

## Introduction

**MACKIE'S 1402-VLZ PRO** combines the compact size of the 1202-VLZ PRO with added features and 60mm log-taper faders. Its six new “audiophile” XDR™ Extended Dynamic Range mic preamps offer the best RFI rejection of any compact mixer design. Added benefits include maximum freedom from ground loops and impeccable sonic performance that meets or exceeds the specs of esoteric, out-board mic preamplifiers. The XDR design is the only compact mixer mic preamp that is totally impedance independent: frequency response does not change even with extremely long cable runs or exceptionally high-impedance mic inputs.

A sharp, 18dB/octave 75Hz Low Cut filter on each mic channel greatly reduces mic thumps, wind noise and stage rumble. Mute/Alt 3-4 effectively creates a second stereo bus. The Mute button on each channel mutes that channel in the Main Mix, while simultaneously placing the signal on the Alt 3-4 stereo bus, greatly increasing signal routing flexibility.

The EFX to Monitor feature allows routing of reverb or other effects signals back into a monitor mix via Aux Send 1. Aux 1 Master's Pre/Post switch can be set for pre-fader/post-EQ use, which is beneficial for stage monitor mixes, or post-fader/post-EQ for use with external effects. It also has a level control for added flexibility.

Control Room/Phones has its own level control, stereo output pair and input matrix for selecting any combination of Main Mix, Tape In and Alt 3-4 to create custom headphone mixes, to monitor tape levels, and more. A separate switch routes this multi-source signal back into the Main Mix.

Because of its many features and durability, the 1402-VLZ PRO can be used for extra studio-grade preamps, as aux inputs for a mixing console, or as an impedance- or level-matching audio toolkit.

## RELATED PRODUCTS

RM1402-VLZ Rack-Mount Brackets (not included), 1202-VLZ PRO 12-Channel Mic/Line Mixer, 1604-VLZ PRO 16-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

## 14-Channel Mic/Line Mixer



## Features

- 6 low noise/high headroom XDR™ (Extended Dynamic Range) XLR mic inputs with the best RF rejection of any compact mixer design and maximum freedom from ground loops
- 6 balanced/unbalanced mono line inputs
- 4 pairs of balanced/unbalanced stereo line inputs
- 60mm log-taper faders
- 48V global phantom power
- 3-band EQ (12kHz, 2.5kHz, 80Hz)
- 75Hz, 18dB/octave Low Cut filter on Channels 1–6
- PFL/AFL Solo (in-place) on all channels (global)
- Very Low Impedance (VLZ) architecture
- EFX to Monitor switch
- Alt 3-4 extra stereo bus
- Balanced inputs and outputs (except RCAs and channel inserts)
- Balanced XLR Main L/R outputs with mic/line level switch plus 1/4" Main L/R outputs
- 60dB Gain on Channels 1–6
- Global Aux 1 Pre/Post-Fader switch
- Level Setting LED and marker

## Applications

- Live sound mixing for churches, clubs, school auditoriums, school sports centers, hotel conference centers, boardrooms, trade shows, presentations
- Multitrack studio and field recording
- Headphone or cue mixer, impedance or level matching “tool kit”
- A/V presentations, video post production, CD authoring, multimedia
- Live broadcast remotes, ENG, ad production

# 1402-VLZ PRO

## 14-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%

Harmonic Distortion (20Hz–20kHz)	
35dB gain	0.0007%

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 Noise<sup>1</sup>

Main Mix down, ch. faders down:	–90.5dB
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Main Mix @ unity, ch. faders down:	–90.5dB
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Main Mix fader @ unity, channel faders @ unity:	–88.5dB
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Total Harmonic Distortion (THD) <sup>2</sup>	
	0.005%

#### Attenuation (Crosstalk)<sup>3</sup>

Main fader down:	–85dBu
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Channel Alt 3-4/Mute switch engaged:	–84dBu
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Channel fader down:	–83dBu
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#### Frequency Response<sup>4</sup>

Mic input to any output	
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20Hz to 60kHz:	+0dB/–1dB
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20Hz to 100kHz:	+0dB/–3dB
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#### Maximum Levels

Mic in:	+22dBu
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Tape in:	+16dBu
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All other inputs:	+22dBu
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Main Mix XLR outputs:	+28dBu
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All other outputs:	+22dBu
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#### Impedances

Mic in:	1.3kΩ
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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:	120 ohms
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#### EQ

High Shelving:	±15dB @ 12kHz
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Mid Peaking:	±12dB @ 2.5kHz
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Low Shelving:	±15dB @ 80Hz
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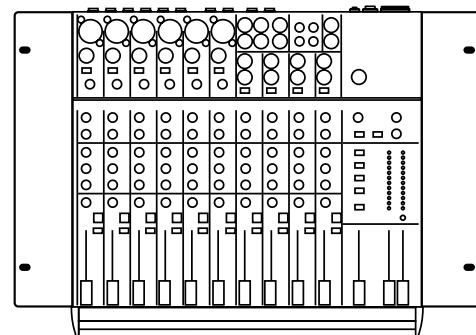
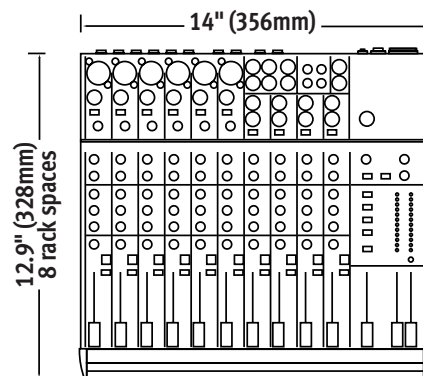
#### Power Consumption

120VAC, 50/60Hz, 25 Watts

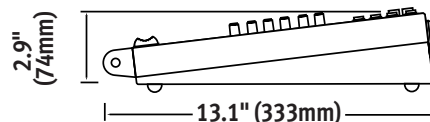
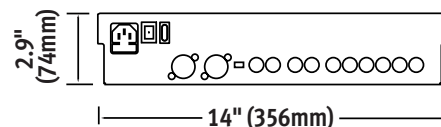
#### Physical

Weight	9.5 lbs. (4.5 kg)
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Dimensions	13" x 14" x 2.9" (330mm x 356mm x 74mm)
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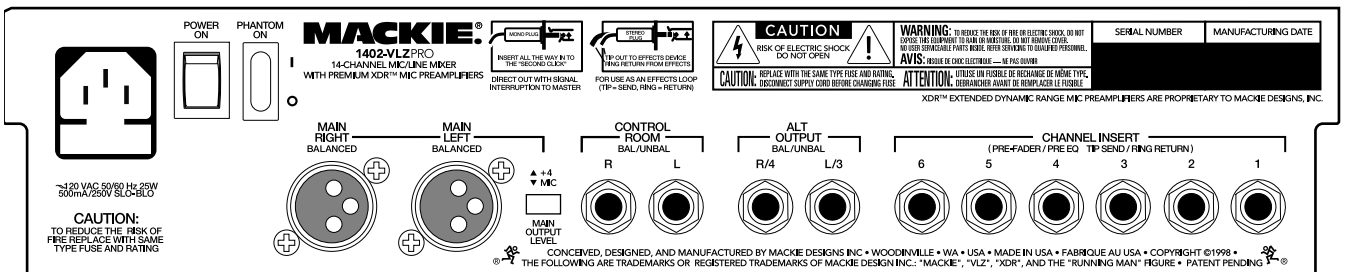
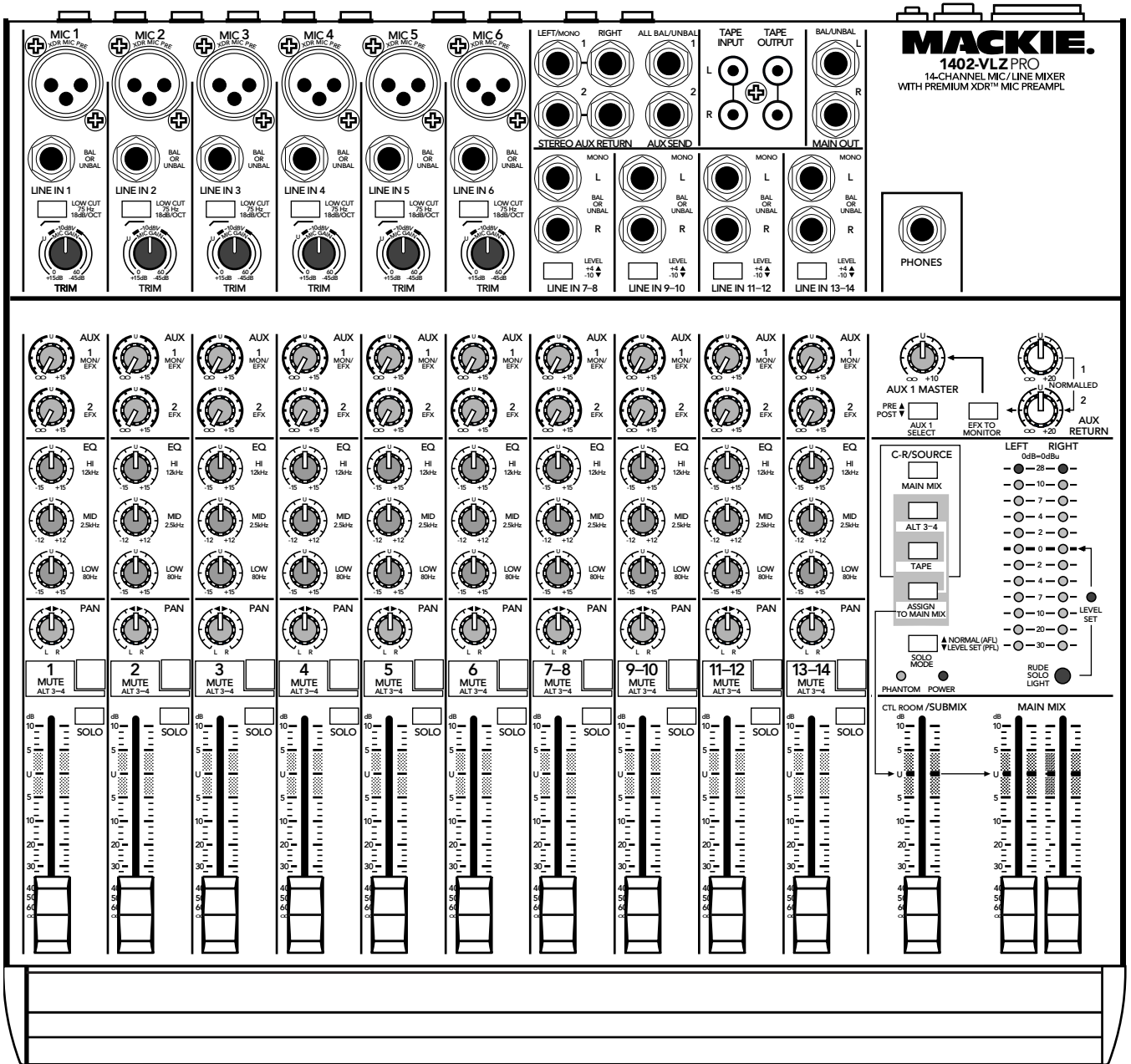
19" (483mm)  
with RM1402-VLZ Rackmount brackets



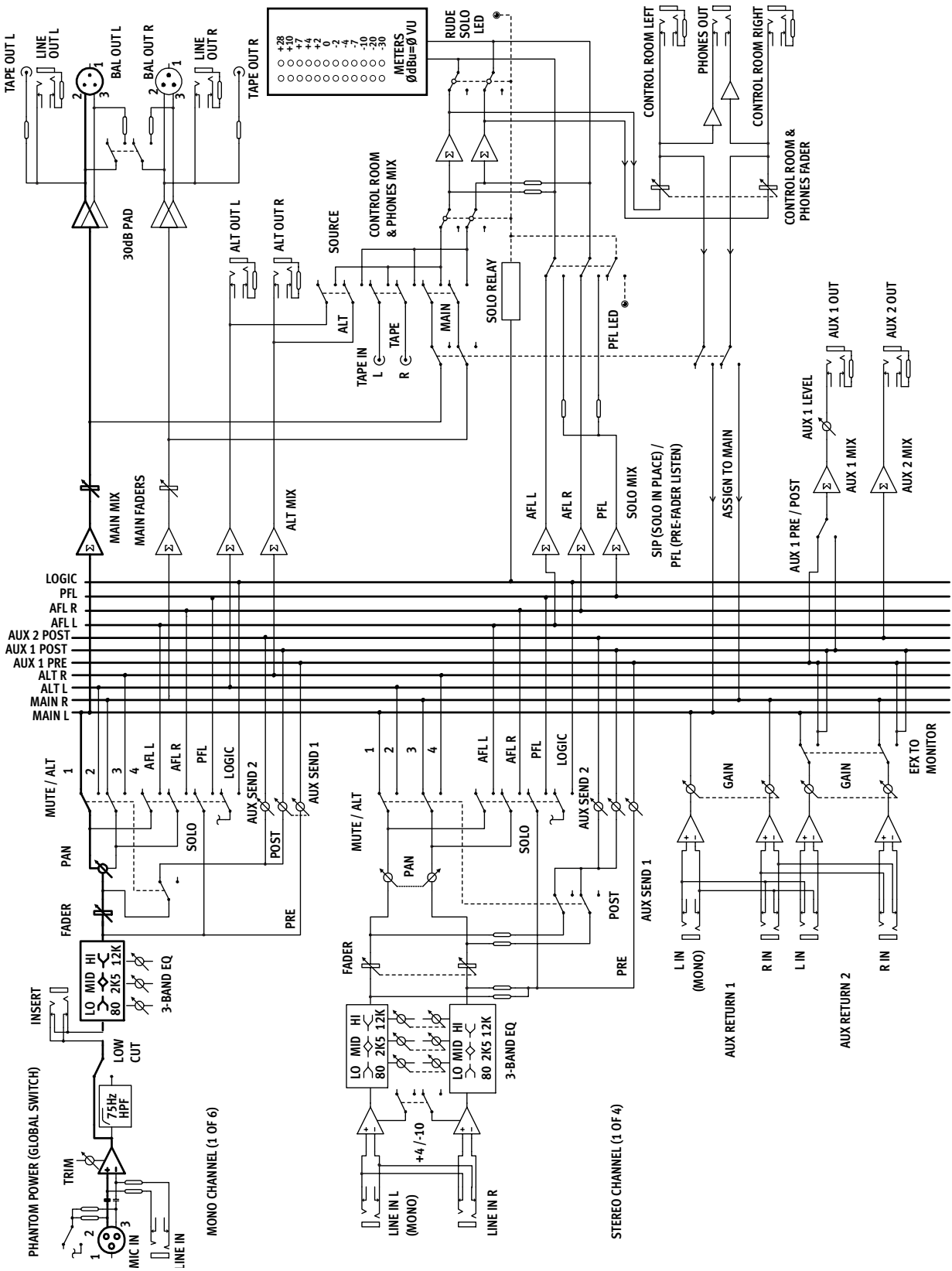
#### Specifications footnotes:

- 1) 20Hz–20kHz bandwidth, 1/4" Main out, channels 1–6 Trim @ unity gain, channel EQs flat, all channels assigned to Main Mix, channels 1, 3 and 5 Pan left, 2, 4 and 6 Pan right. Reference +4dBu.
- 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.
- 5) Mic in to Insert Send out, max gain.

# 1402-VLZ PRO 14-Channel Mic/Line Mixer



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## Architect's and Engineer's Specifications

1. GENERAL CONFIGURATION. The mixer shall accommodate 6 microphone signals, mono channels 1–6; 14 line signals, mono channels 1–6 and stereo channels 7–14; 2 stereo pairs of Aux Return inputs; 6 Send/Return channel Inserts; 2 stereo pairs of Main Mix outputs; 1 stereo pair of Control Room outputs; 2 stereo pairs of RCA-type phono Tape outputs and inputs; 1 stereo pair of Alt 3-4 outputs; 2 Aux Send outputs; and 1 stereo headphone output. The mixer shall be capable of placement on a table or installation in a standard 19-inch rack mount (via optional rack rail brackets) and shall be entirely self-contained.

### 2. MIXER INPUTS.

**MONO CHANNELS 1–6:** The mixer shall include 6 XDR(tm) (Extended Dynamic Range) electronically balanced mic inputs, using XLR-3-F-type connectors, accepting nominal levels from –60dBu to +4dBu via 6 rotary Trim controls. Phantom power shall be available via a globally-controlled rocker-type switch. 6 balanced or unbalanced (bal/unbal) line inputs shall be wired in parallel, using 1/4" TRS phone jacks, accepting nominal levels from –45dBu to +4dBu. The mixer shall include 6 channel Inserts, using 1/4" TRS phone jacks (tip=send, ring=return, sleeve=ground), delivering and accepting nominal levels from –10dBV to +4dBu.

**STEREO CHANNELS 7/8, 9/10, 11/12 and 13/14:** The mixer shall include 8 bal/unbal line inputs, forming 4 stereo input pairs, using 1/4" TRS phone jacks, accepting nominal levels from –10dBV to +4dBu, with +4dBu/–10dBV level switches. **OTHER INPUTS:** The mixer shall include 4 bal/unbal Aux Return inputs, forming two stereo pairs, using 1/4" TRS phone jacks, accepting nominal levels from –10dBV to +4dBu. The mixer shall include 1 stereo pair of Tape In jacks, using unbalanced RCA-type phono jacks, accepting nominal levels from –20dBV to +0dBu.

### 3. MIXER OUTPUTS.

**MAIN OUTPUTS:** The mixer's Main Output stereo pairs shall be fitted in three ways: Using balanced XLR-3-M-type connectors, delivering maximum output of +4dBu, including 1 Main Output Level switch to provide 30dB attenuation (XLR outputs only; –26dBu nominal level); using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; and using unbalanced RCA-type phono jacks (labeled TAPE

OUT), delivering nominal levels from –10dBV to +4dBu.

**OTHER OUTPUTS:** The mixer shall include 1 stereo pair of Alt 3-4 outputs using bal/unbal 1/4" TRS phone jacks, delivering maximum output of +22dBu; 1 stereo pair of Control Room outputs using bal/unbal 1/4" TRS phone jacks, delivering a maximum output of +22dBu; 2 Aux Send outputs using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; and 1 stereo Headphone 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 2 rotary Aux Send controls, providing up to 15dB gain; 3 rotary equalization (EQ) controls: ±15dB @ 12kHz shelving, ±12dB @ 2.5kHz peaking and ±15dB @ 80kHz shelving; 1 rotary Pan control, 4dB attenuation panned center; 1 Mute/Alt 3-4 switch, to be used as a channel mute or to route the signal to the alternate stereo bus (Alt 3-4); 1 dual-mode solo switch (AFL or PFL, globally switched); and 1 channel fader, providing up to 10dB above unity gain.

5. **MIXER OUTPUT SECTION.** The mixer shall have 2 Main Mix faders, providing up to 10dB gain; 1 Control Room/Submix Fader, providing up to 10dB gain; 1 Source Matrix including 3 switches to deliver any combination of stereo signals to the Control Room, Phones and Meters, including Main Mix, Alt 3-4 and Tape, which shall be replaced by any solo signals resulting from the engagement of any channel's Solo switch; 1 Assign to Main Mix switch to deliver the Source Matrix signals to the Main Mix; 1 Solo Mode switch to globally determine solo type (pre-fader listen or after-fader listen, in place); 2 rotary Aux Return level controls, providing up to 20dB gain; 1 rotary Aux Send 1 Master control, providing up to 10dB gain; 1 Aux Send global Pre/Post switch; 1 EFX to Monitor switch, allowing Aux Return 1 signals to be delivered to Aux Send 1 via the Aux Return 2 level control; and 1 blinking red Solo LED, to indicate a solo condition.

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 (clip). 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

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soload 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,  $\pm 1$  LED.

7. PHYSICAL CONFIGURATION. The mixer shall be made of steel, painted dark gray with light gray graphics. The mixer's dimensions shall be 2.9" (74mm) in height, 14.0" (356mm) in width and 13.0" (330mm) in depth, as viewed horizontally. The mixer shall weigh 9 lbs, 8 oz (4.5 kg). Optional RM1402-VLZ rack-mount brackets shall allow the mixer to be mounted in a rack system, with either the chassis top or the control knobs' tops to be flush with the rack rail.

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, -129.5dBu; Common Mode Rejection (CMR): microphone input to insert send, maximum gain, 1kHz, better than 90dB; Typical Main Output noise: all channels assigned, channels 1, 3 and 5 panned left, channels 2, 4 and 6 panned right, -86.5dBu; 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 $\Omega$ ; Channel Insert return, 2.5 k $\Omega$ ; All other inputs, greater than 10 k $\Omega$ ; Output impedance: Tape Out, 1.1 k $\Omega$ ; All other outputs, 120 $\Omega$ .

The mixer shall be a Mackie Designs 1402-VLZ PRO.



## FILES FOR DOWNLOADING

<a href="#">1402VLZP.PDF</a>	this specification sheet
<a href="#">1402AE.TXT</a>	text version of Architect's and Engineer's Specifications for insertion into proposals

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