

Introduction

THE 1604-VLZ PRO is the latest update of our CR1604-VLZ, incorporating our new ultra-high quality XDR™ (Extended Dynamic Range) mic preamps with the best RFI rejection of any compact mixer design on the market and maximum freedom from ground loops.

Like all of Mackie Designs' mixers, the 1604-VLZ PRO is designed for rugged, 24-hour-a-day use. It is a supremely flexible mixer, not just because of its multiple input/output configurations, but because of its true 4-bus architecture, 6 aux sends (with 3-4/5-6 shift switch), and extensive routing capabilities.

No matter what the application, the 1604-VLZ PRO can be configured for optimal use. As a table-top mixer, input/output jacks can be positioned at the rear of the unit, or with the optional RotoPod Kit (RP1604-VLZ), positioned on the same plane as the controls. Placed in a rack system, the 1604-VLZ PRO can be set so that jacks are facing front (using the RotoPod kit) or facing the rear to keep wandering hands from playing with cords. Whether used in a permanent installation, or as a portable mixer, the 1604-VLZ PRO is completely at home.

Built like a tank, the 1604-VLZ PRO is a team player that can stand up to vigorous use, day in and day out, any place it is installed. Its sturdy-yet-light steel monocoque construction houses rugged, double-sided through-hole-plated fiberglass circuit boards, and 60mm faders with ultra-tight lip seals for keeping out dust and other contaminants. Impact-resistant knobs are mounted so they "ride" just above the steel chassis — they absorb impact without trouble. They're designed to last, too, thanks to co-molded potentiometers that don't get brittle and crack up. Then, we use metal stand-offs

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RELATED PRODUCTS

RP1604-VLZ RotoPod bracket kit, 1604-VLZ Dirt Avert™ Ballistic Nylon Dust Cover, 1604-VLZ Fabric Mixer Bag and 1604-VLZ Suede Mixer Bag for 1604-VLZ PRO. 12-inch and 18-inch Running Light Gooseneck lamps. 1202-VLZ PRO 12-Channel Mic/Line Mixer, 1402-VLZ PRO 14-Channel Mic/Line Mixer, 1642-VLZ PRO 16-Channel Mic/Line Mixer, SRM450 Active 2-Way SR Loudspeakers, M•800/M•1400i/M•1400/M•2600 Power Amplifiers, C300 passive 2-way SR Loudspeakers

16-Channel Mic/Line Mixer



Features

- 16 low noise/high headroom XDR™ (Extended Dynamic Range) XLR mic inputs with the best RFI rejection of any compact mixer design and maximum freedom from ground loops.
- 16 balanced/unbalanced mono line inputs
- True 4-bus design
- Multi-way physical configuration via rotatable I/O pod, or optional RotoPod Kit (RP1604-VLZ)
- Inserts on all channels
- Direct outs on channels 1–8
- 3-band EQ with sweepable mids
- 75Hz, 18dB/oct. Low Cut filter on each channel
- PFL/AFL (Solo In-Place) on all channels (global)
- Very Low Impedance (VLZ) architecture
- Control Room/Phones source matrix
- 6 aux sends, 2 with master level controls
- Wide input gain range with "virtual pad"
- Stereo main outputs plus mono main output with separate level control
- Balanced inputs and outputs (except RCAs, phones & inserts)
- Level set LED and marker

Applications

- Live sound mixing for churches, clubs, schools, conference centers, boardrooms, tradeshow, presentations
- Keyboard, drum machine and DJ
- Multitrack studio and field recording
- A/V presentations, video post production, CD authoring, multimedia
- Live broadcast remotes, ENG, ad production

1604-VLZ PRO 16-Channel Mic/Line Mixer

Specifications

Mic Preamp

Equivalent Input Noise (20Hz–20kHz):	
150Ω	–129.5dBu
50Ω	–131.0dBu
0Ω	–134.5dBu

Frequency Response:	
–1dB	5Hz–100kHz
–3dB	3Hz–192kHz

IM Distortion (4 to 1 ratio SMPTE) 35dB gain	0.0008%
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Harmonic Distortion (20Hz–20kHz) 35dB gain	0.0007%
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Gain	
Max	+60dB
Min	0dB or Unity

Max Input	+22dB
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Input Impedance	1.3kΩ
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Common Mode Rejection	> 90dB
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Common Mode Rejection Ratio	> 140dB
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Main Mix Noise¹

Main Mix fader @ unity, ch. faders down:	–90.5dB
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Main Mix fader @ unity, ch. faders @ unity:	–88.0dB
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Total Harmonic Distortion (THD)²

0.0005%

Attenuation (Crosstalk)³

Channel Mute switch engaged:	–84dBu
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Channel Fader down:	–84dBu
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Frequency Response⁴

20Hz to 60kHz:	+0dB/–1dB
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20Hz to 100kHz:	+0dB/–3dB
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Other Maximum Levels

All other inputs:	+22dBu
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Main Mix 1/4" TRS outputs:	+28dBu
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All other outputs:	+22dBu
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Other Impedances

Channel Insert return:	2.5kΩ
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All other inputs:	> 10kΩ
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Tape out:	1.1kΩ
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All other outputs:	120Ω
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EQ

High Shelving:	±15dB @ 12kHz
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Mid Peaking:	±15dB, sweep 100Hz–8kHz
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Low Shelving:	±15dB @ 80Hz
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Low Cut Filter:	18dB/octave, –3dB @ 75Hz
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Power Consumption

120VA.C., 50/60Hz, 50 watts

Physical

Dimensions

see drawings on page 4 & 5

Weight

20 lbs. (9.1kg)

Specifications footnotes:

1) 20Hz–20kHz bandwidth, 1/4" Main out, Channel Trims @ unity gain, channel EQs flat, all channels assigned to Main Mix, odd channels Pan left, even channels Pan right. Reference +22dBu.

2) 1kHz @ +14dBu, 20Hz–20kHz.

3) 1kHz relative to 0dBu, 20Hz–20kHz bandwidth, Line in, 1/4" Main Out, Trim @ unity.

4) Any input to any output.

at regular intervals to mount thick fiberglass circuit boards inside the mixer.

Radio frequency interference from TV/radio stations and cellular phone users is virtually eliminated, thanks to Mackie's new XDR mic preamp design.

The mixer's built-in power supply is beefy enough to handle major power consumption without breaking up. And there's no bulky "wall wart" to be kicked out of place or to cover up extra outlets.

All of this adds up to an extremely durable mixer that can withstand major use and misuse. Multi-user applications like churches, night clubs, A/V rooms and schools are perfect homes for the 1604-VLZ PRO.

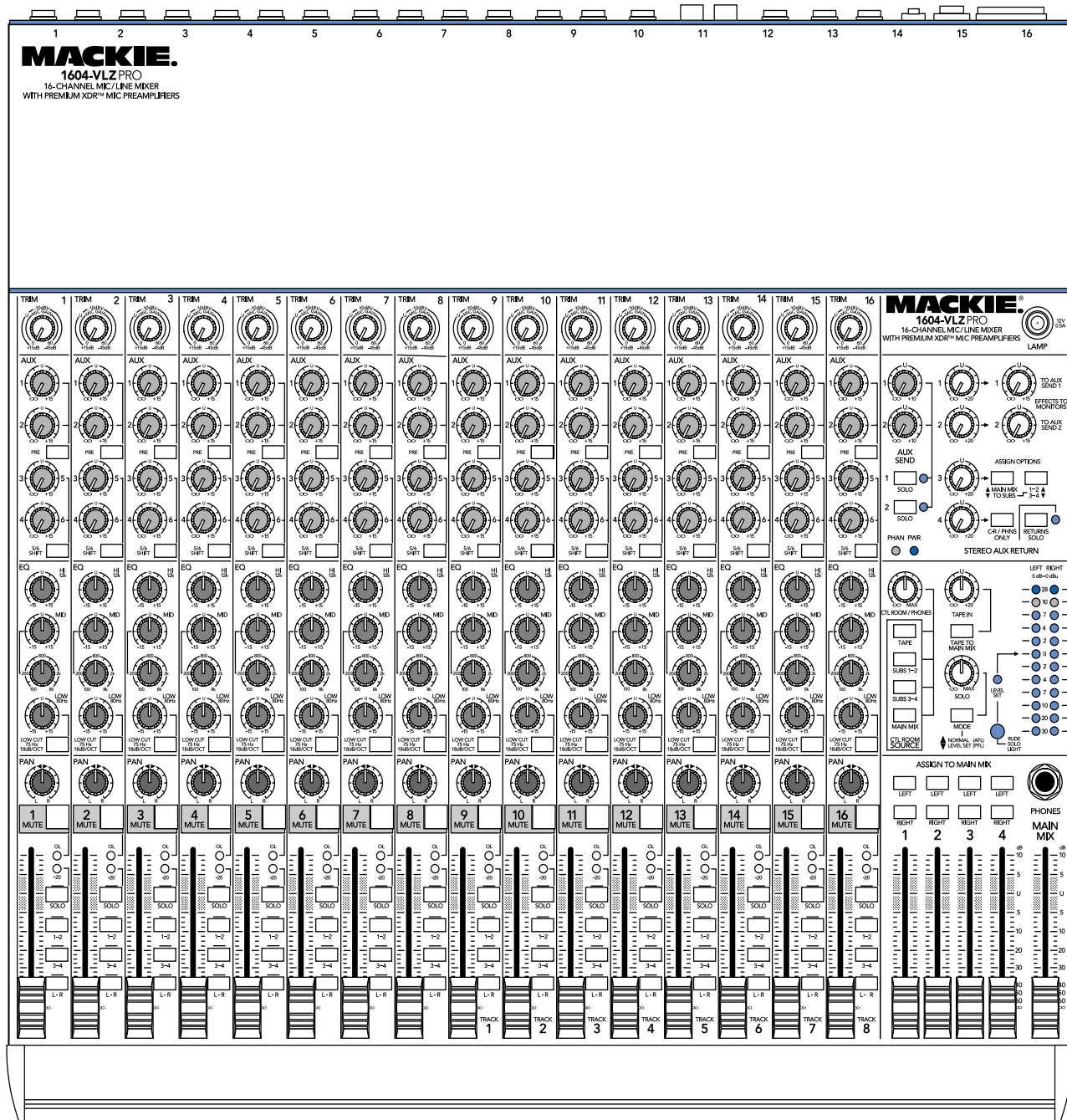
Sixteen XDR mic preamps deliver the finest quality sound ever offered in a compact mixer. They cannot be damaged by hot patching. And they are impedance-independent: frequency response remains the same whether the mic preamp is presented with an extremely high or low-impedance load. Additionally, each channel has its own switchable low cut filter (18dB/octave @ 75Hz), so mic thumps, room rumble and stage mishaps are left out of the mix without diminishing the audible bass frequency range.

Four buses add mixing flexibility. Channels can be assigned to buses 1-2, 3-4 and/or Main Mix L/R, and the 4 subs can be assigned to left and/or right main mix. A Control Room/Phones source matrix lets you route any combination of tape, subs 1-2, 3-4, main mix or Aux Return 4 to headphones, control room outputs, and meters. This enables you to monitor 2-track tape output or route a click/cue track to phones, create special phones or broadcast mixes via the subs, or create an extra stereo mix (with its own gain control) for another zone, like a cry room, lobby, or other such place.

For that matter, the 1604-VLZ PRO's Mono Main Out has its own level control, so a mono mix

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1604-VLZ PRO 16-Channel Mic/Line Mixer



can be sent to another zone and adjusted accordingly.

The 1604-VLZ PRO has six aux sends, in a four-knob per channel strip format with Aux Sends 1 & 2 switchable pre- or post-fader, and the next two knobs switchable between Aux Sends 3 & 4 or 5 & 6 (all four are post-fader).

Solo has its own volume control and is switchable

from AFL (In-Place) to PFL. Level setting is easy in PFL, especially when used in conjunction with the mixer's level set LED and marker (near the 12-segment stereo LED ladder). Check a channel's stereo placement by switching to AFL; the 1604-VLZ PRO's constant-power pan pots maintain a consistent loudness across the stereo horizon.

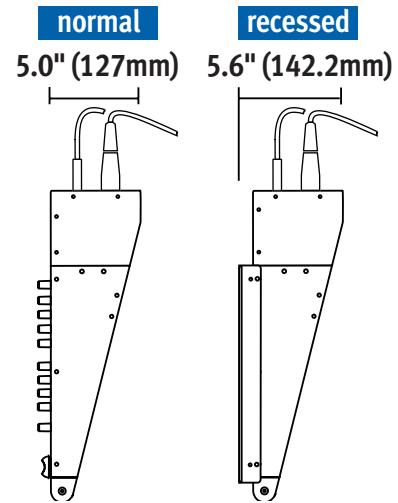
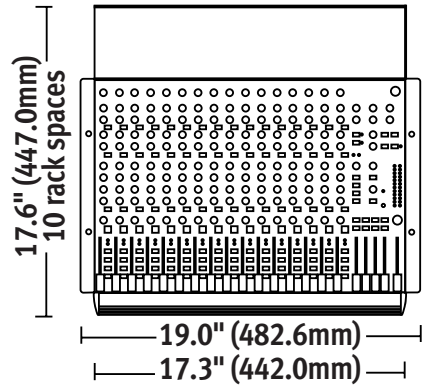
1604-VLZ PRO 16-Channel Mic/Line Mixer

Log-taper 60mm faders deliver a consistent fade throughout the fader's throw, so choppy fade-ins and fade-outs are history. These faders have a co-polymer membrane that provides a continuously sealed barrier against dust and liquids without interfering with fader travel. Similarly, the fader's long-wearing contact material (first designed for use in exterior automotive sensors) means longer fader life and improved resistance to the elements.

The 1604-VLZ PRO is designed for continuous, hassle-free use in any application or installation. And it's packed with useful features and practical routing capabilities. Simply stated, this mixer offers more features, more peace of mind and more possibilities than any mixer in its class.

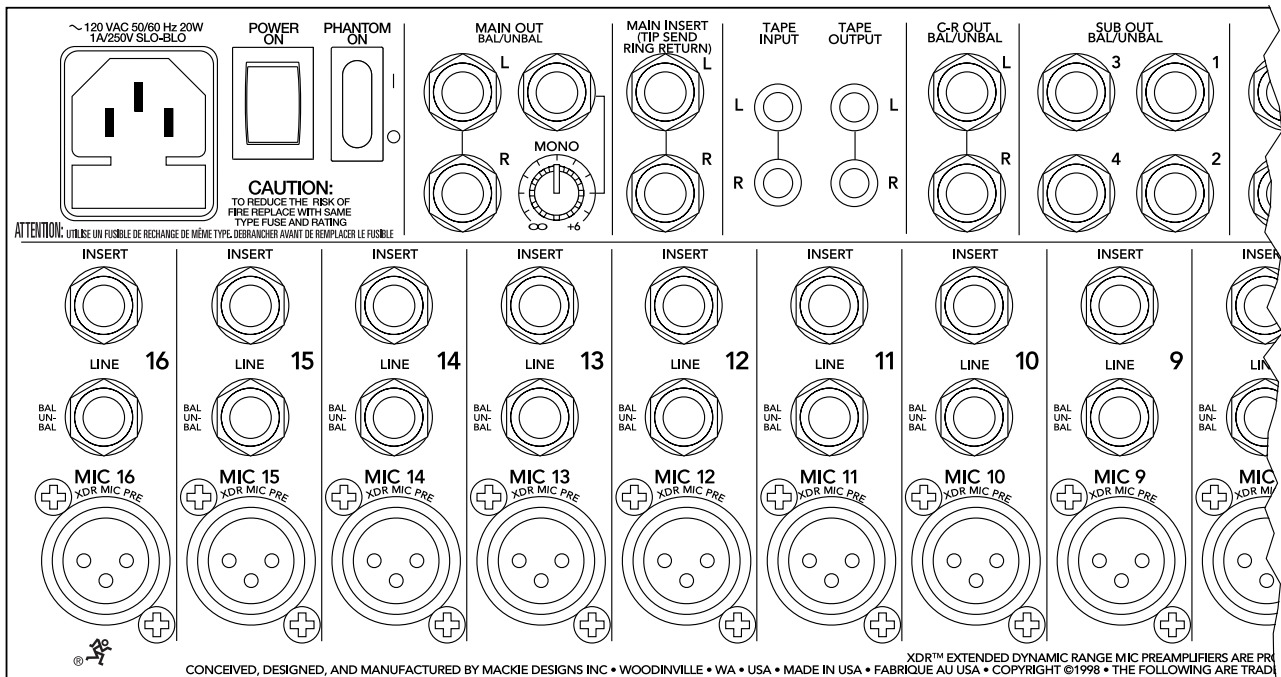
And it's a Mackie.

Input/Output Pod mounted to top



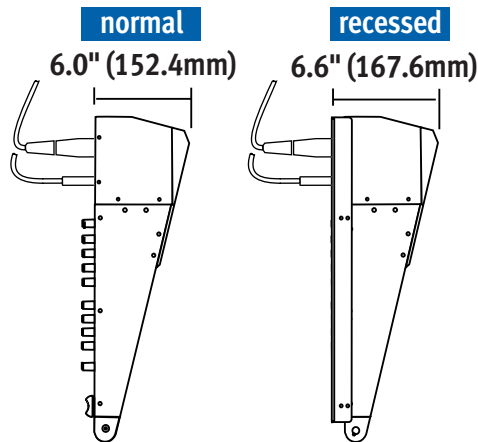
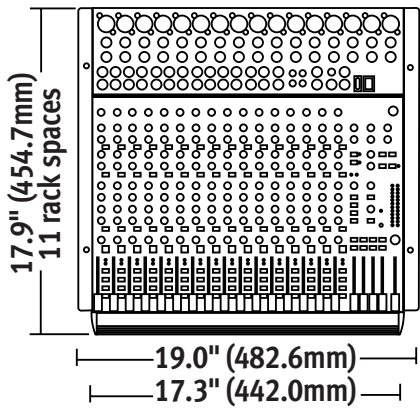
FILES FOR DOWNLOADING

1604VLZP.PDF	this specification sheet
1604VPAE.TXT	text version of Architects and Engineering Specifications for insertion into proposals

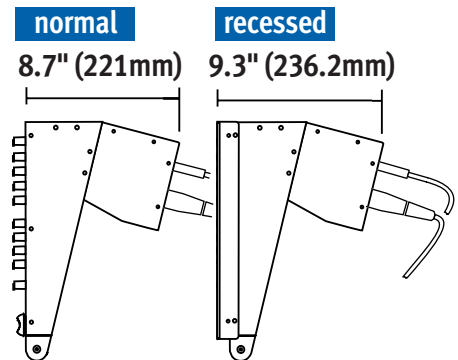
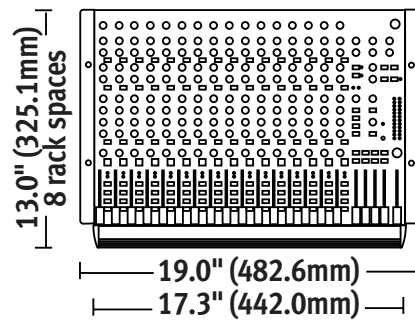


1604-VLZ PRO 16-Channel Mic/Line Mixer

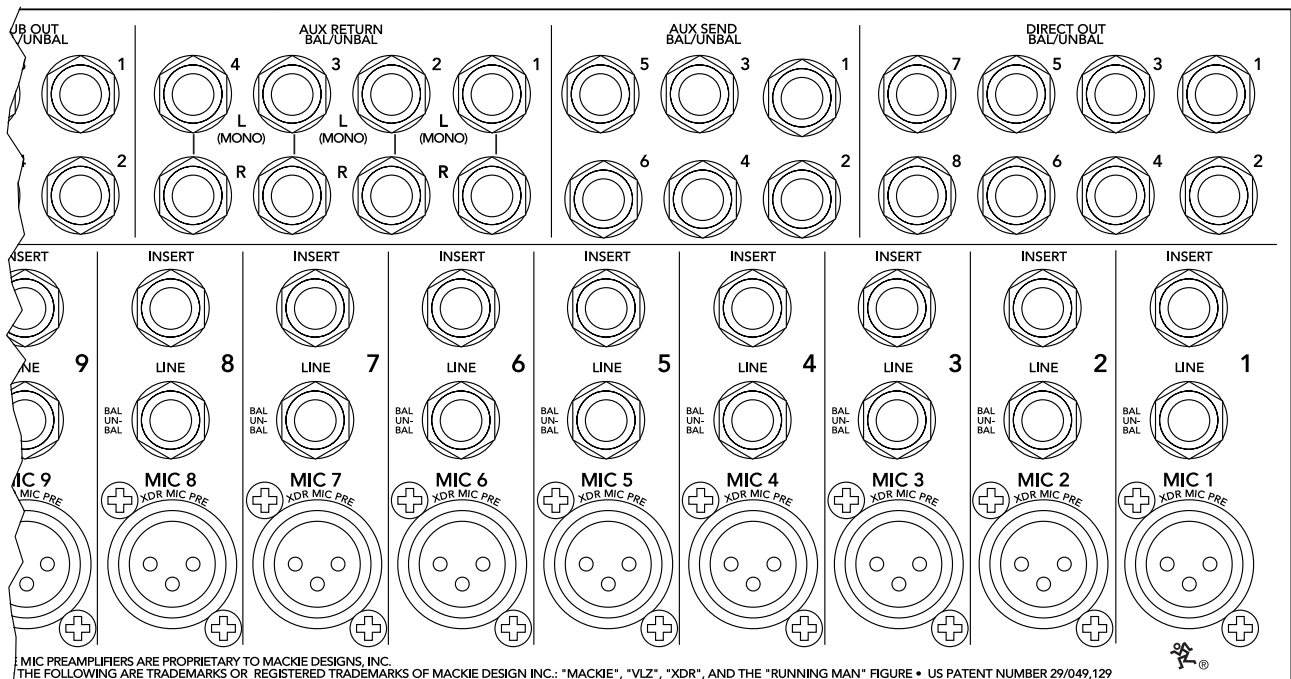
Input/Output Pod mounted to front*



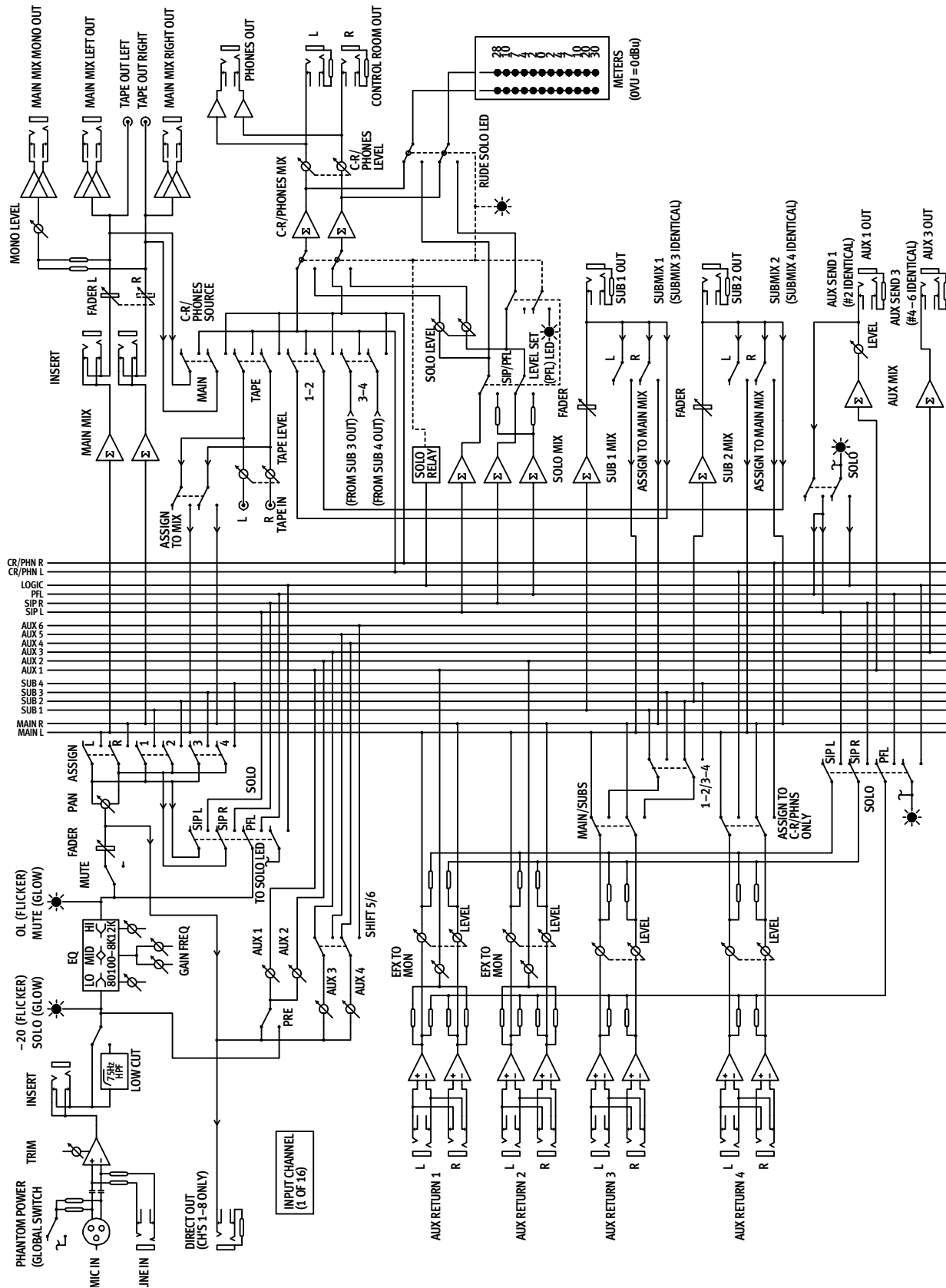
Input/Output Pod mounted to back



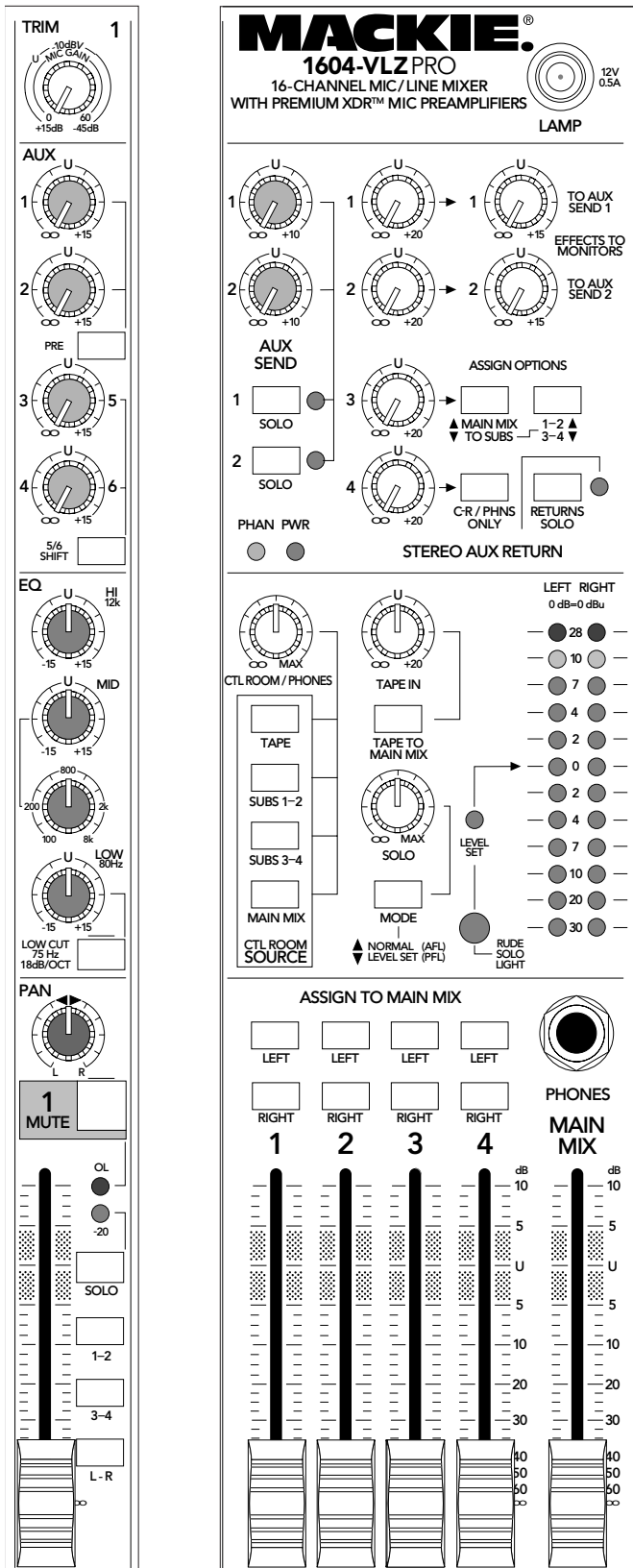
*Via optional RP1604-VLZ RotoPod bracket (sold separately)



1604-VLZ PRO 16-Channel Mic/Line Mixer



1604-VLZ PRO 16-Channel Mic/Line Mixer



Architect & Engineering Specifications

1. GENERAL CONFIGURATION. The mixer shall accommodate 16 line and/or 16 microphone signals, channels 1–16; and shall include 16 Send/Return channel Inserts; 8 channel Direct Outputs, channels 1–8; 4 stereo pairs of Aux Mix inputs; 1 stereo pair of Main Mix outputs; 1 Main Mix Mono output, 1 stereo pair of Control Room outputs; 4 Submaster outputs; 6 Aux Send outputs; 1 stereo pair of RCA-type phono Tape outputs; and 1 stereo Headphones output. The mixer shall be capable of placement on a table or installation in a standard 19-inch rack mount via rack rail brackets (included); shall be fitted with 1 rocker-type Power switch; 1 3-pin power receptacle with user-replaceable 5x20mm fuse drawer; 1 BNC socket, providing 12VDC for fitting an external lamp (not included); and shall be entirely self-contained.

2. MIXER INPUTS.

CHANNELS 1–16: Each channel shall include an XDR™ (Extended Dynamic Range) electronically balanced microphone input, using an XLR-3-F-type connector, accepting nominal levels from –60dBu to +4dBu via a rotary Trim control. Phantom power shall be globally-controlled via a rocker-type switch. 16 Balanced/unbalanced (bal/unbal) line inputs shall be wired in parallel, using 1/4" TRS phone jacks, accepting nominal levels from –40dBu to +4dBu. Each channel shall include a pre-fader Insert point, using 1/4" TRS phone jacks (tip=send, ring=return, sleeve=ground), delivering and accepting nominal levels from –10dBV to +4dBu.

OTHER INPUTS: The mixer shall include 8 bal/unbal Aux Return inputs, forming four stereo pairs, using 1/4" TRS phone jacks, accepting nominal levels from –10dBV to +4dBu; and 1 stereo pair of Tape In jacks, using unbalanced RCA-type phono jacks, accepting nominal levels from –10dBV to +4dBu.

3. MIXER OUTPUTS.

MAIN OUTPUTS: The mixer's Main Mix stereo outputs shall be fitted in two ways: Using symmetrically balanced (also accepting unbalanced) 1/4" TRS phone jacks, delivering maximum output of +28dBu; and using unbalanced RCA-type phono jacks (labeled TAPE OUT), delivering nominal levels from –10dBV to +4dBu; and the Main Mix Mono output shall be fitted with one symmetrically balanced (also accepting unbalanced) 1/4" TRS phone jack, delivering nominal levels from –10dBV to +4dBu.

OTHER OUTPUTS: Input channels 1–8 shall each include a post-fader Direct Output, using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu. The mixer shall include 4 Submaster outputs, using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; 1 stereo pair of Control Room outputs, using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; 6 Aux Send outputs using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; and 1 stereo Headphones output, using an unbalanced 1/4" TRS phone jack (tip=left, ring=right, sleeve=ground).

4. MIXER INPUT SECTION. In addition to the controls listed in section 2 (MIXER INPUTS), each channel shall include 4 rotary Aux Send controls and 1 Shift switch, providing up to 15dB gain, routing signals to Aux Sends 1, 2, 3 and 4 when the Shift switch is disengaged, and to Aux

1604-VLZ PRO 16-Channel Mic/Line Mixer

Sends 1, 2, 5 and 6 when the Shift switch is engaged, and Aux Sends 1 and 2 shall have a pre/post switch; 4 rotary equalization (EQ) controls: ± 15 dB fixed 12kHz shelving gain, ± 15 dB midrange peaking gain, 100Hz – 8kHz midrange frequency, and ± 15 dB fixed 80Hz shelving; 1 75Hz 18dB/oct. Low Cut filter switch; 1 rotary Pan control, 4dB attenuation panned center; 1 Mute switch; 1 dual-mode Solo switch (AFL or PFL, globally switched); 3 output Assign switches, delivering the channel's signal, relative to its Pan setting, to the Main L-R Mix, Submasters 1–2 and Submasters 3–4; and 1 channel Fader, providing up to 10dB above unity gain. Additionally, each channel shall include two LED indicators; a –20/Solo LED acting as a Signal Present indicator by flickering and as a channel Solo indicator by glowing steadily; and an OL/Mute LED, acting as an overload indicator by flickering and as a channel Mute indicator by glowing steadily.

5. MIXER OUTPUT SECTION. The mixer shall have 1 Main Mix stereo fader, providing up to 10dB gain; 4 Submaster mono faders, each providing up to 10dB gain; independent left and right Assign to Main Mix switches for each Submaster; 1 Control Room/Phones level rotary stereo control, providing up to 10dB gain; 1 Source Matrix, including 4 switches to deliver any combination of stereo signals to the Control Room, Phones and Meters, including Main Mix, Submasters 1–2, Submasters 3–4 and Tape, which shall be replaced by solo signals resulting from the engagement of any Solo switch; 1 rotary stereo Tape In level control, providing up to 20dB gain; 1 Tape to Main Mix switch; 1 Solo Mode switch to globally determine solo type (pre-fader listen or after-fader listen, in place); 1 rotary stereo Solo level control, providing up to 10dB gain; 4 rotary stereo Aux Return level controls, providing up to 20dB gain; two Effects to Monitor rotary controls, providing up to 15dB gain, delivering summed Aux Return 1 or 2 signals to Aux Send 1 or 2, respectively; an Aux Return 3 Assign switch, used in conjunction with a 1–2/3–4 switch, delivering Aux Return 3 signals to one output pair, including Main Mix, Submasters 1–2 and Submasters 3–4; an Aux Return 4 to Control Room/Phones Only switch; a global Aux Return Solo switch with associated LED; 2 rotary Aux Send Master controls for Aux Sends 1 and 2, providing up to 10dB above unity gain; a Solo switch with associated LED for each of Aux Sends 1 and 2; a blinking master Solo indicator LED, a Level Set LED, indicating a PFL solo condition, a Power indicator LED; and a Phantom Power indicator LED.

6. METERING. The mixer shall include 1 stereo 12-segment LED meter with points at –30, –20, –10, –7, –4, –2, 0,

+2, +4, +7, +10 and +28dB. The source signals for the meters shall be the same signals selected in the Source Matrix, and a solo condition shall replace the Source selection with the soloed channel(s). The meters shall be calibrated so that a 0dBu signal at the Control Room output shall be indicated as 0dB on the meters, ± 1 LED.

7. PHYSICAL CONFIGURATION. The mixer shall be made of steel and aluminum, painted dark gray and black with light gray graphics. The mixer shall weigh 20 lbs, 0 oz (9.1 kg). Included rackmount brackets shall allow the mixer to be mounted in a rack system, with either the chassis surface or the control knobs' tops to be flush with the rack rail. Additionally, the jackfield portion of the mixer, referred to as the Pod, shall be adjustable in three different positions; Desktop Mode (stock configuration), with jackfield connections to rear as seen laying horizontally on a table; Rackmount mode, with the jackfield connections to the rear of the rack when mounted vertically; and RotoPod mode, requiring an RP1604-VLZ RotoPod Bracket (not included), with jackfield connections on the same plane as the faders. Dimensions of the mixer shall be, in Desktop Mode, 17.3" (442mm) in width, 17.6" (447mm) in depth, and 5.0" (127mm) in height; in Rackmount Mode, 19" (483mm) in width (including rack rails) 13.0" (325mm) in height, and 9.3" (236mm) in depth; in RotoPod Mode (using optional brackets sold separately) 19" (483mm) in width (including rack rails), 17.9" (455mm) in height and 6.6" (168mm) in depth.

8. SPECIFICATIONS. In addition to specifications already cited, the mixer shall meet or exceed the following specifications. Frequency response, microphone input to any output, 20Hz to 60kHz, +0dB/–1dB; Total Harmonic Distortion (THD), any input to any output, 1kHz @ +14dBu, 0.0007%; Equivalent Input Noise (EIN), microphone input to insert send, –129.5dBm; Common Mode Rejection (CMR), microphone input to insert send, maximum gain, 1kHz, better than 90dB; Typical Main Output noise, all channels assigned, odd channels panned left, even channels panned right, all faders down –100dBu; Signal to Noise ratio, ref +4dBu operating level, 90dB; Attenuation, ref. 0dB @ 1kHz, Main Mix level control down, –85dBu; Channel Mute engaged, –84dBu; Channel Gain control down, –83dBu; Input impedance, microphone inputs, 1.3 k Ω ; Channel Insert return, 2.5 k Ω ; All other inputs, greater than 10 k Ω ; Output impedance, Tape Out, 1.1 k Ω ; All other outputs, 120 Ω .

The mixer shall be a Mackie Designs 1604-VLZ PRO.

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