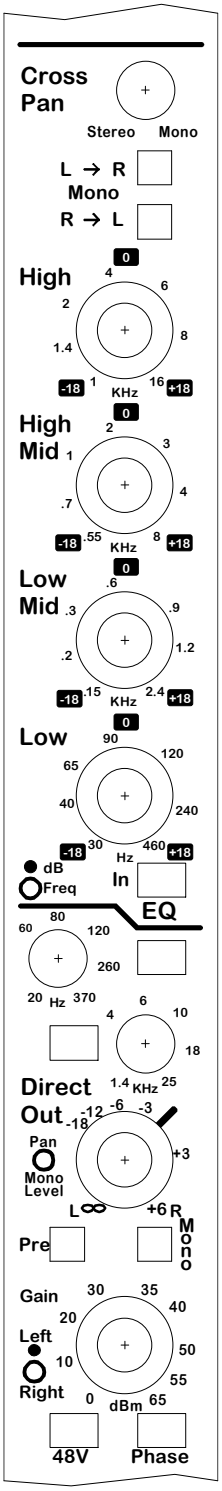



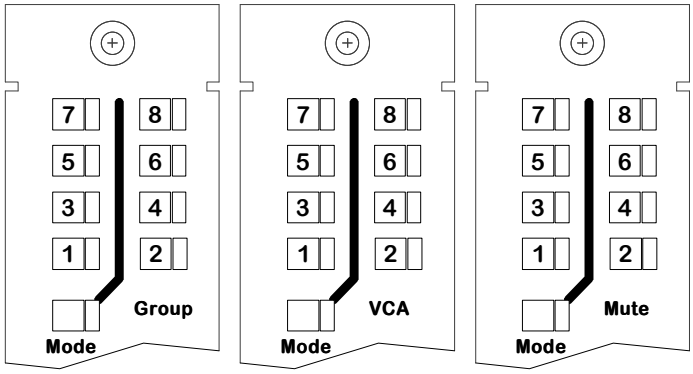



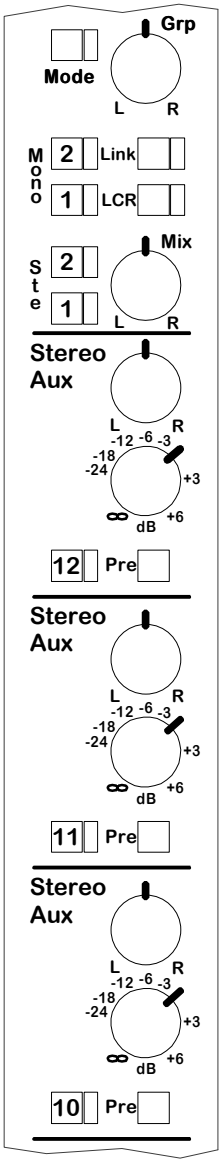
## Paragon II Production
## Stereo Input Chart

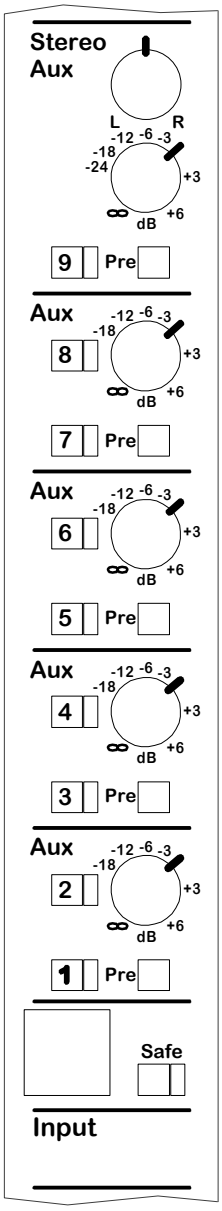
**Notes:**



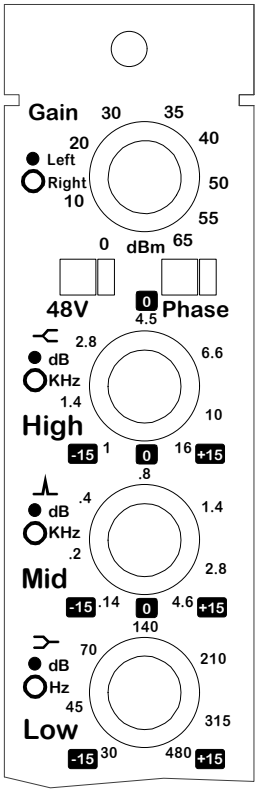



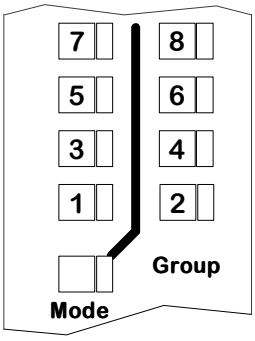



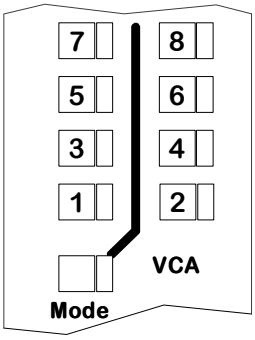



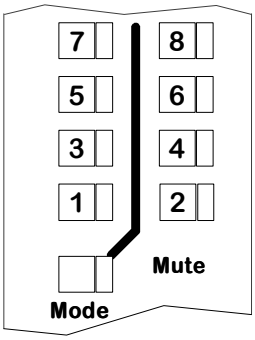
## Paragon II Production
## Stereo Input Return Chart

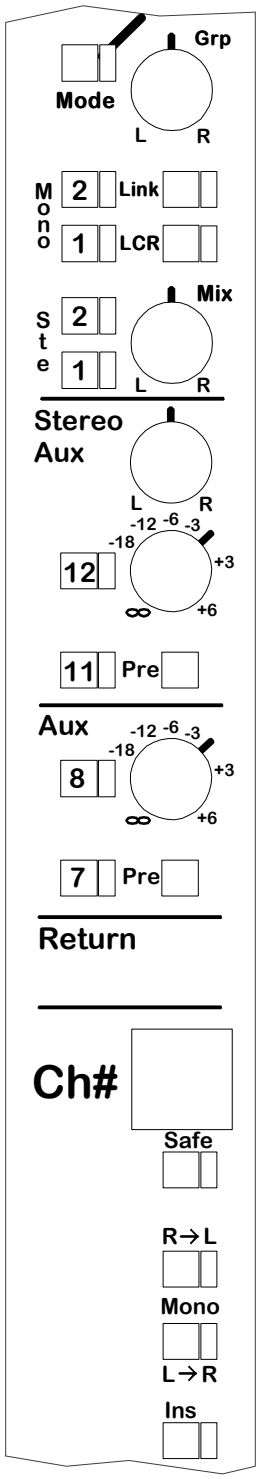
**Notes:**



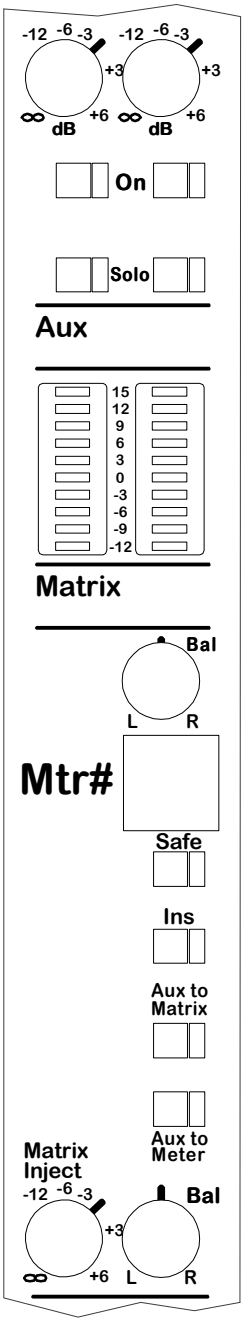



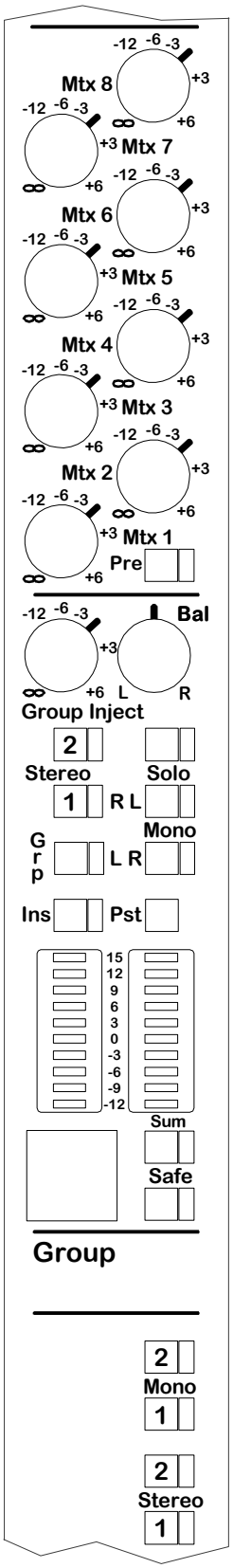



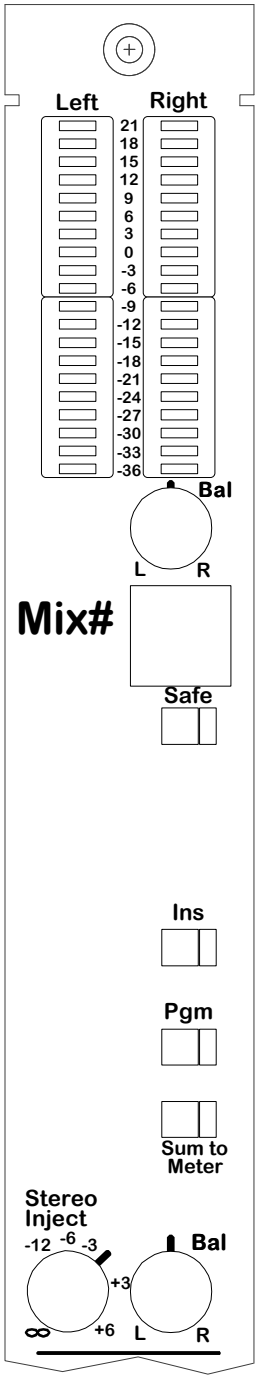
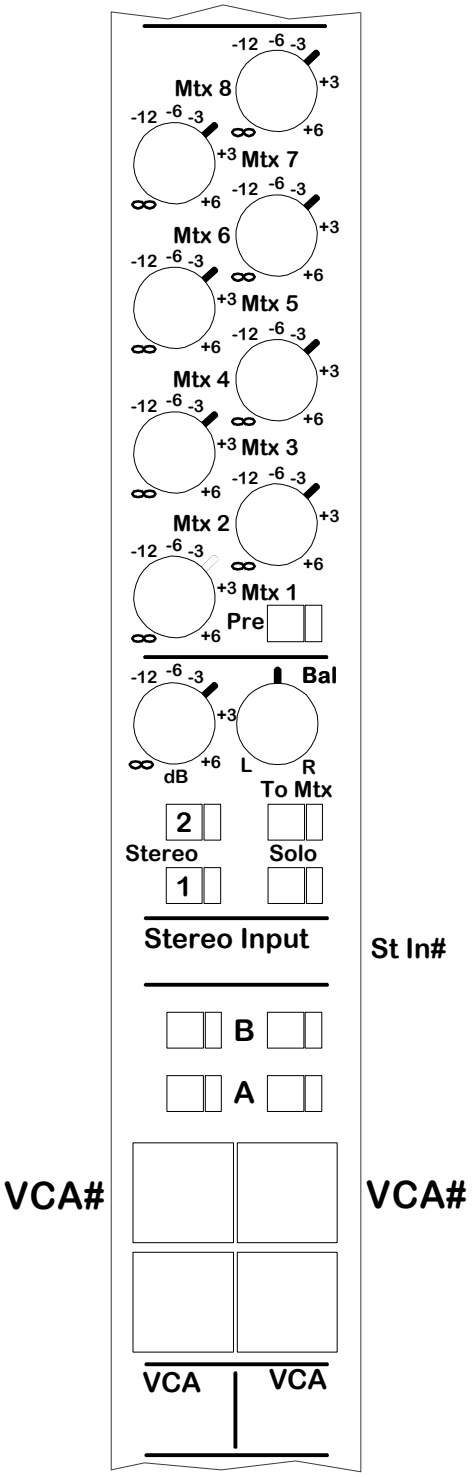



## Paragon II Production
## Group/Matrix/Aux Chart

**Notes:**



## Paragon II Production
## Mix Master Chart

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