MACKIE. 1642-VLZ PRO™

MIXER

1642-VLZ PRO

16-Channel Mic/Line Mixer

Introduction

The 1642-VLZ PRO is perfect for applications where more line-level inputs (and fewer mic preamps) are needed.

Channels 1–8 are essentially the same as our 1604-VLZ PRO with mono line-level input and 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.

Channels 9/10 and 11/12 (two physical channel strips) each have a stereo pair of line-level inputs and a mono XDR™ mic preamp.

Channels 13/14 and 15/16 (also in two physical channel strips) each have a stereo pair of line-level inputs only with fixed four-band equalization at points that are especially beneficial to line-level inputs such as keyboards.

Like all of Mackie Designs' mixers, the 1642-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, 4 aux sends, and extensive routing capabilities.

Built like a tank, the 1642-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 at regular intervals to mount thick fiberglass circuit boards inside the mixer.

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Features

- **Unique hybrid configuration: 8 mic/line mono chs., 2 mic/stereo line chs., 2 stereo line chs.**
- **10 XDR™ (Extended Dynamic Range) XLR mic inputs with the best RFI rejection of any compact mixer design and maximum freedom from ground loops.**
- **8 balanced/unbalanced mono line inputs**
- **4 pairs of bal./unbal. stereo line inputs**
- **True 4-bus design**
- **Inserts and Direct Outs on Channels 1–8**
- **3-band EQ with sweepable mid on Channels 1–8**
- **4-band fixed EQ on Channels 9/10, 11/12, 13/14, and 15/16.**
- **75Hz, 18dB/oct. Low Cut filters on Channels 1–8, 9/10 and 11/12**
- **PFL/AFL (Solo In-Place) on every channel (global)**
- **VLZ™ (Very Low Impedance) architecture**
- **Control Room/Phones source matrix**
- **4 aux sends, 2 with master level controls**
- **XLR and 1/4" balanced main outputs plus mono main output with 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, trade shows, presentations
- Keyboards, drum machines and DJ mixing
- Multitrack studio, field recording
- A/V presentations, video post-production, CD authoring, multimedia
- Live broadcast remotes, ENG, ad production

RELATED PRODUCTS

RM1642 Rack-Mount Brackets, 12-inch and 18-inch RunningLight™ Gooseneck Lamps. 1202-VLZ PRO 12-Channel Mic/Line Mixer, 1402-VLZ PRO 14-Channel Mic/Line Mixer, 1604-VLZ PRO 16-Channel Mic/Line Mixer, SRM450 Active 2-Way SR Loudspeakers, C300 passive 2-way SR Loudspeakers, M•800/M•1400i/M•1400/M•2600 Power Amplifiers

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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
Input Impedance	1.3kΩ
Common Mode Rejection	› 90dB
Common Mode Rejection Ratio	› 140dB

Main Mix Noise[1]	
Main Mix fader unity, ch. faders down:	–90.5dB
Main Mix fader @unity, ch. faders @unity:	–90.0dB

Total Harmonic Distortion (THD)[2]	
	0.005%

Attenuation (Crosstalk)[3]	
Channel Mute switch engaged:	–84dBu
Channel fader down:	–84dBu

Frequency Response[4]	
20Hz to 60kHz:	+0dB/–1dB
20Hz to 100kHz:	+0dB/–3dB

Maximum Levels	
Mic in:	+22dBu
All other inputs:	+22dBu
Main Mix XLR outputs:	+28dBu
All other outputs:	+22dBu

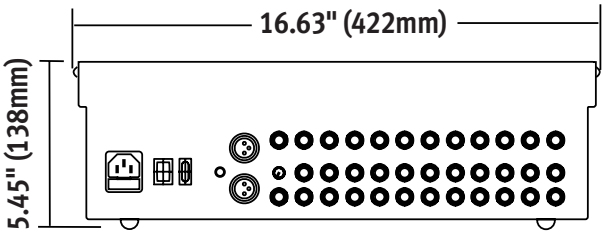
Impedances	
Mic in:	1.3kΩ
Channel Insert return:	2.5kΩ
All other inputs:	› 10kΩ
Tape out:	1.1kΩ
All other outputs:	120Ω

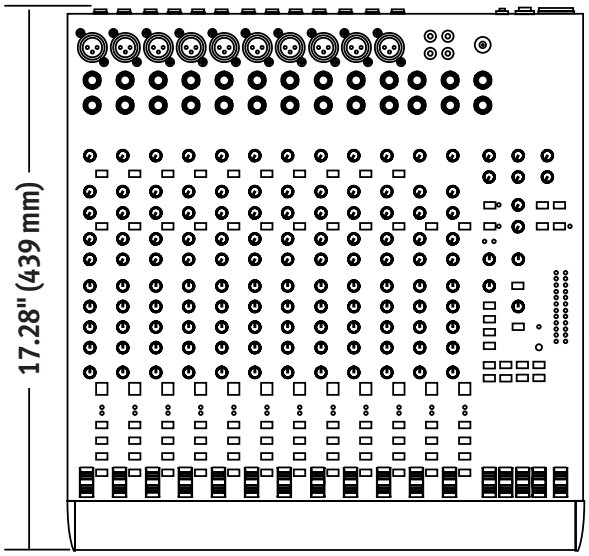
EQ Channels 1-8	
High Shelving:	±15db @ 12kHz
Mid Peaking:	±15dB, sweep 100Hz–8kHz
Low Shelving:	±15db @ 80Hz
Low Cut Filter:	18dB/octave, –3dB @ 75Hz

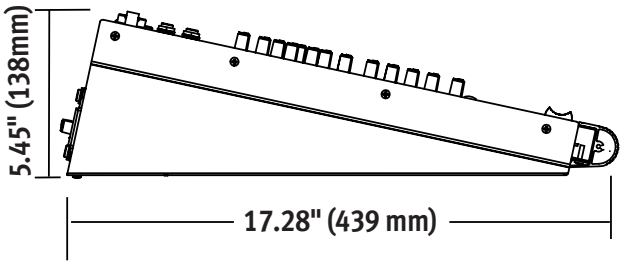
EQ Channel 9–16	
High Shelving:	±15db @ 12kHz
High Mid Peaking:	±15dB, @ 3kHz
Low Mid Peaking	±15dB, @ 800Hz
Low Shelving:	±15db @ 80Hz

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

Physical	
Weight	18.2 lbs. (8.3kg)
Dimensions	5.45" x 16.63" x 17.28" (138mm x 422mm x 439mm)







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 +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.

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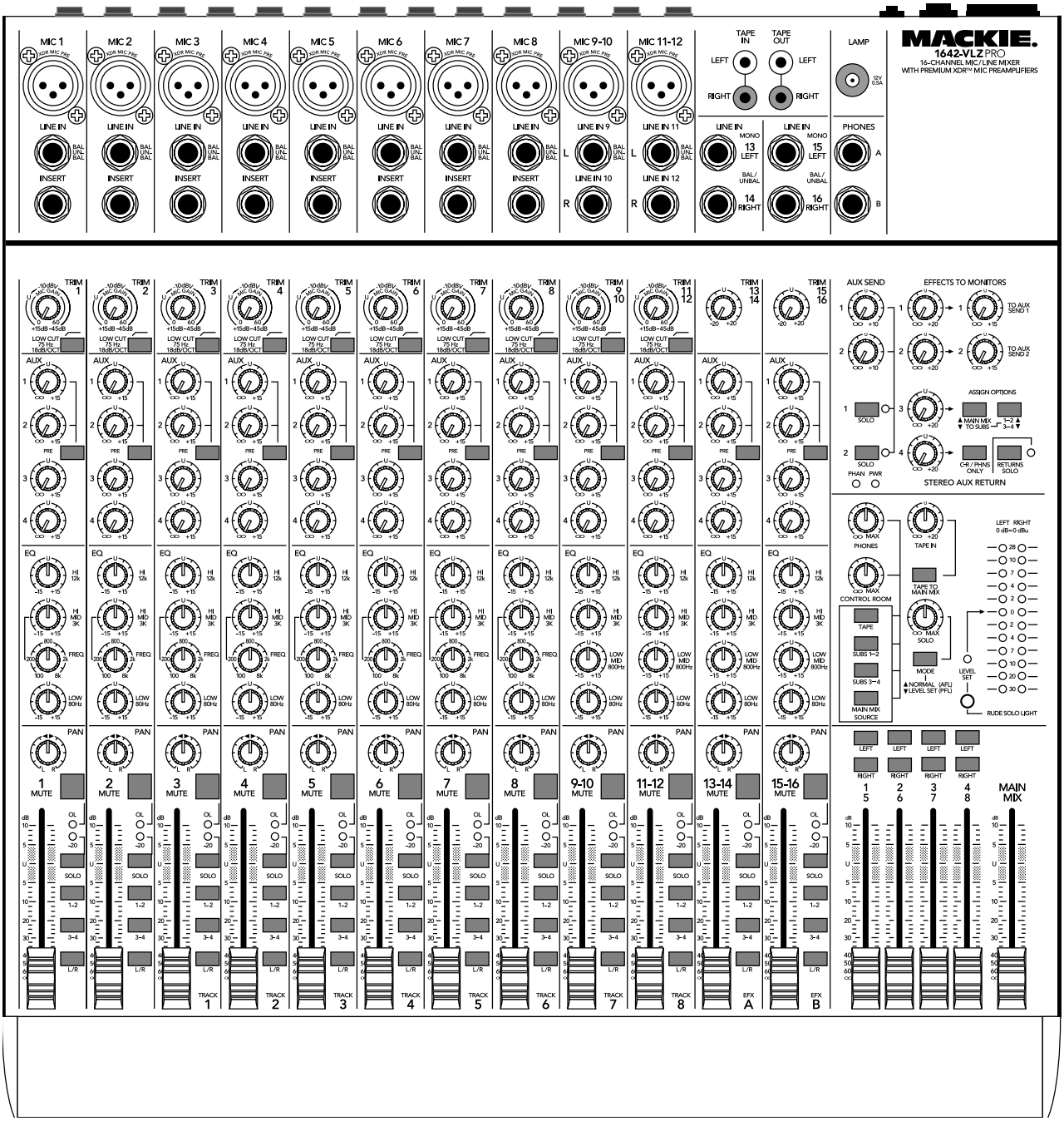

Radio frequency interference from TV/radio stations and cellular phone users is virtually eliminated, thanks to Mackie's new XDR mic preamp design.

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. Multi-user venues such as churches, night clubs, A/V rooms and schools are perfect homes for the 1642-VLZ PRO.

Ten XDR mic preamps deliver the finest quality sound ever offered in a compact mixer. They cannot be damaged by hot patching. And they are imped-

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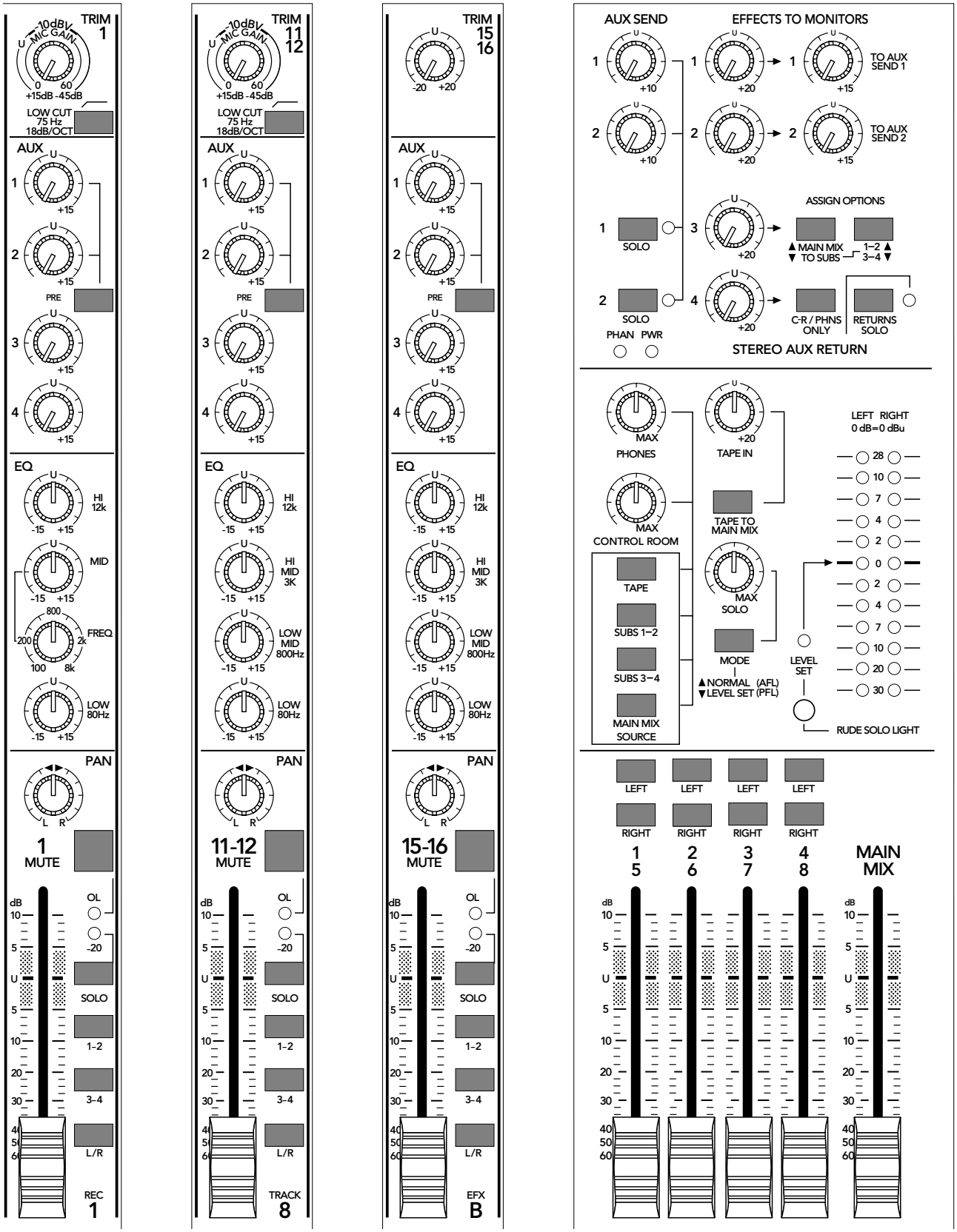

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ance-independent—frequency response remains the same whether the mic preamp is presented with an extremely high or low-impedance load. Additionally, mic channels (1 through 8, 9/10, & 11/12) have their own switchable low cut filter (18dB/octave @ 75Hz), 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 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.

The 1642-VLZ PRO's mono main out also has its own level control, so a mono mix can be sent to another zone and adjusted accordingly.

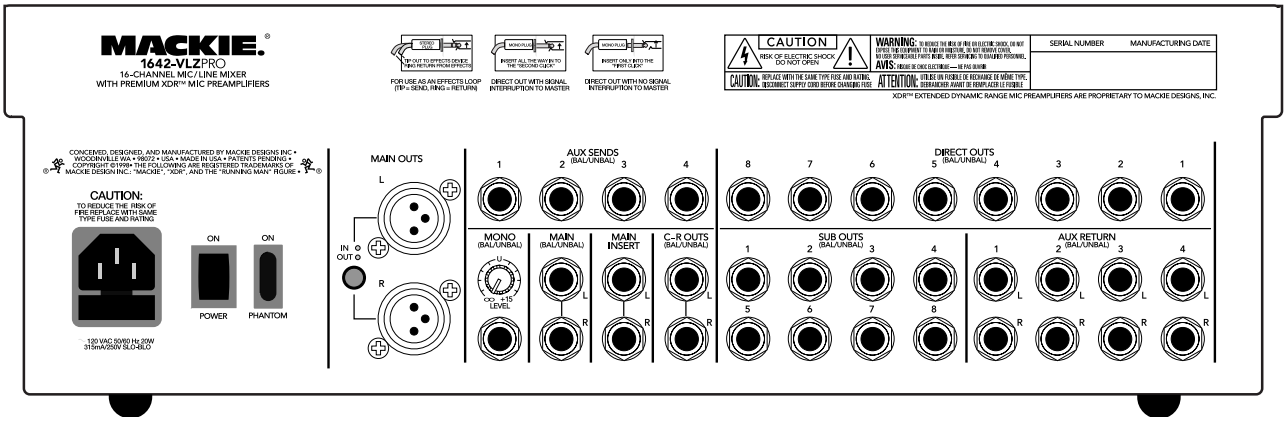
The mixer has four aux sends per channel strip with Aux Sends 1 & 2 switchable pre- or post-fader and Aux Sends 3 & 4 post-fader.

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 1642-VLZ PRO's constant-loudness pan pots maintain a consistent loudness across the stereo horizon.

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 1642-VLZ PRO is designed for continuous, hassle-free use in any application or installation where extra line-level inputs are useful. And it's packed with useful features and practical routing capabilities. Simply stated, this mixer offers features, peace of mind and excellent performance at an extremely affordable price.

And it's a Mackie!



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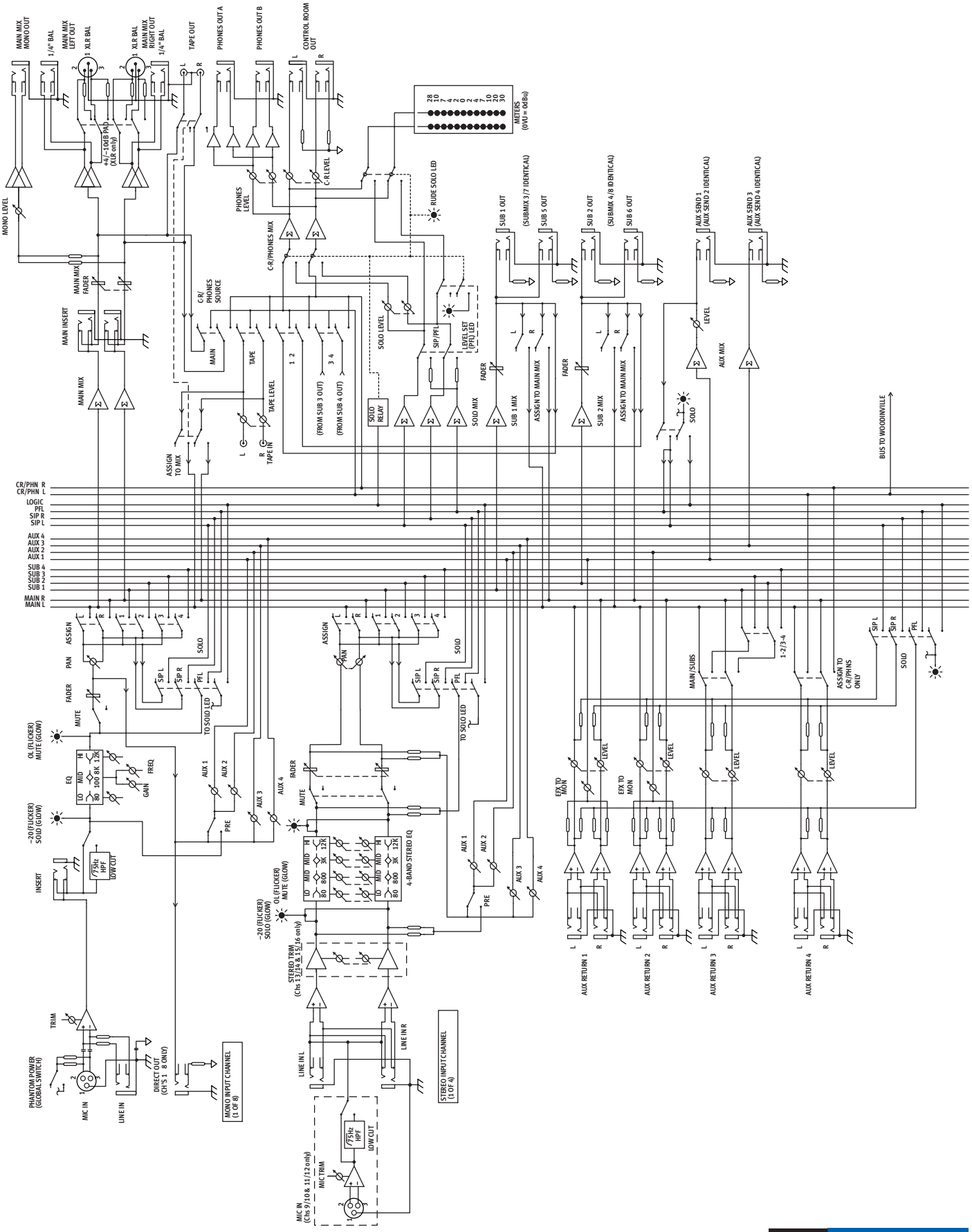

Architect & Engineering Specifications

1. GENERAL CONFIGURATION. The mixer shall consist of 8 mono channels accommodating line and/or microphone signals (Channels 1–8), two hybrid channels accomodating stereo line and/or mono microphone signals (Channels 9/10 & 11/12) and two stereo channels accomodating stereo line inputs (Channels 13/14 &15/16); and shall include 8 Send/Return channel Inserts and 8 channel Direct Outputs, channels 1–8; 4 stereo pairs of Aux Return inputs; 2 stereo pairs of Main Mix outputs; 1 Main Mix Mono output with level control, 1 stereo pair of Control Room outputs; 4 Submaster outs double-bussed to 8 outputs; 4 Aux Send outputs; 2 stereo pairs of RCA-type Tape inputs and outputs; and 2 stereo Headphones outputs. The mixer shall be capable of placement on a table or installation in a standard 19-inch rack mount via RM1642-VLZ rack rail brackets (not 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 1–8: 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. 48V phantom power shall be globally controlled via a rocker-type switch. Each channel shall also include a balanced/unbalanced (bal/unbal) line input wired in parallel, using 1/4" TRS phone jacks, accepting nominal levels from –45dBu 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.

CHANNELS 9/10 & 11/12 (two channel strips): Each channel strip 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. Each channel strip shall also include a stereo pair of balanced/unbalanced (bal/unbal) line inputs wired in parallel, using 1/4" TRS phone jacks, accepting nominal levels from –45dBu to +4dBu.

CHANNELS 13/14 & 15/16 (two channel strips): Each channel strip shall include a stereo pair of balanced/unbalanced (bal/unbal) line inputs wired in parallel, using 1/4" TRS phone jacks, accepting nominal levels from –45dBu 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 (labeled TAPE OUT), accepting nominal levels from –10dBV to +4dBu.

3. MIXER OUTPUTS.

MAIN OUTPUTS: The mixer's Main Mix stereo outputs shall be fitted in three ways: Using balanced a stereo pair of XLR-3-M-type connectors, delivering maximum output of 28dBu, including 1 recessed Main Output Level switch to provide 30 dB of attenuation (XLR outputs only); using a stereo pair of symmetrically balanced (also accepting unbalanced) 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; and using a stereo pair of unbalanced RCA-type phono jacks, delivering nominal levels from –10dBV to +4dBu; one stereo pair of 1/4" TRS pre-fader insert points delivering and accepting levels from +4dBu nominal to +22dBu max. The mixer's 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 outs double-bused to 8 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; 4 Aux Send outputs using bal/unbal 1/4" TRS phone jacks, delivering nominal levels from –10dBV to +4dBu; and 2 stereo Headphones outputs, using an unbalanced 1/4" TRS phone jack (tip=left, ring=right, sleeve=ground).

4A. MIXER INPUT SECTION—ALL CHANNELS. In addition to the controls listed in section 2 (MIXER INPUTS), each channel shall include 4 rotary Aux Send controls, providing up to 15dB gain; 1 pre/post switch for Auxes 1 and 2; 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.

4B. CHANNELS 1–8. In addition to the controls listed in Section 2 and 4A, each channel shall include 4 rotary equalization (EQ) controls: ±15dB fixed 12kHz shelving gain, ±15dB midrange peaking gain, 100Hz – 8kHz midrange frequency, ±15dB fixed 80Hz shelving control and an 18dB/octave 75Hz Low Cut filter accessible via push switch.

4C. CHANNELS 9–16. In addition to the controls listed in Section 2 and 4A, each channel shall include 4 rotary equalization (EQ) controls: ±15dB fixed 12kHz shelving gain, ±15dB fixed 3K High midrange peaking gain, ±15dB fixed 800HZ Low midrange peaking gain, and ±15dB fixed 80Hz shelving control. Channels 9/10 & 11/12 also include an 18dB/octave 75Hz Low Cut filter accessible via push switch.

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 switches for each Submaster; separate control room and phones rotary stereo level controls, 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; 2

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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 (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 soloed channel(s). The meters shall be calibrated such that a 0dBu signal at the Control Room output shall be indicated as 0dB on the meters, ±1LED.

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 18.2 lbs, (9.1 kg). Optional rack-mount brackets shall allow the mixer to be mounted in a rack system. Dimensions of the mixer shall be, in Desktop Mode, 5.45" (138mm) in height, 16.63" (442mm) in width and 17.9" (455mm) 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), 1k@+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, ≥90dB; Typical Main Output noise, all channels assigned, odd channels panned left, even channels panned right, Main Mix fader down, channel faders down, –100dBu; Signal to Noise ratio, ref +4dBu operating level, 90dB; Attenuation, ref. 0dB @ 1kHz, Channel Mute engaged, –84dBu, Channel Gain control down, –84dBu; Input impedance, microphone inputs, 1.3 kΩ; Channel Insert return, 2.5 kΩ; All other inputs, greater than 10 kΩ; Output impedance, Tape Out, 1.1 kΩ; All other outputs, 120Ω.

The mixer shall be a Mackie Designs 1642-VLZ PRO.

FILES FOR DOWNLOADING

1642VLZP.PDF	this specification sheet
1642VPAE.TXT	text version of Architects and Engineering Specifications for insertion into proposals

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