7/1/95

8•BUS 32•8 24•8 16•8

RECORDING AND PA CONSOLES

CONTRACTORS PRODUCT INFORMATION

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, toppling 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 paramatric (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®

8•BUS 32•8 24•8 16•8

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 channel's 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 1/12-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 standoffs. 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

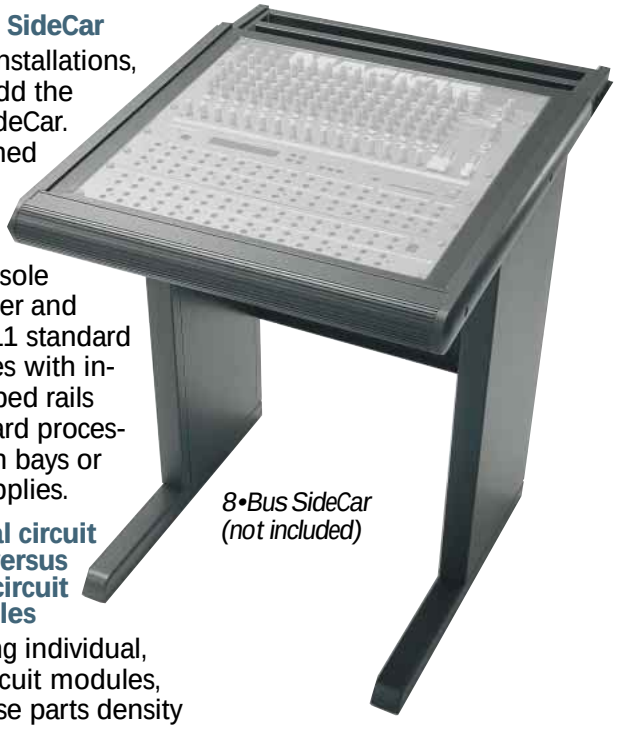
Our 220-Watt Triple-Regulated Power Supply is designed to withstand high environmental temperatures and direct sunlight. It can produce rated output from as little as 100 volts (a serious consideration when running SR at the end of a long extension cable). The power supply has sufficient output to run 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.

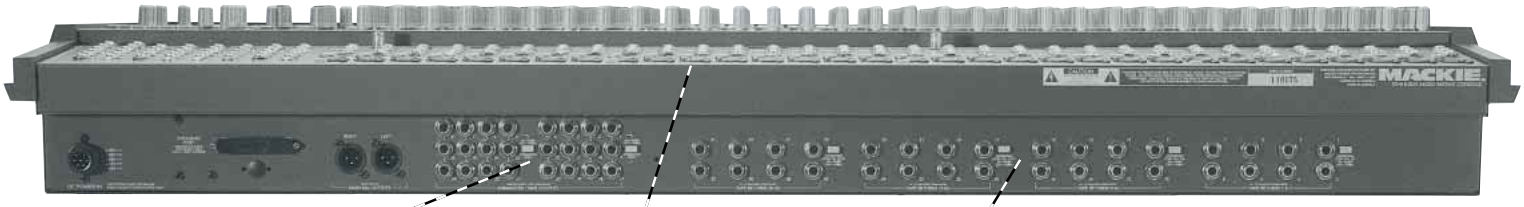


8•Bus SideCar (not included)

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.

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).

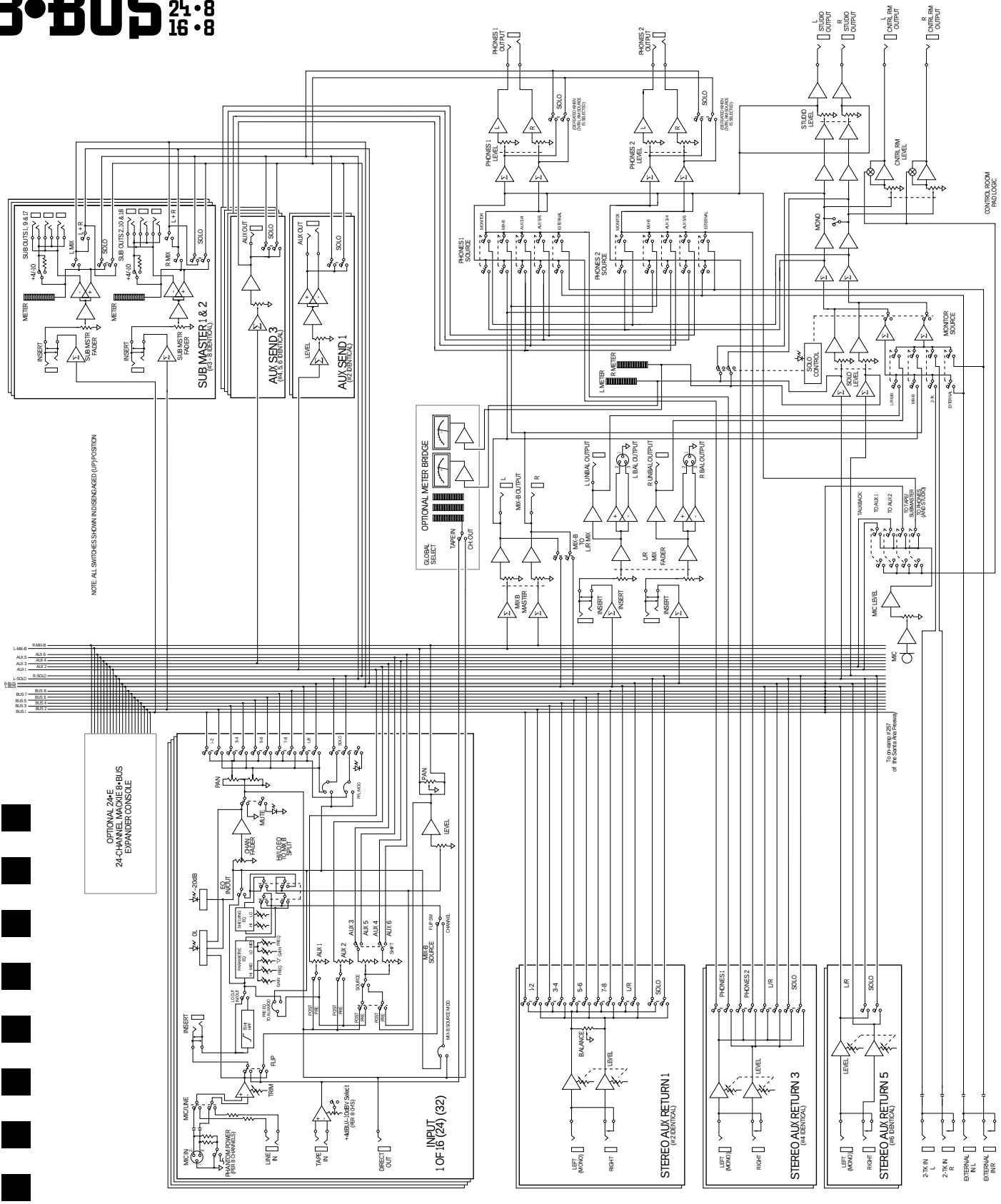


Three TAPE OUTPUT jacks per bus (total of 24). Balanced outputs, switchable from +4/–10.

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.

8•BUS 32•8 24•8 16•8



Mackie Designs 8•Bus Console
Block Diagram 6/95

MACKIE. 16•8

16x8x2 8-BUS MIXING CONSOLE

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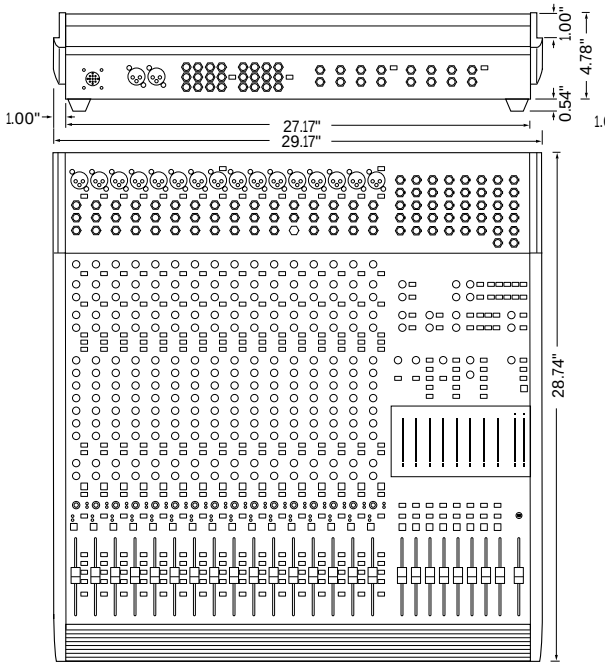

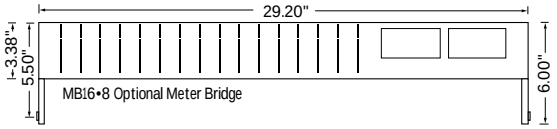

MB16•8 Optional Meter Bridge

MACKIE. 24•8

24x8x2 8-BUS MIXING CONSOLE

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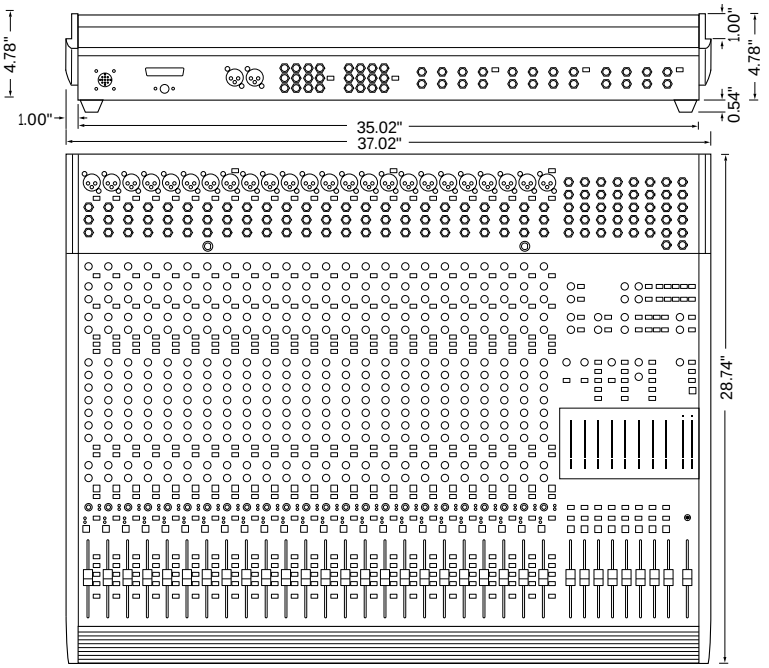
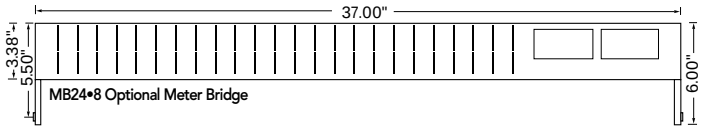
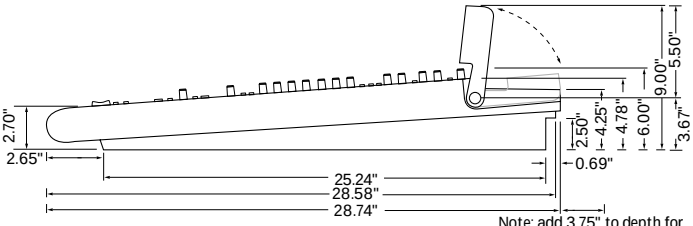




MB24•8 Optional Meter Bridge



Note: add 3.75" to depth for power supply cable clearance

MACKIE. STAND FOR 24•8 & 32•8 CONSOLES

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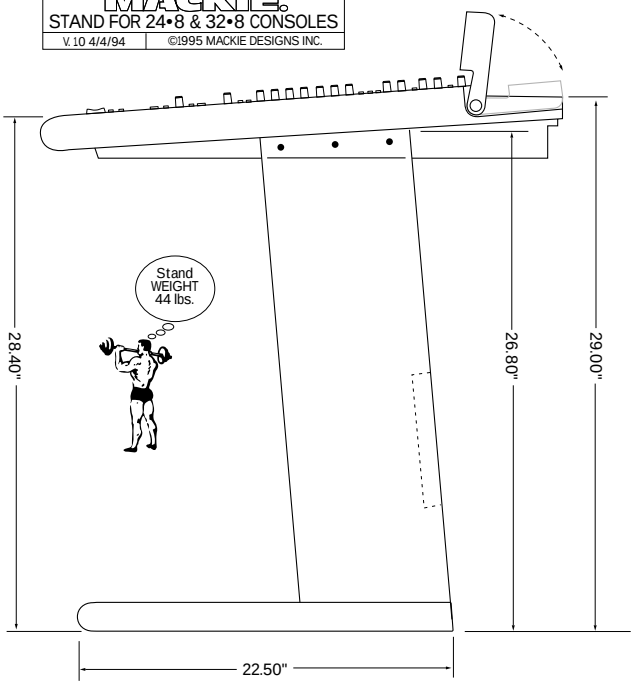

8•BUS 32•8 24•8 16•8

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MACKIE. 32•8

32x8x2 8-BUS MIXING CONSOLE

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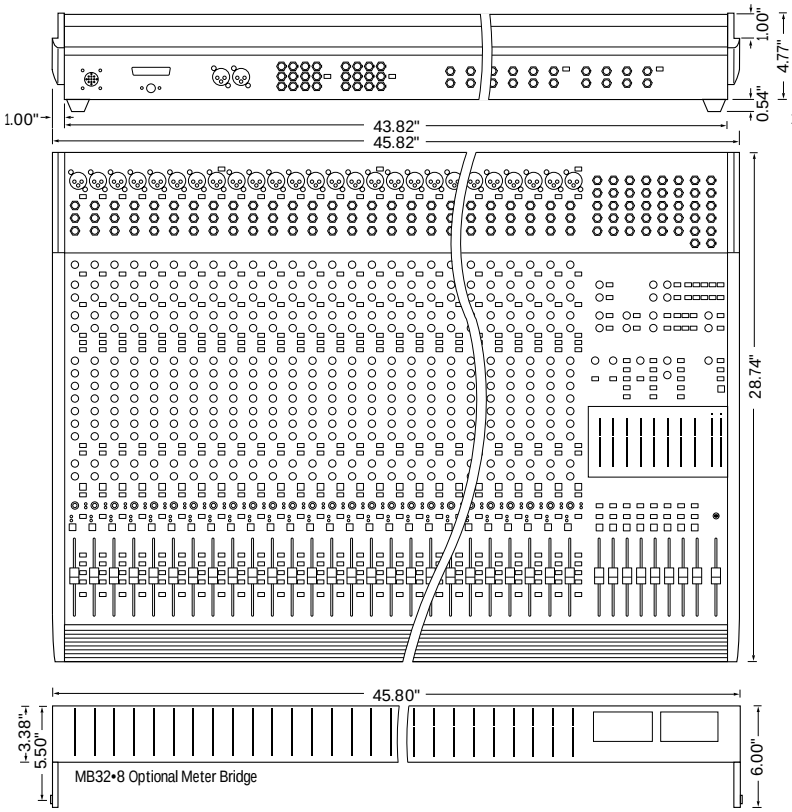

MACKIE. 24•E

24-CH. EXPANSION CONSOLE FOR 24•8 & 32•8

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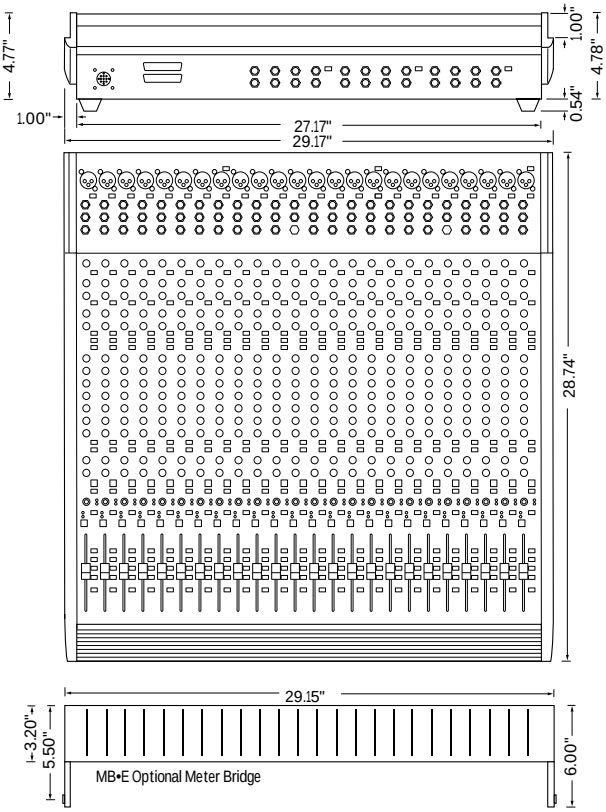

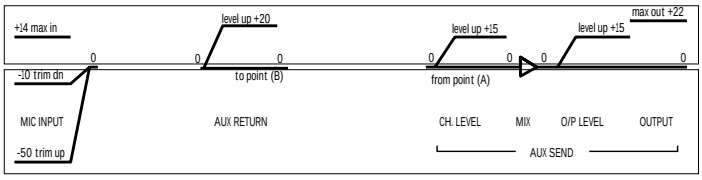

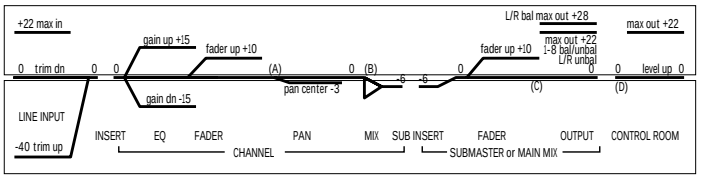

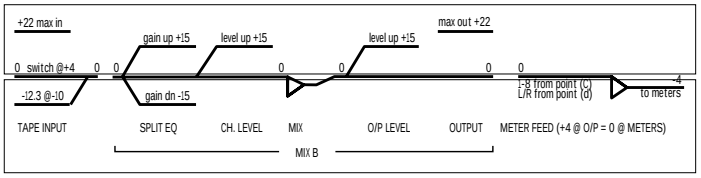

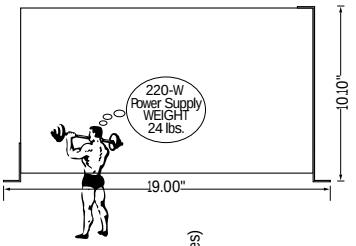

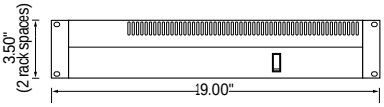

MACKIE.

220-WATT POWER SUPPLY FOR 8•BUS CONSOLES & EXPANDER

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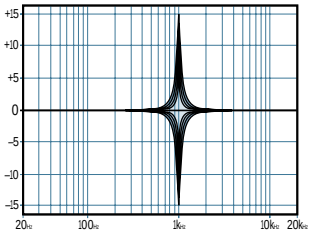
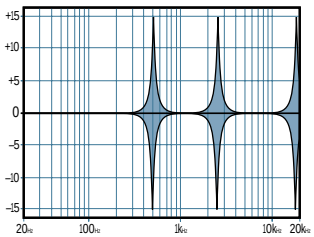
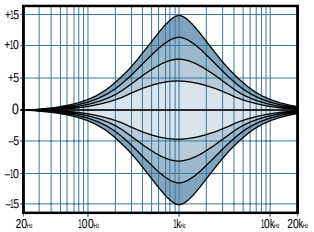


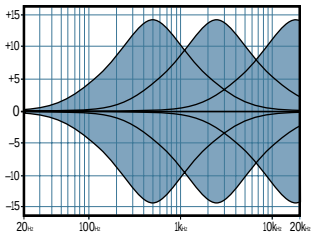
HI MID–1/12 oct. bandwidth boost/cut



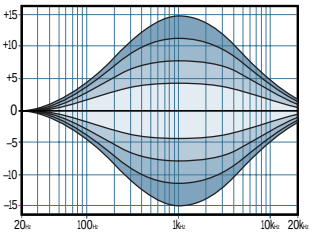
HI MID–1/12 oct. sweeps



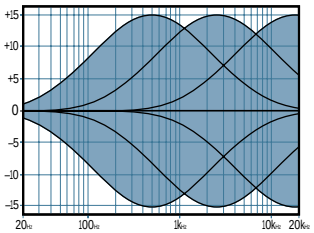
HI MID–2 oct. bandwidth boost/cut



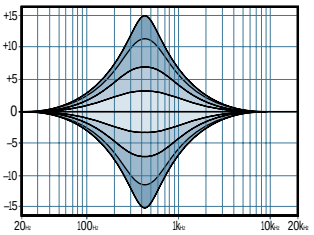
HI MID–2 oct. sweeps



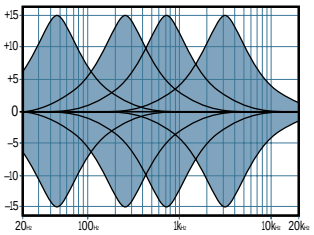
HI MID–3 oct. bandwidth boost/cut



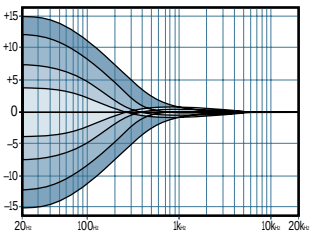
HI MID–3 oct. sweeps



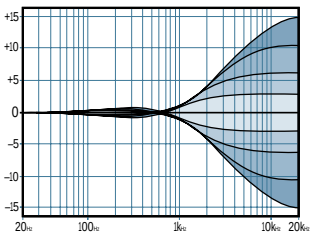
LO MID–boost/cut



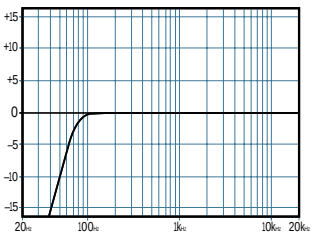
LO MID–sweeps



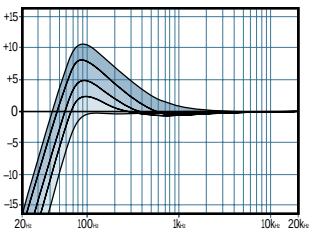
LO SHELF



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®

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