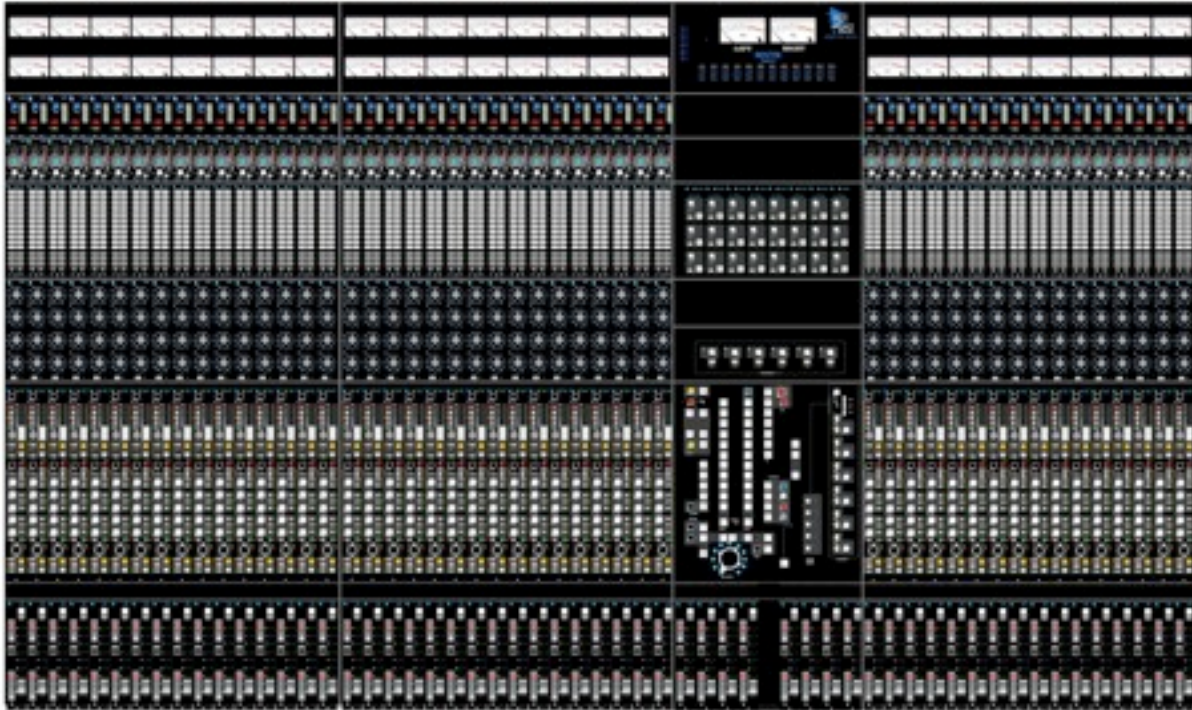


A P I
L E G A C Y P L U S

ALL DISCRETE
MIXING AND RECORDING CONSOLE



OPERATOR'S MANUAL

2009



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Introduction

Thank you for choosing the API Legacy Plus all discrete analog recording and mixing console. The Legacy Plus combines a traditional, easy to use in-line input/output architecture with flexible customization options and superior sound quality. The Legacy Plus is an industry standard analog console installed in professional recording facilities world-wide.

API proudly presents the Legacy Plus Recording and Mixing Console. The Legacy Plus is built to the same exacting standards of reliability, sonic performance, and investment grade audio of the API Legacy, 1608, and Vision consoles, setting the standard for modern recording consoles.



About this Manual

This manual is presented in four sections. Section one, "Introduction" provides a summary of the console features along with a description of the available pre delivery customization options. Section two, "Channel" gives detailed descriptions of the channel controls. Section three "Master" provides details of the master controls and section four "Patch Bay" gives a comprehensive description of every patch point in a standard Legacy Plus patch bay. Setup sheets and other documents are available in the Appendix.

Section one is useful to all users, and should be read thoroughly before purchase and delivery. Experienced engineers may get up and running quickly by simply checking the graphic overviews at the top of the Channel and Master sections. If you are new to API consoles and mult-track recording, it is recommended that you read the entire manual at least once and keep the manual available at the console for reference.

Overview

Features

- API's unique 5 year warranty
- Custom Built to Client's Specification
- API's all Discrete Signal Path
- Transformer Outputs
- Twenty-Four Multi-track Summing Busses
- Three Independent Stereo Busses
- Assignable Grand Master
- Full Patch Bay facilities
- Highest Quality Leather and Wood Trim

Channel Features

- Dual signal path architecture (two independent audio paths, Small Fader and Large Fader)
- Dual input (MIC and TAPE)
- Twelve Auxiliary Busses (ten simultaneous per channel)
- 50 Hz High-Pass Filter in Large Fader path
- Assignable Equalizer (as fitted):
 - 550L 4-band parametric
 - 550AL 3-band parametric
 - 560L 10-band Graphic
- Optional Input configurations
 - 205L Direct Input OR
 - 212L Microphone Preamplifier
- Optional Processing (as fitted):
 - 215L Sweep Filter
 - 225L Compressor
 - 235L Noise Gate
- Balanced Insert in each path
- Phase Reverse (Polarity Inverter)

Central Facilities

- Comprehensive Stereo Monitoring
- 11 Stereo Playback selectors
- Individual Cut control of L&R monitors
- Machine Control (optional)
- Monitor Calibration Controls
- 3 sets of speaker selectors
- Comprehensive Cue system
- Independent/Linkable AFL, PFL, and Solo in Place selections for Small and Large faders
- Option for API stereo bus compressor

Mainframe and Slots

The Legacy Plus console mainframe comes in a variety of frame sizes consisting of a Master Section and two or more 16-channel channel buckets. The smallest frame size is 32 channels. The Patch Bay is externally mounted.

Each Legacy Plus console is built to meet the specifications determined by the user. With a flexible design, the console may be configured in many ways. Beyond frame size, users may configure each module with their preferred pre-amp and signal processor setup to include a variety of equalizer, filters, and dynamic processor possibilities. Additional customization options are available for the auxiliary sends. While work-flow, capacity, and patching may vary by configuration, the basic operational premise of all Legacy Plus consoles is the same.

Channel Bucket

There are several module slots associated with each 16-channel bucket in the Legacy Plus mainframe. Certain module slots can be fitted with optional components.

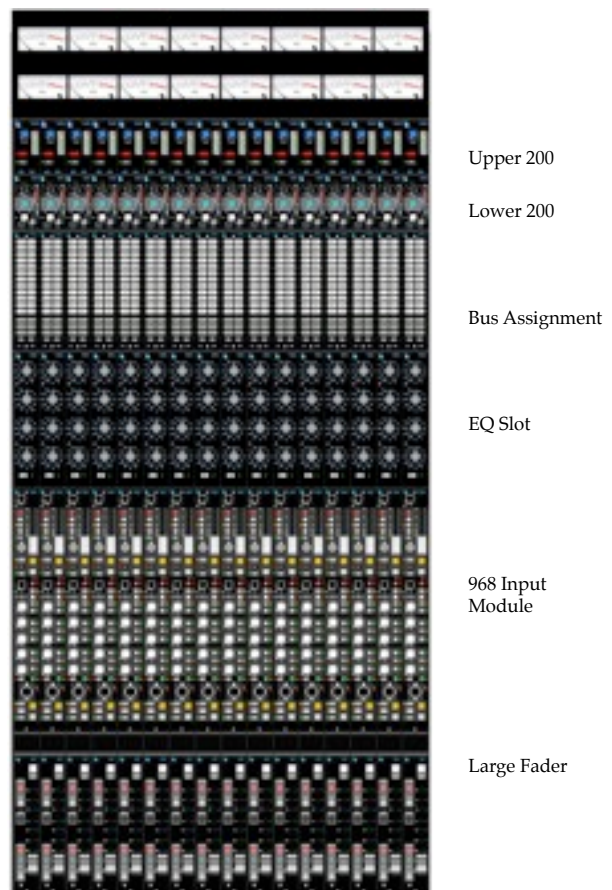
From the meter-bridge to the armrest, the slots are in the following order (see Channel Strip Overview below):

- Upper 200 Slot
- Lower 200 Slot
- Bus Assignment Module
- EQ Slot
- Input Module Slot
- Large Fader

The Bus Assignment module can only be fitted with the 624L Bus Assignment module.

The Input Module Slot can only be fitted with a 968L Input Module.

The 200 and the EQ Slot offer customization options for inputs and signal processing.



Configuration Options

Configuration of the Upper 200 Slot, Lower 200 Slot, the EQ Slot, and the Options Bucket allows the user to customize the console for their desired workflow and use. The Upper 200 slot may be configured for input options or signal processors while the Lower 200 Slot and the EQ Slot may be fitted with a range of available dynamic processors, filters and equalizers. Any or all of the slots may be left open for future expansion.

Configuration options are specified by the user in consultation with API engineering staff before the console is built at API.

Upper 200 Slot

The Upper 200 slot is typically fitted with the 212L microphone preamplifier. However, if your facility does not require every channel to have a mic-preamp (such as in a small project studio or overdub room), then any or all of the Upper 200 slots may be left open, or used for signal processing.

Microphone preamps may be also fitted in the Options Bucket in the center section. This will allow both of the 200 slots to be configured with any 200 series signal processor.

The Upper 200 Slot may be fitted with the following API 200 Series modules:

- 205L Direct Input
- 212L Microphone Preamplifier
- 215L Sweep Filter
- 225L Compressor/Limiter
- 235L Noise Gate/Expander

When the Upper Slot is fitted with a 205L or 212L to serve as a channel preamp, it is programmed internally to feed either the Small Fader or Large Fader path input. This option must be specified by the user. Regardless of which path the Upper 200 slot feeds, the output path defaults from both faders will remain the same (see block diagrams below).

When both slots are used for signal processing, the Upper and Lower Slots are grouped together. Internal links may be programmed to place both slots to one of the following fixed locations:

- Small Fader path, Pre EQ
- Small Fader path, Post EQ
- Large Fader path, Pre EQ
- Large Fader path, Post EQ

If the Upper 200 Slot is used for signal processing, the upper slot is located before the lower slot in the signal flow.

Lower 200 Slot

The Lower 200 Slot is typically used for channel signal processing. The Lower 200 Slot may be fitted with the following API 200 Series modules:

- 215L Sweep Filter
- 225L Compressor/Limiter
- 235L Noise Gate/Expander

Note: The Upper and Lower slots are actually interchangeable, and either may be used for signal processing or input pre-amplification.

See the processor descriptions in the “Channel” section later in this manual.

Internal links may be programmed to place the Lower Slot in one of the following fixed “200 Link Option” points in the signal flow:

- Small Fader path, Pre EQ
- Small Fader path, Post EQ
- Large Fader path, Pre EQ
- Large Fader path, Post EQ

The Lower 200 Slot will remain in this fixed location determined by the internal link and cannot be moved. Signal processors installed in the Lower 200 slot may also be left “un-normalled” into the signal path. In this case the signal processor in the Lower 200 slot would need to be patched into the signal flow like an external rack module.

In all cases, the processors in the Lower 200 slots may be patched into the signal flow as desired by using the Lower 200 In and Lower 200 Out patch points.

Equalizer Slot

There is one Equalizer (EQ) Slot for each channel strip. The EQ Slot can be equipped only with the API 500L Series EQ modules. This slot is typically fitted with one of three equalizer modules:

- 550L 4-Band EQ
- 560L 10-Band Graphic EQ
- 550AL 3-Band EQ

The Equalizer is, by default, assigned into the Large Fader path. The Equalizer can be routed to either the Small or Large Fader Path. It may be switched to the Small Fader path by using the “EQ” switch next to the Small Fader in the 968L Input module.

Options Bucket

The Options Bucket is located in the Center Section. It provides several expansion slots which may be fitted with API 200 Series modules and/or the API 2500 Stereo Bus Compressor.

The Options Bucket slots may be fitted with the following modules:

- 205L Direct Input
- 212L Microphone Preamplifier
- 215L Sweep Filter
- 225L Compressor/Limiter
- 235L Noise Gate/Expander
- 2500 Stereo Bus Compressor

When the Options Bucket is equipped with preamp modules (205L and/or 212L), the Upper 200 Slots in the channels are available for addition signal processing modules and may be fitted with such. If the channel Upper 200 Slots are equipped with preamps, the entire Options Bucket is available for signal processors and echo returns.

When 205L or 212L preamps are fitted into the Options Bucket, they may be programmed internally to feed either the Small Fader or Large Fader path input. This option must be specified by the user before the console is built. Regardless of which path the preamp feeds, the output path defaults from both faders will remain the same (see block diagrams below).

Auxiliary Send Options

Options are also available for configuration of the auxiliary sends. In a standard configuration all aux sends (1-12) are sourced post fader from the large fader path. All aux sends may be switched to pre fader using the "PF" switch. Aux 9/10 and 11/12 may be switched to the Small Fader path using the "SM" switch.

It may be desirable for your facility and workflow to have additional aux sends available from the Small Fader path. Auxiliary sends 5-8 may be internally programmed to follow the "SM" switch along with sends 9-12. This would likely be desirable if the mic pre input is configured to feed the Large Fader path. In this setup, the Small Fader path would be typically used as the monitor mix during recording, and it would be preferable to have more than one auxiliary send available for cue sends.

Another auxiliary option is available which determines whether or not the mute switch interrupts pre fader auxiliary sends. In the standard configuration, all pre fader aux sends are also sourced "pre mute" so that the mute switch does not interrupt any pre fader aux sends. It is possible to modify the auxiliary sends so that pre fader sends are sourced "post-mute". In this setup all pre fader aux sends would be interrupted by the mute control.

Post fader sends are always muted along with the main mute switches, as the mute is pre fader in the signal flow.

Channel Signal Path Architecture

The Legacy Plus channel strip design provides two discrete audio paths for multi-track recording. One path is for routing microphones to a multi-track recorder and the other is for mixing the multi-track return. After recording, both audio paths can be routed to the mix busses to provide additional inputs during mix-down. These paths are referred to as the Small Fader path and the Large Fader path.

For those familiar with other inline recording consoles, one fader path functions as a "mic" or "channel" path and the other fader path functions as a "monitor" or "mix" path. The fader used for each function depends on how the console is configured to the user's specifications at the factory (i.e mic preamp normals). Regardless of how the console is configured, the operational controls allow for both paths to be used for either function.

Each path can provide a different function during the various types of recording sessions. The signal routing of input and output of each path is handled by the 968L Input Module and the 624L Bus Routing Module.

Session Flow

Multi-track Recording and overdubs: In a typical multi-track recording session, the channel strips function as follows:

- One fader path carries the signals from a microphone, DI, or other input source to the multi-track recorder via Direct Outputs or the 24 multi-track summing busses. The fader used for this function (Small or Large) is determined by the user.
- The other fader path is used to mix signals from the multi-track recorder to the mix busses for monitoring. The fader used for this function (Small or Large) is determined by the user.

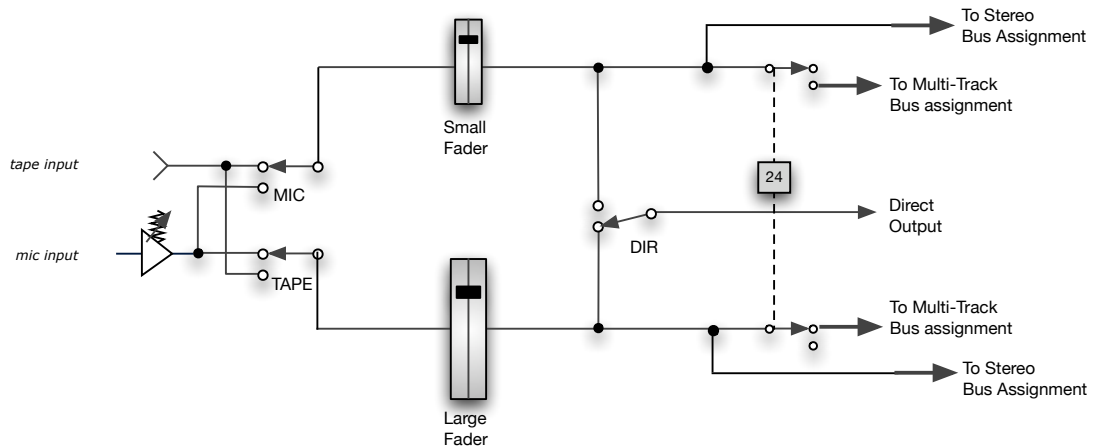
Stereo Mixing: In a typical mixing session, the channel strip functions as follows:

- The Large Fader path is the main mix path. The returns from the multi-track recorder and other sources are routed to any of the three Stereo Mix buses.
- The Small Fader path can also be used to route additional inputs from multi-track recorders or other sources such as effect units to any of the three Stereo Mix buses.

The signal flow of the console (and the physical location of the MIC and TAPE switches) is dependent on one key choice the user makes when ordering the desk: which fader path (Small or Large) is fed by the mic preamp.

The two block diagrams below show the signal flow for each configuration

Mic Pre to Large Fader

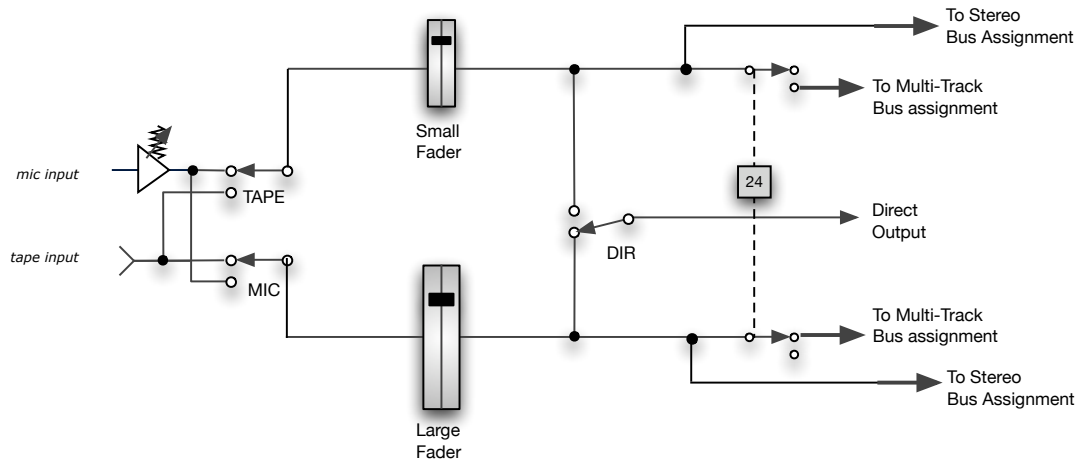


In the above configuration, the MIC pre in the Upper 200 slot or Options Bucket feeds the large fader, which feeds the Direct Output, the Multi-track bus assignment, and the Stereo Bus Assignments. The Small Fader is fed by the TAPE input, which by default feeds the Stereo Bus Assignments.

The Large Fader path is the "mic" or "channel" path feeding the Multi-track summing busses or direct outputs to the recorder. The small Fader path receives the multi-track outputs. The Small Fader is used to control the monitor mix to one of the Stereo Program Mix busses

The inputs to each fader can be switched individually by pressing the "MIC" or "TAPE" switches. The MIC switch will be located near the Small Fader and the TAPE switch will be located near the Large Fader. The master Input Flip in the Master section of the console will reverse the inputs as well.

Mic Pre to Small Fader



In this configuration, the MIC pre feeds the Small fader, which by default feeds the Stereo Bus Assignments. The Large Fader is fed by the TAPE input, which by default feeds the Direct Output, the Multi-track bus assignment, and the Stereo Bus assignment.

The Small Fader path is the "mic" or "channel" path. To set the Small Fader path to feed the Multi-track summing busses or direct outputs to the recorder, the output destination of the Small and Large faders will need to be "swapped" in the 968L input module with the "24" or "DIR" switches. The Large Fader path will receive the multi-track outputs. The Large Fader is used to control the monitor mix to one of the Stereo Program Mix busses.

The inputs to each fader can be switched individually by pressing the MIC or TAPE switches. The MIC switch will be located near the Large Fader and the TAPE switch will be located near the Small Fader. The master Input Flip in Master section of the console will reverse the inputs as well.

FOR A CONCISE AND CONSISTENT DESCRIPTION OF THE CONSOLE, IT IS NECESSARY TO ASSUME ONE OF THE ABOVE CONFIGURATION CHOICES HAS BEEN MADE.

FOR THE REMAINDER OF THIS MANUAL IT IS ASSUMED THAT THE UPPER 200 SLOT IS EQUIPPED WITH A 212 MIC PRE NORMALLED TO THE SMALL FADER.

Channel Input Selection

There are two primary choices of input sources for each path; MIC and TAPE.

MIC: This is the output of the installed preamp in the Upper 200 Slot or Options Bucket.

There are two modules available to serve as a preamp:

- 212L Microphone Preamplifier
- 205L Direct Input

TAPE: This is the output from the multi-track recorder interfaced with the console.

- A -6 dB TAPE PAD can be engaged at the TAPE input

Each path can receive signal from either MIC or TAPE. The default input for the Small Fader is MIC (as configured, see above). To switch the Small Fader input to TAPE, press the TAPE switch below the Small Fader in the 968L Input module.

The default input for the Large Fader is TAPE (as configured). To switch the Large Fader input to MIC, press the MIC switch near the bottom of the 968L module (just above the large pan pot). Both faders may be fed from the same source simultaneously.

There is a global INPUT FLIP switch in the Master Section to reverse the inputs between the Small and Large Faders.

Channel Output Routing

The Small Fader and Large Fader paths have access to all output assignment possibilities. The output possible assignments are:

- Direct Output
- Multi-track Summing Busses 1-24
- Stereo Mix Bus A, B, and C

Direct Output:

- Only one path can be assigned to feed the Direct Output at a time
- The Large Fader will normally feed the Direct Output.
- The Small Fader will feed the Direct Output when the DIR switch is engaged. This will defeat the Large Fader signal to the Direct Output.
- The Direct Output is always active in one of the fader paths.

Multi-track Summing Busses:

- There are twenty-four (24) Multi-track Summing Busses which feed the Active Combining Amplifiers (ACA)
- The Large Fader or Small Fader can be assigned to any of the 24 Multi-track summing busses in the 624L Buss Assignment Module
- Only one audio path (Small Fader/Large Fader) can be assigned to the Multi-track Summing Busses at a time
- The default source for the multi-track busses is the Large Fader.
- The Small Fader can feed the multi-track busses by pressing the "24" switch next to the Small Fader in the 968L module. This will defeat the Large Fader signal to the Multi-track Summing busses.
- There is a Trim control for each ACA output.

Stereo Program Busses:

- Both paths (Small Fader and Large Fader) can be assigned to any and all Stereo Mix Busses (A, B, and C).
- Mix Buss assignments are made for each Fader path in the 624L Buss Assignment Module. There are two sets of ST A, ST B, and ST C switches at the bottom of the 624L module. The left set of switches is for the Small Fader (as indicated by "SM" below the switches). The right set of switches is for the Large Fader (as indicated by "LG" below the switches).

Panning:

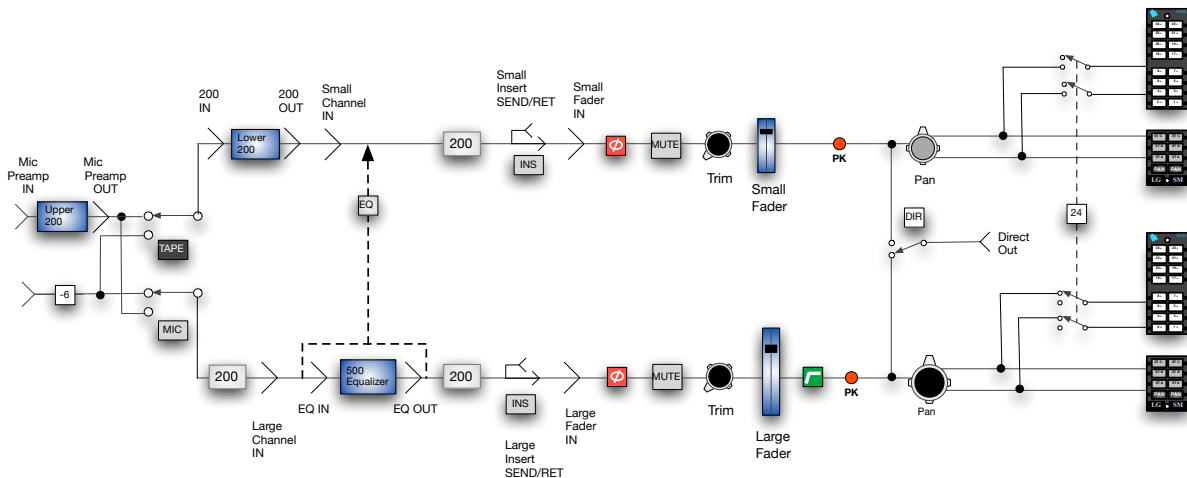
- Each path has its own pan control which must be switched on to be active.
- Panning assignments are made for each fader path in the 624L Buss Assignment Module by using the two PAN switches.
- The left PAN switch is for the Small Fader (as indicated by "SM"). The right PAN switch is for the Large Fader (as indicated by "LG")

Signal Flow Block Diagram

The block diagram below indicates the signal flow through the Small and Large Fader signal paths. A more technical and detailed signal flow diagram is available in a separate document at the end of this manual.

The features of each path are shown in the order in which they occur within the path. Auxiliary sends are not included. The diagrams assume the following:

- A 212L Preamp is installed in the Upper 200 Slot.
- Input Selector switches (MIC and TAPE) for the Small Fader and Large Fader are in the default position.
- The Lower 200 Slot is installed Pre-EQ in the Small Fader path. The other 200 slot options are shown as "200".
- Pan-pots engaged.



Channel

Overview



Upper 200 Slot

- Typically fitted with 212L Microphone Preamplifier
- Optional 205L Direct Input Module or other 200 series processor

Lower 200 Slot - May be fitted with one of three processor options:

- 215L Sweep Filter
- 225L Compressor/Limiter
- 235L Noise Gate/Expander

624L Buss Assignment Module

- Routes Small Fader or Large Fader signals to Multi-track Busses
- Routes Small Fader and Large Fader signals to Program Mix Busses (ST A, ST B, ST C)
- PAN switch for both faders to engage ODD/EVEN buss panning or Left/Right Mix Bus panning

EQ Slot

- Receives Upper 200 Slot output (MIC preamp) when engaged
- 500L series equalizers:
 - 550L 4-Band EQ
 - 560L 10-Band Graphic EQ
 - 550AL 3-Band EQ

968L Input Module

- Small Fader controls
 - Pan
 - Input select (MIC/TAPE)
 - Input Trim Control
 - Polarity reverse
 - Solo Safe, SOLO, and MUTE
 - Insert return ON/OFF
 - EQ switch between Small and Large Faders
 - Direct Output switch between Small and Large Faders
 - Multi-track routing switch between Small and Large Faders
- Auxiliary Sends
 - Three Stereo Sends & Six Mono Sends
 - Pre Fader switching for all sends
 - Small Fader assignment for sends 9-12
- Large Fader controls
 - Pan
 - Input select (MIC/TAPE)
 - High pass filter in Large Fader path
 - -6 dB Tape Pad
 - Solo Safe, SOLO, and MUTE
 - Insert return ON/OFF
 - Mute Group Assignment
 - Polarity reverse

This section describes in detail all of the controls contained within a channel strip. All signal processors that could be included in a module are described. However, not every processor can be installed into one channel. At most, there would be two (2) 200 series devices and one (1) Equalizer.

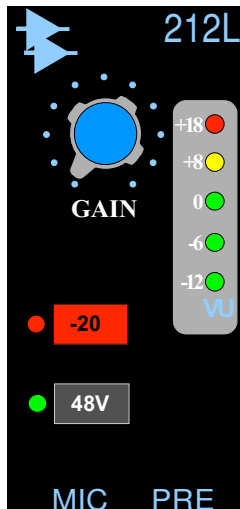
At the end of the section is a detail of the patch points associated with each channel. These patch points are also described in the Patch Bay section of the manual.

Channel Input: Upper 200 Slot

Two (2) preamplifier modules are available for the channel input. Only one of the preamplifier modules may be installed in a channel.

- 212L Microphone Preamplifier OR
- 205L Direct Input

212L Microphone Preamplifier



The 212L mic-pre all discrete circuitry features the API 2520 op-amp, the RE 115 K input and the AP-2623 output transformer. The low noise floor, together with a clip point over +28 dBm, makes this preamp suitable for the most extreme applications requiring the highest quality audio.

GAIN: Sets the preamplifier gain across a 55 dB gain range.

VU (Meter): The LED VU meter provides a true VU indication of the mic pre output level.

-20: Inserts a -20 dB pad, allowing the level feeding the mic transformer to be reduced by 20 dB, while keeping the proper load on both the mic and transformer. A red LED indicator illuminates when engaged.

48V: Provides 48 Volt Phantom Power to the Mic Preamp In patch point . The Mic Tie Line Out patch points are fully-normalled to the Mic Preamp In patch points. A green LED indicator illuminates when engaged

205L Direct Input

The 205L Instrument Direct may be installed in the upper 200 slot in place of the 212L mic pre. It is specifically designed to accept a guitar or bass direct input, without any loading on the pickups.

ON (On/Off switch): Activates the module. A green LED indicator illuminates when engaged.

Hi-Z IN (High Impedance ¼" Input Jack): Blue illuminated Instrument input jack.

-20 PAD: Inserts a -20 dB Pad at the instrument input.

100K LOAD: Engages a 100K Ohm input load, which changes the tone of the pickup and tends to darken the high frequency content.

GAIN: Sets the preamplifier gain from -40 to +20 dB

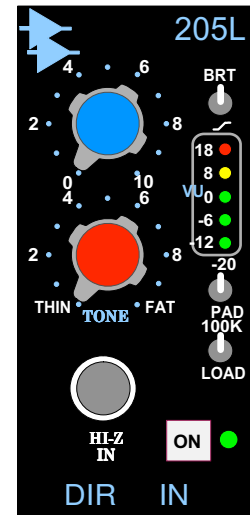
TONE: Adjusts the tonal characteristics of inputs signal. The “Thin” and “Fat” Tone control can reduce “muddiness”.

- THIN: - 12 at 150 Hz
- FAT: Flat (+/- 0 dB)

BRT (Bright): Activates a +6 dB at 8 kHz presence boost. The combination of the TONE and BRT functions may eliminate the need for anyEQ on the instrument when recording, keeping the signal pure.

VU (Meter): LED meter indicates output level.

The 205L is capable of boosting any instrument to a hefty line level without additional amplifiers.



Channel Signal Processing

Lower 200 Slot

As of this writing, there are three 200 Series signal processing modules available:

- 225L Compressor/Limiter
- 235L Noise Gate
- 215 Sweep Filter

The routing of the Lower 200 Slot is dependent on internal programming specified by the user when ordering the desk. The possible locations for the 200 Slots are:

- Pre-EQ, Small Fader
- Post -EQ, Small Fader
- Pre-EQ, Large Fader
- Post -EQ, Large Fader

Below are descriptions of the three processors that can occupy the Lower 200 slot. However, only one can be fitted on a given module.

225L Compressor/Limiter



The API 225L Compressor/Limiter is ideal for all studio, live sound and broadcast applications. Regardless of the threshold or ratio settings, the output level always remains at unity. This unique feature allows real-time adjustments without changing the output level. There is a SOFT or HARD selector for either an "over easy" compression resulting in a very natural, uncompressed sound or a typical sharp knee type that has a much more severe limiting effect. The 225L also has a side-chain input for the detector amplifier.

The controls for the 225L Compressor/Limiter function as follows:

ON (On/Off switch): Activates the module. A green LED indicator illuminates when engaged

THRESH (Threshold): Sets the activation threshold from -20dB to +10dB

RATIO: Sets compression ratio

- 0 to ∞
- 0: 1:1...no gain reduction
- ∞ : ∞ :1...hard limiting

KNEE (HRD-SFT): Selects the "knee" of the onset of compression

- HRD (Hard): Fast curve (more useful for limiting applications)
- SFT (Soft): Slower curve (acts as an "over-easy" compressor)

AT (Attack Time): Selects attack time

- F: Fast
- M: Medium
- S: Slow

REL (Release Time): Sets release time

- 60ms to 3 seconds

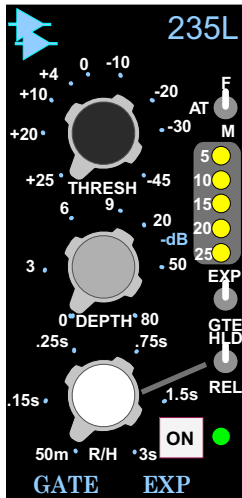
TYPE: Selection between "new" and "old" types of compressors.

- NEW: "Feed-forward" compressor
- OLD: "Feed-back" compressor

-dB (Gain-reduction Meter): LED meter indicates the amount of gain reduction

235L Noise Gate/ Expander

The 235L is a great sounding gate/expander with the ability to reduce noise in any type of program. The 235L can open unusually fast, without losing any part of the sound.



The 235L Noise Gate/Expander is one of the fastest noise gates manufactured today. When an engineer is faced with program material with a high level of background noise, the 235L can either Gate the signal at a preset Threshold, or with the use of the Expander function, can reduce the background noise to an almost undetectable level.

The Expander function selects a 1:2 ratio, allowing the signal to "sneak up" to the full signal level without any loss of "under threshold" nuances of vocals and percussion. Setting the threshold in the Gate function to the desired level, then switching to the Expander mode is the perfect setup.

The controls for the 235L Noise Gate/Expander function as follows:

ON (On/Off switch): Activates the module. A green LED indicator illuminates when engaged.

THRESH (Threshold): Sets the activation threshold. Variable from +25 to -45dB.

DEPTH: Sets the amount of attenuation (gain reduction) from 0 to -80dB. Although the Depth control has a full range of -80 dB, the scale is expanded in the first half of rotation so 0 to 9 dB is available for fine tuning of subtle, undetectable gating. The second half of rotation is from 10 to 80 dB for more drastic noise reduction.

AT (Attack): Selects attack time. Once the Threshold level is set, the Attack time can be selected to react faster than 100 micro seconds or slightly slower than 25 milliseconds to reduce false triggering.

- F: Fast (less than 100 microseconds)
- M: Medium (25ms)

R/H (Release/Hold) Time: Sets release or hold time

- 50ms to 3 seconds

The Release or Hold function is determined by the HLD/REL switch

HLD/REL (Hold/Release): The Release function can be switched to Hold, and the Release control becomes the Hold time. In both functions, the unselected one has a set time of 100ms.

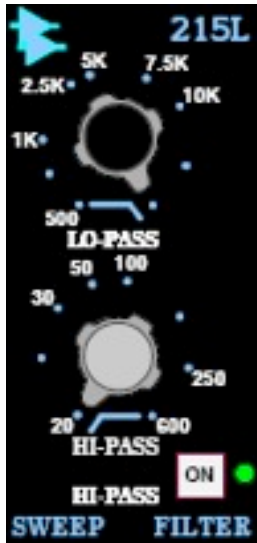
- HLD (Hold): The R/H control determines Hold time (Release is set to 100ms)
- REL (Release): The R/H control determines Release time (Hold is set to 100ms)

EXP/GTE (Expander/Gate): Selects the Expander or Gate function

- EXP (Expander): Sets the ratio to 1:2
- GTE (Gate): Sets the gate function

-dB (Gain-reduction Meter): LED meter indicates the amount of gain reduction.

215L High-Pass, Low-Pass Sweep Filter



The Lower 200 Slots may alternately be fitted with a 215L Sweep Filter Module.

The API 215L is a unique passive, sweepable filter, designed specifically to contour the sound in such a way that it sounds natural and seems as if it *"always sounded that way"*. Its extreme flexibility, repeatable settings and superb sound make it ideal for all studio, live sound and broadcast applications.

The 215L design is a passive low pass filter with a slope of only 6 dB per octave, and a passive dual high-pass filter with a slope of 12 dB per octave. The filters are isolated from each other with the same discrete transistor buffer used in the famous 550 series equalizers. This minimizes interaction between the filters, as well as providing a low impedance source for the filter.

The filters are both continuously adjustable, with a range from 20 Hz to 20 kHz in two bands. The low pass filter has a range from 500 Hz to 20 kHz, and the high pass filter has a range from 20 Hz to 600 Hz.

Because of the subtle nature of the 215L filter, it finds a home with uses like rolling off the low end of a hi-hat, where a natural sound is desired, not the usual "phase-shifter" sound of a 18 to 24 dB per octave filter found on most consoles. It can also be used to thin out room mics, without a complete loss of low end, again, resulting from steep filter circuits.

The controls for the 235L Noise Gate/Expander function as follows:

ON (On/Off switch): Activates the module. A green LED indicator illuminates when engaged

LO-PASS: Sets the frequency of the low-pass filter – sweepable from 500Hz to 20kHz

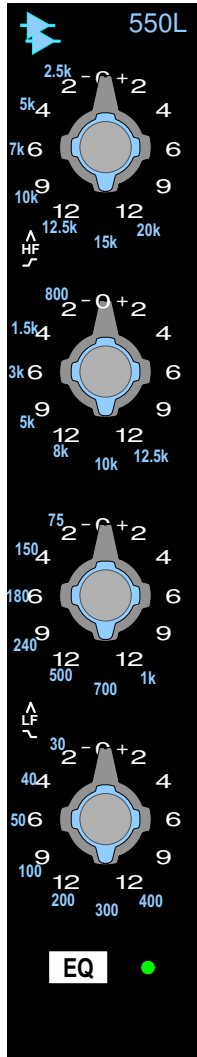
HI-PASS: Sets the frequency of the high-pass filter – sweepable 20Hz to 600Hz

Channel Equalizer

The channel EQ Slot may be fitted with one of three equalizer choices:

- 550L Discrete 4-Band EQ
- 560L Graphic EQ
- 550AL Discrete 3-Band EQ

550L Discrete 4 Band EQ



The 550L Equalizer is the console version of the famous API 550B all-discrete 4-Band EQ.

Features

- 4 bands of the famous API equalization
- Each band offers 7 API selected frequency centers
- Reciprocal and repeatable filtering
- 12 dB of boost/cut per band
- EQ Bands 1 and 4 offer shelf/peak switching
- "Proportional Q" narrows filter Q at extremes
- Traditional API fully discrete circuit design
- High headroom +30 dB clip level

The controls for the 550L EQ function as follows:

HF (High-Frequency): Peaking/Shelving Switch: Selects between peaking and shelving EQ curves for the high-frequency band.

Frequency Selection (Center Knob): Selects the center frequency for the selected band. Center frequencies vary by band:

- High: 2.5kHz, 5kHz, 7kHz, 10kHz, 12.5kHz, 15kHz, 20kHz
- High-Mid: 800Hz, 1.5kHz, 3kHz, 5kHz, 8kHz, 12.5kHz
- Low-Mid: 75Hz, 150Hz, 180Hz, 240Hz, 500Hz, 700Hz, 1kHz
- Low: 30Hz, 40Hz, 50Hz, 100Hz, 200Hz, 300Hz, 400Hz
- Frequencies are indicated in blue numbers

Boost and Cut (Ring): Sets the amount of boost or cut for the selected band.

- + 12dB of boost or -12dB of cut
- Decibels are indicated in white numbers

LF (Low-Frequency): Peaking/Shelving Switch: Selects between peaking and shelving EQ curves for the low-frequency band.

EQ (On/Off switch): Activates the channel EQ

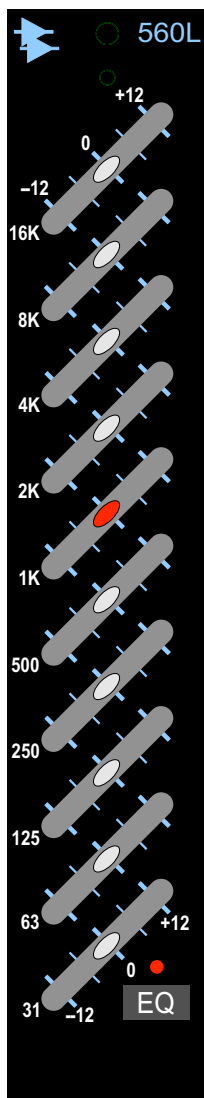
- Hard bypass when not engaged
- A green LED indicator illuminates when engaged

The API 550 EQ circuit has played a major part in the history of music recording in the USA from the 60's and 70's to today. Incorporating API's exclusive circuitry and proprietary components (such as the legendary API 2520 op-amp), the 550L artfully blends the past with the present.

Many EQ's today offer a huge assortment of complex features, but the API 550L provides exactly the right number of controls to the professional engineer. Deceptively simple at first glance, the 550L's four EQ bands are overlapped significantly to aid in dual roles as problem solver and sweetening device. Each band offers 7 switchable filter frequencies spanning 4 to 5 octaves, selected through experience by a "who's who" list of the industry's most proficient engineers.

Making use of "API Proportional-Q", a design introduced by API in the 60's, the 550L intuitively widens the filter bandwidth at minimal settings and narrows it at higher settings—without the need for additional bandwidth controls. This feature minimizes the "phase-shift" sound found in many equalizers. The reciprocal nature of the 550L enables the user to "undo" what has been done previously.

560L Graphic Equalizer



The 560L Equalizer is the console version of the 560B Graphic EQ.

The 560L has the following features:

- 10-Bands with the following center frequencies
 - 31Hz
 - 63Hz
 - 125Hz
 - 250Hz
 - 500Hz
 - 1kHz
 - 2kHz
 - 4kHz
 - 8kHz
 - 16kHz
- +/- 12 dB of boost or cut
- Hard bypass with indicator

Each band has its own boost/cut control.

The controls for the 560L EQ function as follows:

Slider (Boost and Cut): Sets the amount of boost or cut for the selected band

- + 12dB of boost and -12dB of cut

EQ (On/Off switch): Activates the channel EQ

- Hard bypass when not engaged
- A red LED indicator illuminates when engaged

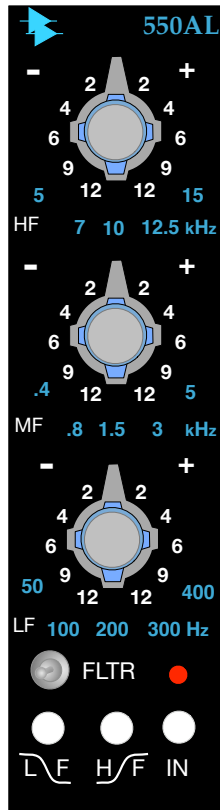
550AL Discrete 3 Band EQ

The 550L Equalizer is the console version of the famous API 550B all-discrete 3-band EQ.

Features

- 3 bands of classic API equalization
- Each band offers 5 API selected frequency centers
- Reciprocal and repeatable filtering
- maximum 12 dB of boost/cut per band
- EQ Band 1 and 3 offer shelf/peak switching
- "Proportional Q" narrows filter Q at extremes
- Traditional API fully discrete circuit design
- High headroom +30 dB clip level

The controls for the 550L EQ function as follows:



HF (High-Frequency): Peaking/Shelving Switch: Selects between peaking and shelving EQ curves for the high-frequency band.

Frequency Selection (Center Knob): Selects the center frequency for the selected band. Center frequencies vary by band:

- High: 5kHz, 7kHz, 10kHz, 12.5kHz, 15kHz
- Mid: 400Hz, 800Hz, 1/5kHz, 3kHz, 5kHz
- Low: 50Hz, 100Hz, 200Hz, 300Hz, 400Hz
- Frequencies are indicated in blue numbers

Boost and Cut (Ring): Sets the amount of boost or cut for the selected band.

- + 12dB of boost or -12dB of cut
- Decibels are indicated in white numbers

LF (Low-Frequency): Peaking/Shelving Switch: Selects between peaking and shelving EQ curves for the low-frequency band.

HF (High-Frequency): Peaking/Shelving Switch: Selects between peaking and shelving EQ curves for the high-frequency band.

IN (On/Off switch): Activates the channel EQ

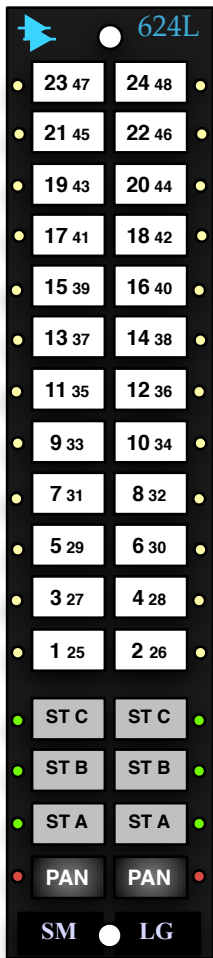
- Hard bypass when not engaged
- A green LED indicator illuminates when engaged

Still copied but never duplicated, the 550A became API's standard channel module EQ when the company began manufacturing consoles in 1971.

The 550A provides reciprocal equalization at 15 points in 5 steps of boost to a maximum of 12dB of gain at each point. The fifteen equalization points are divided into three overlapping ranges. The high and low frequency ranges are individually selectable as either peaking or shelving, and a band-pass filter may be inserted independently of all other selected equalization settings. Frequency ranges and boost/cut are selected by three dual-concentric switches, and a pushbutton "in" switch allows the EQ to be silently introduced to the signal path. A small toggle switch is used to insert the band-pass filter into the 550A.

The combination of the 2520 op amp, and "Proportional Q" circuitry gives the 550A user an uncomplicated way to generate acoustically superior equalization.

624L Bus Assignment Module



The 624L Buss Assignment Module provides comprehensive output signal flow routing for both Faders. The output of each fader can be routed to the Multi-track busses or the Stereo Mix busses. There are three Stereo Mix Busses: ST A, ST B, and ST C.

Only one fader at a time (Large or Small) can feed the Multi-track busses (1-24) on a given channel. By default, the Large Fader will feed the Multi-track busses. Simply press the desired buss number and the indicator light will illuminate indicating that the Large Fader Path is assigned to that buss.

The Small Fader can be switched to feed the Multi-track busses, by pressing "24" next to the Small Fader in the 968L Input Module. This will replace the Large Fader signal to the Multi-track busses.

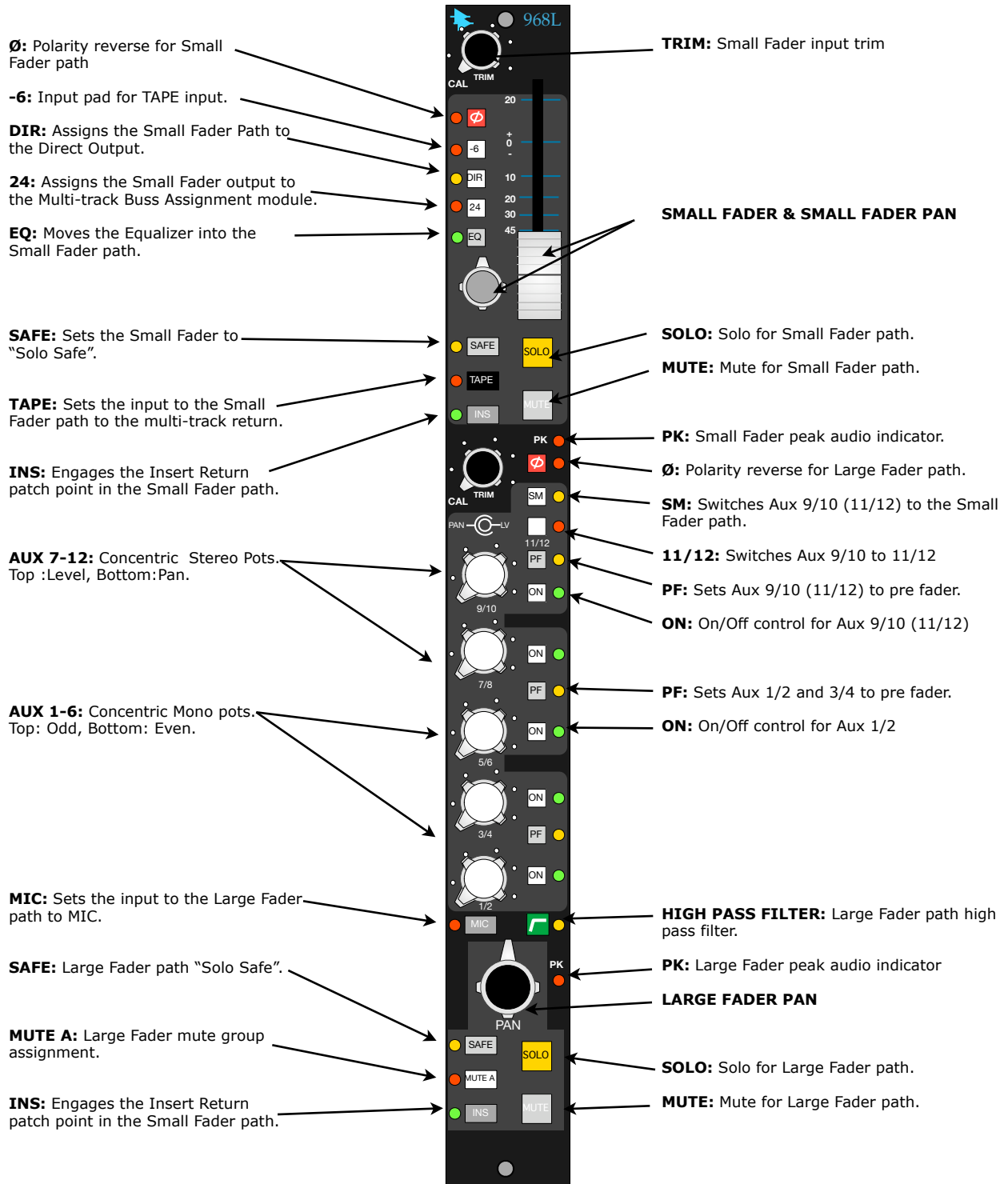
Each fader (or both) can feed the Stereo Mix Busses. At the bottom of the module are two rows of ST A, ST B, and ST C switches. The left column of switches is for the Small Fader path (as indicated by "SM" at the bottom of the module). The right switches are for the Large Fader path (as indicated by "LG").

Without the PAN control engaged, all buss assignments are mono. At the bottom of the 624L module are two PAN switches. The PAN switch must be engaged for each path for the pan pot to be used for odd/even Multi-track buss panning or Left/Right Stereo buss panning.

For more information on the 624L Bus Assignment Module see "Channel Output Routing" later in this section.

Faders and Controls

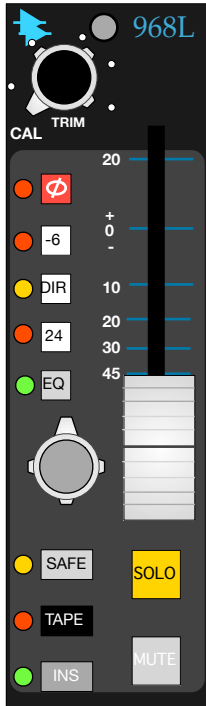
968 Input Module



The illustration on the previous page shows the 968L Input Module with a brief description of each control. This serves as a quick reference guide. A more detailed description of each control follows.

Small Fader Path Controls

The 968L Small Fader audio path is a complete audio channel designed to serve the following functions:



- Routing microphone and instrument inputs to a multitrack recorder OR
- Monitor mix during multi-track recording
- Additional inputs during mixdown
- Retuning effects, virtual tracks, and other sources during mixdown

Accordingly, the Small Fader audio path is equipped with the following features:

- MIC or TAPE input selection
- Access to Channel Meter (depending on Master Meter Selection)
- Assignable EQ
- Insert Send and Return
- Phase Reverse (Polarity Inverter)
- Channel Trim
- Peak Indicator
- Full Solo Functions
- Solo Safe
- Direct Output
- Stereo Panning
- Panning across odd even Multi-track busses

MIC is the default input for the Small Fader (TAPE not engaged).

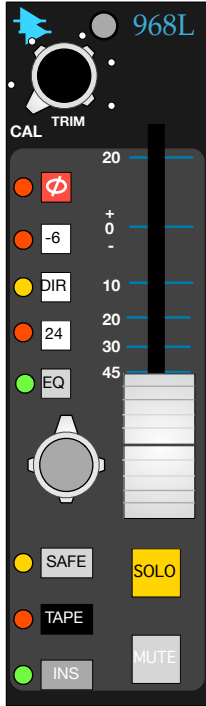
TRIM: Sets the amount of pre-fader level Trim (boost)

- 0 to +12dB of gain
- Located Pre-fader, so the added gain is reflected in all post-fader stages (Aux Sends, Solos, Bus Assignments and Direct Output).

Ø (Phase Reverse): Inserts a Phase Reverse relay (Polarity Inverter) into the Small Fader audio path. A red LED indicator illuminates when engaged

-6 (TAPE PAD): Inserts a -6dB pad immediately after the multi-track inputs to the console. A red LED indicator illuminates when engaged. The -6dB Tape Pad will reduce distortion and increase headroom in the audio path when the level from the multi-track recorder return is hot enough to overload the TAPE input.

DIR (Direct Output): Routes the output of the Small Fader to the Direct Output. The Direct Output is fed from the Large Fader path by default. The Direct Output is fed post fader. A yellow LED indicator illuminates when engaged.



24: Routes the Small Fader Path to the Multi-track bus assignments. Disables the Large Fader signal route to the Multit-track bus assignments.

EQ: Moves the Equalizer into the Small Fader path. The Equalizer (EQ) provides the following features:

- The EQ (and its Patch Points) can be assigned to either the Small Fader or Large Fader audio path (not both at once).
- The EQ is always in one path or the other, but must be turned on to be used.
- The EQ is in the Large Fader path by default.

In order for the EQ to be heard, the following conditions must be met:

- EQ must be assigned to the desired path
- The EQ switch on the Equalizer itself must be engaged (ON)

PAN: This is the pan pot control for the Small Fader. The PAN control for the Small Fader in the Buss Assignment Module must be engaged for the pan pot to work.

SAFE: Activates the Solo Safe mode for the Small Fader

- The SAFE button protects the Small Fader from being muted when the Solo-In-Place function is active and another channel is soloed
- A yellow LED indicator illuminates when engaged.

TAPE: Selects the Multi-track Return (TAPE) as the active input for the Small Fader.

- TAPE may be the active input for both faders
- MIC is the default Small Fader input
- A yellow LED indicator illuminates when engaged

INS (Insert): Activates the Small Fader Insert Return

- The Insert Send is fed pre-fader from the output of the Equalizer
- The Insert Send is always active
- The Insert Return is located PRE the Fader input
- The Insert Return is active only when the INS button is engaged
- A green LED indicator illuminates when engaged

SOLO: Activates the selected solo function for the Small Fader

- The following solo functions may be selected via the Master Section:
- Pre-fader Listen (PFL): Non-destructive, mono
- After Fader Listen (AFL): Non-destructive, stereo
- Solo-In-Place (SIP): Destructive, panned, post-fader
- Illuminates in yellow when engaged

NOTE: AFL is the default solo mode.

MUTE: Cuts the Small Fader path signal

- The MUTE button is the on/off switch for the Small Fader audio path
- Illuminates in red when engaged.

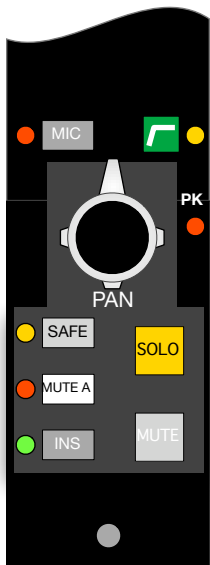
PK: (Peak) A red LED illuminates when the preset Peak Reference level is reached in the Small Fader audio path. The peak level is selected by the PEAK REFERENCE selector in the Master Section.

Large Fader Path Controls

The 968L Large Fader audio path is the primary audio channel designed to serve the following functions:



- Primary signal path during Mix-down with 100mm Fader
- Monitor mix during multi-track recording OR
- Routing microphone and instrument inputs to a multi-track recorder.
- Retuning effects, virtual tracks, and other sources during mix-down



Accordingly, the Large Fader audio path is equipped with the following features:

- MIC or TAPE input selection
- High pass filter
- Access to Channel Meter (depending on Master Meter Selection)
- Default path for EQ
- Insert Send and Return
- Phase Reverse (Polarity Inverter)
- Channel Trim
- Peak Indicator
- Full Solo Functions
- Solo Safe
- Direct Output (default source)
- Stereo Panning
- Panning across odd even Multi-track busses

TAPE is the default input for the Large Fader (MIC not engaged).



TRIM: Sets the amount of pre-fader level Trim (boost)

- 0 to +12dB of gain
- Located Pre-fader, so the added gain is reflected in all post-fader stages (Aux Sends, Solos, Bus Assignments and Direct Output).

Ø (Phase Reverse): Inserts a Phase Reverse (Polarity Inverter) in the Large Fader audio path. A red LED indicator illuminates when engaged.

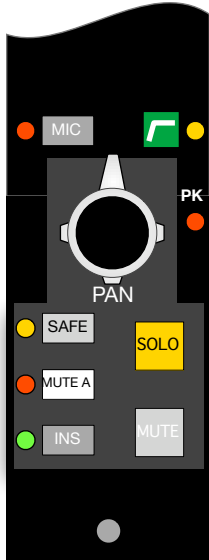
Note: the TRIM and Polarity reverse (Ø) controls are located above the Auxiliary sends

MIC: Selects the MIC pre output as the active input for the Large Fader.

- MIC may be the active input for both faders
- TAPE is the default Large Fader input
- An LED indicator illuminates when engaged

HIGH PASS FILTER: Inserts a 50Hz High pass filter into the Large Fader path.

- The filter may be programmed internally to 100Hz or 150Hz.
- LED indicator illuminates when engaged.



PAN: This is the pan pot control for the Large Fader. The PAN switch for the Large Fader in the 624L Buss Assignment Module must be engaged for the pan pot to be active.

PK: (Peak) A red LED illuminates when the preset Peak Reference level is reached in the Large Fader audio path. The peak level is selected by the PEAK REFERENCE selector in the Master Section.

SAFE: Activates the Solo Safe mode for the Large Fader

- The SAFE button protects the Large Fader from being muted when the Solo-In-Place function is active and another channel is soloed.
- An LED indicator illuminates when engaged.

MUTE A: Assigns the Large Fader path to the Mute Group.

- Channels with MUTE A engaged will be muted when MUTE GRP in the Master Section is pressed.

INS: (Insert): Activates the Large Fader Insert Return

- The Insert Send is fed pre-fader post Equalizer
- The Insert Send is always active
- The Insert Return is located PRE the Fader input
- The Insert Return is active only when the INS button is engaged
- An LED indicator illuminates when engaged

SOLO: Activates the selected solo function for the Large Fader

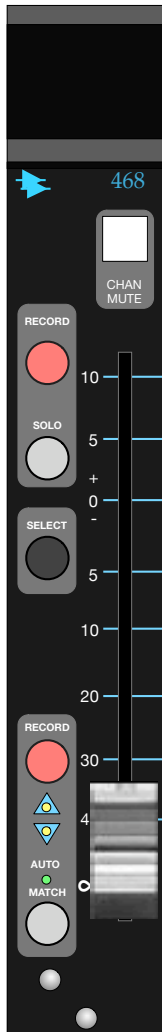
- The following solo functions may be selected via the Master Section:
- Pre-fader Listen (PFL): Non-destructive, mono
- After Fader Listen (AFL): Non-destructive, stereo
- Solo-In-Place (SIP): Destructive, panned, post-fader
- Illuminates in yellow when engaged

NOTE: AFL is the default solo mode.

MUTE: Cuts the Large Fader path signal

- The MUTE button is the on/off switch for the Large Fader audio path
- Illuminates in red when engaged
- This mute control is independent of any installed automation system and may be used to MUTE a channel while automation is running without writing the MUTE to automation.

Large Fader



LARGE FADER: Controls the output level of the Large Fader audio path

- Full-size 100mm Fader
- Can be automated with an optional computer automation system
- When the Fader is set to 0dB, the level is at unity gain

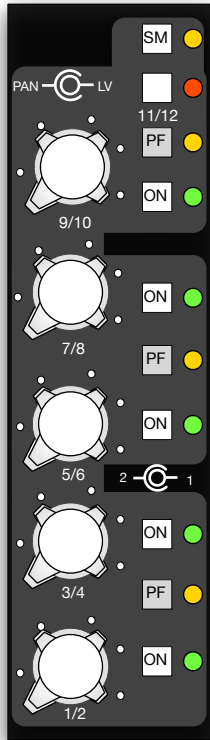
CHAN MUTE: Cuts the Large Fader audio output

- The MUTE button is the on/off switch for the Large Fader
- This MUTE control may be automated through external automation system
- Illuminates in red when engaged

NOTE: RECORD, SOLO, SELECT, AUTO, and MATCH controls are for use with an optional automation system.

Shown with optional automation

Auxiliary Sends



The Legacy Plus console provides a powerful Auxiliary Send system that provides a complete set of options for Cue and Effects Sends.

There are twelve (12) Auxiliary Busses; ten of which may be used simultaneously:

- Six (6) Mono (1-6)
- Three (3) Stereo (7-12)

All aux sends are, by default, sourced post fader from the Large Fader paths. All aux sends may be switched to pre-fader. Aux 9-12 may be switched to the Small Fader path.

Aux Sends 1-6 are primarily used as Effects Sends during recording and mixing.

Aux Sends 7/8, 9/10, and 11/12 are typically used as Cue Sends during recording and as stereo Effects Sends during mixing.

Each of the Auxiliary Sends feed their respective Auxiliary Summing Bus. Auxiliary Sends 1-6 feed the Aux Sends 1-6 Masters in the Master Section. Auxiliary Sends 7-12 feed the Stereo Cue Send Masters 1-3 in the Master Section.

Note: Aux sends 5-8 may be programmed internally so they may be sourced from the Small Fader path. This must be specified with API engineering staff before console delivery.

Mono Sends (1-6)



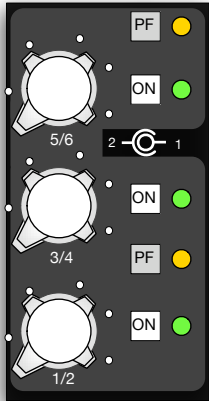
Each pair of aux sends uses “concentric” pots where the odd numbered send is controlled by the inside or top pot and the even numbered send is controlled by the outside ring or bottom pot.

Stereo Sends



Stereo aux sends use “concentric” pots for level and pan. The LEVEL is controlled by the inside or top pot and the PAN is controlled by the outside ring or bottom pot. Because stereo sends pass through a pan control, their levels at the extremes of the pan control are equal to that of the other sends, and are -3dB down when the pan control is centered.

Aux Sends 1-6 (mono)



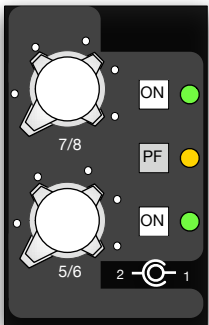
Aux sends 1-6 are mono auxiliary sends typically used as effects sends. Sends 1-6 are fed by default by the post fader Large Fader signal.

ON (On/Off): Each pair of sends has an associated ON control. A green LED will be illuminated when the pair is on.

PF (Pre Fader): The PF control will switch sends 1-4 to be sourced pre fader (normally post fader).

Note: All Pre fader aux sends are "pre-mute" in a standard configuration. However, pre fader aux sends may be programmed internally to post mute. This must be specified with API engineering staff before console delivery.

Aux Send 7/8 (stereo)

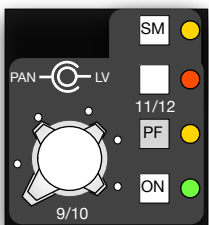


Aux Send 7/8 is a Stereo Aux Send that may be used as a Cue send during recording or an effects send during Mixdown. Send 7/8 is by default fed by the post fader Large Fader signal. These stereo aux sends use "concentric" pots where the LEVEL is controlled by the inside or top pot and the PAN is controlled by the outside ring or bottom pot.

ON (On/Off): Aux Send 7/8 has an associated ON control. A green LED will be illuminated when the pair is on.

PF (Pre Fader): The PF control will switch sends 5-8 to be sourced pre fader (normally post fader).

Aux Sends 9/10 & 11/12 (stereo)



Aux Send 9/10 is a Stereo Aux Send that may be used as a Cue send during recording or an effects send during Mixdown. Aux 9/10 may be switched to feed Aux bus 11/12. The signal for Aux 9/10 or 11/12 is by default, derived from the post fader Large Fader signal.

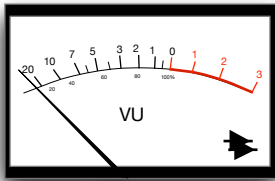
SM (Small Fader): Switches the source for Aux Sends 9/10 (11/12) to the Small Fader path

11/12: Switches send controls 9/10 to alternately feed aux bus 11/12 (cue send 3 L/R). All controls associated with Aux 9/10 will be applied to Aux 11/12.

PF (Pre Fader): The PF control will switch aux sends 9/10 or 11/12 to be sourced pre fader.

ON (On/Off): Aux Send 9/10 (11/12) has an associated ON control. A green LED will be illuminated when the pair is on.

Channel Meters and Peak Indicators



A VU Meter is provided for each channel, along with a LED Peak Indicator for each audio path (Small Fader and Large Fader).

Channel VU Meters

The Channel Meter can be fed from the following points:

- Small Fader Channel Input (post Small Channel Input patch point)
- Large Fader Channel Input (post Large Channel Input patch point)
- Direct Output
- Multi-track Summing Bus 1-24

VU: The feeds to the Channel Meters are determined by the selection made using the VU SELECT controls in the Master Section: The VU SELECT controls function as follows:

VU LRG (Large Fader): Assigns the meters to the Large Fader Channel Input. Illuminates when engaged

VU SM (Small Fader): Assigns the meters to the Small Fader Channel Input. Illuminates when engaged

VU DIR (Direct Output): Assigns the meters to the Channel Direct Output. Illuminates when engaged

BUS TO VU (Bus Outputs): Assigns the meters to the outputs of Multitrack Summing Busses 1-24. Illuminates when engaged.

L/R PEAK: Changes the Program Meter (MAIN) ballistics from VU to Peak. A fixed peak hold circuit feeds the meter. Illuminates when engaged



Large Fader and Small Fader Peak Indicators

Each channel is equipped with a LED Peak Indicator in each path. The Peak Reference Level is selected by the PEAK REFERENCE selector in the Master Section.



PEAK (Small and Large Fader Paths): A red LED illuminates when the preset Peak Reference level is reached in the audio path



PEAK REFERENCE: The Peak Reference control in the Master Section sets the Peak Reference level for the channel Peak Indicators.

- +4 dBu to +24 dBu Range
- 2 dB increments

Channel Output Routing and Bus Assignment

The output of each audio path (Small Fader and Large Fader) may be routed to the following destinations:

- Channel Direct Output
- Multi-track Summing Busses 1-24
- Stereo Program Bus A
- Stereo Program Bus B
- Stereo Program Bus C

IMPORTANT NOTE: If no output assignments have been made, the output of the Large Fader will feed the Channel Direct Output and the Small Fader will not be routed anywhere.

In a tracking session, it is typical for the Small Fader to be assigned to the Direct Output or a Multi-track Summing Bus and the Large Fader to feed the Stereo A (STA) Program Bus. In a mixing session, it is typical for both paths on most channels to be assigned to one or more Program Bus (Stereo A, B, C,).

Channel Direct Output

The Direct Output may be fed from the output of the Large Fader or the Small Fader audio paths, but not both simultaneously.

The Direct Output is fed from the Large Fader path by default. It may be fed from the Small Fader path if the DIR switch is engaged on the 968L Input Module.



DIR (Direct Output): Routes the output of the Small Fader to the Direct Output patch point.

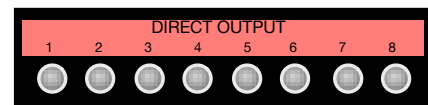
- The Direct Output is fed POST fader
- A yellow LED indicator illuminates when engaged

NOTE: There is not a DIR switch for the Large Fader. The DIR is included with the Small Fader controls and toggles the Direct Output to be fed from one fader or the other. When the DIR switch is not engaged, the Direct Output is fed from the Large Fader.

The Direct Output feeds the DIRECT OUTPUT patch points.

DIRECT OUTPUT: Channel Direct Output

- Fed from the Large Fader by default
- Will be fed from the Small Fader if the DIR switch is engaged
- The Direct Output is located post the Direct Output switch (Post-fader/mute)



The DIRECT OUTPUT patch points are not normalled and must be patched to their destinations.

624L Bus Assignment Module

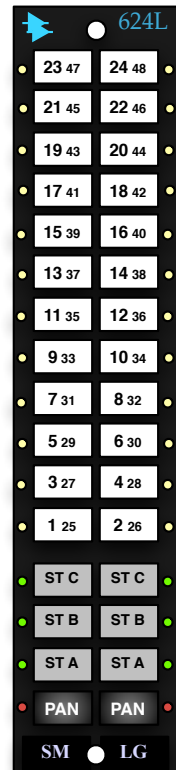
The 624L Bus Assignment Module allows the assignment of the Large Fader and Small Fader path outputs to the following Multi-track Summing and Program Busses:

- Multi-track Summing Busses 1-24 (repeating to outputs 25-48)
- Stereo Program Bus A
- Stereo Program Bus B
- Stereo Program Bus C

The 624L Buss Assignment Module provides comprehensive output signal flow routing for both Faders. The output of each fader can be routed to the Multi-track busses or the Stereo Program Busses. There are three Stereo Program Busses: ST A, ST B, and ST C.

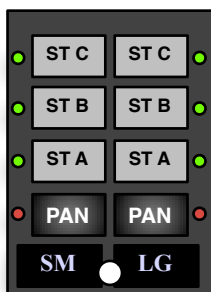
Only one fader at a time (Large or Small) can feed the Multi-track busses on a given channel. By default, the Large Fader will feed the Multi-track busses. Simply press the desired buss number and the adjacent yellow LED will illuminate indicating that the channel is assigned to the buss.

The Small Fader can be switched to feed the Multi-track busses, by pressing "24" next to the Small Fader in the 968L Input Module. This will defeat the Large Fader signal to the Multi-track busses.



Stereo Program Bus Assignments

Each fader (or both) can feed the Stereo Program Busses. The Small Fader and Large Fader audio paths each have Program Bus Assignment switches. At the bottom of the module are two rows of ST A, ST B, and ST C switches. The Assignments may be made to the following Program Busses:



- ST A: Stereo A
- ST B: Stereo B
- ST C: Stereo C

The left column of switches is for the Small Fader path (as indicated by "SM" at the bottom of the module). The right switches are for the Large Fader path (as indicated by "LG"). Both audio paths, Small Fader and Large Fader, may feed all Program Busses simultaneously. To assign a fader to one or more Stereo Program Busses, press the STA, STB, or STC button above the LG or SM label for the fader you wish to assign.

PAN

The Pan-pot in each path must be activated. At the bottom of the 624L module are two PAN switches. The PAN switch must be engaged for either path for the pan pot to be active.

The pan pot may be used for odd/even Multi-track buss panning or Left/Right Stereo buss panning. Without the PAN controls engaged, all buss assignments are mono.

When the pan control is active, signal levels at the extremes of the pan control will be at the same level as they would be if the pan control was not active. Signals are -2.5dB down when the pan control is centered.

It is possible to pan across odd/even pairs of multi-track busses. This can be useful in multi-track recording when it is desired to mix several mics together across two tracks. For example, you may wish to record five tom mics to two tracks of the recorder and maintain the stereo position of each tom.

To pan across odd/even multi-track busses:

- Press "24" on the mic channels to feed the Small Fader to the multi-track busses
- Assign the Small Faders to a pair of odd/even busses (5-6 for example)
- Press PAN above SM in the Bus Assignment Module
- The Small Fader Pan can be used to "place" tracks in the stereo mix on tracks 5&6

Outputs 25-48

Channel output assignments may be made to any of the twenty-four (24) Multi-track Summing Busses (1-24). The output of these Busses is split to feed up to forty-eight (48) Multi-track Sends. Each assignment sends the signal to 1-24 AND 25-48 outputs, allowing the Legacy Plus to easily feed any track/input of a 48 track recorder.

There is an assignment button for each of the twenty-four (24) Multi-track Summing Busses. While there are only twenty-four multi-track summing busses, each assignment button is labeled with Multi-track Send numbers, 1-24 and 25-48. Multi-track Summing Bus 1 feeds multi-track sends 1, and 25. Multi-track Summing Bus 2 feeds multi-track sends 2 and 26 and so on. For example, signals assigned to Bus 1 will be present at the Bus Output patch points 1 and 25. The Bus master for both 1 and 25 is the same. See the details on the 624M Bus Masters later in this manual.

Channel Patch Points

There are several Patch Points associated with the Legacy Plus channel including:

- Microphone Tie Lines
- Upper 200 Slots
- Lower 200 Slots
- EQ Slot
- 968L Input Module (Small Fader and Large Fader audio path)
- Multi-track Recorder Returns

The following section outlines these Patch Points in the order they appear in the Patch Bay.

Normals

Half Normalled: The output patch point does not break the normalling to the patch point's internal destination. The input or return patch point breaks the connection between patch points. In other words: outputs "split" the signal, Inputs break the normal.

Fully Normalled: Both patch points break the normalled connection between points. Input AND Output patch points will break the normal when a patch cable is inserted.

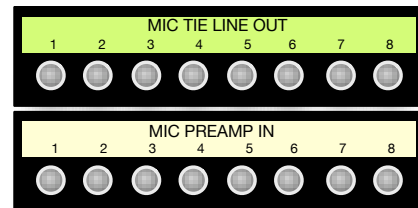
NOTE: The MIC TIE LINE OUT Patch Points are the only Patch Points that are full normalled (both points will "break" the normal when a patch cord is inserted).

MIC TIE LINE OUT: Studio Microphone Tie-line Outputs

- Fully-normalled to MIC PREAMP IN

MIC PREAMP IN: Connection point to the Preamp Input (Upper 200 Slot In)

- Feeds the preamp input
- Fully-normalled from MIC TIE LINE OUT
- Patching to these points will replace the mic tie-line feed to the preamp with the patch cord signal
- Not used with 205L Direct Input Module



200 OUT: Lower 200 Slot Output

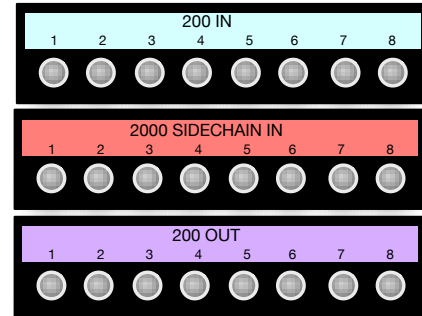
- Output of any signal processor device installed in the Lower 200 slot.

200 IN: Lower 200 Slot Input

- Input to any signal processor device installed in the Lower 200 Slot
- Half-normalled to KEY INPUT below

200 SIDECHAIN IN (SIDECHAIN INPUT): Lower 200 Slot Side-chain Input

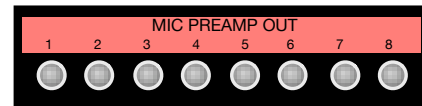
- Half-normalled from LOWER 200 IN



NOTE: Patching into the SIDE CHAIN IN will replace the Lower 200 Input as the input to the module's detection path (side-chain input)

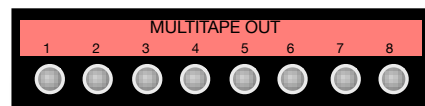
MIC PREAMP OUTPUT: Preamplifier Output (Upper 200 Slot)

- Feeds the input to the channel Input Selector switch (MIC/TAPE) in both paths (Large Fader and Small Fader)
- The MIC PREAMP OUTPUT is the default source for Small Fader path (as customized)
- Large Fader will receive the MIC PREAMP OUTPUT when the Large Fader MIC switch is engaged
- Both paths may receive the signal from MIC PREAMP OUTPUT simultaneously



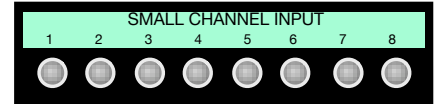
MULTITAPE OUT: Multi-track Recorder Output (Multi-track Return)

- Feeds the input to the channel Input Selector switch (MIC and TAPE) in both paths (Large Fader and Small Fader)2
- The MULTI-TRACK OUTPUT is the default source for Large Fader path (as customized)
- Small Fader will receive the MULTI-TRACK OUTPUT when the Small Fader TAPE switch is engaged
- Both paths may receive the signal from MULTI-TRACK OUTPUT simultaneously



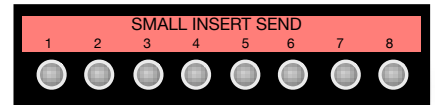
SMALL CHANNEL INPUT: Small Fader audio path input

- Replaces the feed to the Small Fader Channel Input
- The SMALL CHANNEL INPUT is located post Lower 200 processor and pre EQ



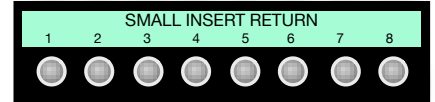
SMALL INSERT SEND: Insert Send in Small Fader path

- Always active
- Pre Fader, post EQ



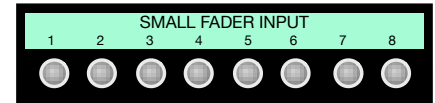
SMALL INSERT RETURN: Insert Return in Small Fader path

- Replaces the feed to the Small Fader Input when the Small Fader INS switch is engaged
- The Small Fader Insert is Located Post EQ (or the 200 Slot Output if so programmed), Pre SMALL FADER INPUT



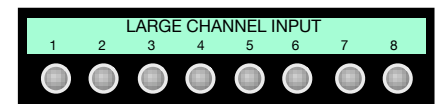
SMALL FADER INPUT: Small Fader Input

- Replaces the feed to the Small Fader Input
- The Small Fader Input is located:
 - Post Insert Return
 - Pre Phase Reverse (Polarity Inverter)



LARGE CHANNEL INPUT: Large Fader audio path input

- Replaces the feed to the Large Fader Channel Input
- The LARGE CHANNEL INPUT is located:
 - Post the Input Selector switch (or the Lower 200 Slot Output if so programmed)
 - Pre EQ

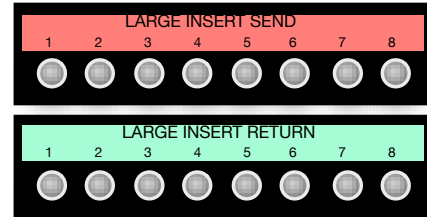


LARGE INSERT SEND: Large Fader Insert Send

- Always active

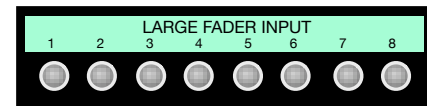
LARGE INSERT RETURN: Large Fader Insert Return

- Replaces the feed to the channel Fader Input when the Large Fader INS switch is engaged
- The Large Fader Insert is Located:
 - Post EQ (or the 200 Slot Output if so programmed)
 - Pre LARGE FADER INPUT



LARGE FADER INPUT: Input to the Large Fader

- Replaces the feed to the Large Fader
- The Large Fader Input is located:
 - Post INSERT RETURN
 - Pre Phase Reverse (Polarity Inverter)

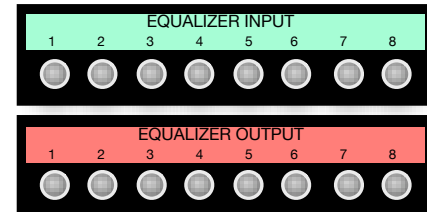


EQUALIZER INPUT: EQ Input

- Replaces the feed to the Equalizer Input
- Post the CHANNEL INPUT

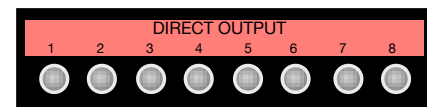
EQUALIZER OUTPUT: EQ Output

- Always active
- The Equalizer is located:
 - Post the CHANNEL INPUT
 - Pre INSERT SEND or the 200 Slot Input if so programmed
- Assignable to Large Fader or Small Fader audio path



DIRECT OUTPUT: Channel Direct Output

- Fed from LARGE FADER by default
- Will be fed from Small Fader if the DIR switch is engaged
- The Direct Output is located:
 - Post the Direct Output switch (Post-fader/mute)

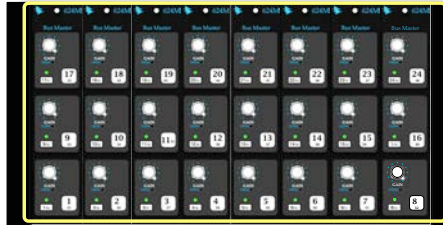
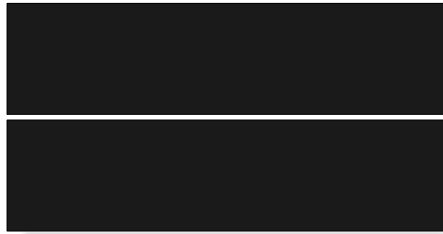
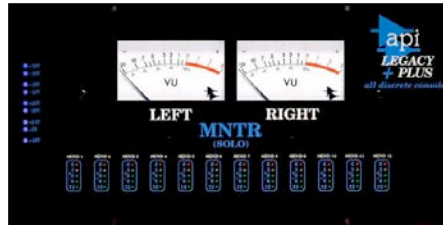


Master

Stereo Program Meters

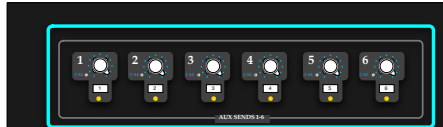
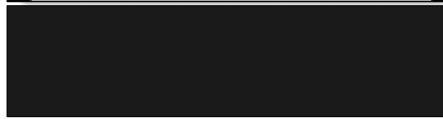
Auxiliary Master Meters

Expansion Slots



Multi-track Summing
Bus Masters

Aux Send Masters



Master Controls

Input Flip

Mute Group

Monitors

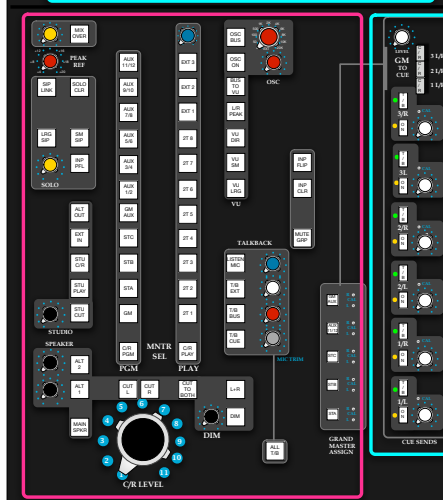
Talkback

Solo

Oscillator

Meter Controls

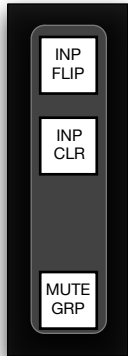
Grand Master Assigns



Cue Masters

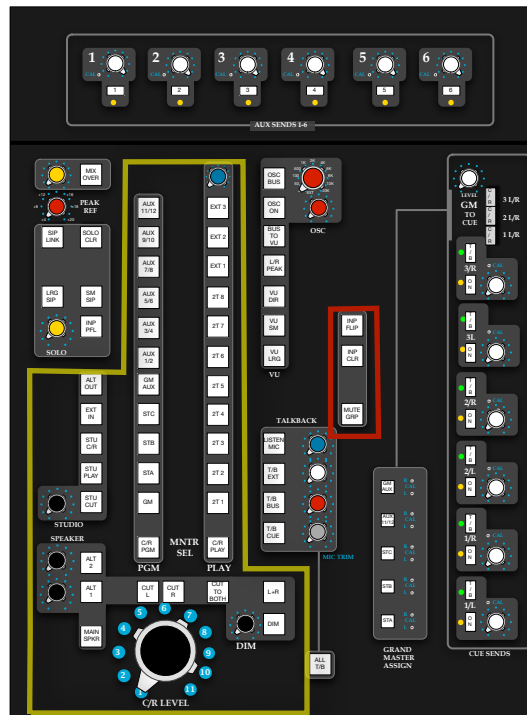
Master Controls

Master Input Switches & Mute Group



Master Input Switches are provided for global switching of MIC and TAPE inputs (outlined in **red** below) for the Small Fader and Large Fader paths.

- **INP_FLIP**: Reverses the inputs on all channels for the Small Fader and Large Fader paths. Fader paths that are currently set to MIC will switch to TAPE, while those that are TAPE will switch to MIC.
- **INP_CLR**: Returns all channels to the “default” inputs settings with no TAPE or MIC switches engaged.
- **MUTE_GRP**: Just below the Master Input Switches is the Mute Group control. When engaged, all faders that have MUTE A switched on will mute.



Monitor Control

The Legacy Plus console provides comprehensive Control Room and Studio monitor control facilities. Features include:

- Control Room Stereo Program monitoring
- Control Room Stereo Playback monitoring
- Control of three (3) stereo Control Room monitor systems with independent levels
- Monitor output calibration
- Studio Loudspeaker control
- DIM and CUT

Control Room Monitoring

Support is provided for three (3) pairs of control room monitors. The source for the monitors may be selected between eleven (11) internal (PGM) and eleven (11) external (PLAY) sources.

Stereo Program (PGM) sources include all Stereo busses, all Aux busses, and the GM Aux input. Stereo external sources (PLAY) include eight (8) 2-track recorders and three (3) external inputs.

The following features may be applied:

- Speaker system selection
- Control Room level controls
- All Cut
- Dim with level
- Left and Right Mute
- Mono summing
- Main and Alternate Studio Monitor feeds

Control Room Monitor Source Selection (MNTR SEL)

The Control Room Monitor Select (MNTR SEL) section allows the choice of Program and Playback monitor sources and contains the main Control Room monitor level control.

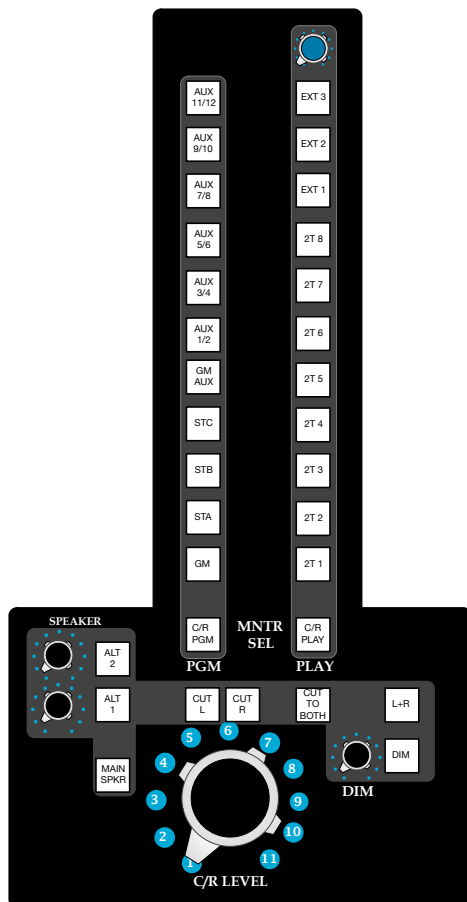
- Internal and external monitor sources may be selected:
- Internal: Program Master outputs (PGM)
- External: Playback returns from external record/playback devices (PLAY)

The following Program outputs may be selected as the Control Room monitor source:

- GM: Output of the Stereo Program Grand Master
- ST A: Output of the Stereo A Program Master
- ST B: Output of the Stereo B Program Master
- ST C: Output of the Stereo C Program Master
- GM Aux: Feed from the GM Aux patch point
- Aux: 1/2, 3/4, 5/6, 7/8, 9/10, 11/12: Output from the Auxiliary Send Masters

The following Playback returns may be selected as the Control Room monitor source:

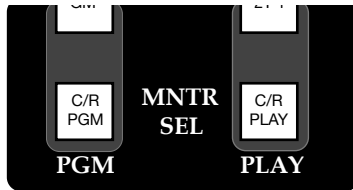
- 2T1 – 2T8 (2-Track 1): Return from 2-Track recorder/playback devices 1 thru 8
- EXT 1- EXT 3: Input from External devices



Control Room Monitor Source Selectors

To select one of the Stereo Program Masters as the monitor source, PGM (Program Monitor) must be selected. The selected Program Master source will be routed to the Control Room monitor feed.

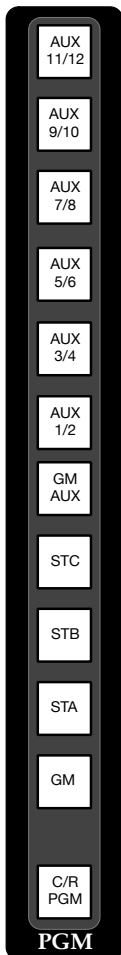
To select the return from one of the Record/Playback devices as the monitor source, PLAY (Playback Monitor) must be selected. The return from the selected Record/Playback device will be routed to the Control Room monitor feed.



C/R PGM (Program): Routes the output of the selected Program Master to the Control Room monitor feed. Illuminates when engaged.

C/R PLAY (Playback Monitor): Routes the output of the selected Playback return to the Control Room monitor feed. Illuminates when engaged.

Program Monitor Selectors (PRG). All source selectors illuminate when engaged. Only one source may be selected at a time.



Aux 11/12: Selects the output of Auxiliary Masters 11/12 as the Program Monitor source

Aux 9/10: Selects the output of Auxiliary Masters 9/10 as the Program Monitor source

Aux 7/8: Selects the output of Auxiliary Masters 7/8 as the Program Monitor source

Aux 5/6: Selects the output of Auxiliary Masters 5/6 as the Program Monitor source

Aux 3/4: Selects the output of Auxiliary Masters 3/4 as the Program Monitor source

Aux 1/2: Selects the output of Auxiliary Masters 1/2 as the Program Monitor source

GM Aux: Selects the signal patched to the GM EXT IN patch point as the Program Monitor source

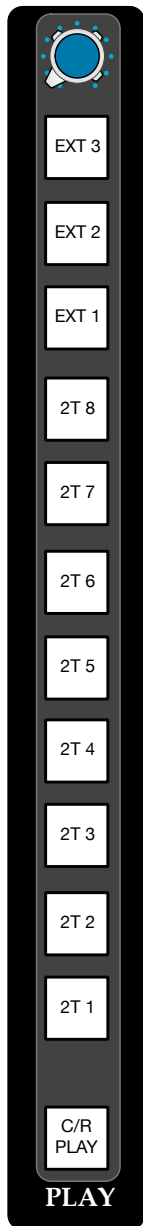
ST C (Stereo C): Selects the output of Stereo Program Master C as the Program Monitor source

ST B (Stereo B): Selects the output of Stereo Program Master B as the Program Monitor source

ST A (Stereo A): Selects the output of Stereo Program Master A as the Program Monitor source

ST GM (Stereo Grand Master): Selects the output of Stereo Grand Master as the Program Monitor source

Playback Monitor Selectors (PLAY). All source selectors illuminate when engaged. Only one source may be selected at a time.



LEVEL: Level control of the selected device feeding the C/R PLAY selector. Allows the user to balance levels from the Ext 3 source to +4dBu level.

EXT 3 (External 3): Selects the return from any stereo input to the EXT 3 patch points in the patch bay.

EXT 2 (External 2): Selects the return from any stereo input to the EXT 2 patch points in the patch bay.

EXT 1 (External 1): Selects the return from any stereo input to the EXT 1 patch points in the patch bay.

2T8 (2-Track 8): Selects the return from 2-Track Record/Playback device #8 as the Playback Monitor source

2T7 (2-Track 7): Selects the return from 2-Track Record/Playback device #7 as the Playback Monitor source

2T6 (2-Track 6): Selects the return from 2-Track Record/Playback device #6 as the Playback Monitor source

2T5 (2-Track 5): Selects the return from 2-Track Record/Playback device #5 as the Playback Monitor source

2T4 (2-Track 4): Selects the return from 2-Track Record/Playback device #4 as the Playback Monitor source

2T3 (2-Track 3): Selects the return from 2-Track Record/Playback device #3 as the Playback Monitor source

2T2 (2-Track 2): Selects the return from 2-Track Record/Playback device #2 as the Playback Monitor source.

2T1 (2-Track 1): Selects the return from 2-Track Record/Playback device #1 as the Playback Monitor source

Control Room Speaker Selection, Level, and Controls

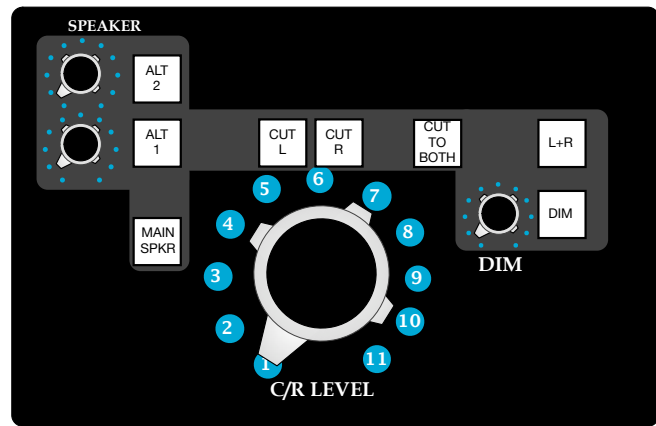
The Legacy Plus console provides support for three (3) Control Room monitoring systems. With independent level control for each.

C/R LEVEL (Control Room Level): Level control for the selected Control Room monitor system

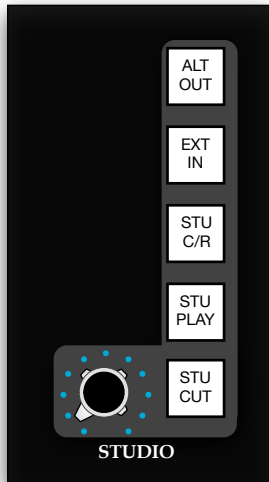
- $-\infty$ dB to 0dB range
- Sets the level to the selected Control Room monitor system
- Fed from the Monitor Source selectors
- Primary level control for the Main and Alternate Control Room Monitors

The SPEAKER section of the Master section contains the primary controls for the three Control Room Monitor systems:

- MAIN SPKR (Main Speakers): Activates the main Control Room monitor system
- ALT 1 (Alternate 1): Activates Alternate Control Room monitor system #1. Level control for matching levels between the three systems.
- ALT 2 (Alternate 2): Activates Alternate Control Room monitor system #2. Level control for matching levels between the three systems.
- CUT L: Mutes the Left loudspeaker of the selected speakers.
- CUT R: Mutes the Right loudspeaker of the selected speakers.
- CUT TO BOTH: Cuts the feed to all Control Room speaker feeds.
- L+R: Sums the Left and Right speaker feeds to mono.
- DIM: Activates the Control Room monitor Dim function and attenuates the output to the active Control Room monitor system by the amount set with the DIM LEVEL.
- DIM LEVEL (adjacent to DIM button): Sets the amount of attenuation applied when the DIM button is engaged. $-\infty$ dB to 0dB range



Studio Monitor Source Selection (STUDIO) and Level Control



Studio monitor feeds are provided for two (2) studio monitor systems. There is one studio monitor output that normally feeds the main studio monitor system. The output can be switched to feed an alternate studio monitor system (ALT OUT) instead of the main system.

The Studio monitor systems can be fed from the following sources:

- **STU PLAY (Studio Playback):** The selected Control Room monitor Playback source is routed to the Studio loudspeakers, independent from the Control Room monitor source selection.
- **STU C/R (Studio Control Room):** The selected Control Room monitor source is routed to the Studio loudspeakers
- **EXT IN (External Input):** The signal from the STUDIO EXT MNTR INPUT patch points are routed to the Studio loudspeakers

Studio Monitor Controls

ALT OUT: (Alternate Output): Activates the Studio monitor Alternate outputs

- Activates a second set of studio monitors.
- Illuminates when engaged.

EXT IN (External Input): Receives the signal from the EXT STUDIO IN patch points.

- EXT STU IN patch points are routed to the Studio monitor feed.
- Illuminates when engaged.

STU PLAY (Studio Playback): The Playback source selected for the Control Room monitors is routed to the Studio monitor feed.

- Allows for the Control Room to monitor a Program Source (PGM) while the Studio receives playback from a stereo recorder.
- Illuminates when engaged.

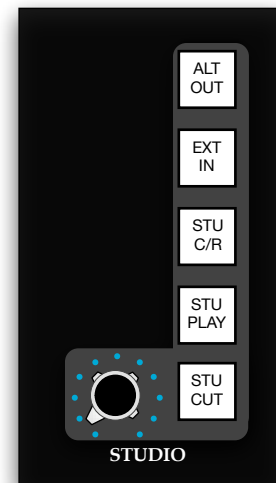
STU C/R (Studio Control Room): Sets the Studio Monitors to follow the Control Room monitor selection.

- Changing the Control Room monitor source will also change the feed to the Studio monitors.
- Illuminates when engaged.

STU CUT (Studio Cut): Cuts the feed to all Studio speaker feeds
Illuminates in red when engaged.

LEVEL: Level control for the Studio monitor outputs

- Sets the level for the Studio monitor system and Alternate Output.
- Fed from the Studio monitor Source selectors.
- $-\infty$ dB to -2dBu range

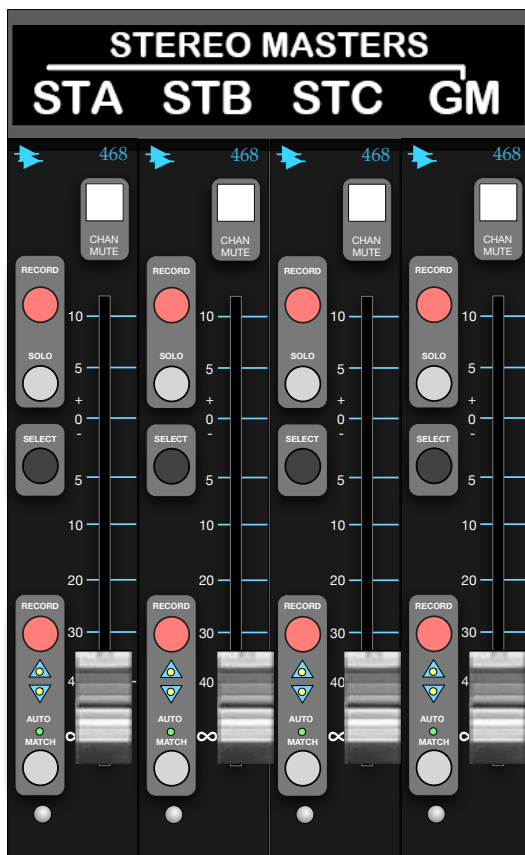


Stereo Program Master Faders

There are three (3) Stereo Master Faders and one (1) Grand Master Fader:

- Stereo A (ST A)
- Stereo B (ST B)
- Stereo C (ST C)
- Grand Master (GM)

The output of each Stereo Program Bus Active Combining Amplifier (ACA) feeds its own Stereo Master Fader. Each Stereo Program Fader may be assigned to the Grand Master Bus ACA. The Grand Master ACA feeds the Grand Master Fader.



The STA, ST B, ST C Master Faders are the master output level control for their respective Stereo Program Busses.

The GM fader is the Grand Master. The Grand Master is the master output level control for the Grand Master Output (See below).

The three Stereo Program Busses may be fed simultaneously from:

- Small Fader output
- Large Fader output

Stereo Program Bus assignments are made in the 624L Bus Assignment Module.

To activate Left-Right panning the following conditions must be met:

- The channel must be assigned to one or more of the Stereo Program Busses (ST A, ST B, and/or ST C) in the 624L Bus Assignment section.
- The pan-pot (PAN) must be engaged in the 624L Bus Assignment section.

Shown with optional automation system

Stereo Grand Master

A stereo Grand Master Bus and Grand Master Fader are provided to facilitate a wide range of operations. The three Stereo Program mixes, an External Input, and the output of Auxiliary Master 11/12 (Cue 5/6) may be selected for mixing to the stereo Grand Master Bus.

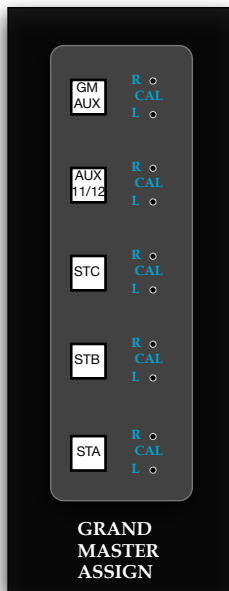
Left and Right calibration trim-pots (CAL L-R) are provided for the primary Grand Master sources to assure precision summing.

The Stereo Grand Master Bus may be fed from the following sources:

- Stereo Program Master A (ST A)
- Stereo Program Master B (ST B)
- Stereo Program Master C (ST C)
- External Stereo Source (EXT)
- Auxiliary Master 11/12

Grand Master Select

The primary source selections for the Grand Master Bus are assigned with the Grand Master Assign controls in the Master Section.



There are five (5) sources that may be selected as sources to feed the Grand Master Bus:

- ST A (Stereo A): Output of the Stereo A boosters
- ST B (Stereo B): Output of the Stereo B boosters
- ST C (Stereo C): Output of the Stereo C boosters
- GM AUX (External): Output of the GM EXT IN patch points
- Aux 11/12 (Auxiliary 11/12): Output of the Aux 11/12 Bus Masters (Cue 3 L/R).

IMPORTANT NOTE: IF AUX 11/12 IS SELECTED IN THE GRAND MASTER ASSIGN SECTION, DO NOT SELECT "3 L/R" IN THE GM TO CUE SECTION. THIS WILL CAUSE AN INTERNAL FEEDBACK LOOP.

The controls for the Grand Master Assign function as follows:

ST A (Stereo A): Routes the output of the Stereo A boosters to the Grand Master Bus. Illuminates when engaged.

ST B (Stereo B): Routes the output of the Stereo B boosters to the Grand Master Bus. Illuminates when engaged.

ST C (Stereo C): Routes the output of the Stereo C boosters to the Grand Master Bus. Illuminates when engaged.

Aux 11/12 (Auxiliary 11/12): Routes the output of the 11/12 Stereo Aux master (Cue 3 L/R) to the Grand Master Bus. This allows for an additional stereo mix to be fed to the Grand Master. Illuminates when engaged.

GM Aux (External): Routes the output of the GM EXT IN patch points to the Grand Master Bus. Illuminates when engaged.

CAL L-R (Calibration Left-Right): Calibrates the stereo balance and level to the Grand Master Bus for the associated source. A set of calibration trim-pots is provided for each Grand Master source.

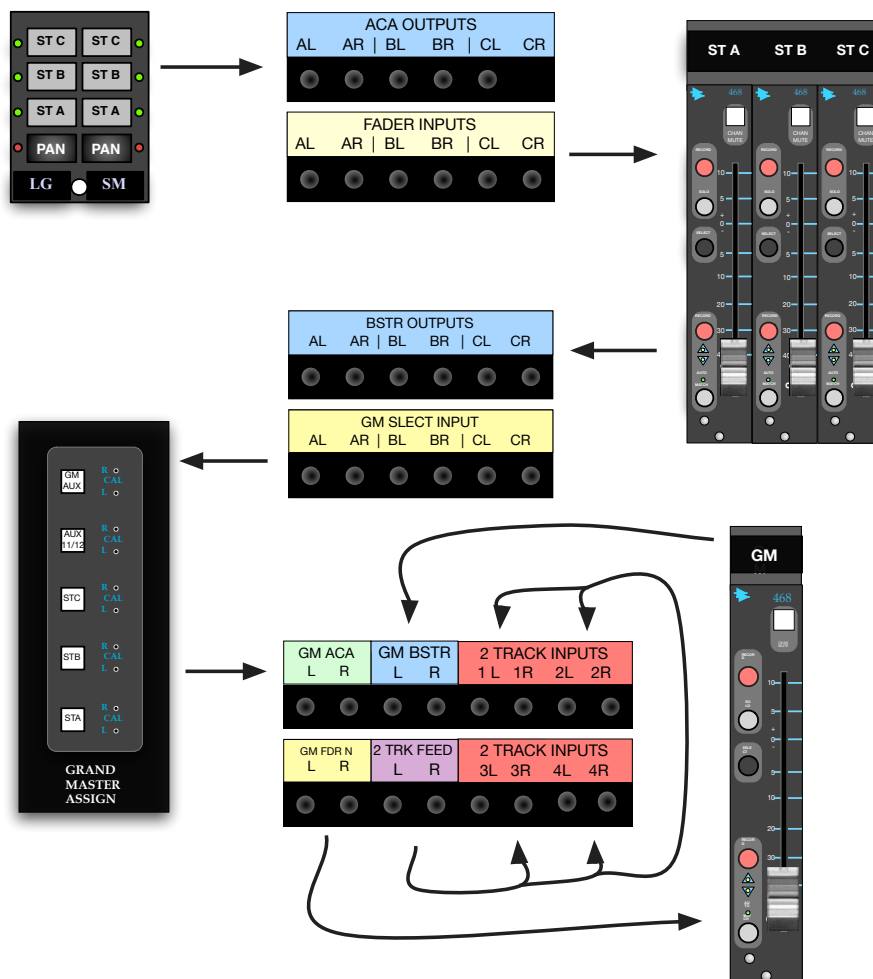
The selected Stereo Masters (A, B, C) are routed to the Grand Master Bus and mixed together at the GM ACA to create a GRAND MASTER stereo program. An external stereo source may also be added via the GM Aux (GM EXT IN) patch points and engaging the EXT AUX switch.

The patch points from the Grand Master ACA outputs (GM ACA) feed the Grand Master Fader (GM FDR IN) patch points. A booster calibrates the output of the Grand Master Fader (GM BSTR OUT) and is half-normalled to the 2Track Feed (2T FEED) distribution patch points.

The 2T FEED distribution patch points are half-normalled to feed to up to four (4) 2-track recorders (2T1 IN, 2T2 IN, 2T3 IN, and 2T4 IN patch points)

Stereo Program Signal Flow

The diagram below shows the basic Stereo Program Bus signal flow from the channel Stereo Bus Assignment, through the Stereo Masters and Grand Master, to the 2Track Feed. The 2Track Feed is distributed to all four 2Tracks.



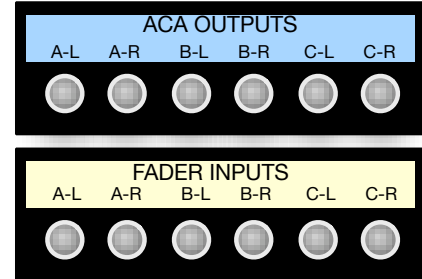
Stereo Program Patch Points

ACA OUTPUTS: Stereo Active Combining Amplifier outputs.

- Half-normalled to FADER INPUTS.

FADER INPUTS: Stereo Master Fader inputs.

- Feeds the stereo Master Fader inputs.
- Half-normalled from ACA OUTPUTS.
- Patching to these points will replace the feed to the Stereo Master Faders with the patch cord signal.

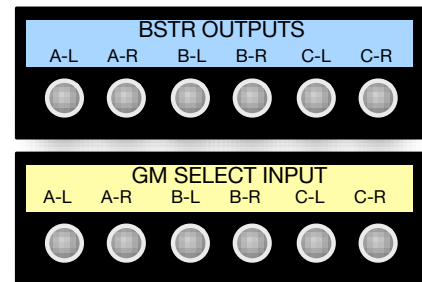


BSTR OUTPUTS: Stereo Booster outputs.

- Half-normalled to GM SELECT IN.

GM SELECT IN: Stereo Grand Master selector inputs.

- Feeds the Stereo Grand Master Select inputs.
- Half-normalled from ACA OUTPUTS.
- Patching to these points will replace the feed to the Stereo Grand Master Selector with the patch cord signal.

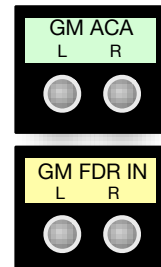


GM ACA OUT: Stereo Grand Master ACA output.

- Half-normalled to GM FDR IN.

GM FDR IN: Grand Master Fader Input

- Feeds the Grand Master Fader.
- Half-normalled from GM ACA OUT.
- Patching to these points will replace the feed to the Grand Master Fader with the patch cord signal.



GM BSTR: Stereo Grand Master Booster output.

- Primary Stereo Program Output.
- Half-normalled to 2T FEED IN.

2T FEED: Two Track Feed Input

- Distributed feed to four (4) 2-track recorders.
- Half-normalled from GM BSTR OUT.
- Half-normalled to 2T IN 1-4.
- Patching to these points will replace the feed to all the 2-track recorders with the patch cord signal.

2T1 IN: Input to 2-track recorder #1

- Half-normalled from 2T FEED IN

2T2 IN: Input to 2-track recorder #2

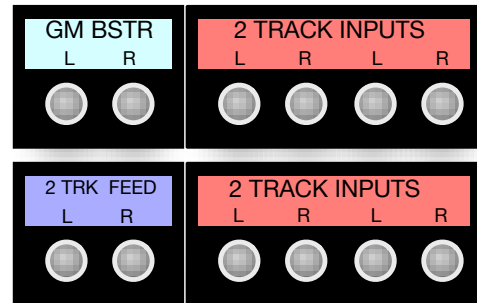
- Half-normalled from 2T FEED IN

2T3 IN: Input to 2-track recorder #3

- Half-normalled from 2T FEED IN

2T4 IN: Input to 2-track recorder #4

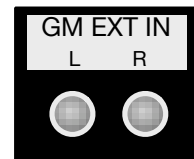
- Half-normalled from 2T FEED IN



Patching to any 2 Track Input will replace the feed to the 2-track recorder with the patch cord signal

EXT GM IN: Stereo external Grand Master inputs.

- Allows an external stereo source to be added to the Grand Master mix.
- Feeds the Grand Master ACA.
- Active only when the EXT switch in the Grand Master Select controls is engaged.



Auxiliary Masters

The Legacy Plus console provides a powerful Auxiliary Send system with a variety of options for Cue and Effects Sends.

There are twelve (12) Auxiliary Masters:

- Six (6) Mono (1-6)
- Three (3) Stereo (7/8, 9/10 and 11/12)

The Legacy Plus Auxiliary Masters are split into two groups:

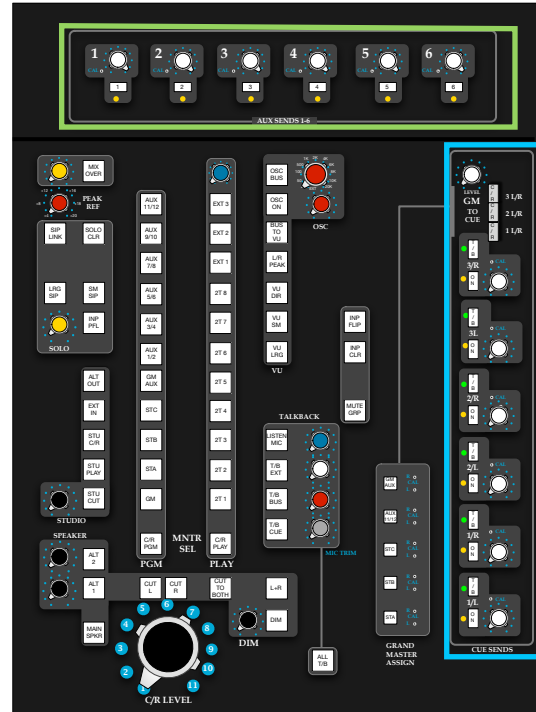
- "Aux Sends 1-6" —
- "Cue Sends 1-3" —

Aux 1-6 are primarily used as Effects Sends during recording and mixing.

Aux 7/8, 9/10, and 11/12 are intended for use as Cue Sends during recording, and may be used as stereo Effects Sends during mixing.

Cue Sends 1-3 serve as Masters for Auxiliary sends 7-12 as follows:

- Aux 7/8 = Cue 1 L/R
- Aux 9/10 = Cue 2 L/R
- Aux 11/12 = Cue 3 L/R



Auxiliary Sends

The default source for all Auxiliary sends is the Large Fader path, post fader. All Auxiliary Sends may be routed pre or post fader. Sends 9/10 & 11/12 may be switched to the Small Fader path.

Aux Sends 9/10 and 11/12 follow the same source routing controls (PF, SM).

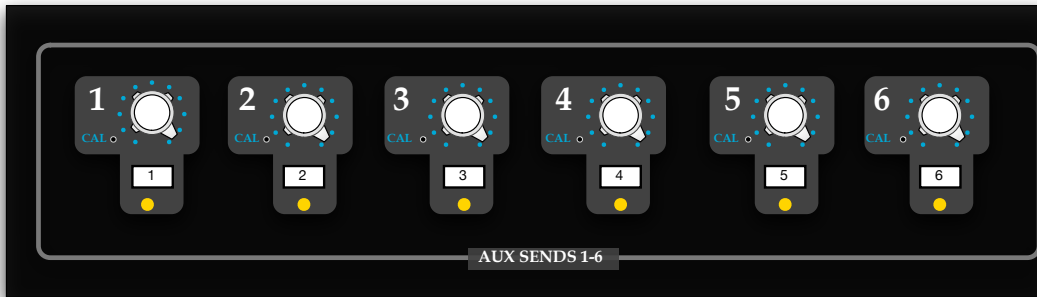
The control for Aux 9/10 can feed either Aux bus 9/10 **OR** Aux bus 11/12. In other words, both cannot be used simultaneously on the same channel.

Aux sends 7-12 are used as Cue sends 1 L/R, 2 L/R, and 3 L/R. The talkback system may be routed all of the Cue send masters

Each Auxiliary bus has an associated LED meter on the meter bridge below the Stereo Program Master Meters.

Auxiliary Masters 1-6

Aux Sends 1-6 are located above the Control Room Monitor section and below the Bus Masters. Each send is the master output control for the corresponding Auxiliary Summing Bus.



The controls for the Aux Masters (Sends) 1-6 function as follows:



GAIN: Output level control

- Feeds the CUE SEND OUT 1-6 patch points which may be patched to feed effects devices, studio cue systems, or other destinations.
- $-\infty$ to 0 dB range

CAL (Calibration): Output calibration trim-pot for the Aux Send Precise level adjustment control for Calibration of the Auxiliary Master outputs

On/Off: Each Send has an On/Off switch labeled with the send number. An LED indicator illuminates when engaged.

Cue Sends 1-3/Auxiliary Masters 7-12

The three Stereo Auxiliary Sends on each channel (7/8, 9/10, and 11/12) are designed to be used as Cue Sends for headphone feeds while recording, and/or as Effects Sends while mixing.

There are three Stereo Cue Sends which are also the Auxiliary Masters for Sends 7-12. Auxiliary sends 7-12 feed the Cue Send masters as follows:

- Aux 7/8 feeds Cue 1 L/R
- Aux 9/10 feeds Cue 2 L/R
- Aux 11/12 feeds Cue 3 L/R

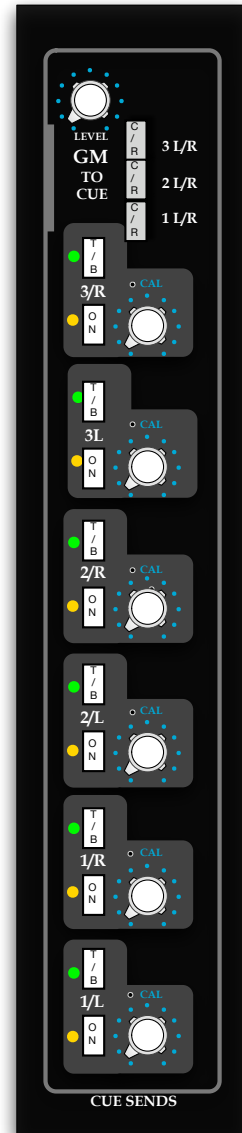
Each Cue Send has the following controls:

ON (On/Off): Activates the associated send. An LED will illuminate when engaged.

T/B (Talk Back Input): Routes Talk Back to the Send

- Adds the Talk Back output from the TALKBACK TO CUE level control (located in the TALKBACK section).
- T/B CUE must be engaged in the Talkback section to feed the talkback mic to the cues.
- An LED indicator illuminates when engaged
- T/B should be off when using sends (7-12) as effect sends.

CAL (Calibration): Output calibration trim-pot for precise level adjustment control of the Cue Send outputs.



GM to Cue

The GM TO CUE feature facilitates routing of the outputs of the Grand Master to each of the three Stereo Cue Sends (7/8, 9/10, and 11/12). This is used primarily to send the selected Program mix(es) to the headphones while recording with the option to add individual channels to the Program mix(es). This can be very handy for creating quick cue mixes with ability to reinforce certain tracks as needed.

The GM to Cue controls function as follows:



C/R (Control Room): Assigns the Grand Master bus signal to the associated Cue Send Master.

The controls route the GM to the associated Cue Send Masters as follows:

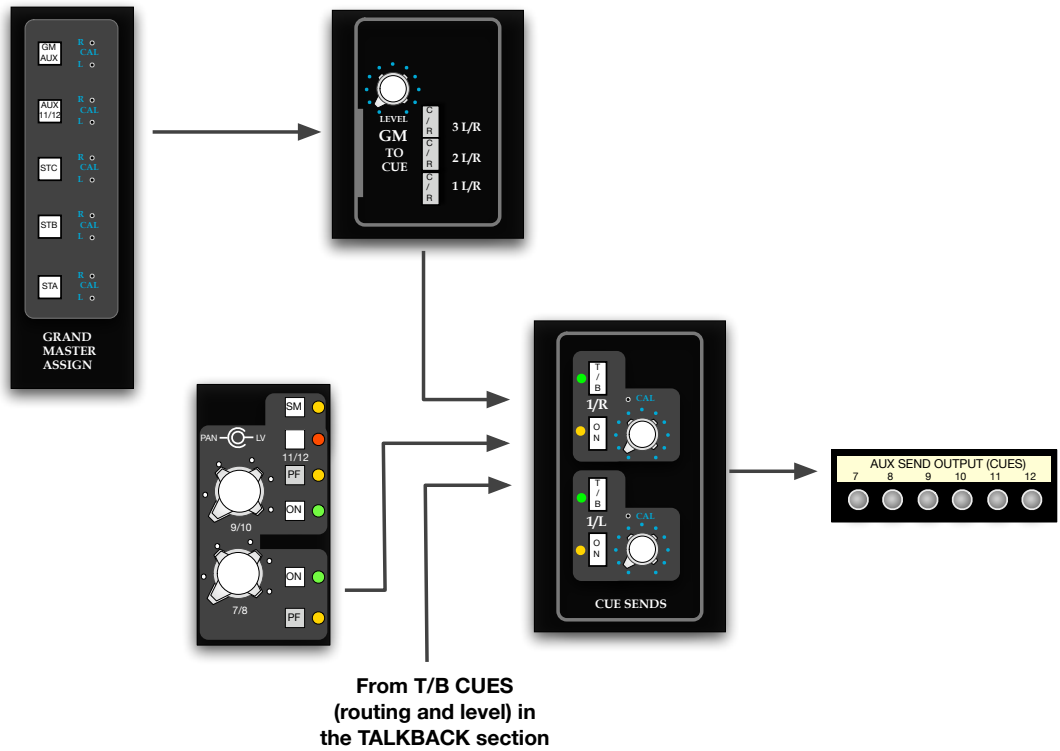
- C/R 3 L/R: adds the Stereo GM signal to Cue Send 3 (Aux 11/12)
- C/R 2 L/R: adds the Stereo GM signal to Cue Send 2 (Aux 9/10)
- C/R 1 L/R: adds the Stereo GM signal to Cue Send 1 (Aux 7/8)

LEVEL: Adjusts the level of the Grand Master mix(es) fed to the Cue Send Masters, allowing for balance adjustment between the GM mix and the signal from the corresponding Aux Send (7/8, 9/10, or 11/12).

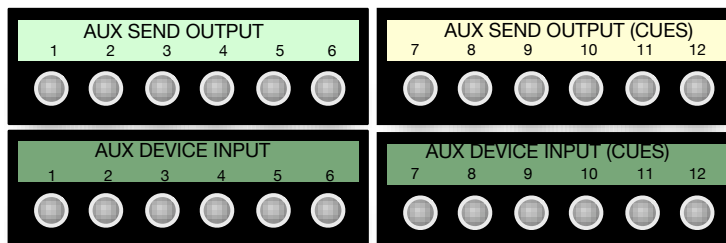
IMPORTANT NOTE: IF AUX 11/12 IS SELECTED IN THE GRAND MASTER ASSIGN SECTION, DO NOT SELECT "3 L/R" IN THE GM TO CUE SECTION AS THIS WILL CAUSE AN INTERNAL FEEDBACK LOOP.

Cue Send Signal Flow

The diagram below shows the basic Auxiliary Send signal flow.



Auxiliary Send Patch Points



Multi-track Summing Busses

There are twenty-four (24) Multi-track Summing Busses: 1-24. Multi-track Summing Busses 1-24 may be fed from:

- Small Fader output
- Large Fader output

Multi-track Summing Bus assignments are made in the 624L Buss Assignment module in each channel. The default source for the Multi-track Summing Busses is the Large Fader path. To feed the Multi-track busses from the Small Fader press the “24” switch next to the Small Fader in the 968L Module.

NOTE: The Multi-track Summing Busses cannot be accessed from both audio paths (Small Fader and Large Fader) simultaneously.

624M Bus Masters

Each of the 624L assignments feeds its respective Multi-track Summing Bus and the corresponding 624M Bus Master Module in the Master Section.

Each Multi-track Summing Bus has a gain control and trim control. These controls feed the BUS OUTPUT patch points 1-24 and 25-48.



NOTE: A multi-track recorder may alternately be fed from the channel Direct Outputs by patching the DIRECT OUT patch points to the desired multi-track recorder input interface.

Controls for the 624M Bus Masters are as follows:



1/24 (25/48) (On/Off switch): Activates Multi-track Outputs 1-24. An LED indicator illuminates when engaged.

GAIN: Sets the level for the Multi-track Output

- $-\infty$ to 0 dB range
- 0 dB is unity gain (fully clockwise)
- $-\infty$ is full attenuation (fully counter-clockwise)

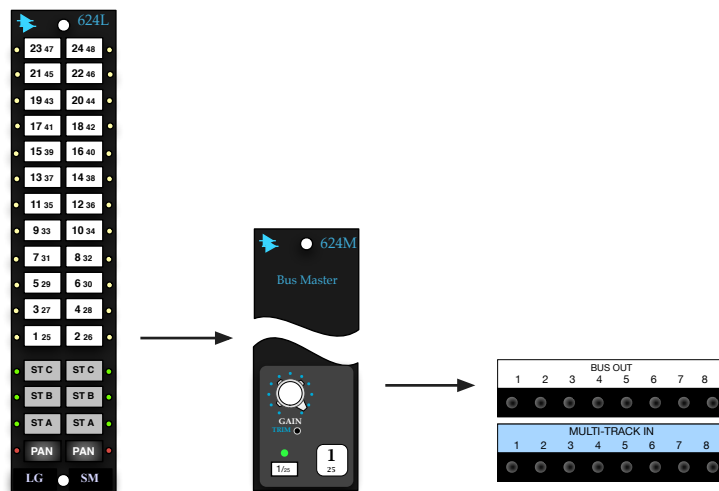
TRIM: Allows for precise adjustment of the Bus output.

The output of the Bus Masters feed the BUS OUT patch points. These patch points are half-normalled to the MULTI-TRACK IN patch points.

The BUS OUTPUT patch points are split via normals in the patch bay to feed the MULTI-TRACK IN patch points. BUS OUTPUT 1 feeds MULTI-TRACK IN 1 and 25. BUS OUTPUT 2 feeds MULTI-TRACK IN 2 and 26 and so on. This is reflected in the labeling of the bus assignment buttons and the Bus On/Off switch. The MULTI-TRACK IN patch points provide a feed to the multi-track recorder.

Multi-track Signal Flow

The diagram below shows the basic Multi-track signal flow. Only the first eight patch points are shown for each row.



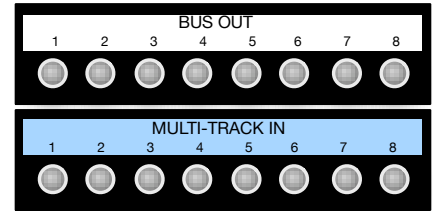
Multi-track Patch Points

BUS OUTPUT: Multi-track Summing Bus outputs

- Half-normalled to MULTI-TRACK IN

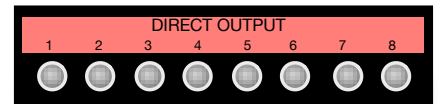
MULTI-TRACK IN: Input to the multi-track recorder

- Feeds the multi-track recorder inputs
- Half-normalled from BUS OUTPUT
- Patching to these points will replace the feed to the multi-track recorder with the patch cord signal



DIRECT OUTPUT: Channel Direct Output

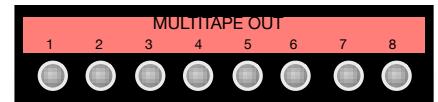
- Fed from LARGE FADER by default
- Will be fed from Small Fader if the DIR switch is engaged
- The Direct Output is located Post the Direct Output switch (Post-fader)



Note: The DIRECT OUTPUT patch points are associated with the channels and are not part of the Multi-track Summing Bus system. Since Direct Outputs are commonly patched to feed the multi-track recorder, their patch points are shown here.

MULTITAPE OUTPUT: Multi-track Recorder Output (Multi-track Return)

- Feeds the input to the channel Input Selector switch (MIC and TAPE) in both paths (Large Fader and Small Fader)
- The MULTITAPE OUTPUT is the default source for the Large Fader path
- The Small Fader will receive the MULTITAPE OUTPUT when the Small Fader TAPE switch is engaged
- Both paths may receive the signal from MULTITAPE OUTPUT simultaneously



Solo Modes and Controls

Solo Modes

The Legacy Plus provides the following Solo modes:

- After-Fader Listen (AFL)
- Pre-Fader Listen (PFL)
- Solo-In-Place (SIP)

After Fader Listen (AFL):

- The stereo Solo Bus is fed post pan-pot
- Non-destructive
- Control Room monitor source is replaced with the Solo Bus
- Solo Level Control
- Stereo

Pre-fader Listen (PFL):

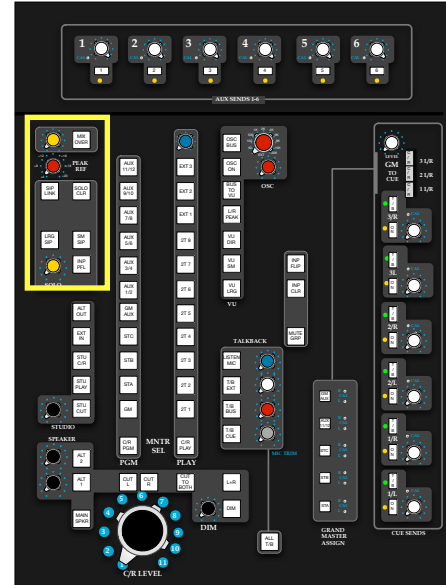
- The stereo Solo Bus is fed pre-fader
- Non-destructive
- Control Room monitor source is replaced with the Solo Bus
- Solo Level Control
- Mono

Solo-In-Place (SIP):

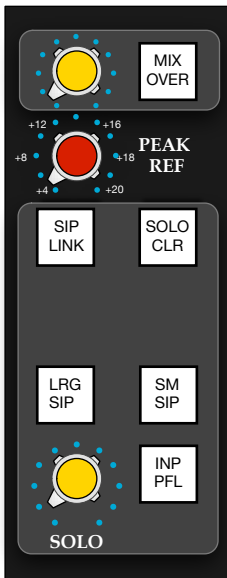
- Destructive (all other channels/returns will mute when a SOLO button is engaged)
- Monitored via the assigned Program Busses
- Post-fader
- Panned
- Solo-In-Place for the Large Fader and Small Fader may be assigned individually
- Solo-In-Place for Large Fader and Small Fader may operate independently or be linked

After Fader Listen (AFL) is the default Solo mode (no buttons engaged).

Solo modes are selected using the SOLO controls in the Master Section. The selected Solo mode is activated when a SOLO button on a 968L Input module is engaged.



Solo Controls



Mix Over: A “Mix Over” solo function allows the Solo Bus to be mixed with the selected source in the Control Room monitors. The level control adjusts the level of the current Control Room Monitor source when an AFL or PFL solo is activated.

- AFL and PFL Solo modes only (does not work with Solo-In-Place)
- A SOLO must be engaged to activate Mix Over solo

SIP LINK (Solo-In-Place Link): Links the Large Fader and Small Fader Solo-In-Place functions.

- When a channel is “soloed” all other “un-soloed” faders (Small and Large) will be muted.
- Without SIP LINK active, mutes will only be applied to the fader path where the solo is active.
- Solo In Place must be active.

SOLO CLR (Solo Clear): Disengages all “soloed” channels. Momentary (does not stay engaged).

LRG SIP (Large Fader Solo-in-Place): Activates the Solo-In-Place mode of for the Large Fader solos.

SM SIP (Small Fader Solo-in-Place): Activates the Solo-In-Place mode of for the Small Fader solos.

INP PFL (Pre Fader Listen): Activates the Pre Fader Listen Solo mode of for all Solos.

SOLO LEVEL: Sets the level of the Solo Bus feed to the Control Room monitors

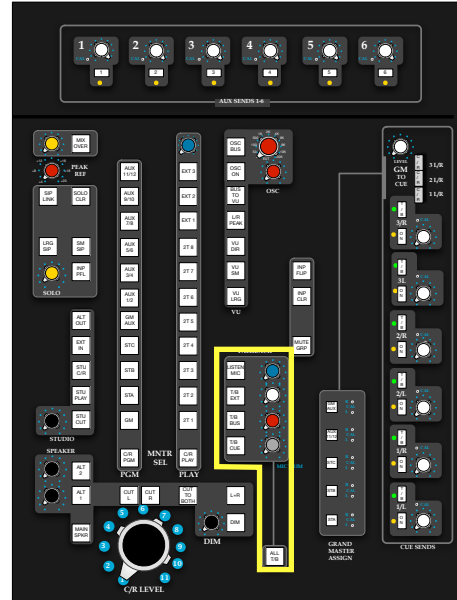
- Sets AFL Solo level
- Sets PFL Solo level

Talk Back

The Legacy Plus console provides a comprehensive Talk Back system with flexible routing and options. The control room Talk Back microphone is mounted on a “gooseneck” in the console Master Section. This microphone provides Control Room communication to a variety of destinations.

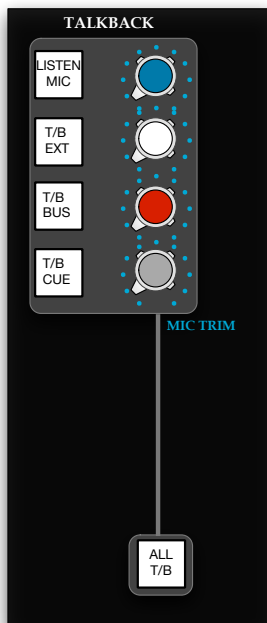
The Legacy Plus console facilitates two (2) Talk Back systems:

- Talk Back Microphone (T/B MIC): Control Room Talk Back to the studio which may be routed to Cues, Studio Loudspeakers, and Program and Multitrack Buses.
- Listen Mic : An external microphone, typically used for studio communication Routing to the Control Room monitors.



Talk Back Controls

The Talk Back controls operate as follows:



ALL T/B: Activates the Talkback Microphone which is sent to any or all of the selected destinations:

- T/B EXT: Enables the talkback signal to feed any device connected to Studio EXT patch points.
- T/B BUS: Enables the talkback signal to feed the Multi-track summing busses 1-24.
- T/B CUE: Enables the talkback signal to feed the Cue Sends 1-6 (Auxiliary Masters 7-12).
- An individual level control is provided to set the level of the talkback mic feed to each destination.

Listen Mic: A dedicated input is provided for a “Listen Mic” which is fed to the Control Room. A microphone, typically mounted in the studio, is routed to this input. A level control is provided.

NOTE: The studio Talk Back microphone is not supplied by API.

Meters and Peak Indicators

The Legacy Plus console provides the following displays for monitoring levels:

- VU Meter Bridge
- Channel Peak Indicators
- Program Meters
- Module LEDs
- Auxiliary and Cue Master LEDs

The following 200 Series modules have built-in LED output meters:

- 205L Direct Input
- 212L Microphone Preamp

The following 200 Series modules have built-in LED gain reduction meters:

- 225L Compressor/Limiter
- 235L Noise Gate/Expander

VU Meter Bridge

The Meter Bridge is populated only with VU meters. The Meter Bridge provides the ability to monitor the levels of the following signal paths:

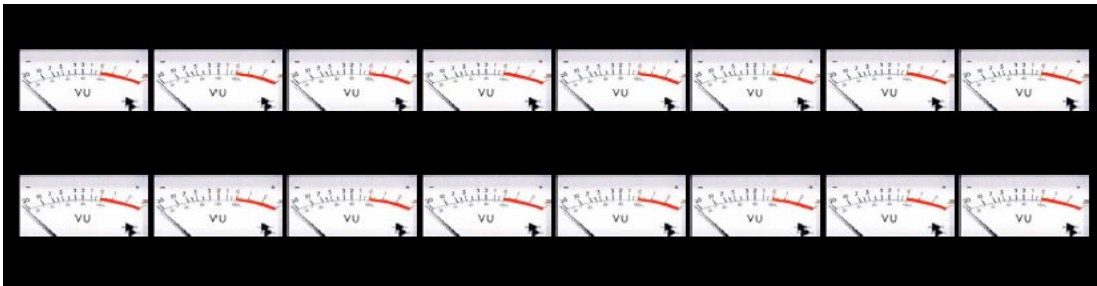
- Channel (Small Fader or Large Fader) inputs
- Direct Out
- Multitrack Summing Bus (1-24)
- Stereo Program Busses
- Solo Bus

The Meter Bridge has two sections:

- Channel Meters
- Program Meters

Channel Meters

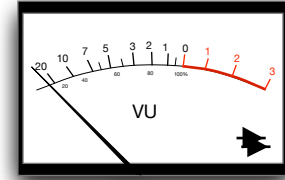
The Channel Meters are organized in banks of sixteen (16), one for each installed channel bucket. The meters are stacked in pairs with 1 over 2, 3 over 4, and so on.



Meter Controls

The Channel Meters can display a variety of sources. The VU meter controls are in the Master Section directly above the TALKBACK section.

The VU Meter controls function as follows:



BUS TO VU: Displays the Multi-track summing bus outputs across meters 1-24.

VU DIR: Displays the Direct Output levels.

VU SM: Displays the Small Fader path input levels. The VU meters will be directly after the Small Fader Channel input patch point.

VU LRG: Displays the Large Fader path input levels. The VU meters will be directly after the Small Fader Channel input patch point.

L/R PEAK: Changes the Stereo Program Meters to display peak levels rather than VU.

Channel Peak Indicators and Reference Level Control



Each channel is equipped with a LED Peak Indicator in each path (Small Fader and Large Fader).



The Peak Reference Level is set by using the PEAK REFERENCE level control in the Master Section.

Program Meters

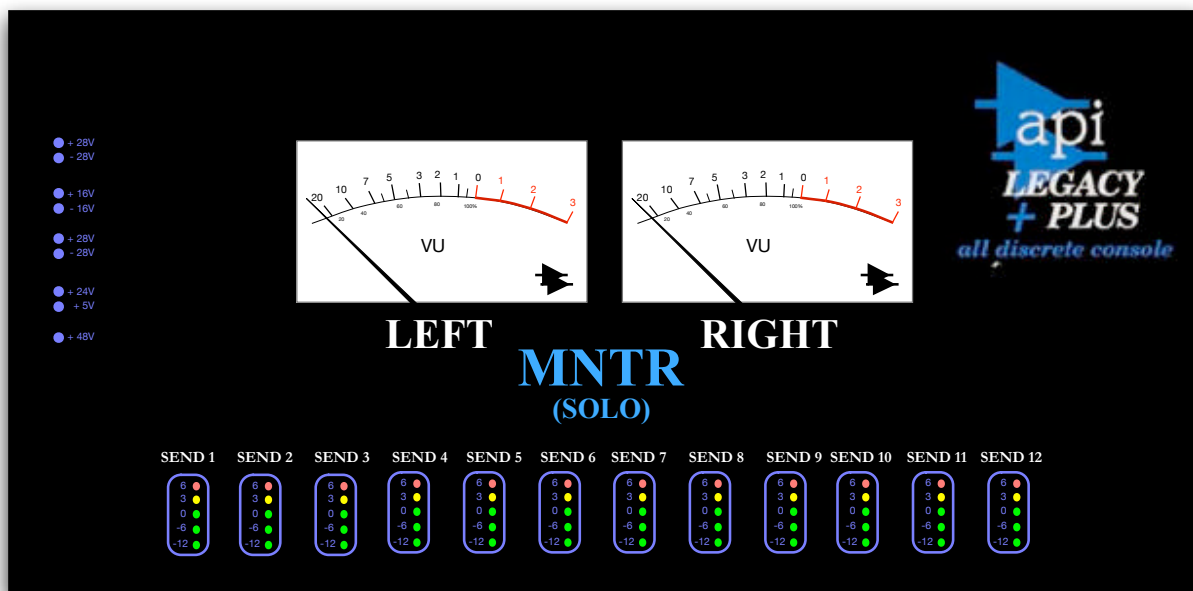
A pair of Program Meters is installed at the top of the Master Section. The Program Meters can be fed from the following:

- Stereo Program Grand Master outputs
- Solo Bus

Under normal circumstances, the Program Meters display the level of the Stereo Program Master outputs. When a PFL or AFL SOLO is engaged, the LEFT and RIGHT (SOLO) meters display the output of the Solo Bus.

The ballistics of the Program Meters can be changed from VU to peak (see L/R PEAK above).

Auxiliary and Cue Send levels are displayed below the Main Stereo Program Meters



Power Supply Voltage Indicators

LED Voltage Indicators provide a quick visual indication of the status of the console and are most often used in maintenance and trouble-shooting applications.

Patch Bay

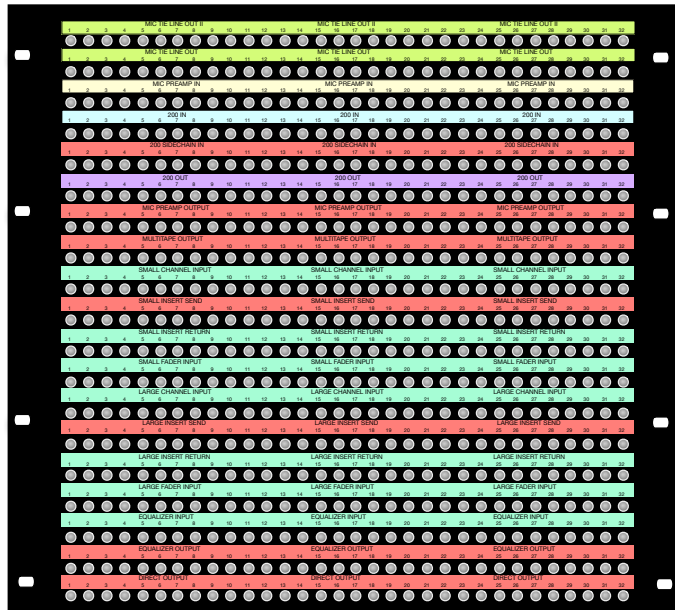
Overview

All API console patch bays have extended access throughout the audio signal flow. Every input and output of the channel slots and master section are provided in the bays. Each patchbay is 32 points wide.

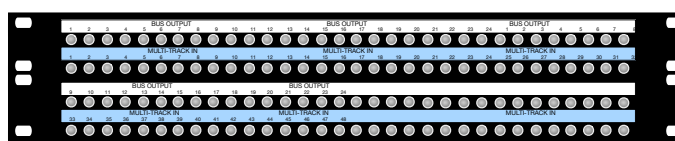
The Legacy Plus Patch Bay provides access to all of the console's systems and functions. The Patch Bay is not mounted within the console Mainframe and must be mounted in an external equipment rack (not supplied).

The Patch Bay has three sections that support different sections of the console and studio. These sections are as follows:

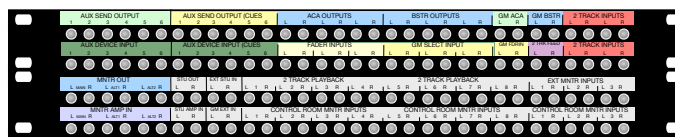
- Channel Patch Bay
- Multitrack Summing Bus Patch Bay
- Master System Patch Bay



Channel Patch Bay



Multi-track Summing Bus Patch Bay



Master System Patch Bay

Patch Bay Normals

Outputs: All output Patch Points “split” when a patch cord is inserted (except for the MIC TIE LINE OUT points). In other words, the signal continues to its Normalled destination, as well as through the inserted patch cord, in essence creating a “Y-cord.”

NOTE: The MIC TIE LINE OUT Patch Points are the only output Patch Points that “break” when a patch cord is inserted.

Inputs: All input Patch Points “break” when a patch cord is inserted. In other words, the signal is interrupted by the inserted patch cord and does not continue on to its normalled destination.

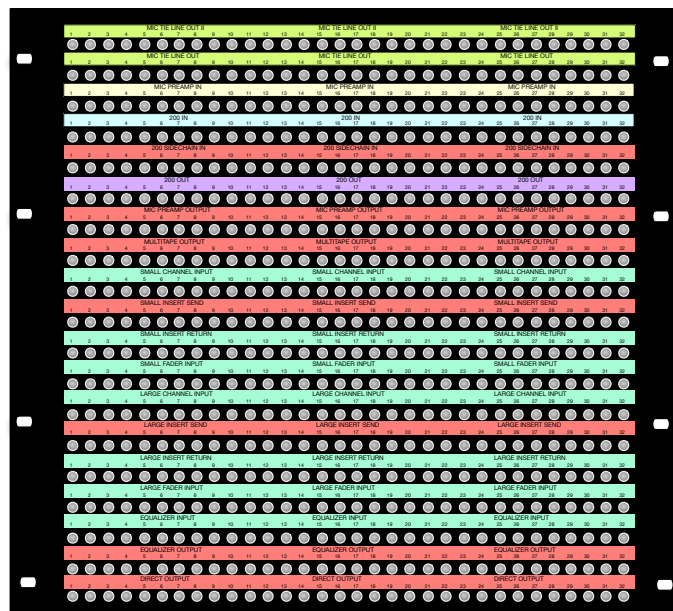
Channel Patch Bay

There is a complete set of Patch Points associated with the complete Legacy Plus channel including:

- Microphone Tie Lines
- Upper 200 Slots
- Lower 200 Slots
- EQ Slot
- 968L Input Module (Small Fader and Large Fader audio path)
- Multitrack Recorder Returns
- Direct Outputs

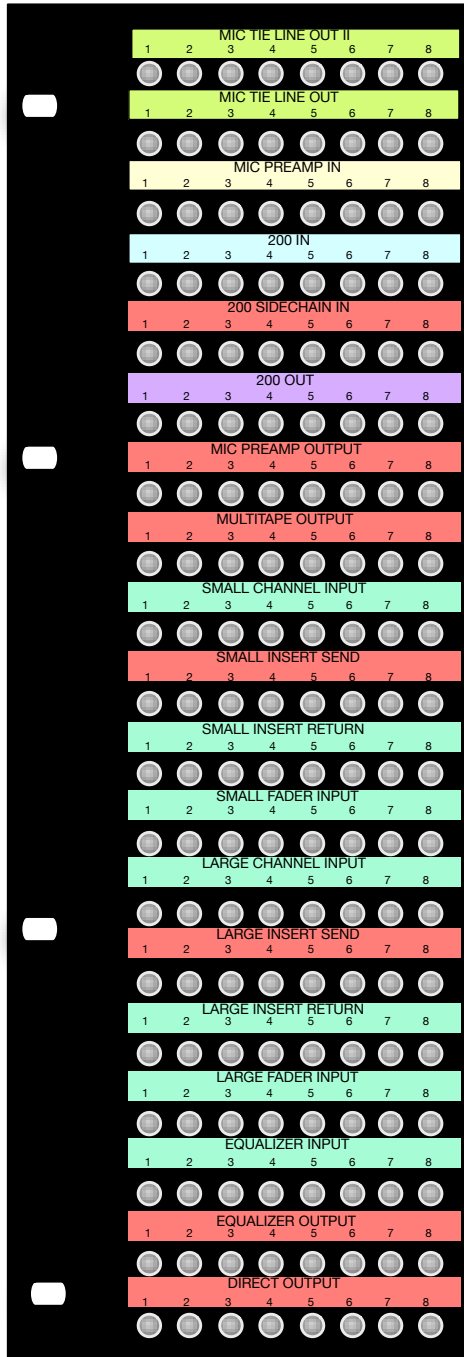
API patch bays are presented in rows of 32 points. Consoles with more than 32 channels will have more than one bay for the Channel patch points. A 48 channel console will fill one and a half bays. A 64 channel console will fill a complete “double-wide” patch bay. Unused patch points that are not filled with Channel patch points may be configured with user patch points for effects, processors, and other devices.

The Channel patch bay is comprised of all the patch points associated with the Small Fader and Large fader paths.



Channel Patch Points

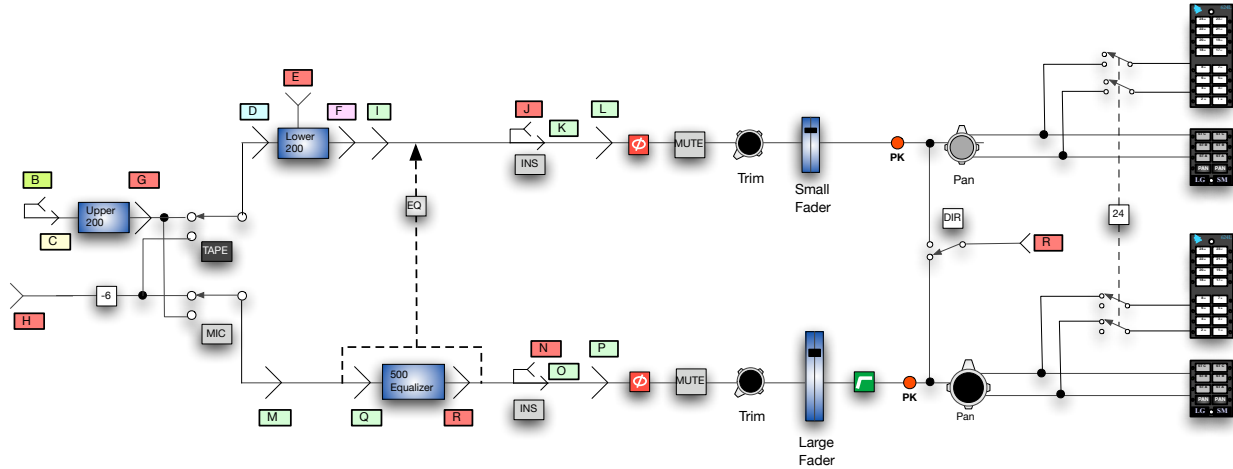
A detail of the Channel patch points is shown below. Only the first eight (8) patch points are shown for each row. The total number of these points in an actual patch bay is determined by frame size. For example, a 48 channel frame will have 48 patch points for each of the sections (A - S) outlined below.



- (A) **MIC TIE LINE OUT II:** Additional microphone tie lines. Not normalled.
- (B) **MIC TIE LINE OUT:** Studio and isolation booth microphone panels. Fully Normalled to MICROPHONE PREAMP IN.
- (C) **MICROPHONE PREAMP IN:** Input to the Upper 200 Slot: 212 or 205 preamp input.
- (D) **200 INPUT:** Input to the device fitted into the Lower 200 Slot. Half Normalled from the 200 Link Option point specified by the user.
- (E) **200 SIDECHAIN INPUT:** Input to the Sidechain/Key input for 225L Compressor or 235L Expander/Gate installed in the Lower 200 Slot.
- (F) **200 OUTPUT:** Output of the device fitted into the Lower 200 Slot. Half normalled to the 200 Link Option point specified by the user.
- (G) **MIC PREAMP OUT:** Output of the device (212 or 205 module) fitted in the Upper 200 Slot. Half Normalled to the MIC input selectors for the Small Fader and Large Fader paths.
- (H) **MULTITAPE OUTPUT:** Outputs of the Multi-track recorder. Half normalled to the TAPE input selectors for the Small Fader and Large Fader paths.
- (I) **SMALL CHANNEL INPUT:** Input to the Small Fader path (post Upper 200 slot).
- (J) **SMALL INSERT SEND:** Insert Send patch point in the Small Fader path - pre fader post EQ.
- (K) **SMALL INSERT RETURN:** Insert Return patch point in the Small Fader path - pre fader post EQ. INS must be engaged to activate.
- (L) **SMALL FADER INPUT:** Input to the Small Fader path at the Small Fader - post insert.
- (M) **LARGE CHANNEL INPUT:** Input to the Large fader path (post 200 slot or TAPE in).
- (N) **LARGE INSERT SEND:** Insert Send patch point in the Large Fader path - pre fader post EQ.
- (O) **LARGE INSERT RETURN:** Insert Return patch point in the Large Fader path - pre fader post EQ. INS must be engaged to activate.
- (P) **LARGE FADER INPUT:** Input to the Large Fader path at the Small Fader - post insert.
- (Q) **EQUALIZER INPUT:** Input to the EQ. Patch point will move with the EQ between the Small Fader and Large fader paths.
- (R) **EQUALIZER OUTPUT:** Output of the EQ. Patch point moves with the EQ when the EQ is switched between the Small and Large Fader paths.
- (S) **DIRECT OUTPUTS:** Fed from Large Fader path post fader. May be switched to the Small Fader path.

Channel Patch Points Block Diagram

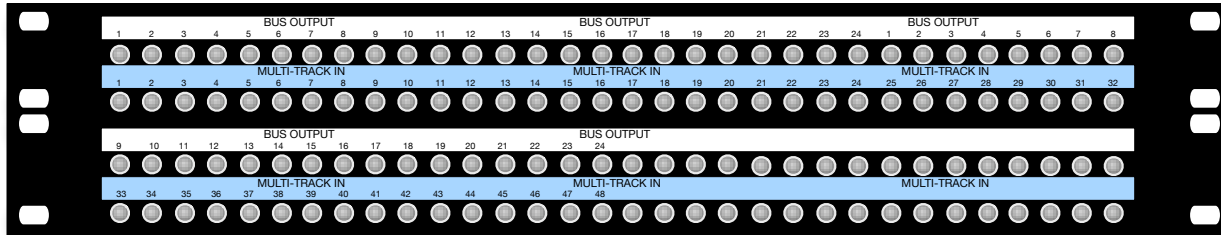
The diagram below illustrates the location of all Channel Patch points "A thru S" from above in the Small Fader and Large Fader paths.



Note: If your console has the Lower 200 device placed in one of the other 200 slot option positions, patch points D, E, and F will also be at the chosen 200 option position.

Multitrack Summing Bus/Multitrack Send Patch Bay

The Multitrack Summing Bus/Multitrack Send Patch Bay supports the outputs of Multitrack Summing Buses 1-24 and the sends to the multitrack recorder. The bay below shows support for 48 track inputs.



BUS OUTPUT: Multi-track Summing Bus outputs.

- Half-normalled to MULTI-TRACK IN.

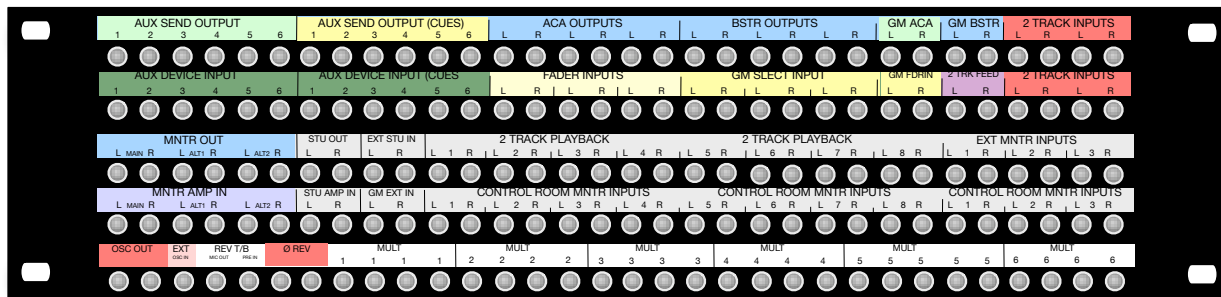
MULTI-TRACK IN: Input to the multi-track recorder.

- Feeds the multi-track recorder inputs.
- Half-normalled from BUS OUTPUT.
- Patching to these points will replace the feed to the multi-track recorder with the patch cord signal.

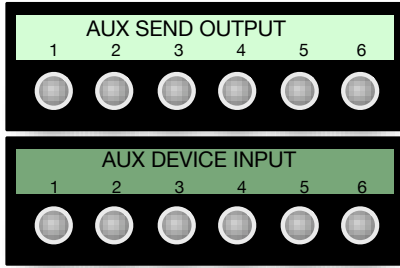
Master System Patch Bay

The Master System Patch Bay contains patch points that support the following:

- Auxiliary Send outputs
- Cue Send outputs
- Stereo Program ACAs and Master Faders
- Stereo Grand Master
- 2-Track Mix Recorder Feeds
- 2-Track record/playback device returns
- Control Room monitor and Studio monitor outputs
- Control Room monitor and Studio amplifier inputs
- Oscillator/Pink Noise generator
- Talk Back
- Phase Reverse (polarity inverter)
- Multiples (MULT)



Auxiliary Send Patch Points

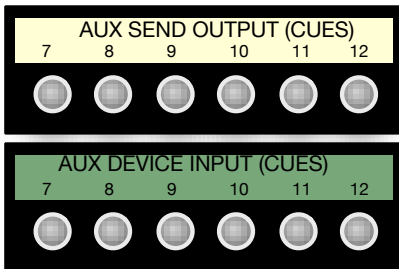


AUX SEND OUT: Output of the Auxiliary Send masters 1-6.

- Half Normalled to AUX DEVICE INPUT (1-6) patch points.

AUX DEVICE INPUT: Inputs to the primary effects units.

Cue Send Patch Points

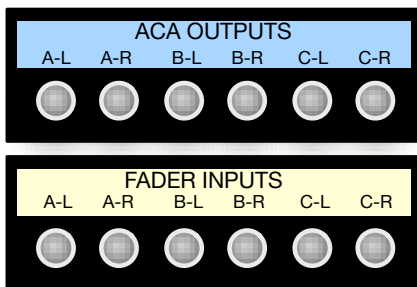


AUX SEND OUT (CUES): Output of the Auxiliary Send masters 7-12 (Cue Sends 1 L/R, 2 L/R, 3 L/R).

- Half Normalled to AUX DEVICE INPUT (7-12) patch points.

AUX DEVICE INPUT (CUES): Inputs to the studio headphone systems.

Stereo Program Patch Points

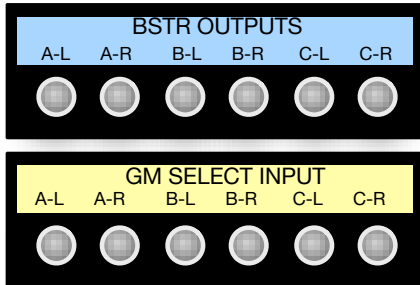


ACA OUTPUTS: Stereo Active Combining Amplifier outputs.

- Pre-Fader signal of Stereo Program busses: STA, STB, STC
- Half-normalled to FADER INPUTS

FADER INPUTS: Stereo Master Fader inputs.

- Feeds the stereo Master Fader inputs: STA, STB, STC
- Half-normalled from ACA OUTPUTS
- Patching to these points will replace the feed to the Stereo Master Faders with the patch cord signal.

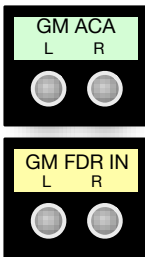


BSTR OUTPUTS: Stereo Booster Amp outputs

- Post-Fader signal of Stereo Program busses: STA, STB, STC (Pre GM Assign).
- Half-normalled to GM SELECT INPUT

GM SELECT INPUT: Grand Master Select inputs

- Feeds the Stereo Grand Master Assign inputs
- Half-normalled from BSTR OUTPUTS
- Patching to these points will replace the feed to the Stereo Grand Master Assign (A, B, B) with the patch cord signal.



GM ACA: Stereo Grand Master Active Combining Amplifier (ACA) output

- Pre Fader Grand Master signal
- Half-normalled to GM FDR IN

GM FDR IN:

- Feeds the Grand Master Fader
- Half-normalled from GM ACA
- Patching to these points will replace the feed to the Grand Master Fader with the patch cord signal.

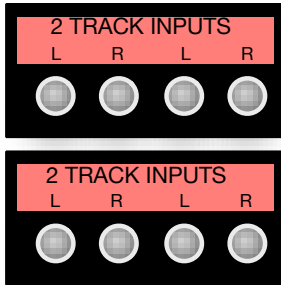


GM BSTR: Stereo Grand Master Booster output

- Post Fader Grand Master signal
- Primary Stereo Program Output
- Half-normalled to 2T FEED IN

2T FEED IN:

- Distributed feed to four (4) 2-track recorders
- Half-normalled from GM BSTR OUT
- Half-normalled to 2T IN 1-4
- Patching to these points will replace the feed to all four of the 2-track recorders with the patch cord signal.



2T1 IN: Input to 2-track recorder #1

- Half-normalled from 2T FEED IN

2T2 IN: Input to 2-track recorder #2

- Half-normalled from 2T FEED IN

2T3 IN: Input to 2-track recorder #3

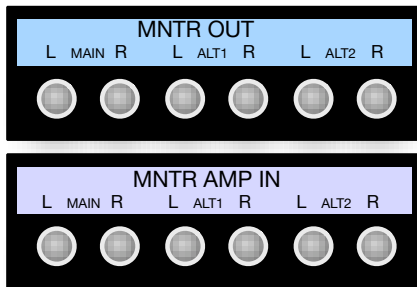
- Half-normalled from 2T FEED IN

2T4 IN: Input to 2-track recorder #4

- Half-normalled from 2T FEED IN

Patching to these points will replace the feed to the 2-track recorder with the patch cord signal.

Control Room, Studio Monitor Outputs and Control Room, Studio Amplifier Inputs



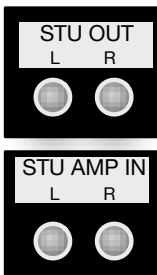
MNTR OUT (Monitor Outputs): Console Control Room Monitor output feeds.

- Console Outputs for three sets of stereo monitors (MAIN, ALT1, ALT2)
- Half-normalled to MNTR AMP INPUT (inputs to Control Room Monitor Amplifiers)

MNTR AMP INPUT (Monitor Amplifier Inputs): Feeds the inputs to the Control Room Monitor amplifiers

- Half-normalled from MNTR OUT
- Patching to these points will replace the feed to the Control Room Monitor amps with the patch cord signal

CAUTION: Exercise great care when patching into any of the Amplifier Input (AMP IN) patch points. There is no level control between these patch points and the inputs to the monitor system amplifiers. Patching unattenuated signals into these patch points can result in very loud output from the Control Room monitor system.

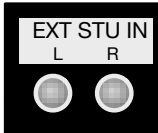


STU OUT (Studio Output): Console Output to Studio Monitors

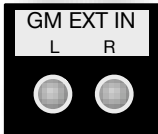
- Half-Normalled to STU AMP IN patch points

STU AMP IN (Studio Amp In): Feeds the inputs to the Studio Monitor Amplifiers.

- Half-normalled from STU OUT
- Patching to these points will replace the feed to the Studio Monitor amps with the patch cord signal.



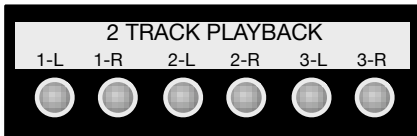
EXT STU IN: Inputs to the EXT STU IN selector for the Studio Monitors.



GM EXT IN: External Grand Master inputs

- Allows an external stereo source to be added to the Grand Master mix
- Feeds the Grand Master ACA
- Active only when the EXT switch in the Grand Master Select controls is engaged

2-Track Playback Device Returns



2 TRACK PLAYBACK (2-Track Outputs 1-3): Returns from the external 2-Track record/playback device outputs

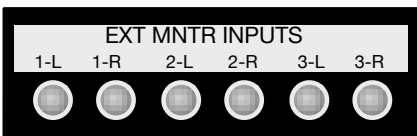
- Half-normalled to 2 TRACK 1-3 CONTROL ROOM MNTR INPUTS



CONTROL ROOM MNTR IN (2-Track Control Room Monitor Inputs):

- Feeds the 2T1, 2T2, and 2T3 Playback Monitor Selectors.
- Half-normalled from 2T 1-3 OUT
- Patching to these points will replace the feed to the 2-Track Monitor Selectors with the patch cord signal.

NOTE: 2 TRACK PLAYBACK 4-8 AND CONTROL ROOM MNTR INPUTS 4-8 ARE IDENTICAL TO 1-3 (NOT SHOWN).



EXT MNTR INPUTS (External Monitor Inputs): Returns from external device outputs.

- Half-normalled to CONTROL ROOM MNTR INPUTS (Ext 1-3)

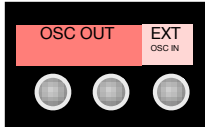


CONTROL ROOM MNTR INPUTS (External Control Room Monitor Inputs): Feeds the Control Room monitor External Playback selectors

- Feeds the EXT1, EXT2, and EXT3 Playback Monitor Selectors
- Half-normalled from 2T 1-3 OUT
- Patching to these points will replace the feed to the 2-

Track Monitor Selectors with the patch cord signal.

Oscillator Patch Points



OSC OUT (Oscillator Output): Output of the Oscillator

- Active when the OSC button is engaged.
- Independent of routing to Busses.

EXT OSC IN (External Oscillator Input): Input to the OSC assign switches

- Allows for an external oscillator or noise generator to be routed to the OSC destinations.

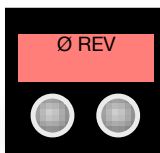
Talk Back Patch Points



REV T/B MIC OUT: Dedicated Reverse Talk Back microphone tie-line from studio.

REV T/B PRE IN: Input to the Reverse Talk Back microphone preamplifier in the 227M Cue Master module.

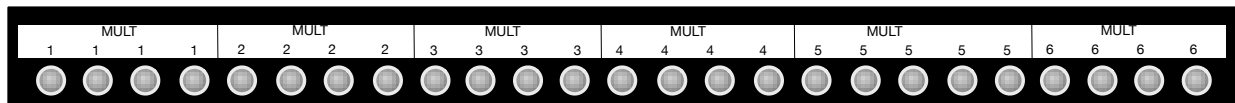
Phase Reverse (polarity inverter)



Ø REV (Reverse): The two points are wired out of polarity with each other

A signal patched into one jack will be out of polarity (phase reversed) at the other point.

Mults



MULT (Multiple): "Paralleled" patch points

- Hardwired split (no buffer)
- Signals patched into one of these points is available at the other points
- Six (6) Multiples are typically provided

Appendix

API 2500 Stereo Bus Compressor

The API 2500 Stereo Bus Compressor may be included in the console specifications and installed into the Expansion Slot of the Master Section. It may also be purchased separately. The manual is included below.

A BASIC OVERVIEW OF THE API 2500 COMPRESSOR

Thank you for choosing the API 2500 Stereo Bus Compressor. The 2500 has several unique features that will allow you to tailor the sound of the compression in many different directions. There are two features that can only be found on this unit, as they are either patented or patent-pending.

The patented "THRUST" feature has been used for many years in the famed ATI Paragon and Paragon II consoles as well as the Pro-6 Input Strip. This circuit places a filter in front of the RMS detector, with a slope of 10dB per decade, which is the inverse of the pink noise energy curve. In acoustics, the pink noise curve is used to equalize energy vs. frequency over the audio spectrum, as sound requires more low frequency energy than high frequency energy to sound correct to your ear. In Hi-Fi equipment, a "LOUDNESS" contour is used to equalize the music at lower levels so it sounds correct. With or without this loudness curve, there is always a substantial amount of low frequency information compared to high frequency information in the audio signal path. When that signal is fed into an RMS detector, the detector will process the signal into a DC control voltage based on those louder low frequencies, resulting in a control voltage that favors the low frequencies of the signal, causing pumping and a loss of punch. Sometimes, this is not desirable. By switching the THRUST button in either the MED or LOUD positions, this inverse filter is placed in front of the RMS detector, evening out the energy by lowering the energy in the low frequencies and increasing the energy in the high frequencies, so each octave has the same energy instead of each octave having half the energy as the one lower. This creates a unique compression effect that still reduces the overall gain, but the sound is much more punchy and the signal actually sounds much less compressed.

The patent-pending LINK feature is also unique to the 2500. First, there is a variable link control, ranging from IND (independent) to 50% through 100%. The variable linking allows combining of the left and right control voltages over a range, minimizing the interaction between channels, while still linking them to retain the stereo image. While engaged, the LINK control has a selectable HI-Pass, LOW-Pass and BAND Pass filter that can be inserted, but only into the LINK circuit. This feature can reduce peaks from cross-linking, reduce low frequencies from cross-linking or both. The value of this feature is shown when the signal contains a large amount of percussive instruments, spread around the stereo field. When all other compressors are linked, any peak in the left side will result in a gain reduction in the right side that will shift the stereo image, resulting in a less than desirable effect. By inserting the high or low pass filters, you can eliminate this undesired image shift while still linking the preferred frequency range.

The 2500 has two complete, identical compressor circuits, from the input through the RMS detector, the VCA's and to the Output section. When many compressors are linked to the "STEREO LINK" mode, only one channel is controlling the compression. When the 2500 is linked, the control voltages are summed together, but both channels are still detecting their own control voltages. This also eliminates changing of the tone of the compressor when linking is used. Many popular units actually change when linked!

Additionally, each channel used FOUR VCA's to minimize noise and distortion found in single and dual VCA compressors. The signal path from the input to the output is ALL DISCRETE, using the API 2510 and the API 2520.

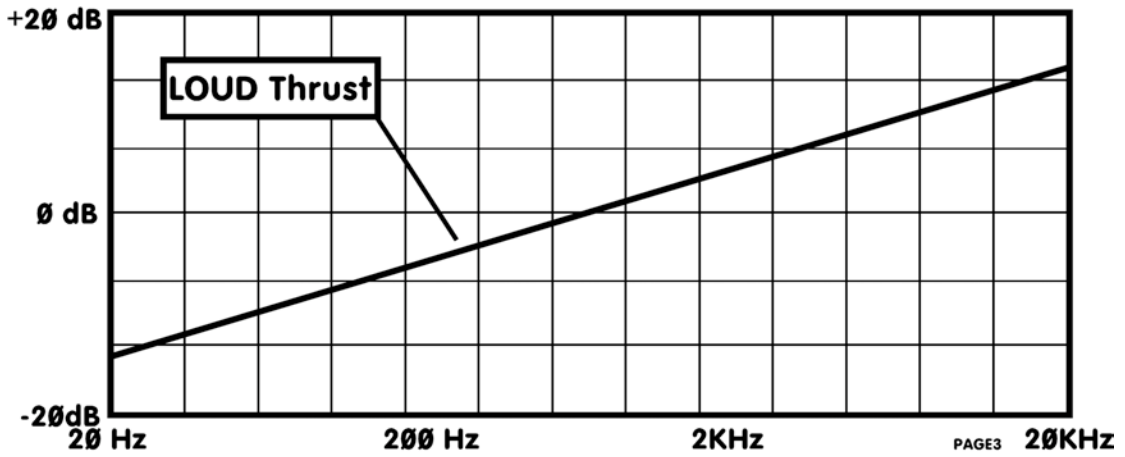
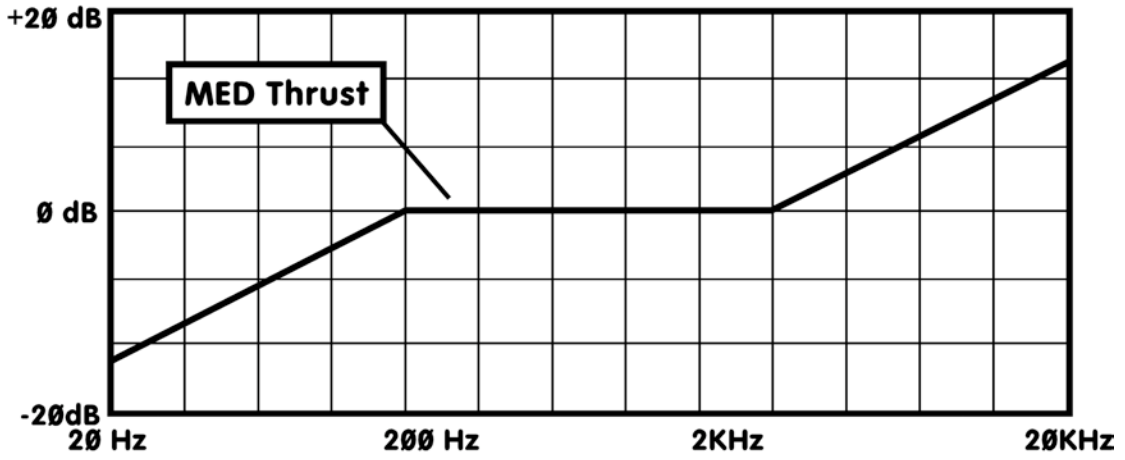
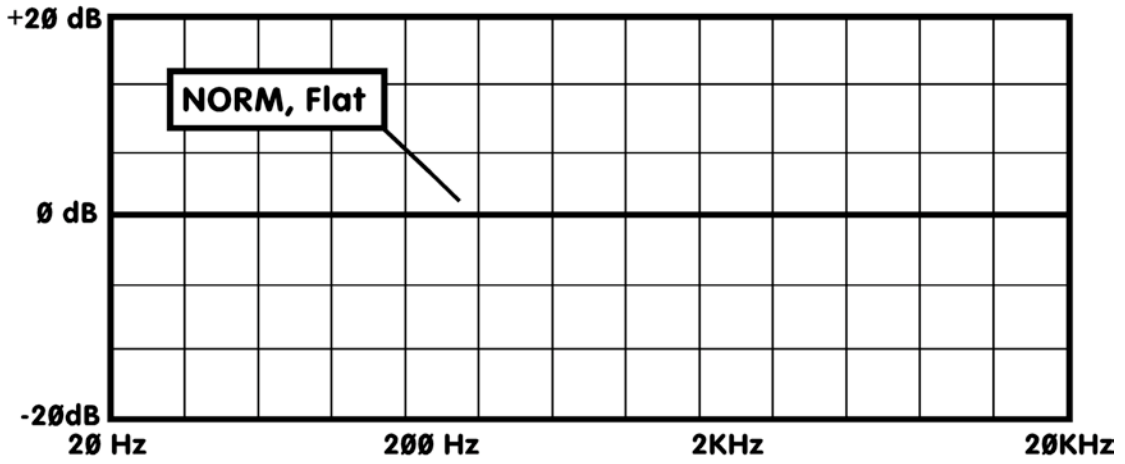
The GAIN pot can be either switched IN for manual gain control, or it can be left OUT and the 2500 will bring the output level up and down automatically, keeping the signal at the same level regardless of where the THRESH or RATIO controls are set. This is the same as the API 525 Ceiling control.

Just to the right of the VU meters, there is a set screw adjustment. This adjustment is to rock or tilt the signal left or right when in the auto gain mode, allowing subtle corrections in the stereo image if it is off center when compressing. This control only affects the image when the 2500 is above the threshold, and does not do anything when the signal is not being compressed. Usually, this control should be in a vertical position.

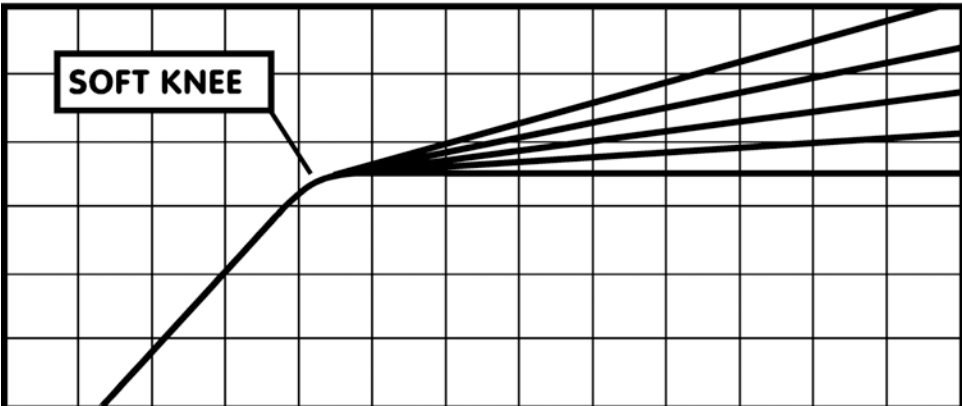
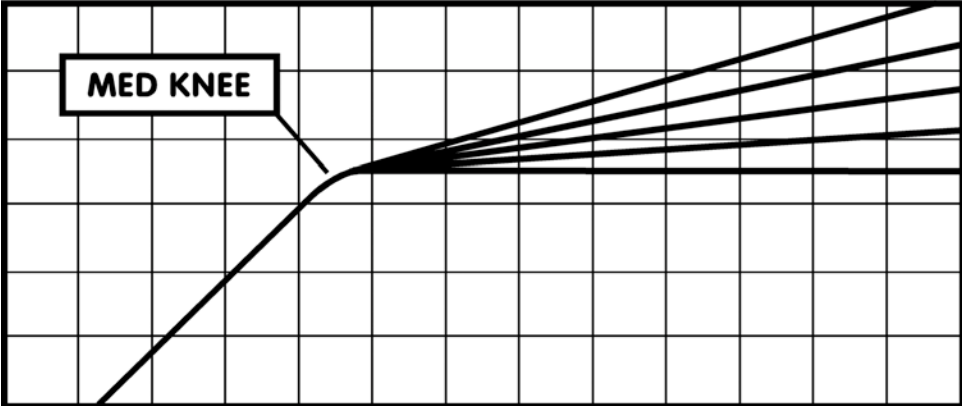
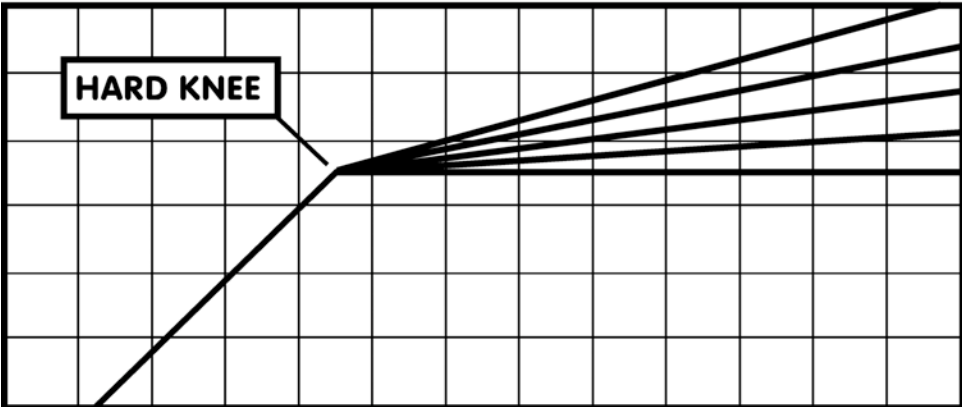
One tip to get started: We try to design all of our processing modules with the understanding that there is never enough time to read a manual and learn all of the features in the 10 seconds that is allowed during a setup. If you simply place all of the knobs at the 12:00 position, the 2500, and all of the 200 series modules will have a useful, but conservative effect on the signal.

PAGE 2

THRUST Filter Before the RMS Detector

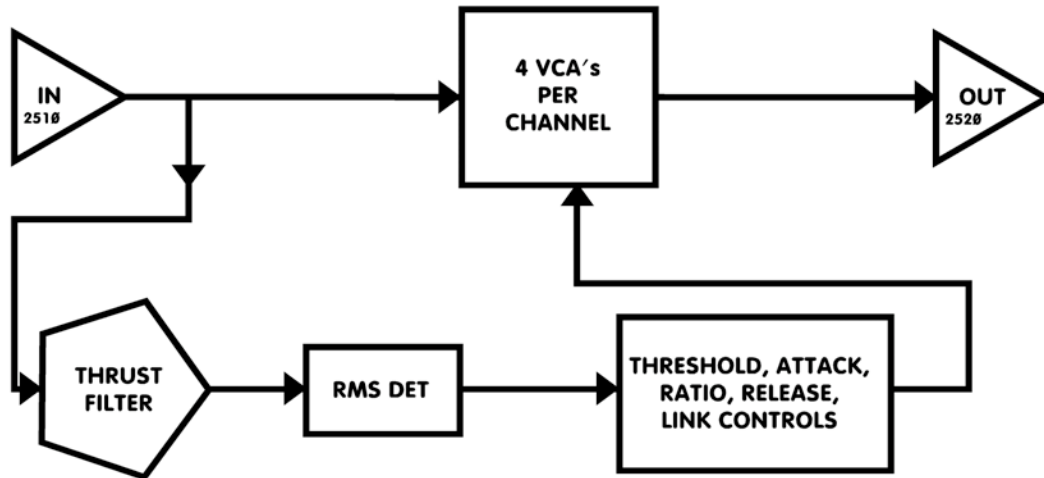


Compression KNEE at the Threshold Point

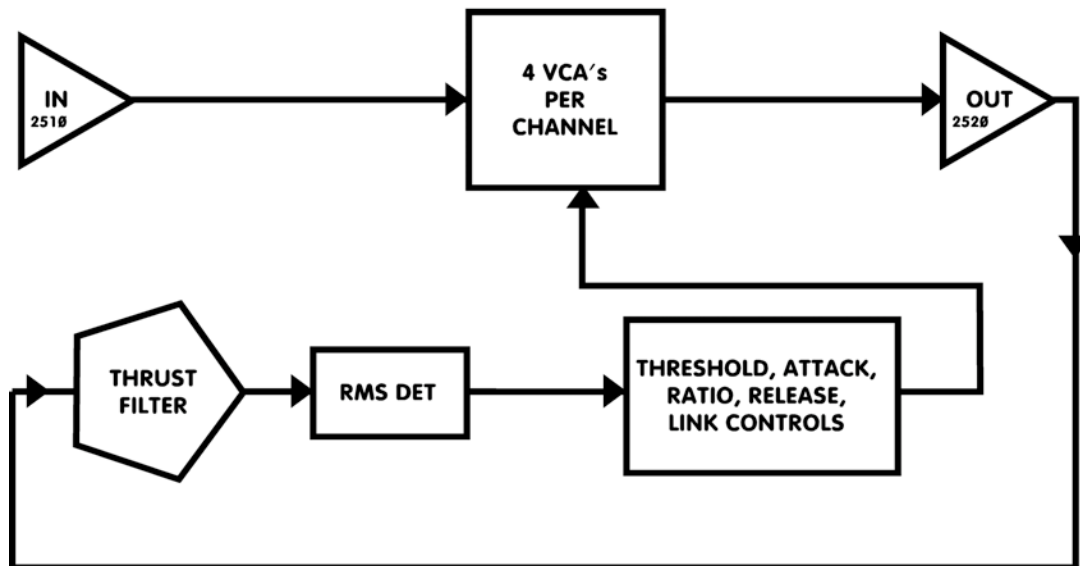


PAGE 4

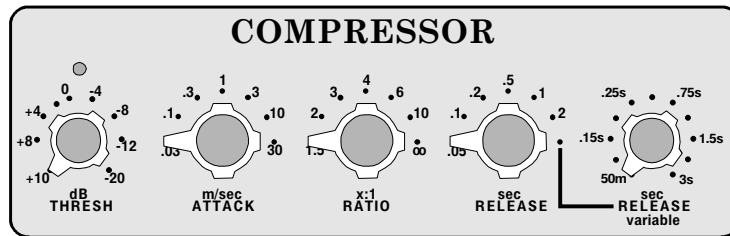
"NEW" or FEED FORWARD type COMPRESSION



"OLD" or FEED BACK type COMPRESSION



Compressor Section



THRESH:

This control sets the THRESHHOLD from +10 dBu to -20 dBu. Both channels are set independently with this control. Each channel has its own RMS detector and can operate as two single compressors or one stereo compressor. Even when using the LINK control, each channel ALWAYS has its own RMS detector for accuracy. This control is continuously variable. The THRESH control also effects the gain when in the AUTO gain make-up mode.

ATTACK:

This control sets the ATTACK time of each channel from 30 microseconds to 30 milliseconds. There are seven positions to choose from, 30u/sec, 100u/sec, 300u/sec, 1 m/sec, 3 m/sec, 10 m/sec and 30 m/sec. This rotary switch allows repeatability, while offering a wide range of settings.

RATIO:

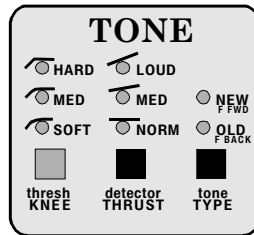
This control sets the compression RATIO of each channel from 1.5:1 to INF:1 or above 20:1. There are seven positions to choose from, 1.5:1, 2:1, 3:1, 4:1, 6:1, 10:1 and INF:1. This rotary switch allows repeatability while offering a wide range of settings. The RATIO control also affects the gain when in the AUTO gain make-up mode.

RELEASE:

This control sets the RELEASE of each channel of the compressor, covering a wide range of release times including the last position, which switches it to the VARIABLE RELEASE control to the right of it. There are seven positions to choose from, 50m/sec., 100m/sec, 200m/sec., 500m/sec, 1 sec, 2 sec, and VARIABLE.

VARIABLE RELEASE:

This control sets the RELEASE time with a continuously variable pot covering a range from 50m/sec. to 3 seconds. This works when the RELEASE rotary switch control is fully clockwise. This allows for a continuously variable release, with the ability to match the "bounce" of a song with the release time.



KNEE:

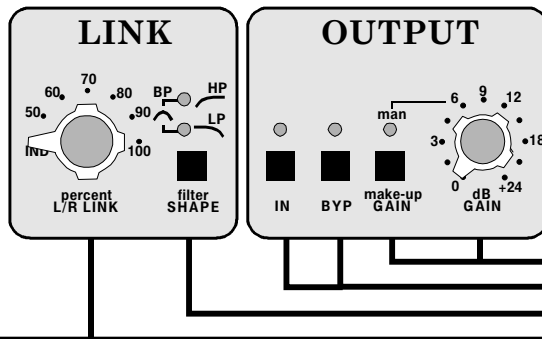
This control sets the KNEE, or how the point where the compressor begins to reduce the gain of the signal applied to the unit. When in the HARD position, the gain reduction begins at the set ratio and is a sharp transition into compression. The MED position has a slight "fade-in" up to the set ratio. The SOFT position has a gradual "fade-in" to the set ratio. The HARD position is very noticeable and the SOFT position is very subtle and similar to an "over-easy" type KNEE.

THRUST:

This control sets the THRUST, a patented circuit that inserts a hi-pass filter at the input of the RMS detector, limiting its response to lower frequencies. In the NORM mode, there is no filter and the 2500 compresses like most units on the market today. When MED is selected, there is a slight attenuation of the low frequencies and a slight boost of the high frequencies, with a flat midrange affecting the signal going into the RMS detector. This reduces the low frequencies from pumping the compressor as much and increases the sensitivity of the RMS detector to the higher frequencies, affecting the higher frequency peaks of the signal. When LOUD is selected, there is a gradual, linear filter (3 dB/oct), down 15 dB at 20 Hz and up 15dB at 20K Hz, equalizing the energy going into the RMS detector. This decreases the way the low frequencies pump the compressor and increases the way the higher frequencies are compressed. The overall difference is a noticeable increase of punch and low frequencies, but a uniformly compressed signal. It is the "little more punch" switch.

TYPE:

This control sets the TYPE, or where the signal for the RMS detector comes from. In the NEW mode, the compressor works like most newer types of compressors, as in most of the VCA based units. This is called FEED-FORWARD compression, where the RMS detector sends a signal to the VCA that is an exact ratio of the desired compression, set by the RATIO control. When the OLD position is selected, the RMS detector gets the signal from the output of the VCA, and then feeds the VCA a signal based on a set ratio of that signal. This type of compression is called FEEDBACK compression and is how the older API 525, 1176 type and 660 type compressors worked. The NEW mode is much harder and the OLD mode is very smooth. When SOFT, LOUD, and OLD is selected you can hardly hear the compression.

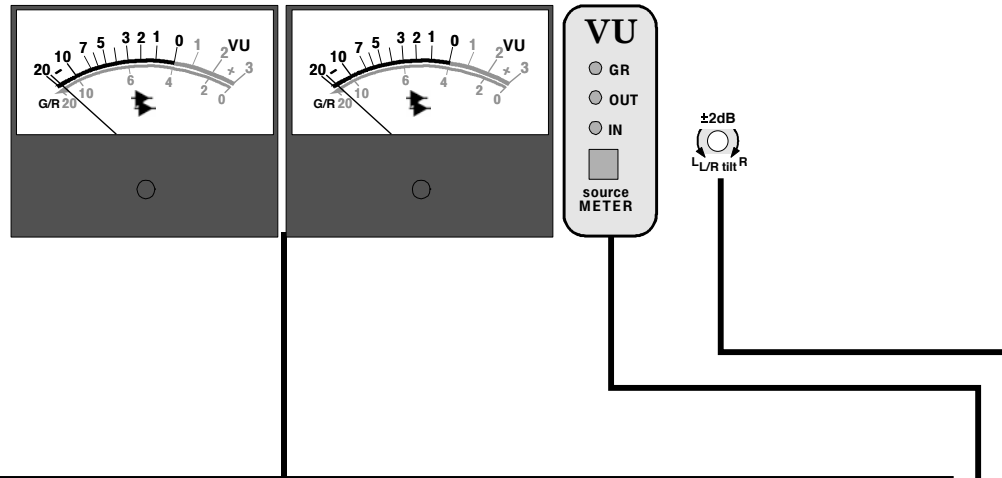


L/R LINK:
 This control sets the left to right LINK percentage. Most compressors only allow 100% linking between channels. The 2500 allows for linking starting at IND, which is 0% and 50% to 100% in six additional steps. At the same time, each channel is still controlled by its own detector, preventing loading and slaving from one side, which many times creates errors. This control mixed each channel's RMS detector controls together according to the switch position.

SHAPE:
 This control adjusts the SHAPE of the LINK control voltage mixing. There are two filters, a high pass filter, eliminating the lows, a low pass filter, eliminating the highs and a combination of both filters creating a band pass filter. The value of this circuit allows the LINK control voltage to NOT include certain frequencies, such as the low frequency end of each channel, preventing the low frequencies from linking from the left side to the right side, etc. When the different combinations of the filters are used, sounds like sharp percussive instruments on one channel will not couple to the other channel and cause it to compress.

IN and BYPASS:
 The IN switch is a soft IN/OUT button that defeats the compression action silently, but allows the signal to pass through the 2500.
 The BYP switch is a relay hard-wire bypass that routes the signal directly from the input XLR to the output XLR, without going through any electronics. If the power fails to the 2500, the BYP automatically engages, preventing any loss of signal during the power fault.

GAIN:
 When the GAIN switch is pressed IN, the GAIN pot controls the amount of make-up gain needed to maintain the desired overall gain after the compression action reduces the output level. When in the OUT position, the output make-up gain is automatically maintained regardless of the position of the THRESH or RATIO controls. If the input signal is below +4 dBu, rotating the THRESH control will increase the output level until the output level is around +4 dBu, and then as the signal gets compressed, it will maintain an even output level, allowing THRESH and RATIO adjustments without having to re-adjust the make-up gain. This is very useful during situations where an adjustment needs to be made without disturbing the output level to tape or air. This function is similar to the API 525 ceiling control.

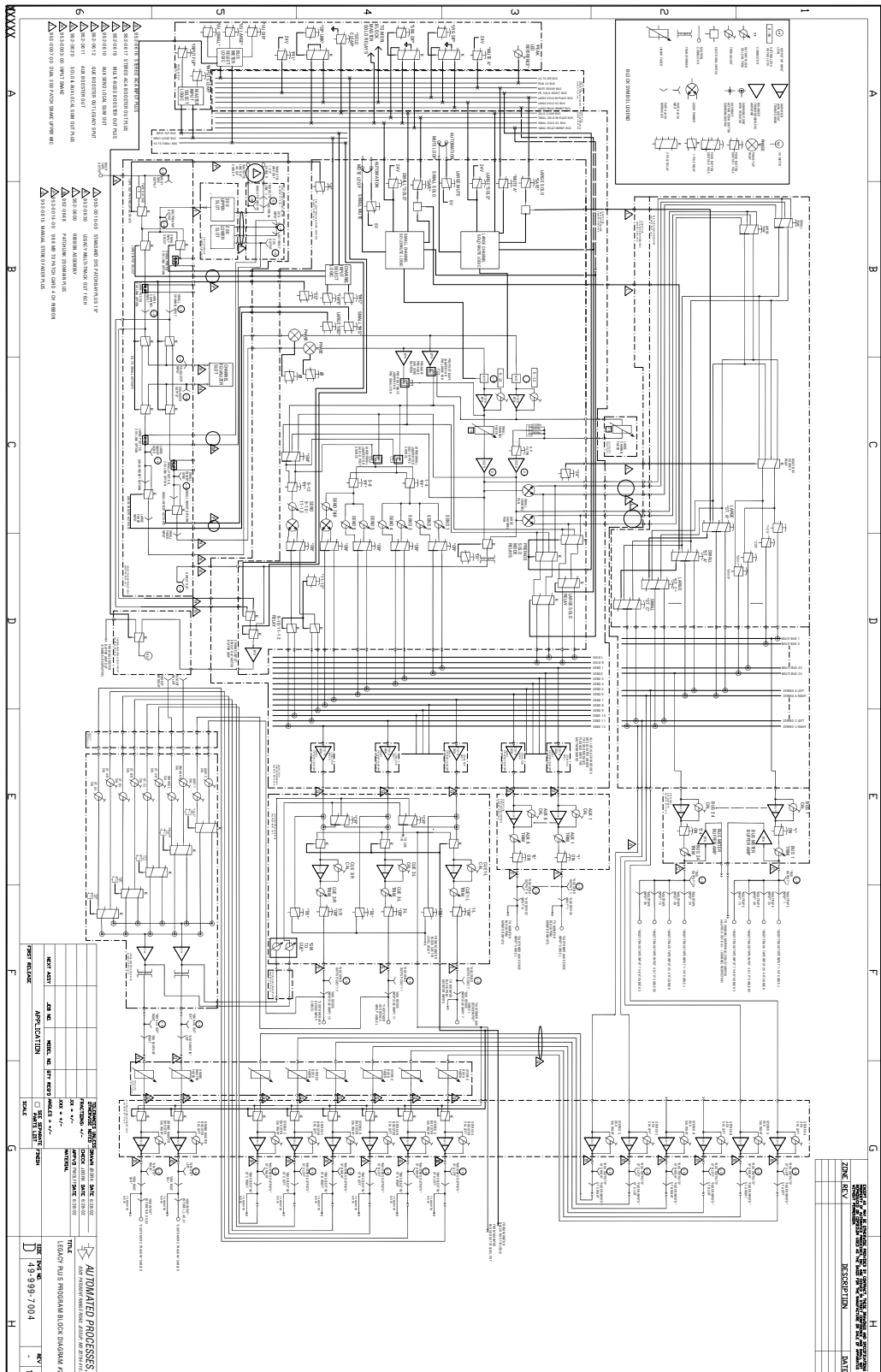


VU METER:
 The VU Meters displays the INPUT and OUTPUT levels in dBu, where +4dBu is 0 VU. This reference point can be adjusted internally to other reference levels.
 The GAIN scale shows the amount of gain reduction during compression, with the 0 point being all the way to the right, allowing more resolution of the gain reduction scale. The range of the meter is from 0 (no gain reduction) to 20 db of gain reduction. The compressor can compress up to 30 dB of reduction.

VU:
 The VU switch selects the INPUT, OUTPUT or GAIN REDUCTION to be displayed on the VU meters. It is a silent function and is isolated so the VU selection does not effect or load the signal in any way.

TILT:
 The TILT adjustment is a screwdriver trim of the compression control voltage, allowing tilting of the compression left or right to equalize uneven signal compression that may offset the stereo image. This control adjusts about 2 dB in either direction, and does not affect the uncompressed signal, which is always unity in to out. It ONLY effects the make up gain voltage.
 This control is useful in a situation where there is a slight difference in the stereo image when a signal is compressed, but not when it is below the compression threshold. Normally, this control should be straight up.

Channel Block Diagram



205L Setup

ARTIST:

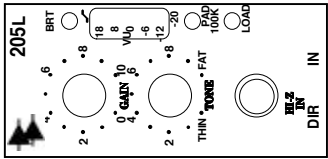
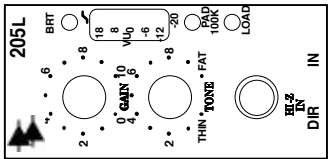
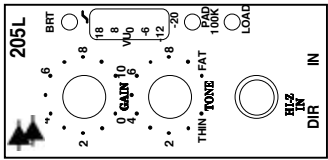
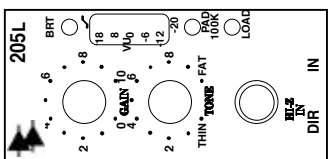
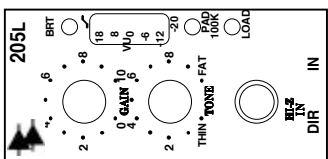
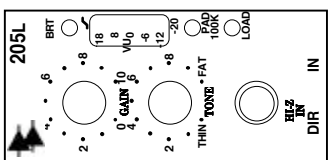
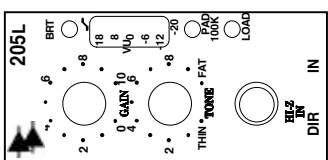
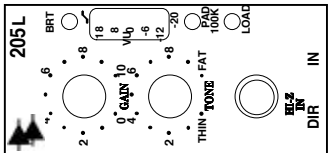
ENGINEER:

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CHAN #		CHAN #		CHAN #		CHAN #		CHAN #		CHAN #		CHAN #		CHAN #	
TITLE		TITLE		TITLE		TITLE		TITLE		TITLE		TITLE		TITLE	
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215L Setup

ARTIST:
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DRAWN BY:
STUDIO:

CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #
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225L Setup

ARTIST:
ENGINEER:
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DRAWN BY:
STUDIO:

CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	CHAN #	225 L +4. .0 -4 +8 . .8 AT F S O -12 M +10* THRESH -20 6 3 . 5. .10 15 -dB 25 2. .20 -HRD KNEE 0* RATIO .00 .25s . .75s TYPE 1.5s . .1.5s OLD 50m* REL .3s COMP LIM	TITLE	NOTES
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235L Setup

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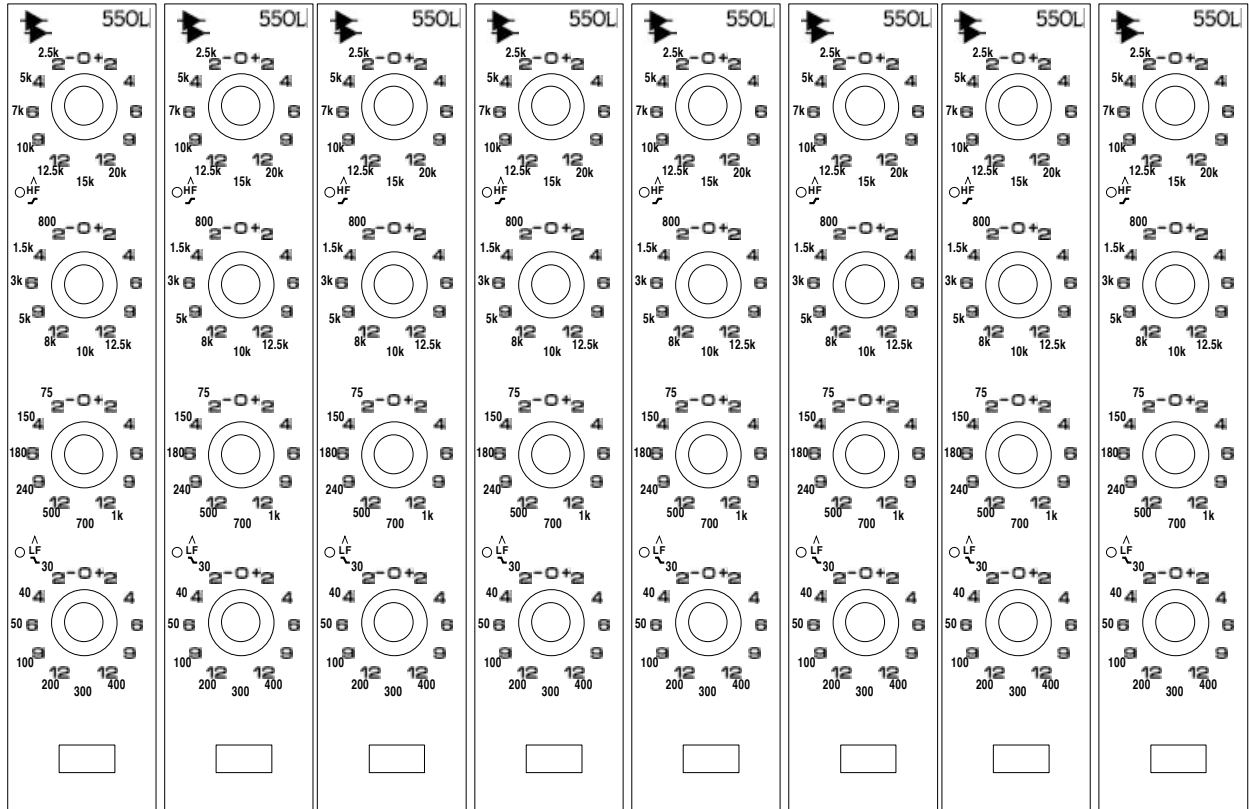
CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	CHAN #	TITLE	NOTES
<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>	<p>235 L +4 .0 -10 +10 .20 AT +20 .30 M +25 THRESH .45 10 6 .9 .20 20 -dB 25 3 .50 EXP 0 DEPTH .80 GTE .25s .75s HLD .15s .15s REL 50m R/H .3s GATE EXP</p>		

550L Setup

ARTIST:
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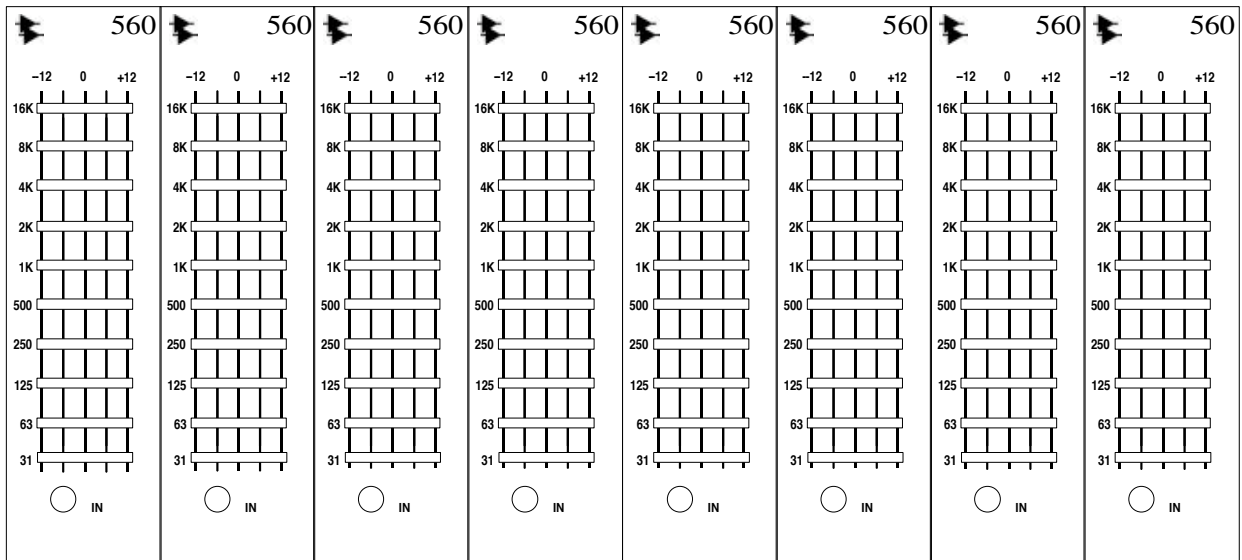
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560 Setup

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624L Setup

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type="radio"/> STA <input type="radio"/> STA <input type="radio"/> PAN <input type="radio"/> PAN SM LG
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