

RECORDING AND PA CONSOLES



Since its introduction, Mackie Designs' 8-Bus Series consoles have proven that excellent sonic quality, practical features and extreme durability needn't mandate a premium price. In hundreds of SR and recording installations, the 32•8, 24•8 and 16•8 deliver performance previously only found in consoles costing far more.

Instead of offering dozens of mix-and-match input and output module options, we have put more of what most users need into a single console design — enabling us to make them in quantities which can bring costs down.

All three 8-Bus consoles and the 24•E expander offer extensive monitoring, 4-band EQ, accurate, logarithmic taper faders and expansive, forgiving headroom. Equally as important, they are built to withstand the rigors of the environment and the casual, untrained user. 8-Bus consoles have withstood hundreds of thousands of

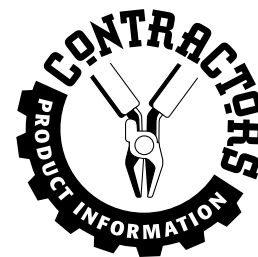
miles of touring, topping monitors during major earthquakes, and every possible liquid that ever got near a mixing board.

A complete system

The 8-Bus console line consists of three in-line consoles, the 32x8x2 32•8, the 24x8x2 24•8 and the 16x8x2 16•8.

The 24•8 and 32•8 are expandable with Mackie's 24•E Expander console. The 24•E consists of 24 input channels and tape returns. It connects to the 32•8 or 24•8 via a proprietary cable. Multiple 24•E expanders may be daisy chained to provide 128 or more total input channels. The 24•E's outputs are pre-mixed in the expander to reduce line noise, thermal noise and to maintain sonic quality at the main console.

All three consoles and the 24•E are shipped with Mackie's rugged 220-watt triple-regulated power supply. Meter bridges and



RELATED PRODUCTS

8•BUS MIDI AUTOMATION
METER BRIDGES
FLOOR STANDS & SIDE CAR

MORE INFORMATION

8•BUS ARCHITECTS' AND
ENGINEERS' SPECIFICATIONS
8•BUS COLOR
TABLOID BROCHURE

FEATURES

- Each channel includes Mackie's famous mic preamp and a -10/+4 switchable tape return
- Eight assignable sub-masters and a L/R mix master
- 4-band EQ with true parametric (3-control) HI MID, LO CUT filter
- Extensive routing capabilities
- Available in 16, 24 and 32 channel versions
- Optional Meter Bridges available
- Optional 24•E Expander console available (for 24•8 and 32•8 only)
- Rugged all-metal chassis
- In-line monitoring effectively doubles your input channels

MACKIE®



In-line **FLIP** reverses tape and mic/line inputs between channel strip and Mix-B/Monitor section.

AUX SENDS 1-2 — **PRE** button selects pre-fader/post EQ or post-fader/post EQ.

AUX 3-4 / 5-6 — **SHIFT** changes 3-4 to 5-6. **SOURCE** selects signal source of AUX 3-4/5-6 from channel strip or channels Mix B/Monitor send so you can build an effects mix (pre or post-MIX-B level) to assign to phones during tracking.

True **parametric, 3-control HI MID EQ** that has seasoned engineers swooning (quotes and raves on file... we're not kidding). Ultra-wide 500-18k frequency sweep range; bandwidth can be adjusted from a very wide 3-octave width to a very narrow 1/2-octave width. 15dB boost/cut.

LO MID EQ with ultra-wide 45Hz-3K sweep, 15dB boost/cut.

±15dB shelving **HI** (12kHz) & **LO** (80Hz) EQ.

Multipurpose 18dB/oct. **LO CUT** filter @75Hz. Cleans up "mix mud," cuts PA rumble, creates a "neo-peaking" bass control when used with LO shelving boost.

Independent **MIX-B (Monitor)** section with pan, level & source. During mixdown, use as extra pre-fader stereo AUX send or double your inputs.

Mix-B **SPLIT EQ** assigns HI & LO EQ to Mix-B.

MIX-B SOURCE selects from flip switch or channel strip (pre-fader) for in-line monitoring while recording or provides an extra stereo aux bus.

Constant power, buffered **PAN** pot for rock-solid panning.

Overload LED and Hyperactive -20dB Signal Present LED

Selectable **SOLO** with **CHANNEL METERING** allows soloing in full stereo perspective; displays soloed channel operating level on master L/R meters so input trims can be adjusted for optimum levels.

steel stands are available for each console.

In addition, a "side car" stand is available. The SideCar has 11 rack spaces for patch bays, external processors or console power supplies.

Mackie Designs also offers an external MIDI automation system consisting of a 34-channel VCA gain cell that connects to the 8•Bus console via insert points, a fader pack and Macintosh™ automation software.

Quality construction throughout

Mackie Designs mixers have a well-established reputation for reliability. The road-rugged 8•Bus console series is no exception.

The console chassis employs a monocoque design with seamless main front and bottom panels. Besides eliminating the bulky frame that holds modules in a conventional console, the 8•Bus's design resists twisting forces that can plague many consoles. The less twisting, the less potential service problems.

Channel strip circuitry is located on 8-channel, fiberglass, double-sided through-hole-plated circuit boards. The circuit boards are firmly attached

to the control surface sheet metal via brass standoff. A special impact-absorbing knob design limits downward travel in the event of impact. Any further stress is spread across the circuit board. The result is a design that is virtually impervious to the kind of damage that is common with vertical channel module circuit boards. During the 1994 Los Angeles earthquake, scores of Mackie 8•Bus consoles received the full force of falling monitors. Most survived with little more than a few shattered knobs.

All rotary potentiometers are sealed to prevent liquid and particle contamination. Internal interconnects are gold-plated. All 1/4" input jack sleeves are solid metal and create a firm electrical contact with the main chassis. In combination with an internal shunting capacitor, this configuration keeps RFI away from the console's main circuit boards where it can add noise. XLR inputs use ferrite beads to achieve the same purpose.

Mic preamps that can handle any input

The latest version of our very low impedance preamplifier design provides high headroom with a verifiable E.I.N. spec of -129dBm and 10Hz to 300kHz bandwidth.



24•E 8•Bus Expander

All 8-Bus preamps use conjugate-pair, large-emitter-geometry transistors instead of off-the-shelf integrated circuits. At any gain setting, you get the additional headroom and ultra-low noise previously only found in far more expensive consoles. They can handle virtually any live source — including screaming singers and loud drum kits — without overload.

The 8-Bus channel strip

The 8-Bus input channels' physical layout and features are detailed on the next pages of this product information sheet. Note that, although each channel strip is relatively dense, all controls are easily accessible. Knobs are large enough — and sufficiently far apart — for even the largest fingers. Markings are legible, even in low-light situations.

The four-band EQ section is placed lower on the strip than the AUX sends for easy access during sessions. Within the EQ section, the high and low shelving controls have been placed next to MIX-B, since their operation can be transferred to the monitor section. A sharp Hi pass filter is included for PA applications.

Within the MIX-B monitor section, is a Source switch. In the Channel (down) position, MIX-B is connected to the same point in the circuit as the channel fader input. It provides a second, independent stereo mix from the main channel signal that is handy for broadcast feeds, 2-track recording, routing to another zone in a church or club, or an extra set of aux sends.

8-Bus channel and bus faders are a special design that provides true logarithmic taper. These smooth, 100mm faders use a complex network of additive resistive elements that combine at various points

6 STEREO AUX RETURNS. All have 20dB gain, Solo and can be used in stereo & mono. 1 & 2 are pannable & bussable. 3 & 4 are assignable to the phones for "wet" monitoring.

6 AUX SENDS with Solo and Solo LED.

TALKBACK assigns to all submasters, main mix, AUX 1, AUX 2 or Phones 1 & 2.

SOLO level adjust and ultra-rude LED.

MONITOR section with separate Control Room & Studio levels. Source selection between L/R mix, Mix-B, Tape & External. Can be switched to Mono.

TWO SEPARATE HEADPHONE SECTIONS can be used totally independent of each other. Each features source selection between Control Room & any combination of AUX 3/4, AUX 5/6, Mix-B or External source. Solo allows control room to hear what musicians are hearing in their headphones.

MIX B/MONITOR section can be used as an independent stereo out for PA monitor mix, 2-track recording, video/broadcast feed or assigned to L/R mix.

-40 to +10 bar graph LED DISPLAYS for each sub-master & Solo/Main (with main L/R +22dB CLIP LEDs).

EXPANSION CONSOLES let you add channels in banks of 24 to either the 24•8 or 32•8. Expanders have their own internal mix amps so the main board only "sees" one extra channel per expansion console.

Trick BUS SOLO switches send odd-numbered buses to the left speaker and even-numbered buses to the right speaker — unless you've pressed the respective MONO L&R button. When a bus has been mono-ed, SOLO sends the bus to both speakers.

L MIX/R MIX & MONO L&R buttons assign buses to main L/R stereo bus.

Built-in talkback MIC.



8•BUS ^{32•8} ^{24•8} ^{16•8}

along the faders' travel to achieve an absolutely even, predictable fade rate, from the very top all the way to the bottom (where you get absolute attenuation, just like on more expensive consoles).

The 8•Bus output section

We have provided exceptional monitoring flexibility by providing two separate headphone sections. Each lets you build a custom mix using any combination of Monitor, Mix-B, AUX 3 & 4, AUX 5 & 6 and External (cue/click track) inputs.

Control room and studio/stage monitor levels are controlled via individual stereo level controls. Select any combination of L/R Mix, Mix-B, 2-Tk. and External inputs.

An additional Talkback section can be routed to any combination of AUX 1, AUX 2, Tape/Submasters (L/R mix) and Phones/Studio.

The 8•Bus power supply

Our 220-Watt Triple-Regulated Power Supply is

designed to withstand high environmental temperatures and direct sunlight. It can produce rated output from as little as 100 volts (a serious consideration when running SR at the end of a long extension cable). The power supply has sufficient output to run both the console and a meter bridge. Compare it to what you get with other consoles in the same price range. You'll see one more example of just how "over-engineered" the 8•Bus series is.

The 8•Bus meter bridge

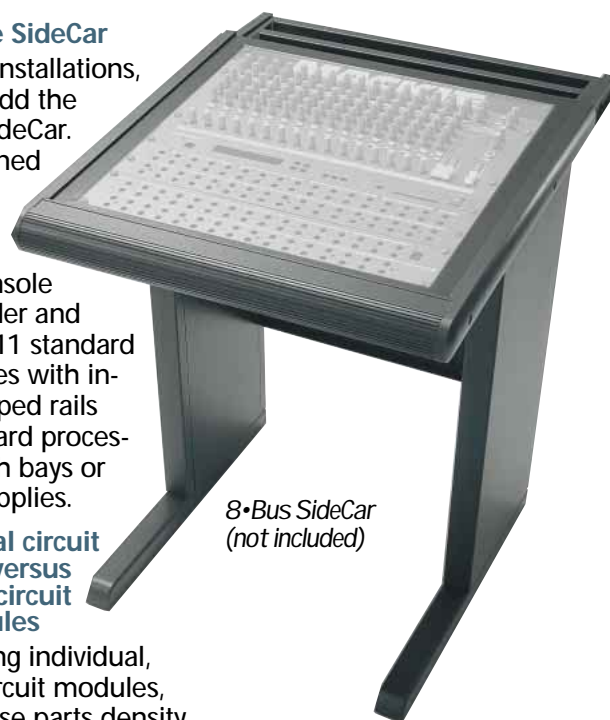
MB32, MB24 and MB16 meter bridges provide 12-segment LED ladders for each input channel and quality, lighted VU meters for master Left/Right output (the MB•E Meter bridge for the 24•E Expander console does not include VU meters). Input buttons allow you to globally switch between Tape Return input and Channel Strip Post Fader output. Each meter assembly attaches in minutes and can be tilted as desired. The meter bridges also tilt down fully to save road case depth.

The SideCar

For fixed installations, you can add the Mackie SideCar. It is designed to fit on either side of an 8•Bus console or Expander and provides 11 standard rack spaces with integral tapped rails for outboard processors, patch bays or power supplies.

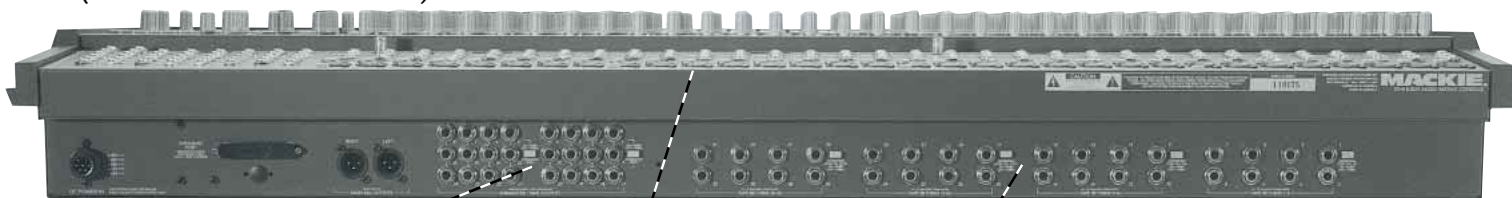
Horizontal circuit boards versus vertical circuit modules

By avoiding individual, vertical circuit modules, we increase parts density which means fewer wiring harnesses and ribbon cables, shorter signal paths and less assembly time. Yet our 8-channels-per-card circuit boards can be repaired easily and are far less prone to damage in the first place, thanks to a special knob design and mounting method that withstands all but the most brutal impacts.



8•Bus SideCar
(not included)

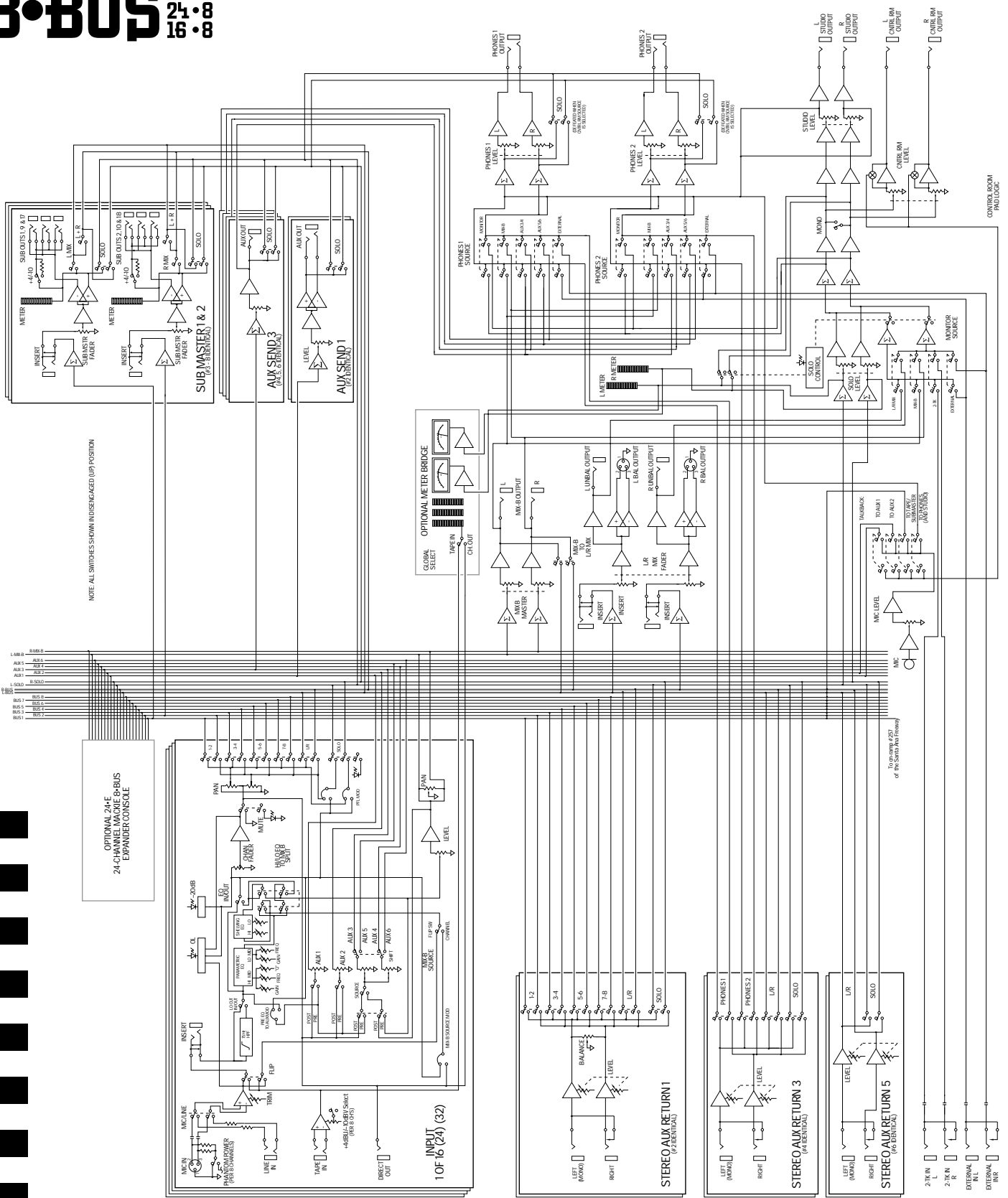
All channels have Mackie's renowned discrete, wide-bandwidth MIC PREAMP circuit for ultrahigh headroom & low noise. All mic inputs have RFI choking, ferrite beads and +48V phantom power (switchable in banks of 8 channels).



Three **TAPE OUTPUT** jacks per bus (total of 24). Balanced outputs, switchable from +4/-10.

Balanced **MIC**, bal./unbal. **LINE IN**, **MIC/LINE** switch, **DIRECT OUT** & **CH. INSERT** on every channel.

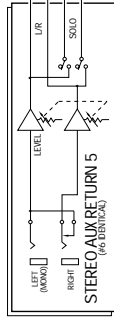
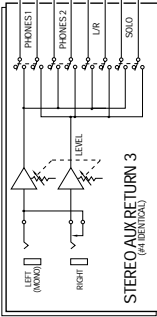
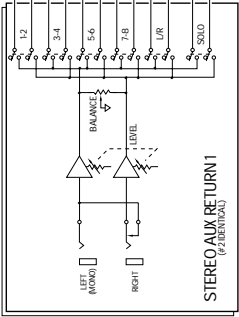
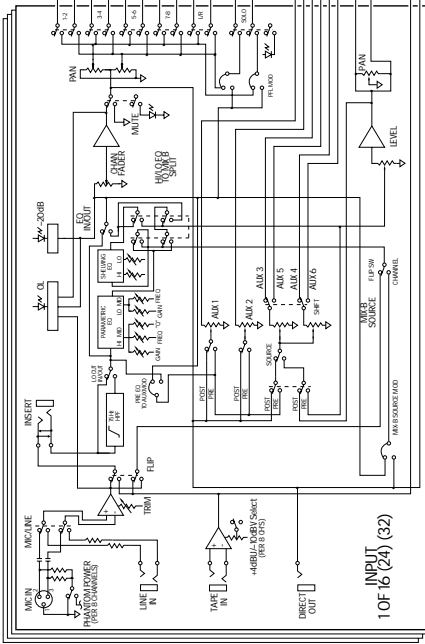
+4dBu balanced **TAPE RETURNS**, switchable to -10dBV in banks of 8 returns.



NOTE: ALL SWITCHES SHOWN IN ENGAGED (UP) POSITION

LMB 6
LMB 5
LMB 4
LMB 3
LMB 2
LMB 1
RMB 6
RMB 5
RMB 4
RMB 3
RMB 2
RMB 1

OPTIONAL 24-CHANNEL MACIE 8-BUS EXPANDER CONSOLE



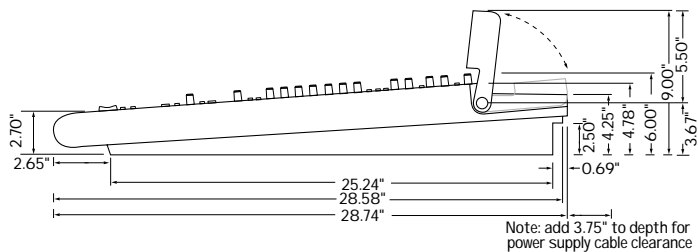
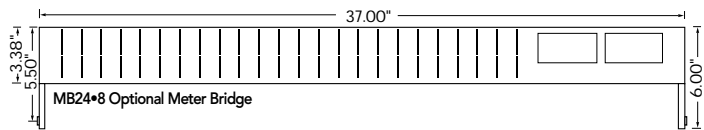
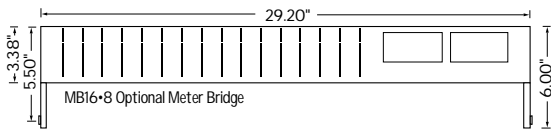
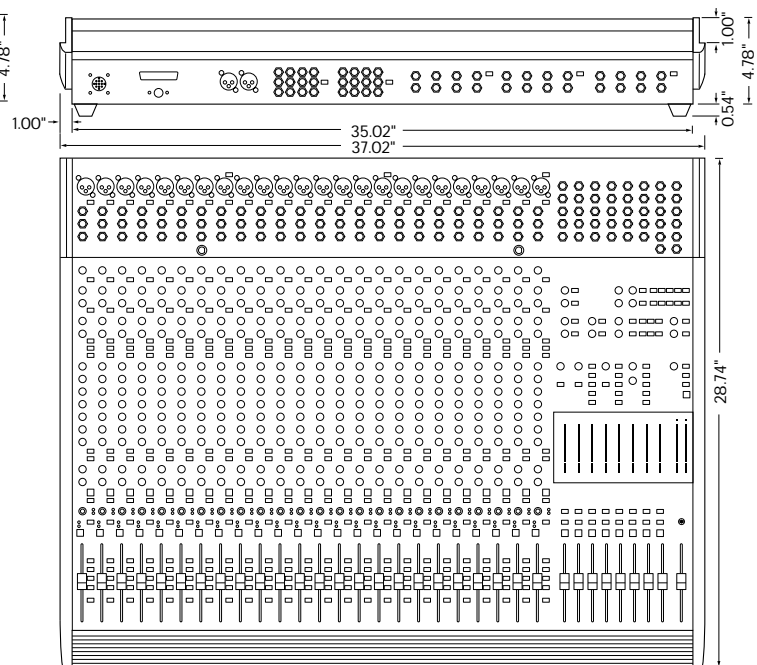
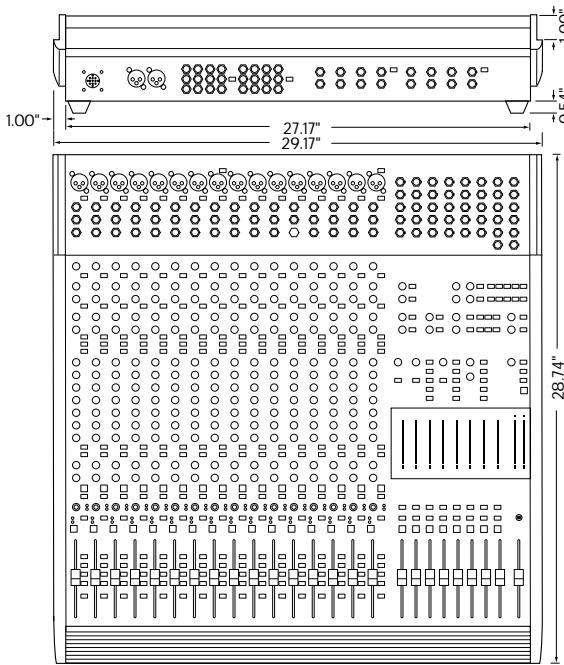
2-7E IN
2-7E N
2-7E R
EXTERNAL NL
EXTERNAL INR

Mackie Designs 8-Bus Console
Block Diagram 6/95

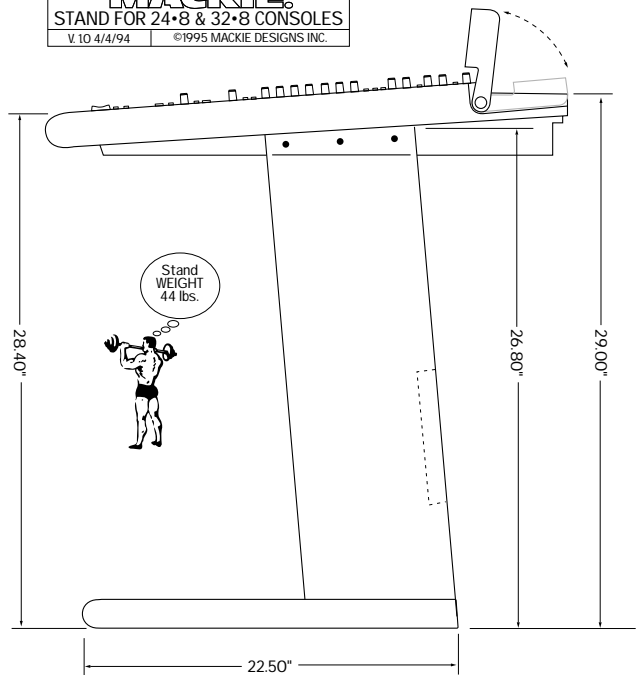
MACKIE 16•8
16x8x2 8-BUS MIXING CONSOLE
V. 15 6/95 ©1995 MACKIE DESIGNS INC.



MACKIE 24•8
24x8x2 8-BUS MIXING CONSOLE
V. 14 4/94 ©1995 MACKIE DESIGNS INC.



MACKIE
STAND FOR 24•8 & 32•8 CONSOLES
V. 10 4/94 ©1995 MACKIE DESIGNS INC.



8•BUS 32•8
24•8
16•8

32-8 console WEIGHT 78 lbs.



MACKIE 32-8
32x8x2 8-BUS MIXING CONSOLE
V.14 4/4/94 ©1995 MACKIE DESIGNS INC.

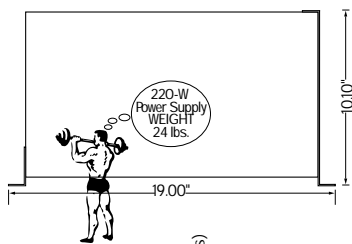
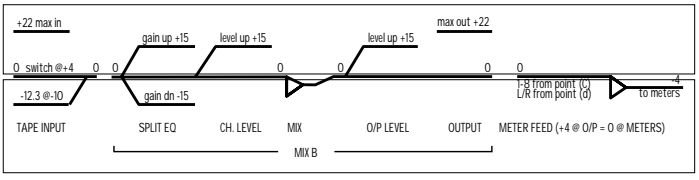
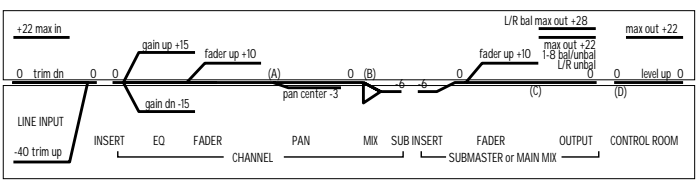
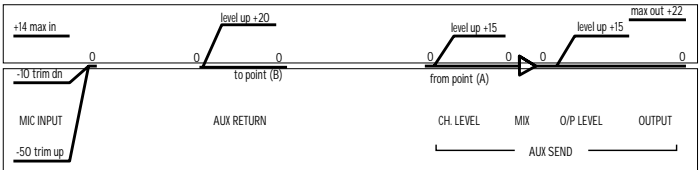
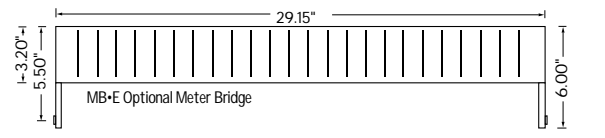
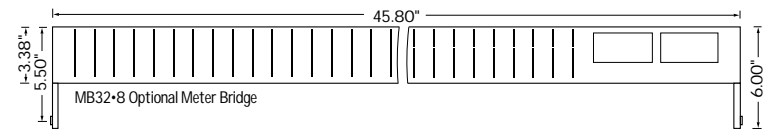
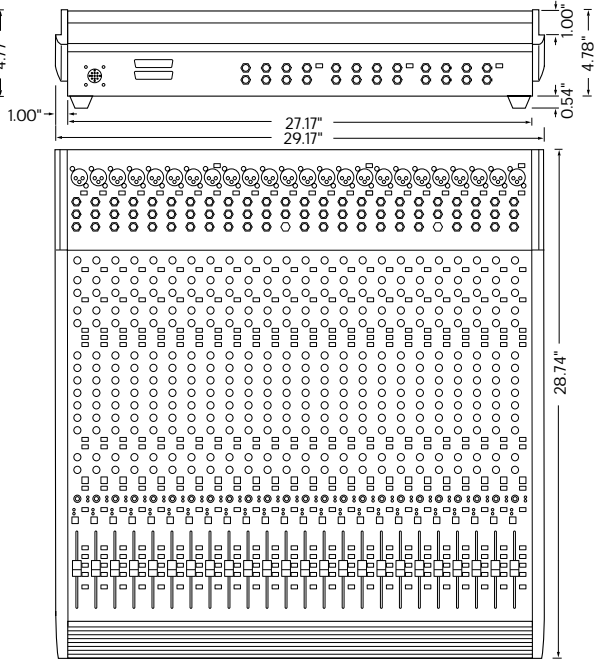
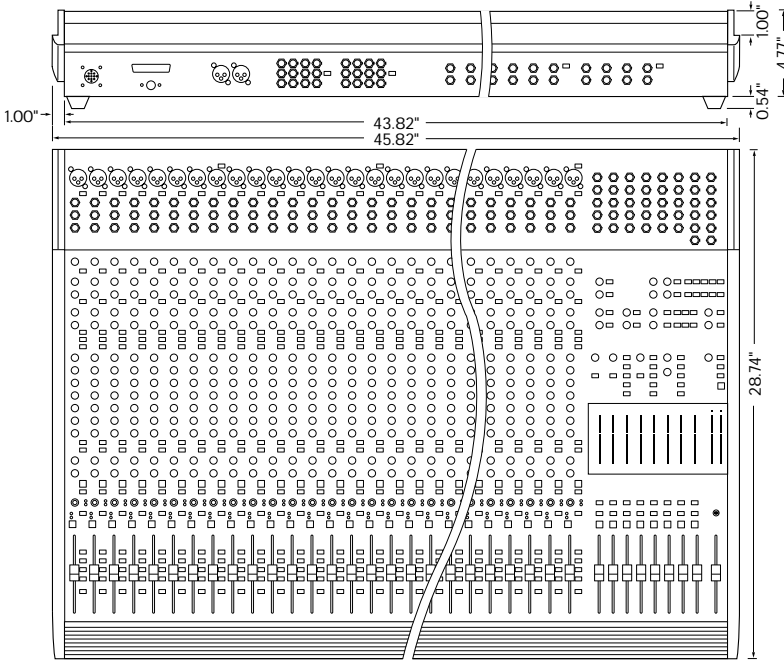
*exclusive of meter bridge

MACKIE 24-E
24-CH. EXPANSION CONSOLE FOR 24-8 & 32-8
V.10 4/4/94 ©1995 MACKIE DESIGNS INC.

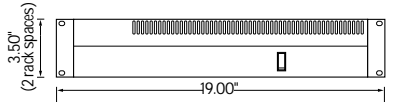
24-E console WEIGHT 50 lbs.



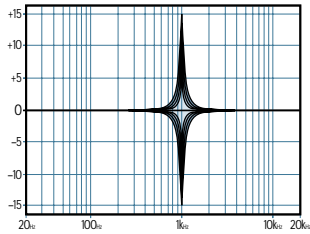
*exclusive of meter bridge



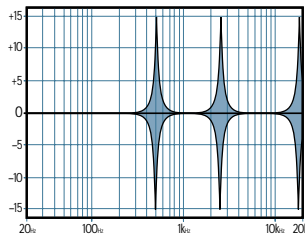
220-W Power Supply WEIGHT 24 lbs.



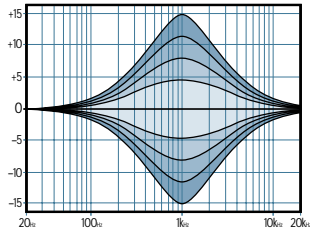
MACKIE
220-WATT POWER SUPPLY FOR 8-BUS CONSOLES & EXPANDER
V.12 4/4/94 ©1995 MACKIE DESIGNS INC.



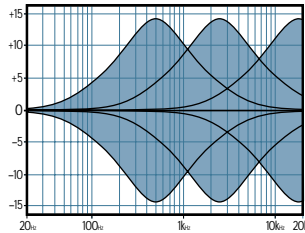
HI MID-1/12 oct. bandwidth boost/cut



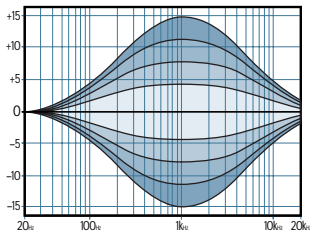
HI MID-1/12 oct. sweeps



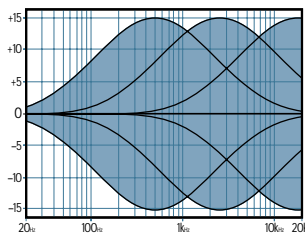
HI MID-2 oct. bandwidth boost/cut



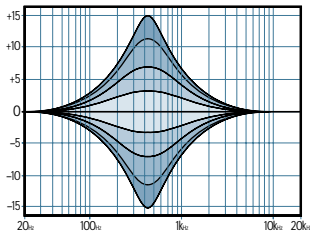
HI MID-2 oct. sweeps



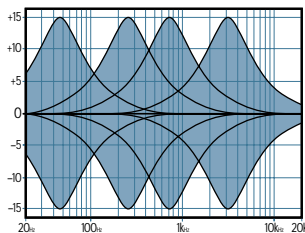
HI MID-3 oct. bandwidth boost/cut



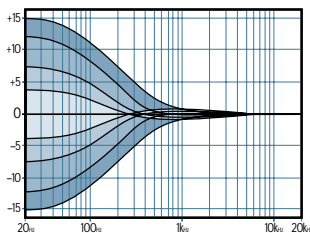
HI MID-3 oct. sweeps



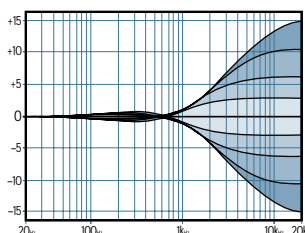
LO MID-boost/cut



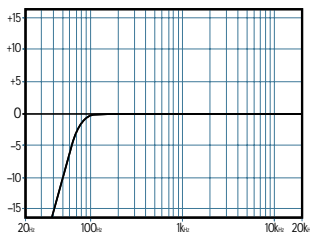
LO MID-sweeps



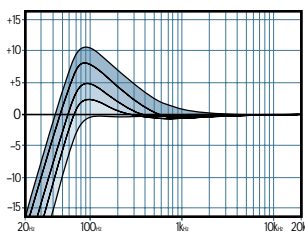
LO SHELF



HI SHELF



LO CUT (HI PASS)



Interaction of LO CUT with LO SHELF boost

SPECIFICATIONS

CHANNEL STRIP

Mic In

Electronically balanced;
discrete input configuration

Noise, Mic E.I.N. (20Hz-20kHz)

-129.0 dBm, 150Ω source
-136.0 dBV, input shorted

Mic Preamp Distortion

0.001% 20Hz-20kHz

Mic Preamp Bandwidth

10Hz to 300kHz ±3dB

Mic Gain Range

+10dB to +50dB

Mic Max Input

+14dBu

Line In

Electronically balanced

Line in Gain Range

Unity to +40dB

Line in Max Input

+22dBu

Noise (Ch. @ Unity Gain)

-94dBu

Channel Fader

log taper using 100mm
precision network design

Channel Fader Range

off to Unity to +10dB

Aux Send Gain Range

off to Unity to +15dB

Mix B Gain Range

off to Unity to +15dB

Hi Mid EQ

full parametric, ±15dB freq.
sweep from 500Hz-18kHz
bandwidth variable from
1/12 octave to 3 octaves

Lo Mid EQ

sweep from 45Hz-3kHz
±15dB

Hi Shelving EQ

12kHz ±15dB

Lo Shelving EQ

80Hz ±15dB

Lo Cut EQ (HPF)

75Hz 18dB/octave
(Tchebechev)

Channel Direct Out

Max Output +22dBu

Output Impedance

120Ω (60Ω @ XLR out)

Tape Returns

Bal./unbal. 1/4" jacks,
globally switchable from
+4dBu to -10dBV

Ch. Insert Max In/Out

+22dBu

Ch.-to-Ch. Crosstalk

-85dB

SUBMASTER SECTION

Noise

-90dB re +4dBu 16 chs.
assigned & set @ Unity
Gain

Submaster Output

Max Out

+22dBu

Submaster Insert

Max In/Out

+22dBu

Submaster Fader

log taper using 100mm
precision network design

Fader Range

off to Unity to +10dB

MAIN SECTION

Working S/N ratio

90 dBu (ref: +4 dBu), all
channels assigned, all
faders @ Unity Gain.

Max Output

+28dBu balanced XLR,
+22dBu unbalanced 1/4"

Aux Returns Gain Range

off to Unity to +20dB

Aux Sends Max Out

+22dBu

GENERAL

Distortion

Better than 0.01%, any
input to any output

Frequency Response

20Hz-40kHz ±1dB any
input to any output;
10Hz-120kHz ±3dB

Max Gain mic in to bal.

main out

+76dB

AC Power Consumption

200 watts typical 300
watts max (32•8 w/
Meter Bridge)

MACKIE®

MACKIE DESIGNS INC. • 16220 WOOD-RED RD. N.E.
WOODINVILLE • WA • USA • PHONE TOLLFREE 800/258-6883
FAX 425/487-4337 • OUTSIDE THE U.S., PHONE 425/487-4333

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