APB DynaSonics, Inc.

ProDesk-4
OWNER'S MANUAL

IMPORTANT SAFTEY INSTRUCTIONS

1) Read These Instructions

2) Keep These Instructions

3) Heed All Warnings

4) Follow All Instructions

5) Do Not Use this Apparatus near water

6) WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose the apparatus to dripping or splashing. Do not place objects containing liquids, such as vases, on the apparatus.

7) For safety the AC supply must include third wire protective ground connection.

8) Do not block any ventilation openings at the front and rear. Install in accordance with the manufacturer's instructions.

9) Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.

10) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. a grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit your outlet consult an electrician for replacement of the obsolete outlet.

11) Protect the power cord from being walked on or pinched particularly at plugs convenience receptacles and the point where they exit the apparatus.

12) Unplug this apparatus during lightning storms or when unused for long periods of time.

13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

TABLE OF CONTENTS

POWER SUPPLY Model PS450

THE SYMBOLS BELOW APPEAR IN THE TEXT THAT FOLLOWS AND HAVE THE FOLLOWING MEANINGS:
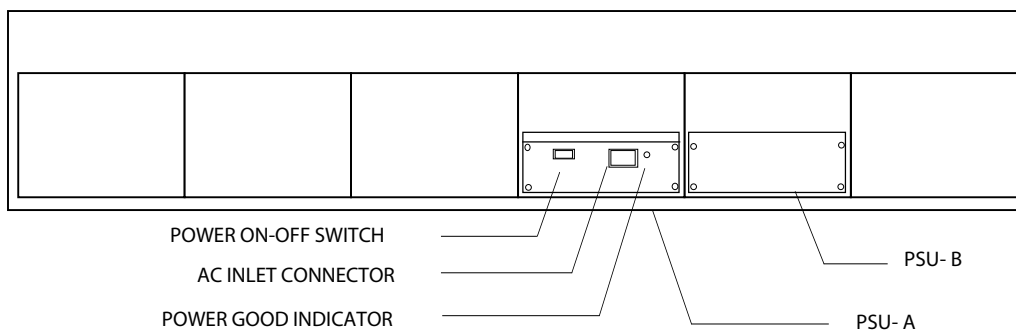
 TO AVOID ELECTRIC SHOCK FOLLOW THE INSTRUCTION NEXT TO THIS SYMBOL.

 TO AVOID AN UNSAFE CONDITION FOLLOW THE INSTRUCTION NEXT TO THIS SYMBOL

REAR VIEW OF CONSOLE

POWER ON-OFF SWITCH

AC INLET CONNECTOR

POWER GOOD INDICATOR

PSU- B

PSU- A

PSU INSTALLATION

This unit is for installation in APB DynaSonics sound mixing consoles and is intended for this purpose only. Complete consoles are shipped with power supply(s) installed.

When adding a second power supply to an existing console or when replacing an existing power supply follow these instructions:

1) Switch off AC power. Remove the AC power cord(s). Release the four screws holding the blanking cover plate, or the existing power supply unit. Remove the cover plate or existing power supply unit. See the diagram for fastener locations.

2) Insert the additional/replacement power supply unit into the opening and push it firmly to seat the connections. Replace the four fasteners.

3) ⚠ Use the power cord supplied to connect a source of AC power between 100V and 240V 50/60Hz.

4) The maximum power requirement for the largest console is approximately 400VA.

5) ⚠ It is a safety requirement that the AC supply connection includes third wire protective ground connection.

6) ⚠ Safe operation of the system requires flow of cooling air from the surroundings. Air intake is at the lower front of the console. Air exhaust is at the upper rear of the console. These openings must not be covered while the system is on. Low-noise, internal fans provide air movement.

OPERATION
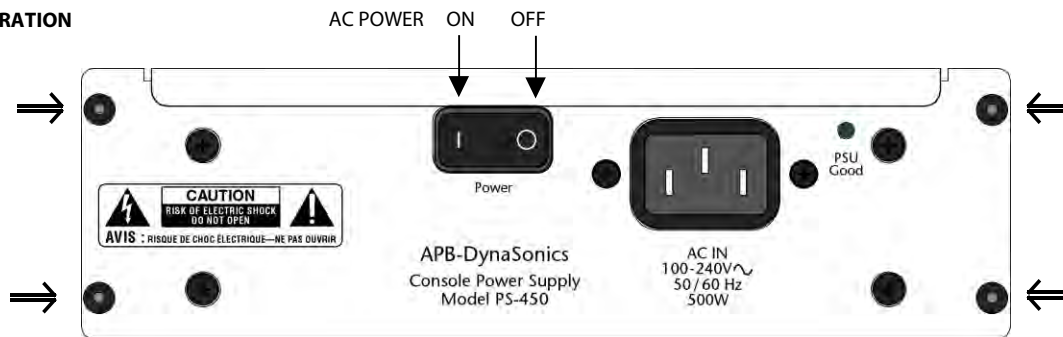
Turn on each power supply using the rocker switch on the PS panel.

Normal operation is signaled by illumination of the four green DC voltage indicators at the top center of the console and by the illumination of the adjacent blue "PSU GOOD" indicator(s) and also the green "PSU GOOD" indicator on each PS unit panel(s). The PSU Good condition is reached approx. 4 seconds after initial turn-on. This delay gives the Console's internal circuits time to stabilize and the PSU Good signal is then used to un-mute the main outputs of the Console.
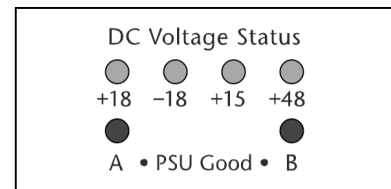
NOTE: PS450 units will only operate when electrically connected to the console circuits. When removed from the console chassis and when power is switched on, sensing circuits in the PS unit command a shutdown of the system. In this condition the PS GOOD indicator on the PS panel will not illuminate and there will be no DC outputs. If this occurs switch off, replace the unit in the console and wait 30 seconds before switching on.

⚠ Normal operation of the PS 450 requires unrestricted airflow through the unit for cooling. Fans operate at all times and circulate air within the chassis. Ambient air reaches the PS via openings at the front of the console. Ensure that the intake and exhaust openings are not obstructed.

OPERATION WITH DUAL POWER SUPPLIES

A single PS450 power unit is conservatively rated to operate the 48 channel ProDesk console continuously. For the assurance of fully redundant automatic back-up operation, the console chassis (24 chan and above) accepts a second PS450 unit. When a second PS is present and powered, both power supplies operate and the load is shared. Two independently protected sources of AC power are recommended for maximum protection against loss of power.

1) Connect each power supply unit to AC power using the cable included.
2) The power supplies must both be switched on using the panel rocker switch on both units.
a. Normal operation is accompanied by the green illumination of the indicators on both units. In addition two blue PS status indicators are located within view on the console light-bar.
b. If for any reason a supply goes into shutdown then console operation continues using the other unit, the changeover is automatic and seamless. This event would be signaled by loss of a blue PSU status indicator.

REPLACEMENT OF POWER SUPPLY UNITS

1) ⚠️ Disconnect the AC power cord.
2) Remove four screws that secure the PS unit in the console chassis marked with the symbol ⟹ in the diagram. Pull on the power supply handle and the complete unit will slide out of the console chassis.
3) Slide the replacement unit into the console. Replace the four fixing screws.
4) Reconnect the AC power cord.
5) Switch on the power supply using the rocker switch on the panel.
6) Green illumination of the power supply panel indicator(s) and illumination of blue "PSU GOOD" indicators on the upper console control surface signal normal operation.
7) Note that the power supply units will not operate outside of the console. Automatic circuits prevent operation if the unit is switched on while out of the console.

SERVICING

⚡ **CAUTION RISK OF ELECTRIC SHOCK. DO NOT OPEN THE POWER SUPPLY.**

There are no user serviceable parts inside the PS unit enclosure.
Units contain hazardous AC and DC voltages.

⚠️ **Return defective units to APB-DynaSonics or authorized agent for servicing.**

The unit will not operate outside a console. Automatic circuits prevent operation when disconnected from the console. If this occurs: switch off, replace the unit in the console and wait 30 seconds before switching back on.

POWER SUPPLY PS450 - SPECIFICATION

- High efficiency switch-mode power supply
- Zinc-plated steel enclosure with ventilation by internal fans
- PS units plug into the APB ProDesk sound console chassis.
- IEC 60320 C13 AC inlet connection
- Universal AC input voltage and frequency 100-240V 50/60Hz
- Power Factor corrected AC input

Multiple regulated DC outputs:

+/- 18V DC @ 10A	audio system
+15V DC @ 4.5A	fans, lights, control system
+48V DC @ 0.5A	input phantom power

Multiple protection systems:
- AC input primary fuse, PCB mounted wire ended 20x5mm T8A
- AC input in-rush limiting by relay and thermistor
- AC input overvoltage MOV clamp
- AC input dual series RFI chokes
- DC output short circuit protection
- DC output overvoltage protection
- Automatic safety interlock prevents operation outside the console
- Automatic shut-down in the event of elevated & unsafe internal temperature

Approvals:
- USA Recognized power supply with ETL marking and listing
- USA and Canada UL60065 7th Edition Electrical Safety
- Europe EN60065 7th Edition Electrical Safety
- Europe EN55103-1 Emissions (Pending)
- USA FCC Part 15 Emissions (Pending)

Principal Of Operation

Power is drawn from the AC line and rectified. A switching device maintains the voltage on the internal DC reservoir capacitor within a controlled range. The main transformer operates at approximately 100kHz and steps down the primary power from about 400VDC to the low voltages required for the four regulated outputs. The high frequency low voltage AC is rectified to generate the DC output voltages required. The +/- 18V DC supplies for the audio system are coupled so that the voltage of the negative supply is a precise mirror of the positive voltage. The 48V DC supply is further processed using a three-terminal regulator to improve noise and regulation qualities. All DC outputs are short-circuit protected, the +/-18V supplies are controlled as a pair.

YOUR PRODESK-4 CONSOLE

Congratulations on your purchase of one of the finest live performance professional audio consoles manufactured in the United States.

Please take a moment to review this manual. It will insure a better understanding of the operation of this console and may open up new possibilities into how you use this product.

In addition to the hard copy of this manual, it will appear within our web site www.apb-dynasonics.com with the latest updates as well as new supplemental information. We suggest that you occasionally check our web site for additional information about your console as well as for new product releases and news from APB-DynaSonics.

Should you have any questions or comments about this APB-DynaSonics product, please do not hesitate to contact us at:

Tel: 973-785-1101
Fax: 973-785-1105
e-mail: info@apb-dynasonics.com

Manual Scope

This manual is not intended to teach you how to mix or how to set up a complete sound system. Should you be looking for such information, May we suggest that you do a Web Search for "Pro Audio Books" on the Internet, or attend one of the many fine Recording Schools that may be available to you. Many of these schools offer courses in Live Performance associated subjects as well as basic mixing techniques.

One of the BEST (and our favorite) sources of teaching the technical aspect of system design and operation is through the Syn-Aud-Con organization:
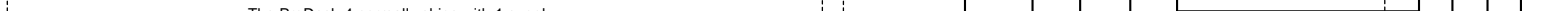
Synergetic Audio Concepts, Inc.,
8780 Rufing Road
Greenville, IN, 47124 – USA
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ProDesk-4 Block Diagram

ProDesk-4 Mono Inputs
Channels 1-48

Scene Mute Select
1
2
3
4

Remote Mute

PFL

Solo Left
Solo Right
Solo DC

Rear Connector Panel

+48V   Pad   Line In   Polarity

Gain 15 - 65 dB

Hi-Pass -12dB/Oct 20Hz - 400Hz

HPF On

Level Freq Level Freq Level Level

Hi Freq 10kHz Shelf   Hi Mid 400 - 8kHz   Lo Mid 80 - 2kHz   Lo Freq 60Hz Shelf

Four Band EQ

EQ On

Pre Fader

Mute

From Mic Pre

Pk 8 6 4 2 Sig Chan LED Meter

Mute Logic

From Scene Mute Switches

Bal XLR In

26dB Pad

Line In

To Peak Circuit

26dB Pad

Mono   Center   L-R   Grp 1-2   Grp 3-4

Bus Assignment and Pan Circuitry

Mono Bus
Center Bus
Left Bus
Right Bus
Group-1 Bus
Group-2 Bus
Group-3 Bus
Group-4 Bus

Pan Pot

FET Mute   10dB   Fader Amp

100mm Channel Fader

To Aux Mutes

To Direct Out Options

Insert +4dBu
Tip
Ring

Post HPF
Post Insert

Default Setting

Pre-EQ – User Options –

Pre-EQ

Aux Pre Pre-Fdr

Direct Out +4dBu
Tip
Ring

Dir Out Buffer

Default Setting

From Fader Amp

Pre Amp   Post Fader   Post Insert   Pre Fader

Direct Out – User Options –

Preamp / EQ Sub-Board

From Mute Logic

FET Mute

Aux "Pre" Buffer

1-2 Pre
3-4 Pre
5-6 Pre

Aux Sends

1-2 Stereo

1
2
3
4
5
6

Aux Bus 1
Aux Bus 2
Aux Bus 3
Aux Bus 4
Aux Bus 5
Aux Bus 6

Block Diagram Legends

RCA Jacks | Female XLR | Male XLR | 1/4" TRS | 1/8" TRS | Rotary Control | 100mm Fader | Small Switch | Illuminated Switch | Indicator LED | Internal User Options | FET Switch | GP • Summing • X-Gain Amplifiers | Rectifier • Peak Det Metering

Scene Mute Select
1
2
3
4

Remote Mute

PFL

Solo Left
Solo Right
Solo DC

Interconnection Between Modules

Interconnection Between Modules

ProDesk-4 Stereo Inputs
4 Stereo Inputs (A-B-C-D) Located In Master Section

Rear Connector Panel

Line In Source

Gain Left -20 to +20 dB

Left (Mono)
Right

TRS

RCA (USB)

Gain Right -20 to +20 dB

Stereo Line In +4dBu

Stereo Line In -10dBV
L
R

For Stereo Inputs A-B-C Alt Input is Rear-Panel RCA jacks

For Stereo Input D Alt Input from USB Audio In

Level Level Level Level

Hi Freq 10kHz   Hi Mid 3kHz   Lo Mid 300Hz   Lo Freq 60Hz
Four Band EQ

Hi Freq 10kHz   Hi Mid 3kHz   Lo Mid 300Hz   Lo Freq 60Hz
Four Band EQ

EQ On

Chan

Pre Fader Blend

Split Track

Mute

Mute Logic

Pk 8 Sig L Pk Sig R 8 Sig Chan LED Meter

Mono   Center   L-R   Grp 1-2   Grp 3-4

Assignment and Buffer Circuitry

Mono Bus
Center Bus
Left Bus
Right Bus
Grp1 Bus
Grp2 Bus
Grp3 Bus
Grp4 Bus

100mm Stereo Fader

FET Mute

10dB   L

10dB   R

Balance Pot

Post-Fader Buffer

Default Setting

Aux

Pre Aux Blend

Aux Pre-Source Select

Aux Mute FETs

L

R

Pre-Aux Buffers

1-2 Pre
3-4 Pre
5-6 Pre

1-2 Stereo

3-4 Always Summed Mono

5-6 Always Summed Mono

Aux Sends

1
2
3
4
5
6

Aux Bus 1
Aux Bus 2
Aux Bus 3
Aux Bus 4
Aux Bus 5
Aux Bus 6

Power Supply
Model: PS-450
Plug-In Power Supply

Chassis Ventilation & Cooling

ProDesk Rear Panel

PSU A

APB-DynaSonics Console Power Supply Model PS-450

AC IN 100-240V 50/60Hz 500W

AC Inlet 15A IEC

ProDesk Rear Panel

PSU B (Optional)

APB-DynaSonics Console Power Supply Model PS-450

AC IN 100-240V 50/60Hz 500W

AC Inlet 15A IEC

Power Distibution and Sharing

+18V@10A
-18V @ 10A
+15V @ 5A
+48V @ 0.6A

PSU A

+18V@10A
-18V @ 10A
+15V @ 5A
+48V @ 0.6A

PSU B

Power Distibution To Modules

The ProDesk-4 normally ships with 1 supply, an optional power supply can be fitted in all chassis sizes except for the 16-channel. With 2 PSUs fitted, the total Console load is shared equally between the 2 supplies. The supplies are easily removed for service or replacement (4 screws) and can be hot-swapped.

DC-Status & Power-OK Con

Aux Outputs
1 of 6 shown

Aux Mix Bus

Bus In +4dBu

AFL

Aux Mix Amp

Peak
Sig

Solo Left
Solo Right
Solo DC

AFL on Aux 1 & 2 are Stereo-linked

Mute

Tip
Ring

Aux Insert -2dBu

Fader Amp
10dB

Aux Level

OutSmarts Balanced Driver

Output Un-Mute Relay

Aux Out +4dBu

Post-Fader
Aux - Monitoring Feeds
Pre-Fader

Mute-All Command

Power-OK Command

Fader-Flip Available on Aux 6: Swap Controls & Indicators with Mono bus.

Fader-Flip Switch (Located above Mono Fader)

Peak Sig — AFL — Level — Mute

Aux 6 / Mono
Mono / Aux 6

Level
Peak Sig
Mute

Matrix Outputs
1 of 4 shown
Matrix 1 to 4

Matrix Mix
External In
From Previous Matrix Line In

Group 1 Feed
Group 2 Feed
Group 3 Feed
Group 4 Feed

Left Feed
Right Feed
Center Feed
Mono Feed

Matrix Ext Line In

To Next Matrix Line In

Matrix Sum Amp

AFL
Mute

Tip
Ring

Matrix Insert -2dBu

Solo Left
Solo Right
Solo DC

10dB
Matrix Level

Peak Sig

OutSmarts Balanced Driver

Output Un-Mute Relay

Matrix Out +4dBu

Post-Fader
Matrix - Monitoring Feeds
Pre-Fader

Mute-All Command

Power-OK Command

Group Outputs
1 of 4 shown

Group Mix Bus

Bus In +4dBu

AFL
Group Mix Amp
Mute

Solo Left
Solo Right
Solo DC

Tip
Ring

Group Insert -2dBu

Fader Amp
10dB

100mm Group Fader

Mtx Pre
Matrix Feed

Group Bus Assignments

Group To Mono
Mono Bus

Group Output Meter (VU-Response)

Peak Sig

Group To Center
Center Bus

Group To L-R
Left Bus

Right Bus

Pan to L-R

OutSmarts Balanced Driver

Output Un-Mute Relay

Group Out +4dBu

Mute-All Command

Power-OK Command

Main Outputs
Left, Right, Center, Mono
1 of 4 shown

Main Mix Bus

Bus In +4dBu

Main Mix Amp
Mute

Tip
Ring

Main Insert -2dBu

Fader Amp
10dB

100mm Main Fader

For L&R Outputs: Single, Stereo Fader used

Matrix Pre
Matrix Feed

Single, Matrix-Pre switch used for all 4 Main outputs

Pre-Fader
Mains - Monitoring Feeds
Post-Fader

Peak Sig

OutSmarts Balanced Driver

Output Un-Mute Relay

Main Out +4dBu

Fader-Flip Available on Mono Bus: Swap Controls & Indicators with Aux 6
See Aux Block Diagram (above) for details

Mute-All Command

Power-OK Command

Master Metering
Main Output Levels

L R Status/Mode C Mono/A6 Fader

18 15 12 9 6 3 0 3 6 9 12 15 18 24 30 36

L — R Solo

Meter Electronics
User Selection of Meter Response:
Average • Peak • Ave+Peak

Mute-All Command
DC Left Right Solo Audio & Control
Left Right Center M/A6
Audio Feeds from Main Faders

Main Metering
The meters are capable of displaying 3 different types of ballistic response: Average (VU-style), Peak (PPM-style), or a combination of both.
Average Response is displayed as a slow bargraph
Peak response is dispayed as a fast bargraph
When both are active, Peak shows as a single LED above a bargraph

Use MODE switch to select desired meter response:
When MODE switch is pressed,
STATUS LED will illuminate and show current mode:
Amber= Average + Peak
Green= Average Only
Red= Peak Only

Status LED will remain illuminated for a few seconds-
Pressing MODE switch when LED is illuminated will step to next mode,
LED will change color.
If MODE switch is not re-pressed when LED is still illuminated,
meter status remains in its current mode.

STATUS LED- Additional Function:
If Mute-All is activated (via Phoenix connector on rear panel),
STATUS LED will blink RED approx twice per second.
The 4 meter arrays will be turned off and all XLR outputs will be muted.

Stereo Program In

Stereo Program Input Source Select (Summed)

PFL

Top Analog

Solo Left
Solo Right
Solo DC

Peak Sig Peak Sig
Left - Right

L-R Center Mono Mtx 1-2 Mtx 3-4 Aux 1-2

Left Bus
Right Bus
Center Bus
Mono Bus
Matrix-1 Bus
Matrix-2 Bus
Matrix-3 Bus
Matrix-4 Bus
Aux-1 Bus
Aux-2 Bus

Top-Panel Mounted Mini-jack

Rear Analog

HF Level LF Level
Hi Freq 10kHz Lo Freq 60Hz
Stereo EQ

Mute

Bus Assign

Stereo Program Level

Rear USB

Stereo Record/Alt Out

AFL USB

Signal Sources Post-Fader

Left Right Center Mono Mtx 1-2 Aux 1-2 Sum Mono

Solo Left
Solo Right
Solo DC

Feed to USB Out

Pre L-R Center Mono Mtx 1-2 Aux 1-2 Sum Mono

Source Select & Mode Select

Stereo Record Level

Mute

L
R

-12dB

Left
Right

Stereo Record Out

Left Right Center Mono Mtx 3-4 Aux 1-2

Signal Sources Pre-Fader

Master Interface Panel
Located on Rear of Console

(Rear) Stereo Program In
Stereo Record/Alt Out
Monitor Out Left, Right, Sum-Mono

Stereo Pgm Input • Analog • Stereo Record Out
Monitor Out

(Rear) Stereo Program In

L R L R L R Sum Mono

In Out

USB Stereo Audio In

To Stereo Input D Alt-Input

USB Stereo Pgm In USB Stereo Record Out

Solo Linking

Mute All Primary Outputs

2-Pin Phoenix

USB In/Out Stereo-Audio Codec

Solo Audio & Control

Mute-All Command

Mute Group Masters
Mute 1
Mute 2
Mute 3
Mute 4

Mute Commands to Channels

Monitor & HP Control

Signal Sources Post-Fader

Left Right Center Mono Mtx 1-2 Aux 1-2 Sum Mono

Pre L-R Center Mono Mtx 1-2 Aux 1-2 Sum Mono

Solo Off

Left

Monitor Source Select & Mode Select

Left Right Center Mono Mtx 1-2 Aux 1-2

Signal Sources Pre-Fader

Solo to Meters Ctrl Audio

Solo (Audio) Trim

Monitor Level

Right

Monitor Out

Sum

Solo Mix Amps

Solo Mix L
Solo Mix R

Solo DC

Trim Range -12dB 0 +12dB

Headphone Level

Headphone Jack (Top) 1/8"

Solo Off

Headphone Jacks (Front) 1/4" and 1/8"

Talkback & Oscillator

L-R Aux 1-2
C Aux 3-4
M Aux 5-6
Mtrx Grps
TB Assign

TB / Osc On

Tap Latch Logic

TB / Osc Level

TB Osc Mic

+18V Phant

TB Mic

TB Mic (Front)

Noise
Ref Signal

"Pinkish" Noise

1 kHz Oscillator

OSC

Interconnection Between Modules

Power Distibution To Modules

Console Power Status and Illumination
Located on Front and Rear of Console Top Rail

Power Supply & DC Status LEDs

+18V −18V +15V +48V

A PSU Good B

Driver & Protection Circuits

Lamp Intensity

4-Pin XLR for Right-Angle 12V Lamps
2 to 4 sockets fitted depending on Console size
Any style lamp can be used: Low-current LED to Hi-current Halogen

DC-Status & Power-OK Commands

APB DynaSonics
ProDesk-4
Block Diagram

MONO INPUT

Preamp Controls

+48-Volt Phantom Power Switch with LED

When depressed, provides +48-Volt phantom power to the XLR connector. Phantom power is required for operation of many condenser microphones. See your microphone instructions to see if phantom power is required or is to be defeated (some - though few - microphones require phantom power NOT be activated or they may be damaged). A Red LED illuminates when this switch is activated.

Note: After phantom is turned on or off, there will be residual DC voltage on the input stage components. While this voltage is discharging (this may take up to a minute), there may be pops or clicks heard when the Pad or Line switch is activated.

Mic/Line Switch

With the switch UP, selects the XLR connector; with the switch DOWN, selects the line input source on the 1/4" TRS jack. Additionally, the signal feeding the XLR jack is normalled into the 1/4" connector; this allows a line-level signal to be plugged into the XLR jack and selected with the Line switch (Down). This avoids the need for an XLR to 1/4" adaptor for this purpose. When a plug is inserted into the 1/4" jack, this normalling-connection from the XLR jack is broken and 2 separate input sources can be selected (XLR or 1/4").

Polarity Reverse Switch

When depressed, reverses the electrical input polarity of any microphone or line level input signal. Use of this control may alter the sound quality of an input relative to other channels when multiple microphones are picking up the same sound. (In the past, many consoles labeled this function as "Phase" or used the Ø symbol).

Pad Switch

When depressed, inserts a 26dB pad into the microphone input signal path prior to the preamplifier stage to prevent overload by excessively high input signal levels. Use this pad switch when you find that you are operating the gain control in the lower 20% of the control range and still showing excessive signal levels (yellow and red indications) on the channel meters.

Input Gain Control

This control adjusts the amount of gain at the input stage and should be adjusted for the best signal performance within the console. The goal is to achieve the best signal-to-noise while amplifying input signals to workable levels, neither too high nor low. The channel's six-segment LED meter is used for visualization of proper (pre-fader) channel levels, while soloing the channel will give more detailed level information. Proper level is achieved when there is continuous full green illuminated when input sources are at their highest levels with rare flashes of the yellow and red LED's..

Note: This control is sometimes referred to as the channel "Trim" control.

MONO INPUT - EQUALIZATION

High-Pass Filter Control
Adjust the high-pass filter corner frequency between 20Hz and 400Hz at a roll off rate of 12dB per octave. This control is used to remove unwanted signal content below the set frequency such as stage rumble. The result is usually improved signal quality of the associated input signal while decreasing the low frequency amplification demand of the audio systems amplifier and speaker combination. This type of filter is also called a Low-Cut filter.

High-Pass Filter On Switch with LED
When depressed, activates the high pass filter (reducing the level of all frequencies below the set frequency). When this switch is activated, an associated green LED will illuminate.

High-Freq Level Control (Shelving)
Adjust the high frequency boost/cut between +/-15dB; there is a detent at the center "0" position. Boost or cut of the high frequency level control is usually used for minor tonal adjustments. The HF EQ has a shelving response with a corner frequency of 10kHz.

High-Mid Freq Control (Bell shape)
This control adjusts the center frequency of the high-mid frequency band EQ between 400Hz and 8kHz. The bandwidth is approximately one octave.

High-Mid Level Control
Adjust the high-mid band boost/cut between +/-15dB; there is a detent at the center "0" position. The high-mid frequency controls are used for minor tonal adjustment or repair of a specific band of frequencies.

Low-Mid Freq Control (Bell shape)
This control adjusts the center frequency of the low-mid frequency band between 80Hz and 2 kHz. The bandwidth is approximately one octave.

Low-Mid Level Control
Adjust the low-mid frequency boost/cut between +/-15dB; there is a detent at the center "0" position. The low-mid frequency controls are used for minor tonal adjustment or repair of a specific band of frequencies.

Low-Freq Level Control (Shelving)
Adjust the low frequency boost/cut between +/-15dB; there is a detent at the center "0" position. Boost or cut of the low frequency level control is usually used for minor tonal adjustments. The LF EQ has a shelving response with a corner frequency of 70Hz.

EQ-On Switch with LED
This switch places the EQ circuitry into the channel's signal path. EQ activation is displayed by the illumination of a green LED next to the EQ on switch. When not in use, it is suggested that the EQ switch be kept in the OFF position for the best audio performance (less circuitry in the path).

APB-DynaSonics

MONO INPUT - AUXILIARY SENDS

Aux 1-6 Pre-Fader / Pre-EQ Switch
This switch defines the "Pre" signal source for all Auxes:
Up is Pre-Fader (and Post-EQ), Down is Pre-EQ.
Internally, the default Pre-EQ source is set to Post-insert.
A qualified technician can change this to Pre-insert (Post HPF) on a channel-by-channel basis.

Aux Sends 1-2 can be selected between mono and stereo:

Aux 1 Level Control
When in normal (Mono) mode, this knob controls the signal level feeding the Aux 1 mix bus.
When the Aux 1-2 Stereo switch is depressed, this control is now reconfigured into a pan control, which adjusts the balance of channel signal being fed to Aux buses 1-2.

Aux 2 Level Control
When in normal (Mono) mode, this knob controls the signal level feeding the Aux-2 mix bus.
When the Aux 1-2 Stereo switch is engaged, this control becomes the Aux 1-2 level control.

Aux 1-2 Post-Fader/Pre-Source
This switch selects the signal source for Auxes 1-2 between Post-fader (Up) and Pre-Source (Down) as determined by the Aux Pre-Source select switch (above).

Aux 1-2 Stereo Switch
Reconfigures the individual Aux 1 and 2 controls from two level controls to a Pan control (1) and a Level control (2). This enables a stereo mix to be generated from within the Aux send section for use with stereo headphones, effects, or for a discrete stereo mix for recording or broadcast use.

Aux Sends 3-4 and 5-6 are always mono:

Aux Level Controls 3-4
Controls the mix levels of the channel into Aux buses 3 & 4.

Aux 3-4 Post-Fader/Pre-Source
This switch selects the signal source for Aux 3-4 between Post-Fader (Up) and Pre-Source (Down).

Aux Level Controls 5-6
Controls the mix levels of the channel into Aux buses 5 & 6.

Aux 5-6 Post-Fader/Pre-Source
This switch selects the signal source for Aux 5-6 between Post-Fader (Up) and Pre-Source (Down).

Discrete Sub Woofer Feed Using Aux Sends (Aux-Fed Sub)
Aux 6 should be used if a controlled-level Subwoofer send is desired. In the Master Section, the output level control for Aux 6 can be swapped from its default rotary control to the (Mono) 100mm fader. This gives the operator a convenient and precise level control to adjust the Subwoofer output. See the Master Section of the manual for more details.
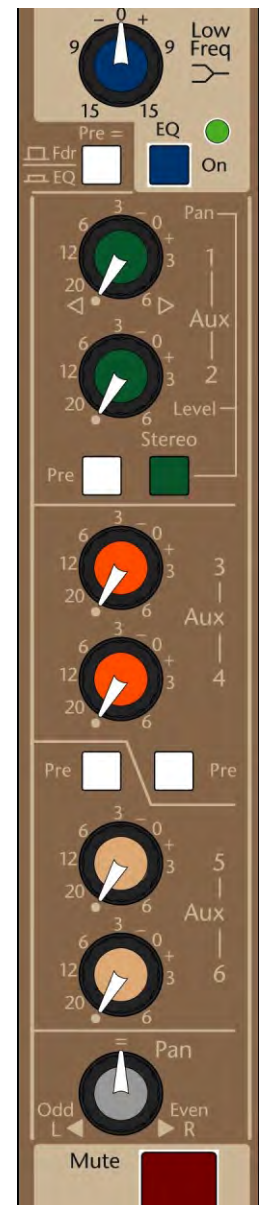
MONO INPUT - MUTE, SOLO and LEVEL CONTROL

Mute Switch (Local) - Internally Illuminated

Activation of this latching switch will mute the primary outputs as well as all pre and post fader auxiliary sends of the channel. When depressed, it will illuminate RED, indicating the status of this local mute only; an additional LED (located along the fader track) indicates the status of any remote activated mutes. Activation of either mute system (local or remote) will not affect the channel's metering or the PFL signals; these are both located Pre-Fader/Pre-Mute. The mute system may affect the Direct Out signal depending on its option setting. See the Rear Panel description for more information.

Channel Level Meter

This 6-segment LED meter indicates the Pre-fader channel level; the "0" LED indicates approx. +4dBu signal level (the design-level for the channel). Four green LED segments indicate Pre-fader levels of Signal Present, -12dB, -6dB and 0dB. The signal present LED first illuminates at approximately –30dB and increases in brightness with level until it is at full intensity. Best operation is achieved when all the green LEDs are illuminated with average input signals with occasional short yellow/red bursts of the +8 and peak LEDs. A yellow LED illuminates in the caution zone at +8dB above the reference level. The top segment peak indicator will illuminate Red if any of the multiple sample points in the channel's signal path approach within 3dB of clipping.

Please Note: The overall channel meter should be considered as 2 separate monitoring indicators: the Green and Yellow LEDs are Average responding and show the Pre-fader level ONLY; the faster Red LED is monitoring the pre-fader signal AND the Preamp and Post-fader signals. So, it is possible to have the Red LED illuminate without first having the Yellow LED lit. This usually will be caused by excessive preamp levels (and a subsequent cut in the EQ), or there may be a compressor or limiter in the channel's insert part that is attenuating the Pre-fader signal (Green & Yellow LEDs), but the preamp signal feeding the compressor is approaching clipping. The usual cure is to turn down the channel's Gain control.

Mute Group Preset Switches 1 thru 4

When any of these switches are selected, the input channel will mute when the associated Mute Group switch within the Master section is depressed. Activation of a Remote mute affects the channel the same way as a Local Mute.

Remote Mute (R Mute) Activated LED

This LED will illuminate (Red) when the channel is muted by any of the 4 Mute Groups.

100mm Channel Fader

This fader adjusts the post-fader level of the channel. All bus assignments and all post-fader Aux sends are controlled by this fader.

PFL (Solo) Switch - Internally Illuminated

This latching switch will illuminate yellow when activated. It will route the Pre-fader channel signal to the Master section for display on the Master solo meters and into the monitor/headphone systems. The channel feed to the Solo system is mono.
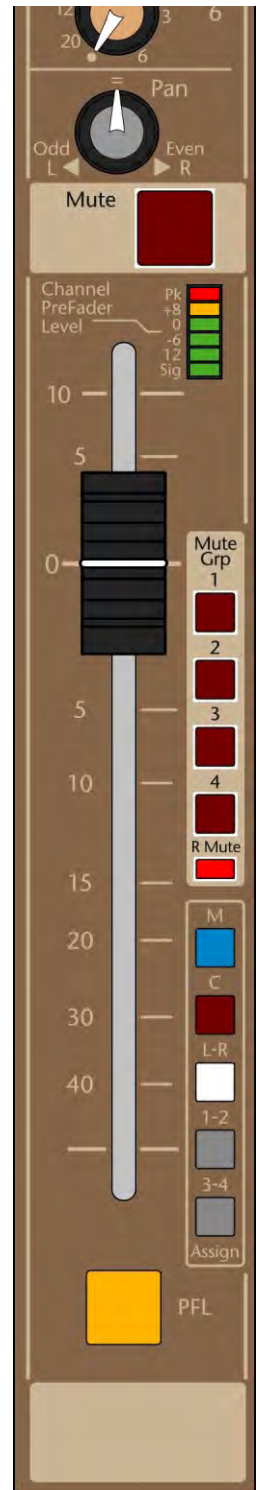
MONO INPUT - BUS ASSIGNMENT AND PANNING

Pan Control

This control blends the post-fader signal between any of the assigned bus pairs: L-R, Group1-2 and Group 3-4. When at the center, detented position, both sides are fed equal amounts of signal (each down by 3dB). This pan control has no effect on the Mono or Center mix buses.

Mono Assignment Switch

Assigns the post-fader channel signal to the Mono mix bus. It can be used as a general-purpose post-fader output for an additional primary console output. It may also be used as Mix B of an A-B vocal mix.

Center Assignment Switch

Assigns the post-fader channel signal to the Center mix bus. In mono sound systems, this bus can be used as the primary output (leaving the L-R output available for stereo recording). It is usually used in LCR installations to feed a discrete signal to the center speaker. It may also find use as a general-purpose post-fader output for use as an additional Aux or matrix send or as Mix A of an A-B vocal mix.

L-R Assignment Switch

Assigns the post-fader channel signal to the Left-Right mix buses through the Pan Control.

1-2 Assignment Switch

Assigns the channel signal to the Group 1 & 2 mix buses through the Pan Control. The Groups can be used independently using their own insert & XLR output jacks, or used as subgroups and assigned back into the Main mix buses (See Master Section- Groups).

3-4 Assignment Switch

Assigns the post-fader channel signal to the Group 3 & 4 mix buses through the Pan Control. Operation is the same as the Group 1 & 2 assignment.
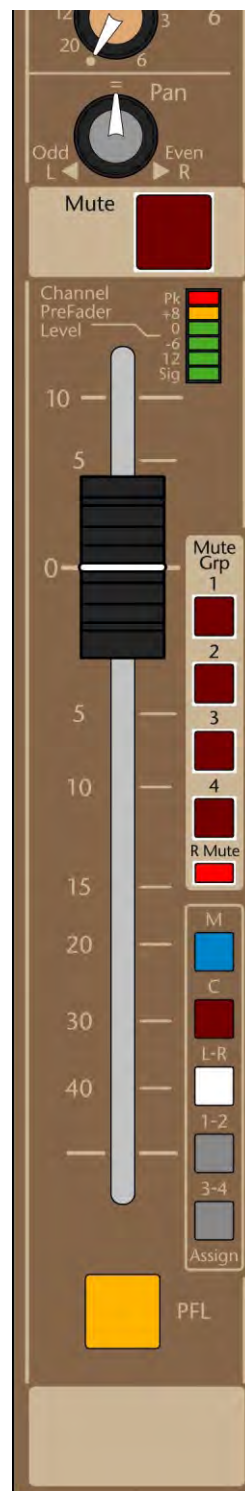
MONO INPUT - REAR PANEL CONNECTORS

1/4" TRS Direct Output Connector
The connector provides an impedance-balanced line level output of the input channel's signal. The default Direct Out signal is AFTER the microphone preamplifier but before all other processing. This utility output can be used to feed a multi-track recording device, effects device, or to feed another mixing or processing device including distributed monitor mixing systems.
Operating level is +4dBu
Direct Output - Internal Options
Internal jumpers may be configured (on a channel-by-channel basis) to change the Direct Out to Post-insert, Pre-fader or Post-fader. The Direct Output is always active and <u>not</u> affected by the channel Mute switch <u>unless</u> the Post-fader internal-option is implemented.
(Any changes to the Direct Output source should be made by a qualified technician)

1/4" TRS Insert Connector
This connector allows external processing or effects devices to be inserted into the channel's signal path after the variable high pass filter. The TRS jack is wired as follows:
Tip= Send
Ring= Return
Sleeve= Chassis

Examples of external devices include additional equalization, notch filters, compressors, limiters, vocal doublers and harmonizers, reverb devices, etc. The insert send has an output impedance of 100 Ω unbalanced and the insert return has an input impedance of 5k Ω unbalanced.
Operating level is +4dBu.
NOTE: The user should ensure that any device inserted into the channel's signal path is capable of maintaining the signal integrity of the console. The device must be able to accept a +22dBu signal without clipping, and have an output impedance of 100 Ω or less and be capable of driving +22dBu into a 2k Ω load.

1/4" TRS Line Input Connector
This connector accepts line input signals and has an input impedance of 10k Ω. When the front panel source switch is selected to line input, signal is first sourced from this connector. If nothing is plugged into this connector, the XLR input is normalled into this connector as a line input signal; plugging into the connector breaks this normalling contact. The line input may be a balanced or unbalanced signal.

XLR Input Connector
This connector accepts microphone or line input signals. When the front panel input source switch is in the microphone position (Up), this XLR connector will be used as a microphone input and will have an input impedance of >3000 Ω. When the input selector source switch is in the LINE input position (Down) and nothing is plugged into the TRS line input connector, this XLR connector can be used as a balanced line input with an input impedance of >10k Ω.
Note: This is a locking connector. To remove an XLR cable, depress the Tab on the connector before attempting to remove the cable.

STEREO LINE INPUT

TRS/ALT (RCA OR USB) Line Input Switch
Selects the stereo input source between the rear-panel 1/4" TRS jacks (switch UP) or the RCA connectors (switch DOWN) on Inputs A-B-C. On Stereo Input D, the USB Audio In signal is selected when this switch is depressed (there are no RCA jacks for Input D). See the later section on USB audio for more information on its use.

Left Input Gain Control
This control is used to adjust the input gain of the left line input for optimum electrical performance without producing audible noise (hiss) at high gain settings. The channel LED meters and the solo meters are used in assisting in setting the control for correct gain. Separate left and right input gain controls are provided to allow for better signal optimization when operated in split track mode.

Right Input Gain Control
This control is used to adjust the input gain of the right line input signal for optimum electrical performance without producing audible noise (hiss) at high gain settings. The channel LED meters and the solo meters are used in assisting in setting the control for correct gain levels. Separate left and right input gain controls are provided to allow for better signal optimization when operated in split track mode.

Stereo Split-Track Mode Switch
This switch converts the channel from conventional Stereo input operation to a dual-mono "Split Track" channel. This function is most useful when dealing with the Voices-Left/Music-Right sources commonly used in House of Worship performances. The two Split-Track controls allow the operator to independently control the blend of the L&R channel signals feeding the Auxes and the Main buses.

Pre-Aux Feed (Aux Send Blend Control)
When the "Split Track" mode switch is pressed, the Pre-Aux Feed control will be active. This control allows the operator to adjust the mono-mixture of the left & right input signals. feeding the "Pre" source to the Auxes. When this control is set fully counter-clockwise, the pre-fader source for the auxiliary sends is the left line input ONLY. When set fully clockwise, the pre-fader source for the auxiliary sends is the right line input ONLY. When set to its center position, there is an equal amount of left and right input signal being sent in summed-mono to the auxiliary send controls. From the center position, turning the control clockwise will increase the amount of right input while decreasing the left input signal being sent to the auxiliary controls. Turning the control counter-clockwise will increase the amount of left input while decreasing the right input signal being sent to the auxiliary controls.

Pre-Fader Blend (Channel Blend Control)
When the "Stereo Split Track" switch is pressed, the Pre-Fader Blend control will be active; this effectively turns the stereo signal within the module into a summed-mono signal. The Blend control allows the operator to adjust the mixture of the L&R signals making up that mono mix. When this control is set fully counter-clockwise, the channel mix is the left line input ONLY. When this control is set fully clockwise, the channel mix is the right line input ONLY. When set to its center position, there is an equal amount of left and right input signal being combined within the channel. From the center position, turning the control clockwise will increase the amount of right input while decreasing the left input signal being sent to the mix controls. Turning the control counter-clockwise will increase the amount of left input while decreasing the right input signal being mixed within the channel.

STEREO LINE INPUT - STEREO EQUALIZATION

High Frequency Level Control (Shelving)
Adjusts the high frequency shelving cut/boost between +/-15dB. Boost or cut of the high frequency level control is usually used for minor tonal adjustments. Use of this EQ control will affect both the left and right signal paths. The HF EQ has a shelving response with a corner frequency of 10kHz.

High-Mid Frequency Level Control (Bell-shape)
Adjusts the high-mid frequency bell-shaped cut/boost between +/-15dB. Use of this control will affect both the left and right signal paths. The Hi-Mid EQ has a center frequency of 3kHz with a BW of 1 octave.

Low-Mid Frequency Level Control (Bell-shape)
Adjusts the high-mid frequency bell-shaped cut/boost between +/-15dB. Use of this EQ control will affect both the left and right signal paths. The Low-Mid EQ has a center frequency of 300Hz with a BW of 1 octave.

Low Frequency Level Control (Shelving)
Adjusts the low frequency shelving cut/boost between +/-15dB. Boost or cut of the high frequency level control is usually used for minor tonal adjustments. Use of this EQ control will affect both the left and right signal paths. The LF EQ has a shelving response with a corner frequency of 60Hz.

EQ-On Switch with LED
This switch inserts the Left and Right EQ circuitry into the signal path. Stereo EQ activation is displayed by the illumination of the green LED next to the EQ ON switch. When not in use, it is suggested that the EQ switch be kept in the OFF position for best audio performance.
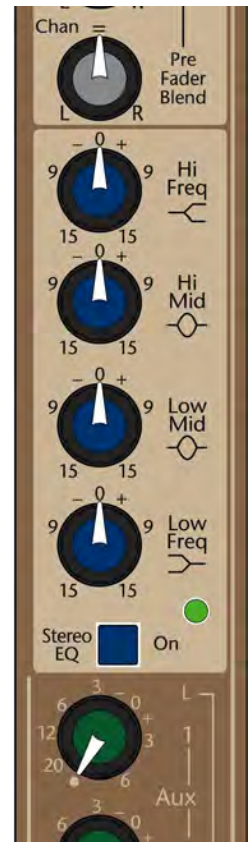
STEREO LINE INPUT - AUX SENDS

Stereo Channel Aux Sends
The signals feeding the Aux sends are normally summed-mono mixes of the left & right side signals within the module.
For Auxes 1& 2, when switched to Stereo, the left-side channel signal feeds the Aux 1 control; the right-side channel signal feeds the Aux 2 control. This is true for both Pre & Post signals –**however**-, if Split-Track is activated, both the Post-fader and the Pre-Aux signals have already been converted to mono by the Blend controls, so Aux 1&2 will receive a summed-mono signal even when Stereo is selected.

Aux Level Control 1
Adjusts the level of the selected Aux feed into Aux bus 1.

Aux Level Control 2
Adjusts the level of the selected Aux feed into Aux bus 2.

Aux 1-2 Pre Switch
This switch selects the signal source for Aux sends 1 and 2 between Post-fader (Up) and the default "Pre" signal (Down).

Aux 1-2 Stereo Switch
Reconfigures the signals feeding the individual Aux 1 and 2 level controls from a summed mono mix to separate left & right signals; left feeds Aux-1, right feeds Aux-2.
NOTE: If Split-Track is active, both of the sends receive the same mono-mix from the either the Pre-fader Blend control (when in Post), or the Pre-Aux Feed control (when in Pre).

Aux Level Control 3
Adjusts the level of the selected Aux feed into Aux bus 3.

Aux Level Control 4
Adjusts the level of the selected Aux feed into Aux bus 4.

Aux 3-4 Pre Switch
This switch selects the signal source for Aux mixes 3 and 4 between Post-fader (Up) or Pre (Down). The feed to these Auxes is always a sum of the left & right channel signals.

Aux Level Control 5
Adjusts the level of the selected Aux feed into Aux bus 5.

Aux Level Control 6
Adjusts the level of the selected Aux feed into Aux bus 6.

Aux 5-6 Pre Switch
This switch selects the signal source for Aux mixes 5 and 6 between Post-fader (Up) or Pre (Down). The feed to these Auxes is always a sum of the left & right channel signals.

Discrete Sub Woofer Feed Using Aux Sends (Aux-Fed Sub)
Aux 6 should be used if a controlled-level Subwoofer send is desired. In the Master Section, the output level control for Aux 6 can be swapped (Fader-Flip) from its default rotary control to the (Mono) 100mm fader. This gives the operator a convenient and precise level control to adjust the Subwoofer output. See the Master Section of the manual for more details.

STEREO LINE INPUT - MUTE, SOLO and LEVEL CONTROL

Mute Switch (Local) - Internally Illuminated

Activation of this latching switch will mute the primary outputs as well as all pre and post-fader auxiliary sends of the channel. When depressed, it will illuminate RED, indicating the status of this local mute only; an additional LED (located along the fader track) indicates the status of any remote activated mutes. Activation of either mute system (local or remote) will not affect the channel's metering or the PFL signals; these are both located Pre-Fader/Pre-Mute.

Channel Level Meter

Two, 3-segment LED meters indicate the pre-fader channel level. The top Red segment of each of these meters will illuminate if any of the multiple sample points in the stereo signal chain approaches 3dB of clipping. A yellow LED on each channel illuminates in the caution zone at a +8 reference level. The green signal present LED first illuminates at approximately –30dB and increases in brightness with level until it is at full intensity on each channel. Best operation is achieved when the green LEDs are illuminated with average input signals with only occasional short yellow/red bursts of the +8 and peak LEDs.

Please Note: The overall channel meters should be considered as 2 separate monitoring indicators: the Green and Yellow LEDs are Average responding and show the Pre-fader levels ONLY; the faster Red LEDs monitor the pre-fader signal AND the Preamp and Post-fader signals. It is possible to have the Red LED illuminate without first having the Yellow LED lit. This usually will be caused by excessive preamp levels (and a subsequent cut in the EQ), or there may be a compressor or limiter in the channel's insert part that is attenuating the Pre-fader signal (Green & Yellow LEDs), but the preamp signal feeding the compressor is approaching clipping. The usual cure is to turn down the channel's Gain control.

Mute Group Preset Switches 1 thru 4

When any of these switches are selected, the input channel will mute when the associated Mute Group switch within the Master section is depressed. Activation of a Remote mute affects the channel the same way as a Local Mute.

Remote Mute (R Mute) Activated LED

This LED will illuminate (Red) when the channel is muted by any of the 4 Mute Groups.

100mm Channel Fader

This stereo fader adjusts the post-fader level of the channel. All bus assignments and all post-fader Aux sends are controlled by this fader.

PFL (Solo) Switch - Internally Illuminated

This latching switch will illuminate yellow when activated. It will route the Pre-fader channel signal to the Master section for display on the Master solo meters and into the monitor/headphone systems. The feed to the Solo system is stereo, but if Split-Track is active, then the feed to the PFL circuitry will be the mono sum of the L&R channel signals controlled by the Pre-fader Blend pot.

NOTE:

When the Split Track button is depressed, the L&R channel signals will be combined to a mono signal by the Pre-Fader Blend control at the Pre-fader signal point. If the Blend control is set for full-Left or full-Right, the opposite R or L signal will NOT be present in the resulting mix and will not be heard in any of the assigned buses or PFL monitoring.
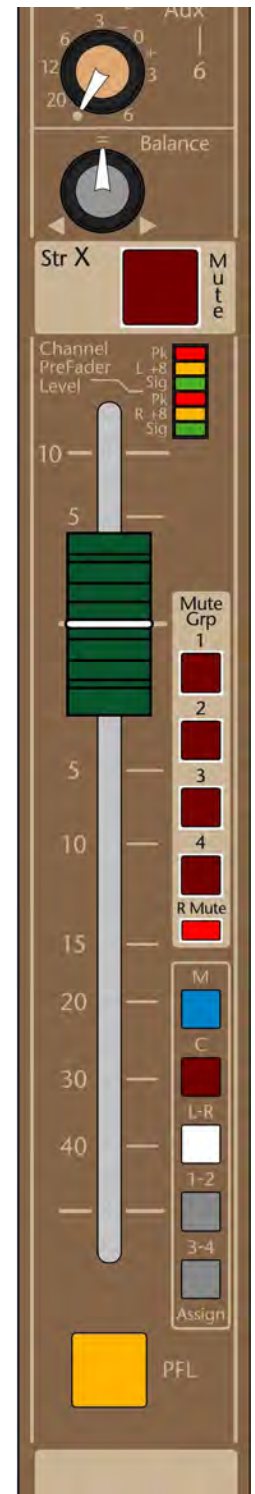
STEREO LINE INPUT - BUS ASSIGNMENT AND BALANCE

Balance Control
This control feeds the post-fader channel signals to any of the assigned bus-pairs: L-R, Group1-2 and Group 3-4. This Balance control has no effect on the Mono or Center mix buses.

NOTE:
When the Split Track button is depressed, the L&R channel signals will be combined to a mono signal within the channel by the Pre-Fader Blend control. If the Blend control is set for full-Left or full-Right, the opposite R or L signal will NOT be present in the resulting mix and will not be heard in any of the assigned buses or PFL monitoring.

Mono Assignment Switch
Assigns the post-fader summed-channel signal to the Mono mix bus. It can be used as a general purpose post-fader output for use as an additional primary console output, aux or matrix send including use for surround or subwoofer mixes. It may also be used as part of an A-B vocal mix.

Center Assignment Switch
Assigns the post-fader summed-channel signal to the Center mix bus. In mono sound systems, this bus can be used as the primary (Center) output (leaving the L-R output available for stereo recording). It is usually used in LCR installations to feed a discrete signal to the center speaker cluster.

L-R Assignment Switch
Assigns the post-fader channel signals to the Left & Right mix buses through the Balance Control. In Stereo or Dual Mono sound systems, this is the most likely used primary output assignment on the console. The Left & Right outputs are also typically used for music reproduction when Center or Mono mix buses are used for the Center-fill or sub output of the Console.

1-2 Assignment Switch
Assigns the post-fader channel signals to the Group 1 & 2 mix buses through the Balance Control. The Groups can be used independently using their own insert & XLR jacks, or used as subgroups and assigned back into the Main mix buses (See Master Section- Groups).

3-4 Assignment Switch
Assigns the post-fader channel signals to the Group 3 & 4 mix buses through the Balance Control. Operation is the same as the Group 1 & 2 assignment.
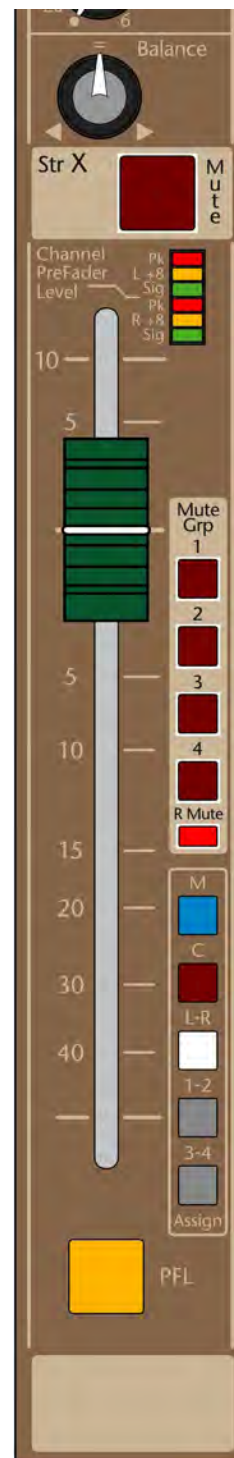
STEREO LINE INPUT - REAR PANEL CONNECTORS

1/4" TRS Left and Right Balanced Input Connectors

Provides for balanced line level inputs to the channel's left and right inputs.

> Design level is +4dBu
> Input impedance is 10KΩ balanced
> The input signal may be balanced or unbalanced.

If only a single (mono) signal is available, plugging into the Left TRS jack will feed that signal equally to both Left & Right inputs of the channel (through the Right TRS normaling contacts). Plugging into the Right TRS jack will break that normalled connection and feed that new signal into the Right side of the channel.

Left And Right RCA Input Connectors

Provides for unbalanced line level inputs to the channel's left and right inputs.

> Design level is −10dBV
> Input impedance is 10KΩ unbalanced.

Stereo Line Input A

TRS Line Inputs and RCA Inputs

Desired input selected by top panel switch at Stereo Input A channel

Stereo Line Input B

TRS Line Inputs and RCA Inputs

Desired input selected by top panel switch at Stereo Input B channel

Stereo Line Input C

TRS Line Inputs and RCA Inputs

Desired input selected by top panel switch at Stereo Input C channel

Stereo Line Input D

TRS Line Inputs and USB audio (internal connection)

Secondary (Alt) input is fed from the USB Audio Input.

Desired input selected by top panel switch at Stereo Input D channel
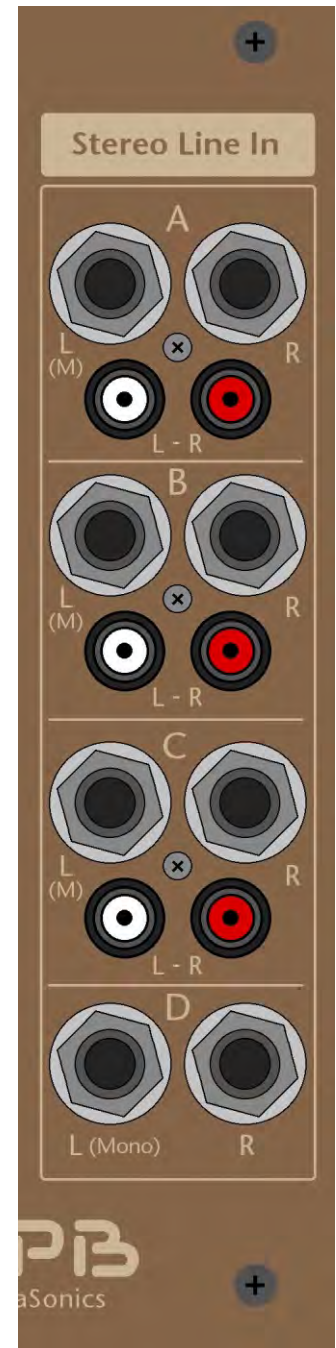
MASTER SECTION

The following pages describe the controls and connectors of the ProDesk-4 Master section.

AUXILIARY BUSES (1thru 6)

Aux Master Controls

ProDesk-4 is equipped with 6 Aux buses. The master controls for the first 4 Auxes are located above the 4 Group master faders; the remaining 2 Aux master controls are located above the Main output faders. They all share similar controls, but Aux-6 also has the additional feature of Fader-Flip with the Mono output. Each Aux bus has its own TRS Insert jack, TRS Bus-Input jack, and XLR balanced output jack (See rear panel for more detail).

Aux Output Mute Switch (Internally Illuminated)

When activated, this switch will mute the associated Auxiliary output.

Aux Output Level Control

Controls the level of the associated Aux output.

Bus Level LED Monitor (Sig)

This bi-color Green/Red LED monitors the signal level on the associated Aux mix bus. Varying intensity Green indicates proper bus levels while Red indicates that signals are approaching 3dB of clipping within the Aux circuitry. Overload (Red) is sensed after the mix amp, at the insert return and after the output amp.

Auxes 1 thru 4

Aux Output AFL (Solo) Switch (Internally Illuminated)

The AFL switch assigns the post-level/post-mute Aux signal into the console monitoring and meter systems.

Stereo Solo System Operation on Aux Masters 1-2

When a single AFL switch within the Aux master section is activated, that signal is sent to the monitoring and meter system in mono (both L&R sides of the solo system are fed). When both Aux-1 & Aux-2 AFL buttons are pressed, Aux-1 will feed the left solo bus while Aux-2 will feed the right solo bus into the monitoring system. This allows the operator to accurately monitor a stereo-configured Aux 1-2 pair. Note: This split-stereo monitoring will occur whether or not any individual channels have Aux 1-2 selected as a stereo pair.

Auxes 5 & 6

Aux Output 6 – Fader-Flip

ProDesk-4 is equipped with a fader-flip function (fader-swap) that allows the operator to swap the controls and indicators between the Mono output and Aux-6. This allows for finer (and more visual) control of the output level of Aux 6. This is typically done if Aux-6 is used to control the Sub-woofers of a system (usually called Aux-Fed Subs). The individual Aux-6 channel sends are used to adjust the level of a channel to the sub-woofers, and the overall level of the sub-woofer is controlled by the Aux-6 output control. These associated Aux-6 controls can be swapped with the matching Mono Output controls:

• The rotary level control is swapped with the 100mm fader
• The Mute button is swapped with the fader Mute button
• The Sig LED is swapped with the fader Sig LED
• (There is no corresponding Mono AFL button)
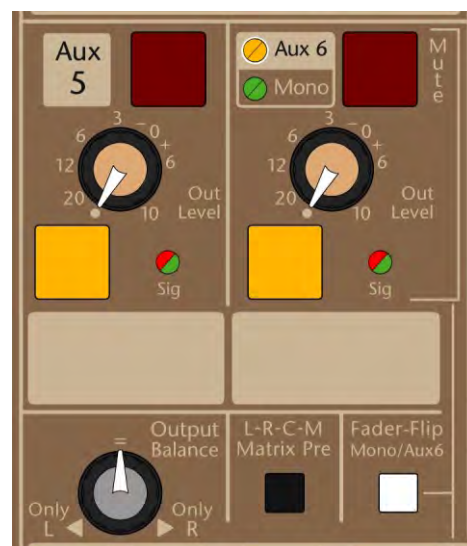
The 2 LEDs above the rotary level control (to the left of the Mute switch) indicate which bus is associated with these controls and indicators:

Yellow LED= Aux-6 (default)
Green LED= Mono bus

When the Fader-Flip button is depressed, these controls and indicators are now associated with the Mono bus (Green LED illuminated) and the Aux-6 controls and indicators are located with the 100mm fader.

GROUP OUTPUT (1 thru 4)

Group Master Controls
ProDesk-4 is equipped with 4 Group buses. These groups can be used as audio subgroups for combining and processing a collection of input channels. These processed channels can then be added to any of the main mix buses or fed directly to the Matrix section, pre or post fader. The master controls are located along the 4 Group output faders. Each Group bus has its own TRS Insert jack, TRS Bus-Input jack, and XLR balanced output jack (See rear panel for more detail).

Group Pan Pot
When the L-R assignment switch is depressed (see below), the Group will feed the L-R main buses thru this pan pot.

Group Output Mute Switch (Internally Illuminated)
When activated, this switch will mute the associated Group output including the post-fader send to the matrix system. This mute switch does not affect the Pre-fader matrix sends.

Group Output Meter (8-LED ladder)
Displays the output level of the associated Group. The meter response is VU-Averaging; the "0" LED indicates +4dBu output level. The top red segment indicates +13dBu average level and does not necessarily indicate clipping. Use the (faster) bi-color LED to see any clipping within the Group circuitry.

Bus Level LED Monitor
This bi-color Green/Red LED monitors the signal levels on the associated Group mix bus. Varying intensity Green indicates proper bus levels while red indicates approaching overload within the Group circuitry. Overload is sensed after the mix amp, at the insert return and after the fader amp.

100mm Master Level Control
Adjusts the output level of the associated Group output to all internal and external post-fader destinations.

Matrix Post/Pre Fader Switch
This switch selects the source of the Group signal feeding the matrix system between Post-fader (switch Up) and Pre-Fader/Post-insert (switch Down). When set for Post-fader, the Mute switch will mute the send to the matrix; the mute switch does not affect the Pre-Fader send.

Mono, Center and Left-Right Assignment Switches
These switches assign the post-fader Group signal to any of the primary output mix buses of the console. This is useful when an operator wishes to use a (sub) group for the purpose of inserting a common signal-processing device using the Group's Insert point. Assignment to L-R is thru the Group Pan Pot (located above the fader), assignment to Mono or Center is directly after the fader and does not involve the pan pot.

Group Output AFL (Solo) Switch (Internally Illuminated)
The AFL switch assigns the post-fader/post-mute Group signal into the console monitoring and headphone systems. The Group's position in the L-R mix can be monitored by using this AFL switch: The signal is taken <u>after</u> the Group Pan pot, but is <u>not</u> dependent on the L-R assignment.
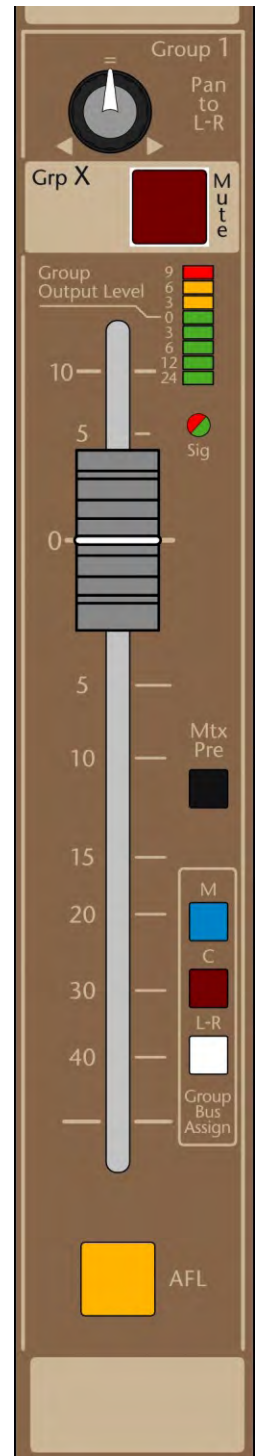
MATRIX OUTPUT (1 thru 4)

Matrix Master Controls
ProDesk-4 is equipped with 4 Matrix buses. Each Matrix can be a mixture of any of the 4 Groups or Main output buses, along with an individual external input. Since each Matrix can be individually configured for use, the outputs can be used as the main system feeds for the PA, or as supplemental feeds for under-balcony speakers or guest rooms. Additional mixes for video or recording feeds are also possible. The master controls are located above the 4 Group master faders. Each Matrix bus has its own TRS Ext-Input jack, TRS Insert jack, and XLR balanced output jack (See rear panel for more detail).

External Input Level Control
This control provides level adjustment of an external signal into the associated Matrix bus. Each of the 4 Matrix buses has its own Ext Input, but they are normalled (daisy-chained) together to allow a single source (Ext Input 1) to feed all 4 matrix. See rear panel for more detail.

Left, Right, Center, and Mono Level Controls
These level controls determine the amount of the associated Left, Right, Center and Mono signals being fed into the associated matrix system. A single switch in the Main output section (above the Center fader) determines if these signals are derived pre or post the Master faders.

Group To Matrix Level Controls (1-4)
These level pots (1 through 4) control the amount of Group signals being fed to the associated Matrix system. A switch in each Group output section determines if this signal is derived pre or post its associated Group master fader.

Matrix Mute Switch (Internally Illuminated)
When this switch is activated, the output of the associated Matrix system is muted. The button will illuminate Red when activated.

Matrix Output Level Control
Controls the output level of the associated Matrix.

Bus Level LED Monitor (Sig)
This bi-color Green/Red LED monitors the signal level on the associated Matrix mix bus. Varying intensity Green indicates proper bus levels while Red indicates that signals are approaching 3dB of clipping within the Matrix circuitry. Overload (Red) is sensed after the mix amp, at the insert return and after the output amp.

Matrix Output AFL (Solo) Switch (Internally Illuminated)
The AFL switch assigns the post-level/post-mute Matrix signal into the console monitoring and headphone systems.

MAIN OUTPUT (L-R-C-M)

Main-Bus Master Controls
ProDesk-4 is equipped with 4 Main mix buses: Left, Right, Center and Mono. These 4 buses are typically used as the main outputs of the console. These buses also can feed the Matrix section as well as the Monitor and Record Out sections for generating additional outputs from the Console. The master controls are located at the bottom-right of the Master Module. Each Main bus has its own TRS Bus-Input jack, TRS Insert jack, and XLR balanced output jack (See rear panel for more detail).

Output Balance
This rotary control provides level adjustment of the Left & Right XLR outputs; this adjusted level will be displayed in the main output meters, but any post-fader feeds to the Monitor, Matrix or Stereo Record output will be unaffected by this balance control. Its main function is to "trim" the feed to the speakers to balance the sound in the room. When positioned at the center (detented) position, both sides (L&R) are at normal level. As the control is rotated away from center, the opposite side is attenuated. Full-cut of the opposite bus is achieved at each extreme CW or CCW setting.

Left, Right, Center, and Mono Matrix Feed
This switch selects the feed to the Matrix section for all 4 Main buses. When the switch is Up, the post-fader signals are fed to their respective matrix mix pots. When the switch is depressed, the pre-fader (post-insert) sources are selected. The respective Mute switches will affect the associated post-fader feed, but will not affect the pre-fader feed.

Fader-Flip (Swap Mono & Aux-6 controls)
This function is described earlier and in more detail in the Aux Master section. The 3 controls and indicators for the Mono bus (bi-color sig LED, 100mm fader, Mute sw) can be swapped with the corresponding controls of Aux-6 (bi-color sig LED, rotary fader, Mute sw); this gives Aux-6 the more visual and easier to manage 100mm fader as its level control. The Fader-Flip is typically used when Aux-6 is used as the send in an Aux-Fed Sub system. The 100mm fader gives the operator precise (and easily tweaked) control over the subwoofer output level of the system. The pair of nearby LEDs indicates the Fader-Flip status:

Green Illuminated: The fader is controlling the Mono output

Yellow Illuminated: The fader is controlling the Aux-6 output

Main Output Mute Switches (Internally Illuminated)
When any of these switches are depressed, the output of the associated bus is muted. The button will illuminate Red when activated. If Fader-Flip is depressed, the far-right mute switch controls the Aux-6 output.

Output Fader
These 100mm faders control the output level of the associated Main bus. A single, stereo fader is used to control both Left & Right outputs. Center and Mono each have their own fader. If Fader-Flip is depressed, the far-right fader controls the Aux-6 output level.

Bus Level LED Monitor (Sig)
These bi-color Green/Red LEDs monitor the signal level on the associated Main mix bus. Varying intensity Green indicates proper bus levels while Red indicates that signals are approaching 3dB of clipping within the bus circuitry. Overload (Red) is sensed after the mix amp, at the insert return and after the fader amp. When Fader-Flip is depressed, the bottom LED is monitoring the Aux-6 bus.
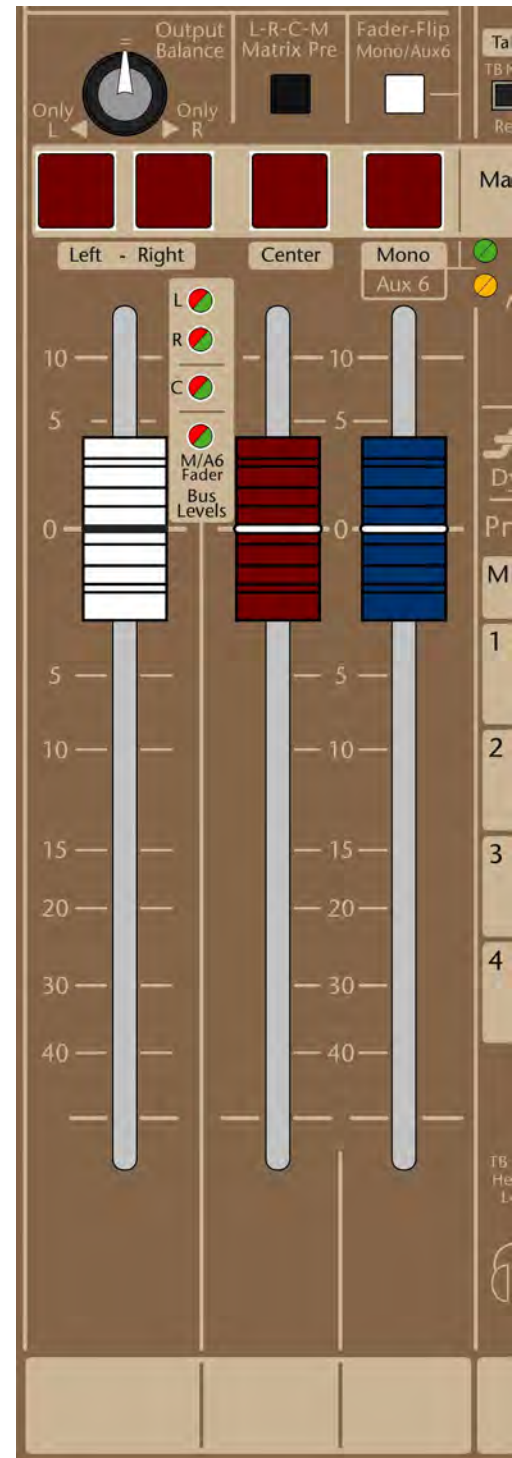
REAR PANEL CONNECTIONS (for all 18 major buses)

Bus-Input (Main, Group & Aux) or External Input (Matrix): 1/4" Balanced TRS: Tip= Input+, Ring= Input–, Sleeve= Chassis
A 1/4" TRS (10kΩ) balanced line input is provided for each bus. For the Main, Group and Aux buses, this balanced input directly feeds the corresponding mix bus. This bus-input can be used to feed a submixer into any of the mix buses or can be used for console expansion- feed the bus outputs of a slave console into the bus inputs of this Master console.
Design level is +4dBu for unity mixing to the bus.

For the 4 Matrix buses:
This balanced input feeds the Ext Input control on each Matrix; the level of this external signal is controlled by that level pot. These jacks are linked (daisy-chained) to the previous external input connector via the normalling contacts of the TRS jack. If an input in plugged into the first external matrix input, this signal is sent to all higher numbered external matrix inputs until a connector is plugged into the next input connector. Because of this feature, one input can access all four matrix channels, or four discrete inputs can each feed its own matrix channel.

Bus-Insert 1/4" TRS : Tip= Send, Ring= Return, Sleeve= Chassis
External processing or effects electronics can be inserted into the bus signal path after the summing amp. Examples of external devices include additional equalization, notch filters, compressors, limiters, etc. The inert send has an output impedance of 100 Ω unbalanced and the insert return has an input impedance of 10k Ω unbalanced.

Design level is –2dBu

NOTE: The user should ensure that any device inserted into a bus is capable of maintaining the signal integrity of the console. The external device must be able to accept a +22dBu input signal without clipping, and have an output impedance of 100 Ω or less and be capable of cleanly driving +22dBu into a 2k Ω load.

OutSmarts® XLR Balanced Output : Pin-2= Output+, Pin-3= Output–, Pin-1= Chassis
These outputs provide a symmetrically-balanced output signal (50 Ω balanced).
Design level is +4dBu, Maximum output level is +28dBu balanced, +22dBu Unbalanced
If an unbalanced output is needed: Tie Pin-3 to Pin-1 and use Pin-2 as the driving source, Pin-1 as the shield connection.
NOTE: All XLR Outputs are relay-muted (Pin 2-3 shorted) while the Console is off. A valid PSU-Good signal from either of the power supplies will un-mute these outputs after the Console powers up (after a 4 second delay). The outputs will immediately mute when the Console is powered down (or otherwise loses power). This feature minimizes any console power-transition thumps from getting into the speakers when the system is driven from these outputs.
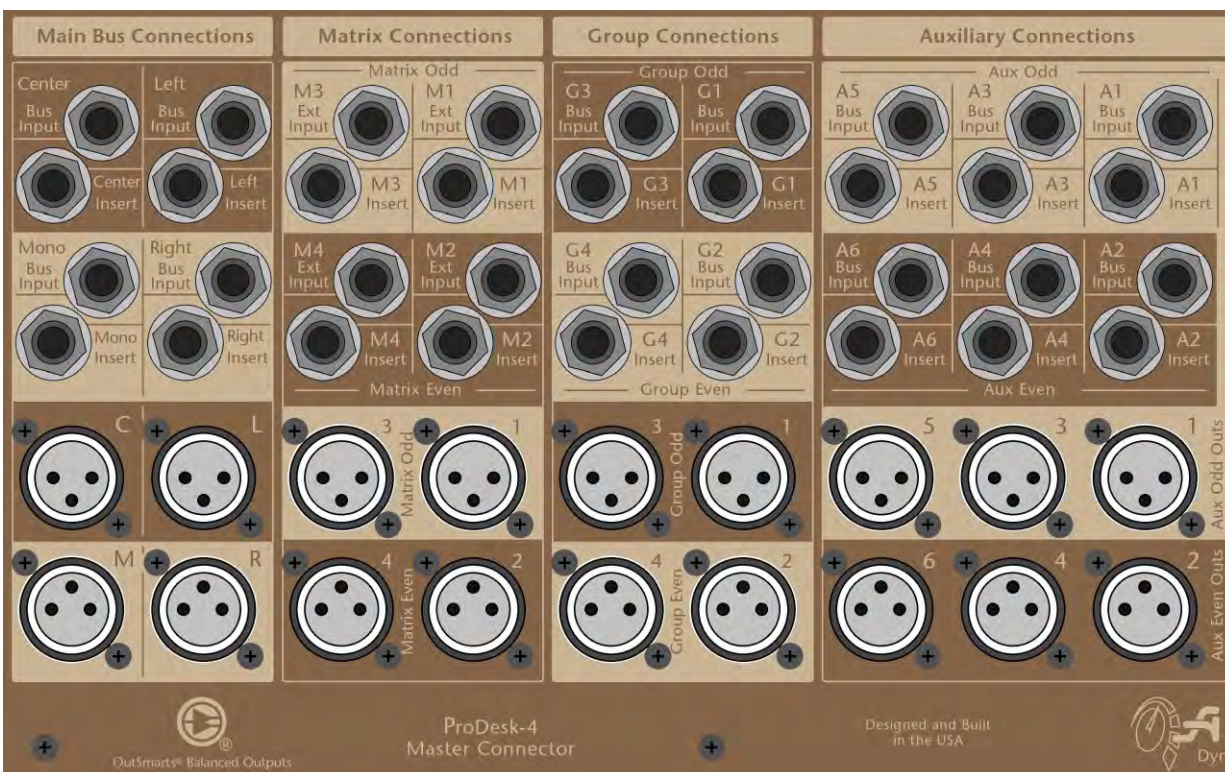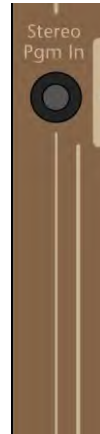
STEREO PROGRAM IN

Stereo Program In
This section serves as a general-purpose, stereo input into the console. Any of the 3 sources can be selected as the input signal; all selected sources are summed together. The resulting signal can be EQ'd and assigned to any of the Main buses, the Matrix, and Aux 1-2 pair.

Stereo Pgm In Jack   1/8" (3.5mm) mini-TRS jack
This Top-Panel mounted 1/8" jack is designed to accept a stereo signal from an iPod or other music player. The signal is available as the "Top Analog" source for the Stereo Program In section.

Top Analog (with Green LED)
When this switch is depressed, the audio from the Top Panel mini-jack is selected (or mixed) to the Stereo Program input circuits.

Rear Analog (with Yellow LED)
When this switch is depressed, the audio from the rear-panel Stereo Pgm Input jacks is selected (or mixed) to the Stereo Program circuits. Both TRS and RCA jacks are present and are simultaneously available (see the Master Interface Panel for connector details).

Rear USB (with Blue LED)
When this switch is depressed, the audio from the USB interface is selected (or mixed) to the Stereo Program In circuits. See the Rear Panel Connections section for more information about the USB features on the ProDesk.

Stereo EQ
High & Low Freq EQ is available to adjust the tonal balance of the selected (mixed) input sources. Both controls have a shelving response; High-Freq corner frequency is 10KHz, Low-Freq corner frequency is 80Hz.

Signal & Peak LEDs
These bi-color Green/Red LEDs monitor the signal level of the stereo signals. Varying intensity Green shows the post-EQ signal level, while Red indicates that signals are approaching 3dB of clipping both pre and post the level control.

Level Control
Controls the level of the post-EQ Stereo Program into the assigned buses. Up to +10dB of gain is available on this control.

Mute Switch (with Red LED)
Mutes the stereo signal to the assigned buses.

PFL Switch (with Yellow LED)
When pressed, this latching switch will route the Pre-level Stereo Pgm signal to the Master section for display on the Master solo meters and into the monitor/headphone systems. The feed to the Solo system is stereo and is not affected by the Mute switch.

Bus Assignment: L-R, Center, Mono, Matrix 1-2, Matrix 3-4, Aux 1-2
Assigns the post-level, post-mute stereo signal to the selected buses. For the stereo-paired buses (L-R, Mtx 1-2, Mtx 3-4, Aux 1-2), the signals are assigned stereo-left to Left/Odd, stereo-right signals to Right/Even buses. For any mono assignment buses (Center or Mono), the stereo program signals are summed to mono when assigned.

STEREO RECORD OUT (Alternate Out)

Stereo Record Out

This section serves as a general-purpose, stereo output from the console. Any of 5 sources can be selected as the input signal, all selected sources are summed together and can be globally set to be pre or post their individual output controls. A Sum-Mono button provides mono compatibility. This output can be used as a recording output, a feed to a video system, an output to an additional room or speaker cluster, etc. Additionally, this signal can also be routed to the USB output circuitry to create a stereo output for direct recording onto a computer. Outputs are available on 1/4" TRS and RCA jacks. See the Master Interface Panel for more connector details.

Input Source Select: L-R, Center, Mono, Matrix 1-2, Aux 1-2

Any of these signals can be selected as the source for the Stereo Record Out. All selected sources are equally summed together; stereo sources are maintained as stereo, any mono sources feed the left & right sides equally.

L-R:	The Main Left & Right buses: Left bus feeds left side, Right bus feeds right side
C:	The Main Center bus: Center bus feeds both left & right sides
M:	The Main Mono bus: Mono bus feeds both left & right sides
Mtx 1-2:	Matrix bus 1 & 2: Matrix-1 feeds left side, Matrix-2 feeds right side
Aux 1-2:	Aux bus 1 & 2: Aux-1 feeds left side, Aux-2 feeds right side

Pre

When this switch is depressed, the pre-level signal for all of the 5 sources is selected. This allows the Stereo Record Out to be independent of any of local level controls. When this button is Up, the post-level signals are used as the sources.

Sum-Mono

The left & right signals are combined to mono. Used when a mono output is needed.

Output Level Control

Controls the level to the rear-panel connectors and to the USB Out circuitry (if selected). Up to +10dB of gain is available on this control.

USB-On Switch (with Blue LED)

When this switch is depressed, the post-level, post-mute signal is sent to the USB Audio Out circuitry. See the Rear Panel Connections section for more information about the USB features on the ProDesk.

Mute Switch (with Red LED)

Mutes the post-level signal to the output connectors and to the USB Out (if selected).

AFL Switch (with Yellow LED)

When pressed, this latching switch will route the post-level, post-mute stereo signal to the Master section for display on the Master solo meters and into the monitor/headphone systems. The feed to the Solo system is stereo and is affected by the Mute switch and the Sum-Mono switch.
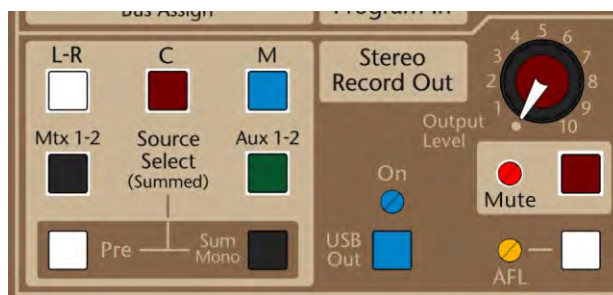
REAR PANEL CONNECTIONS for Stereo Program In and Stereo Record Out

Most connections for the Stereo Program Input and Stereo Record Out are located on this Master Interface Panel (shown below). The only additional connection for the Stereo Program In is the Top Analog mini jack located on the Master Module top panel.

Stereo Program Input: 1/4" TRS Balanced Input + RCA Unbalanced Input

These connectors are the "Rear Analog" source for the Stereo Pgm Input. Both sets of connectors can be used simultaneously; the TRS and RCA signals will be mixed together and available as a single stereo source.

If only a mono source is available, plugging into just the Left TRS jack will feed both the left & right circuits; the right TRS jack is connected to the left jack through its normalling contacts. Inserting a plug into the right jack will break this normalled connection. There is no such normalling for the RCA jacks; use a Y-cord if a mono signal needs to feed both left & right sides.

Stereo Record Out: 1/4" TRS Balanced Output + RCA Unbalanced Output

These connectors are fed from the Stereo Record Output circuitry. Both sets of connectors can be used simultaneously.

The TRS output is impedance-balanced with an output impedance of 200 Ω; design level is +4dBu

The RCA outputs are unbalanced, 1k Ω and are designed to feed a 10KΩ or higher load; design level is −10dBV

USB Audio In & Out

The ProDesk-4 will appear as a USB-peripheral to your computer; there is on onboard circuitry (CODEC) that allows 2-way stereo communication via USB. Simultaneous record and playback of audio is possible using commonly available software. Note: CODEC is the term for an enCOder/DECoder. A single CODEC chip is used in the ProDesk for bi-directional USB conversion and communication: Burr-Brown PCM2900. A USB B-Type connector is provided.

The USB Audio Out (to the computer) can be driven from the same audio signals feeding the Stereo Record Out; the top panel USB-On switch will feed that audio to the input of the CODEC.

USB Audio In (from the computer) can feed the Stereo Program In section (top panel switch labeled Rear USB) and also feeds the alternate input of Stereo Input D.

When plugged into the USB port of a computer, the ProDesk will show up as a "USB Audio CODEC" in both Windows and Mac OS X. Use the "System Preferences- Sound" (OS X) or "Control Panel- Sounds and Audio Devices" (Windows) to select the ProDesk as your Input or Output device and to adjust any system-controlled parameters (balance & volume).

By default, the internal CODEC is bus-powered by the computer's USB port; the LED will illuminate when power is available for the CODEC chip. The analog electronics surrounding the CODEC chip is console-powered for best performance and headroom. The CODEC is capable of stereo, 16-bit operation at 33, 44, and 48kHz sample rates. The computer sets all CODEC parameters; there are no user controls on the console itself. When used without additional program support, the CODEC defaults to the system-level settings of the computer itself. When used with a recording or editing program, the sample rate, word length and other parameters of the CODEC are controlled by that program.

With just the computer's system-level controls, you will be able to select "USB Audio CODEC" from the list of audio devices as the output source for playback of recorded sounds, songs and cues from the computer.

Any of the recording/editing programs available can use the "USB Audio CODEC" as the input source for direct recordings from the Console (via the Stereo Record Out section).

Suggested (free) audio editing program: Audacity (for Mac, Win and Linux)

Download at: http://audacity.sourceforge.net/download/

Master Interface Panel

(On rear of console)

MONITOR / HEADPHONE CONTROL

ProDesk-4 is equipped with a comprehensive system to allow the operator to accurately monitor signals within the console. Multiple sources can be selected and combined for listening, and the Solo system permits selected inputs and ouputs to be monitored and metered. A common set of selection switches are used to choose the signal(s) for the Headphones and Monitor. The Solo system interacts with the Monitor system and is described on the following page.

HP & Monitor Source Select switches (all selected sources mix together)

L-R:
   When selected, this switch will route the L&R buses to the left and right stereo headphones and Monitor out.

Center:
   When this switch is selected, it will route the Center bus equally into the left and right stereo headphones and Monitor out.

Mono/A6 Fader:
   When this switch is selected, it will route the Mono bus or Aux-6 bus equally into the left and right stereo headphones and Monitor out. The audio source for this switch follows the Fader-Flip function; the bus being controlled by the 100mm fader will be selected for monitoring.

Aux 1-2 Switch:
   When this switch is selected, it will route Aux 1 (to left) and Aux 2 (to right) as stereo signals into the stereo headphones and Monitor out. This allows monitoring these auxiliary outputs without using the solo system.

Pre Switch
When this switch is depressed, the pre-level signal for all sources is selected. This allows monitoring to be independent of any local level controls. When this button is Up, the post-level signals are used as the sources.

Sum Mono Switch
When this switch is depressed, the monitor out is summed to a mono signal. When this button is Up, the sources maintain their stero images.

Headphone Level Control
This control adjusts the level being fed to the headphone system. All three headphone jacks are fed from this control: one on the Master top panel (1/8"), and two below the armrest (1/4" & 1/8"). All 3 jacks are wired in parallel.

Solo Off To Headphones switch (with Red LED)
A solo signal will normally override the default HP signal source. When this switch is depressed, it will prevent the solo signal from overriding the selected default headphone signal. An LED will illuminate when this Solo Off switch is activated. This switch can be used if a dedicated output is desired: Select the desired signals to mix together (press their source switches to mix together), adjust the level. With the Solo-Off switch depressed, the headphone outputs will NOT be interrupted by the solo system.
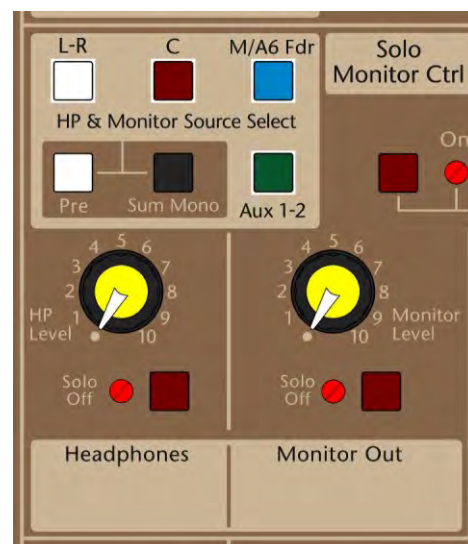
Monitor Level Control (and Ouput Jacks)
This control adjusts the stereo level being fed to the Monitor Output jacks on the rear on the console.

Left, Right and Sum-Mono TRS outputs are avilable on the Master Interface Panel (shown here).

Impedance-Balanced 1/4" output jacks are provided for Left and Right monitor outputs. An additional 1/4" Impedance-Balanced output connector is provided which is a sum of the Left and Right signals. This connector may be used as a summed-mono output to feed a sub-woofer system or to drive a mono wedge monitor system when the console is used as a monitor console.

Connectors located On Master Interface Panel

Solo Off To Monitors switch (with Red LED)
This switch prevents the Solo system from interrupting the default feed to the Monitor outputs. Operation and purpose is the same as the Solo-Off switch for the Headphones.
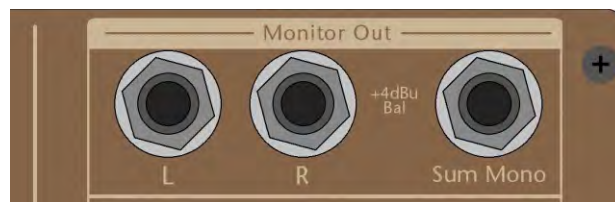
SOLO SYSTEM- MONITOR and CONTROL

When the Solo system is active (a PFL or AFL button is pressed), the Solo audio interrupts the default audio to the Headphone and Monitor output (unless a Solo Off button is depressed). You can listen to the Solo'd signal through the monitor system and also view the signal level on the Solo meters.

Solo (Audio) Trim Control
This rotary control will provide up to a +/-12dB variation of the audio level of the solo'd signal. This control affects only the solo audio (listening) path and does NOT affect the level displayed on the solo meters; the meters always show the true level for accurate signal monitoring.

Solo Trim On/Off Switch (with Red LED)
The solo system normally will operate in a calibrated mode.
With this switch depressed, the Solo Trim control will adjust the solo audio levels over a +/-12dB range to both the Headphones and Monitor Out.

Solo Metering
When Solo is active, the output of the Solo mix amps will be displayed on the two right-most meter arrays and the Red LED below them will illuminate. The Solo Trim Control will not affect the meter level.

Main Metering
ProDesk is equipped with four 16-segment LED ladders. These meters normally display the output level of the Main buses; the 0VU LED represents +4dBu output level when displaying the main outputs. Note: If Fader-Flip is active, the right-most meter will display the Aux-6 output level instead of the Mono bus output level. Whenever a PFL or AFL button is depressed, the 2 right-most meters are switched to display the L & R Solo levels. When displaying Solo levels, the 0VU LEDs of those meters represent the nominal level of the signals being monitored.

The meters are capable of displaying 3 different types of ballistic response:
Average Response: Displayed as a VU-responding bargraph (slower attack)
Peak Response: Displayed as a Peak-responding bargraph (faster attack)
Ave + Peak (Combination of both):
When both are active, Peak shows as a single LED above an Averaging bargraph. The same decay-time is used for both to allow the Peak LED to always be visible above the averaging bargraph.

When MODE switch is pressed, the STATUS LED will illuminate and show the current mode by color:
Green= Average Only (Top Red LED segment will indicate Clip warning)
Red= Peak Only
Amber= Average + Peak

To change Meter display Mode:
Press and release the recessed Mode switch
The Status LED will illuminate for a few seconds, the current Mode will be indicted by the Status LED color (see color list above). Pressing MODE switch again when the Status LED is illuminated will step to the next Mode and the Status LED will change color to show the new Mode. If MODE switch is not re-pressed when the Status LED is still illuminated, the Status LED will turn off and the meter remains in its current mode.

Meter Display Modes- More Info:
The ability of the meter array to display both average and peak values simultaneously should not be confused with the more common "Peak-Hold" function seen on some LED, plasma or LCD displays. With a Peak-Hold display, the bargraph shows the running signal level and the highest active segment of the display is "held on" for a certain amount of time while the bargraph display is allowed to update and decay normally. The ProDesk uses a patented* method to display both the average and peak levels of a signal simultaneously. Using this method, the true dynamics and crest-factor of a signal are revealed.

STATUS LED- Additional Function:
If Mute-All is activated (via the Phoenix connector on the Master Interface Panel), the Status LED will blink RED once per second, the 4 meter arrays will be turned off and all XLR outputs will be muted. Console outputs and metering will return to normal operation when Mute-All is cleared. See the following section for more information on the Mute-All function and options.
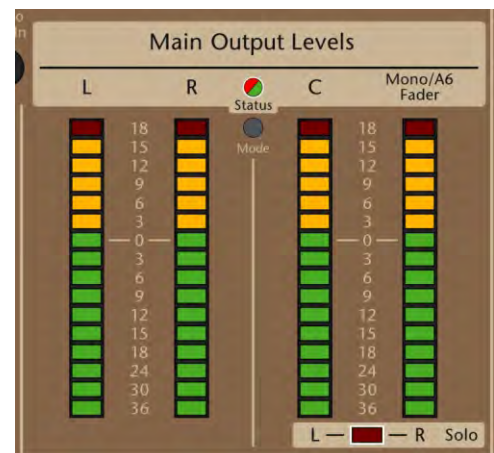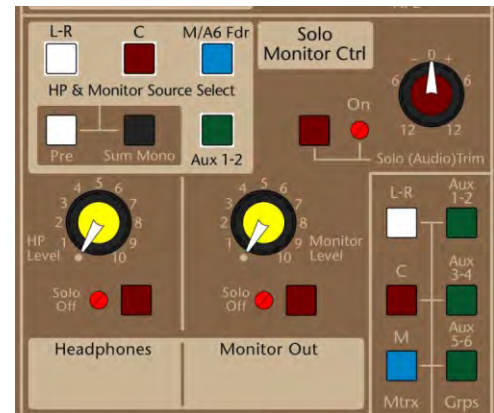
* US Patent Number 4,166,245 • Simultaneous Display of Multiple Characteristics of Complex Waveforms • Inventor: John H. Roberts

TALKBACK SYSTEM

The Talkback system allows the operator to selectively assign external audio or internal test signals to the console buses. A front-mounted XLR jack (located under the armrest) is provided for connection to a microphone or other low-level audio feed; internal sources include a "pinkish" noise generator and a 1kHz oscillator.

Talkback Assignment

L-R Assign Switch
This switch assigns the talkback system to the Left & Right Main buses

C Assign Switch
This switch assigns the talkback system to the Center Main bus

M Assign Switch
This switch assigns the talkback system to the Mono Main bus

Mtrx Assign Switch
This switch assigns the talkback system to all 4 Matrix buses

Aux 1-2 Assign Switch
This switch assigns the talkback system to the Aux 1-2 buses

Aux 3-4 Assign Switch
This switch assigns the talkback system to the Aux 3-4 buses

Aux 5-6 Assign Switch
This switch assigns the talkback system to the Aux 5-6 buses

Grps Assign Switch
This switch assigns the talkback system to all 4 Group buses

Talkback Level Control
Adjusts the level of the talkback signal (TB Mic, Noise or Oscillator) to the selected buses.

TB-On (Master Talkback Switch) internally illuminated
This is a "smart" switch that will act as either a momentary or latching switch depending on how it is pressed.
Momentary: Pressing and holding-down the switch will activate the talkback system until the switch is released.
Latching: Taping the switch quickly will turn the system on; another quick tap will turn it off.
When the talkback system is activated (button illuminated), the selected talkback signal will feed all pre-assigned buses

Talkback Source
2 recessed switches (with LED) determine the talkback section signal source.

Switch UP= TB Mic XLR • Switch Down (LED On)= Ref Source
This switch selects the source of the talkback signal between the TB Mic XLR (UP) or one of the internal Reference sources (DOWN). The LED will illuminate when the Reference is selected.

Switch Up= Noise • Switch Down= 1kHz Oscillator
This switch selects the internal reference between the Noise source (UP) or the 1kHz oscillator (DOWN). The Noise source is "pinkish" in nature, suitable for listening for full-bandwidth response from your system and checking for EQ operation. Use an external certified noise source if performing real system analysis. The 1kHz oscillator can be used for system line-up when a steady reference signal is needed for setting levels between equipment.

SOLO-LINKING and Mute-All

Solo Linking

The ProDesk can connect to other consoles using the Bus Input and Output jacks; this allows the user to combine the audio from multiple consoles to create a larger overall mixer. APB consoles are equiped with Solo Linking connectors to also tie the Solo systems of the combined consoles together.

Two 5-pin DIN connectors are provided that allow the Solo systems of multiple APB consoles to be linked together. Thus, a single set of headphones can be used to monitor the solo functions of multiple mixers. This Solo-linking can also be used with a larger APB Spectra console if it is fitted with a Solo Linking option, or any of the smaller ProRack series or mixers.

Use a 5-pin circular DIN cable to link the OUT connector of the Slave console to the IN connector of the Master console. Any Solo activity on the Slave console will still show up on that console but will now also activate the Solo function on the Master console where the Slave's solo audio can be heard, mixed in with any Master Solo activity.

The DIN cable should be wired pin-to-pin with an overall shield tied to the connector shells on each end.

Contact APB about where to obtain a Solo-Linking cable.

Mute-All

The ProDesk has the ability to mute all of the 18 main XLR outputs with a single external command. This feature can be used when the PA system is required to be silenced during safety announcements* or if a system-wide mute is needed for any reason.

The 2-pin Phoenix connector can be configured to activate the Mute-All command under the following conditions:

A)   Mute-All activated when the pins are shorted together (console powered)
B)   Mute-All activated when the pins are not shorted together (console powered)
C)   Mute-All activated when more than 3V AC or DC is present on the pins (opto-iolated)
D)   Mute-All activated when less than 3V AC or DC is present on the pins (opto-isolated)

For conditions A & B, power is supplied from the console and approx 3V DC appears across the pins. This voltage can then be controlled by an external relay or switch to perform the Mute-All function.

For conditions C & D, the 2 pins are totally opto-isolated from the console and an external voltage can be used to activate the function. **Any voltage from 3V to 24V, AC or DC (either polarity) can be used.**

To indicate that Mute-All is active, the Status LED located with the master meters will blink Red once per second and the 4 LED meter arrays will turn off. The meters and outputs will return to normal operation once the Mute-All command is removed.

See the following page for information on configuring the Mute-All function.

Master Interface Panel

(On rear of console)

* The ProDesk and the Mute-All function are not Safety-Rated products or features. Consult your local codes for information on what is permitted.

Mute-All Configuration

The different Modes for the Mute-All function are set by adjusting the position of the 4 removable jumpers (shunts) located behind the Phoenix connector on the circuit board.

Two of the jumpers (Jumpers 1&2) determine if the Mute-All connector is internally DC powered or totally opto-isolated and activated by an external voltage.

Jumper 3 sets the sense of the Mute-All command (shorted or open pins, voltage present or not)

Jumper 4 enables or disables the mute function to the Console.

There is a Red LED (Tally LED) that shows the status of the Mute-All command whether it is enabled or not by Jumper 4; the LED will illuminate to show if Mute-All is (or will be) active. This allows the user to set-up the desired conditions for the Mute-All command by monitoring this LED without having to worry that the system will accidentally mute during the set-up procedure. Once you are sure of the setting and your wiring is in-place, you can then enable Mute-All by moving Jumper 4 to the enable position.

The different settings for the Mute-All function are accessed by removing the Master Interface Panel to gain access to and adjust the position of the 4 removable jumpers. Remove the 4 corner screws (Philips head) and pull the complete Interface assembly partially out of the console chassis; there will be a ribbon cable and a shieded cable attached to the circuit board assembly. Using the following images, locate and position the jumper-shunts onto the desired header pins.

To disable the Mute-All function, position Jumper 4 as shown in the image to the right; the other jumper positions don't matter.

For the active Modes, use the 4 images and descriptions below to set the jumper positions. Replace the Interface panel into the chassis when done.
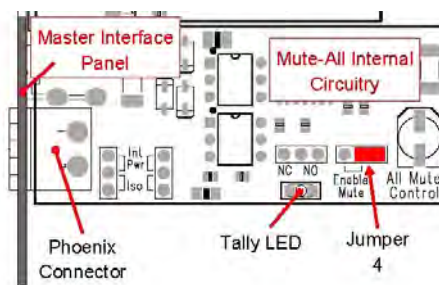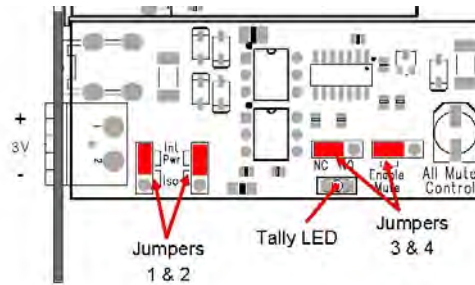

Mute-All disabled (by Jumper 4), Tally LED always shows status. Other jumpers omitted for clarity.

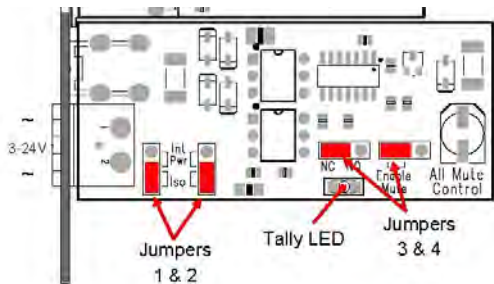### Modes A & B: Console Powered, Non-isolated
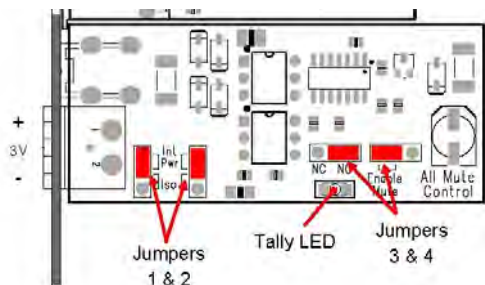
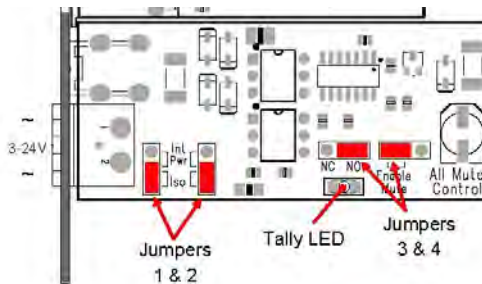A) Mute-All activated when the pins are shorted together

B) Mute-All activated when the pins are not shorted together

Modes C & D: Externally Powered, Opto-Isolated

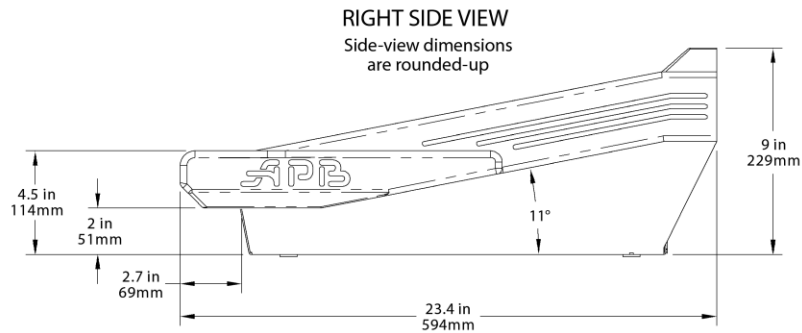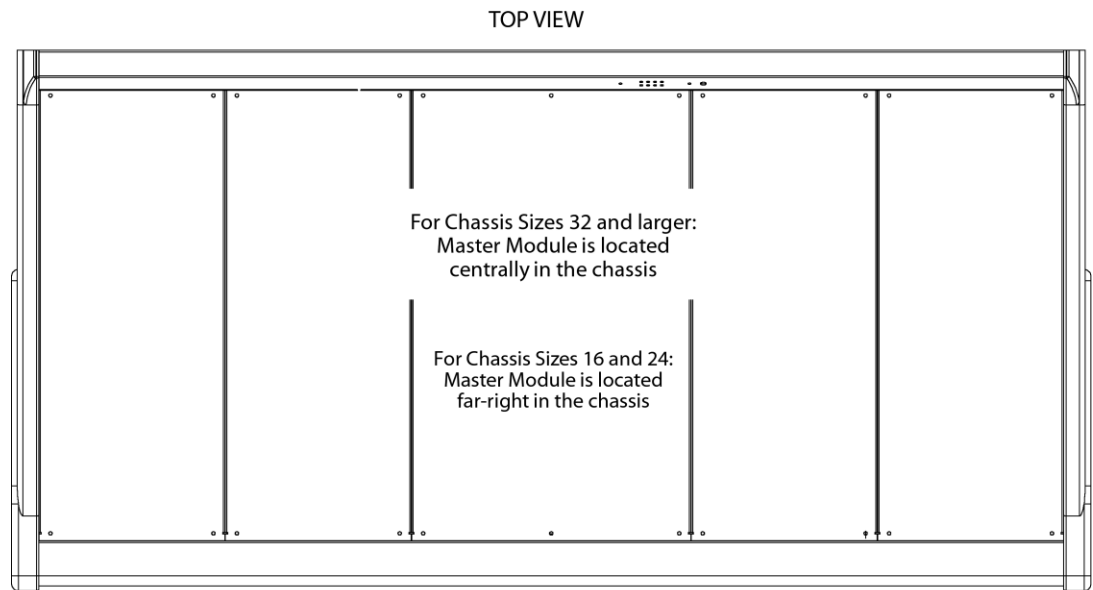C) Mute-All activated when more than 3V AC or DC is present on the pins
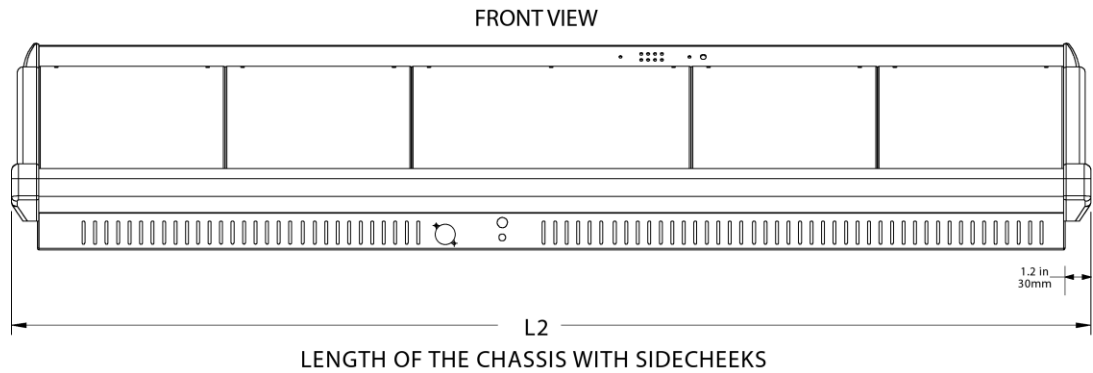

D) Mute-All activated when less than 3V AC or DC is present on the pins

Phonenix connector specs::
Console mounted connector: 2-pin 0.20" spacing MSTBA 2,5/ 2-G-5,08
Mating Connector (supplied): 2-pin 0.20" spacing MSTB 2,5/ 2-ST-5,08

Console Dimensions

FRONT VIEW

1.2 in
30mm

L2
LENGTH OF THE CHASSIS WITH SIDECHEEKS

TOP VIEW

For Chassis Sizes 32 and larger:
Master Module is located
centrally in the chassis

For Chassis Sizes 16 and 24:
Master Module is located
far-right in the chassis

RIGHT SIDE VIEW
Side-view dimensions
are rounded-up

9 in
229mm

4.5 in
114mm

2 in
51mm

11°

2.7 in
69mm

23.4 in
594mm

Chassis Size >	16-Chan	24-Chan	32-Chan	40-Chan	48-Chan
Module Order	Inp•Inp•Mstr	Inp•Inp•Inp•Mstr	Inp•Inp•Mstr•Inp•Inp	Inp•Inp•Inp•Mstr•Inp•Inp	Inp•Inp•Inp•Mstr•Inp•Inp•Inp
Length (L2) Inch	30.72in	38.82in	46.92in	55.02in	63.12in
mm	780.3mm	986.1mm	1191.8mm	1397.5mm	1603.3mm
Weight-lbs (kg)	90 (41)	100 (46)	115 (53)	130 (59)	145 (66)

Contact APB or check our website for detailed chassis drawings for roadcase construction or installation dimensions

TECHNICAL SPECIFICATIONS

All measurements ref to 20Hz to 20KHz BW unless otherwise noted	
Frequency Response (any input to any output)	+0 / -0.5dB 10Hz to 50kHz (ref to 1kHz)
THD + Noise (Mic Input to Main Output)	< 0.01% @ +15dBu output
Phase Response (Mic Input to Main Output)	+10/-15 degrees 20Hz to 20kHz (ref to 1kHz)
Noise	
Mic EIN	-128dBu @ 60dB gain, 150Ω source
Main Bus (L-R-C-M) or Group Output Noise	-82dBu (32 channels routed w/faders down, Master fader at unity)
Aux Bus Output Noise	-90dBu (Aux sends down, Aux Master level at unity)
Matrix Output Noise	-85dBu (Sends down, Matrix Level at unity)
Crosstalk (measured at 1KHz)	
Channel Mute	>100dB
Channel Fader Attenuation	>100dB
Channel Routing	>80dB
Channel Pan Isolation	>80dB
Channel to Channel Isolation	>90dB
Aux Send Attenuation	>90dB
Aux Pan Isolation	>70dB
Input / Output Impedances	
Channel XLR Input	>3KΩ Balanced (with or without Pad)
Channel Line Input (via TRS)	>20KΩ Balanced
Channel Line Input (via XLR w/Pad)	>4KΩ Balanced
Channel TRS Direct Out	100Ω Impedance Balanced
Bus XLR Outputs (Main, Group, Aux, Matrix)	50Ω Balanced using OutSmarts driver chip
Channel and Bus Insert Sends/Returns	100Ω Unbalanced / 5KΩ Unbalanced
Monitor TRS Outputs	100Ω Impedance Balanced
Input / Output Levels	
Channel Insert	+4dBu • 1/4" TRS Tip= Send, Ring= Return, Sleeve= Chassis Max Out= +22dBu
Channel Direct Out	+4dBu • 1/4" TRS Impedance-Balanced, Tip= "Hot" Max Out= +22dBu
Balanced Outs	+4dBu • M-XLR Symmetrically-Balanced, Pin 2= "Hot" Max Out= +28dBu
Bus Insert	-2dBu • 1/4" TRS Tip= Send, Ring= Return, Sleeve= Chassis Max Out= +22dBu