

24-Channel Sound Reinforcement Console

Introduction

■ THE SR24•4-VLZ PRO is the latest update of our SR24•4 sound reinforcement console, incorporating our ultra-high quality XDR™ (Extended Dynamic Range) mic preamps with the best RFI rejection of any sound reinforcement mixer design on the market.

■ Like all of Mackie Designs' mixers, the SR24•4-VLZ PRO is designed for rugged, 24-hour-a-day use. With its multiple input/output configurations, true 4-bus architecture, 6 aux sends, and extensive routing capabilities, it can be used in a variety of live sound and recording applications. Its sturdy steel construction houses rugged, double-sided SMT-plated fiberglass circuit boards, and 60 mm 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.

■ The SR24•4-VLZ PRO has 20 mono mic/line input channels, with XLR mic inputs and 1/4" TRS line inputs, and 2 stereo line input channels with 1/4" TRS inputs. All mono channels have TRS insert jacks (tip = send, ring = return). Each channel strip has an input trim, 6 aux sends (2 pre-fader, 2 post-fader, and 2 switchable pre or post), 3-band EQ with sweepable midrange (4-band EQ on the stereo channels), pan control, and mute, solo, and bus assign switches. A 60 mm fader provides output gain for each channel.

■ Twenty XDR mic preamps provide high-headroom and low-noise. They are impedance-independent, so the frequency response remains constant whether the mic preamp is presented with an extremely high- or low-impedance load. Additionally, each channel has its own switchable low-cut filter (18 dB/octave @ 75 Hz).

■ The mono channel EQs provide a range of ±15 dB at the following frequencies: 12 kHz shelving high-frequency EQ, 100 Hz to 8 kHz sweepable peaking mid-frequency EQ, and 80 Hz shelving low-frequency EQ. The stereo channels (21-24) provide ±15 dB of boost and cut at the following frequencies: 12 kHz shelving high-frequency EQ, 3 kHz peaking high-mid frequency EQ, 800 Hz peaking low-mid frequency EQ, and 80 Hz shelving low-frequency EQ.

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Features

- Low noise/high headroom XDR™ (Extended Dynamic Range) mic preamps with excellent RFI rejection
- New high-performance 2068 op-amps for incredibly low noise and distortion
- Improved cooling for even greater thermal protection
- 20 mic/line mono, and 2 stereo line channels
- True 4-bus design
- Solo, pan, and 16 kHz Air EQ on each submaster
- 6 individual aux sends per channel (2 pre, 2 post, 2 switchable pre/post)
- 3-band swept midrange EQ on mic channels; 4-band fixed on stereo line channels
- 75 Hz low-cut filters on mic channels
- Mute, solo, signal present and OL LEDs on every channel
- 6 aux send masters with individual solos
- 4 stereo aux returns with EFX monitor
- Separate Talkback section with mic preamp
- Double-bused sub outs for easy multi-track routing
- Balanced stereo TRS & XLR main outputs
- Balanced XLR mono output with level control

RELATED PRODUCTS

SR32•4-VLZ PRO

Applications

- Live sound mixing
- Multi-track recording

SR24•4-VLZ PRO

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Specifications

Noise

(20 Hz to 20 kHz bandwidth, Line inputs to Main L/R outputs, all channels assigned, panned L/R):

Master fader down, Ch. gains down	-94.7 dBu
Master fader @ unity, Ch. gains down	-87.4 dBu
Master fader @ unity, Ch. gains @ unity	-83.5 dBu

Total Harmonic Distortion

(1 kHz @ +14 dBu, 20 Hz-20 kHz):

Mic input insert output	<0.0007%
Other outputs	<0.004%

Crosstalk

(1 kHz @ 0 dBu, 20 Hz to 20 kHz bandwidth, channel in to Main Left outputs):

Channel fader down, channels at Unity	-89.5 dB
Channel muted, channels 2-16 at Unity	-88.7 dB

Frequency Response

(any input to any output):

20 Hz to 60 kHz	+0/-1dB
10 Hz to 100 kHz	+0/-3dB

Maximum Levels

Mic preamp input	+22 dBu
All other inputs	+22 dBu
Balanced XLR outputs	+28 dBu
All other outputs	+22 dBu

Impedances

Mic preamp input	1.5 k Ω
All other inputs	>10 k Ω
All outputs	120 Ω

Equalization

Lo EQ Shelving 80 Hz	+15 dB
Mid EQ (mono ch) Peak 100 Hz-8 kHz	+15 dB
Hi EQ Shelving 12 kHz	+15 dB

Microphone Preamp

E.I.N. (150 Ω terminated, max gain)	-129.5 dBm
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Power Requirements

60 watts

Physical

Dimensions (HxWxD):	5.60" x 31" x 19.20"
	142.24 mm x 787.40 mm x 487.68 mm
Net Weight: 24•4-VLZ PRO	31 lbs (14 kg)

(continued from page 1)

■ Channels can be assigned to buses 1-2, 3-4, and Main Mix L/R, and the 4 subs can be assigned to Left and Right Main Mix. Furthermore, each bus is "double-bused," providing eight outputs that can be connected to an 8-track recorder without repatching. Each sub out (1-4) and main out (L/R) has a TRS insert jack. Furthermore, Mackie's unique "AIR" EQ circuit is included on each of the four subgroups. It provides a gentle nudge to the extreme high-end, without affecting lower treble octaves.

■ Outputs include XLR and 1/4" TRS line outputs for the left and right mains, 1/4" TRS line outputs for subs 1-4, and an XLR mono main output. The mono main out has its own level control, so a mono mix can be sent to another zone and adjusted accordingly.

■ The Phones/Control Room switch and level control are connected to two stereo headphone outputs and the left and right Control Room output, allowing the stereo Tape Return, Left/Right Main Mix, and Solo to be monitored.

■ A stereo playback device can be monitored via the Tape Return Inputs. Tape Return to Phones/C-R routes the tape playback signal into the monitor system and meters, and the Tape Return knob adjusts the level of playback, which can be monitored via headphones. Tape Return signals can also be assigned directly to the Main Mix. The SR24•4-VLZ PRO also has RCA-style Tape Outs for output to conventional stereo recording devices.

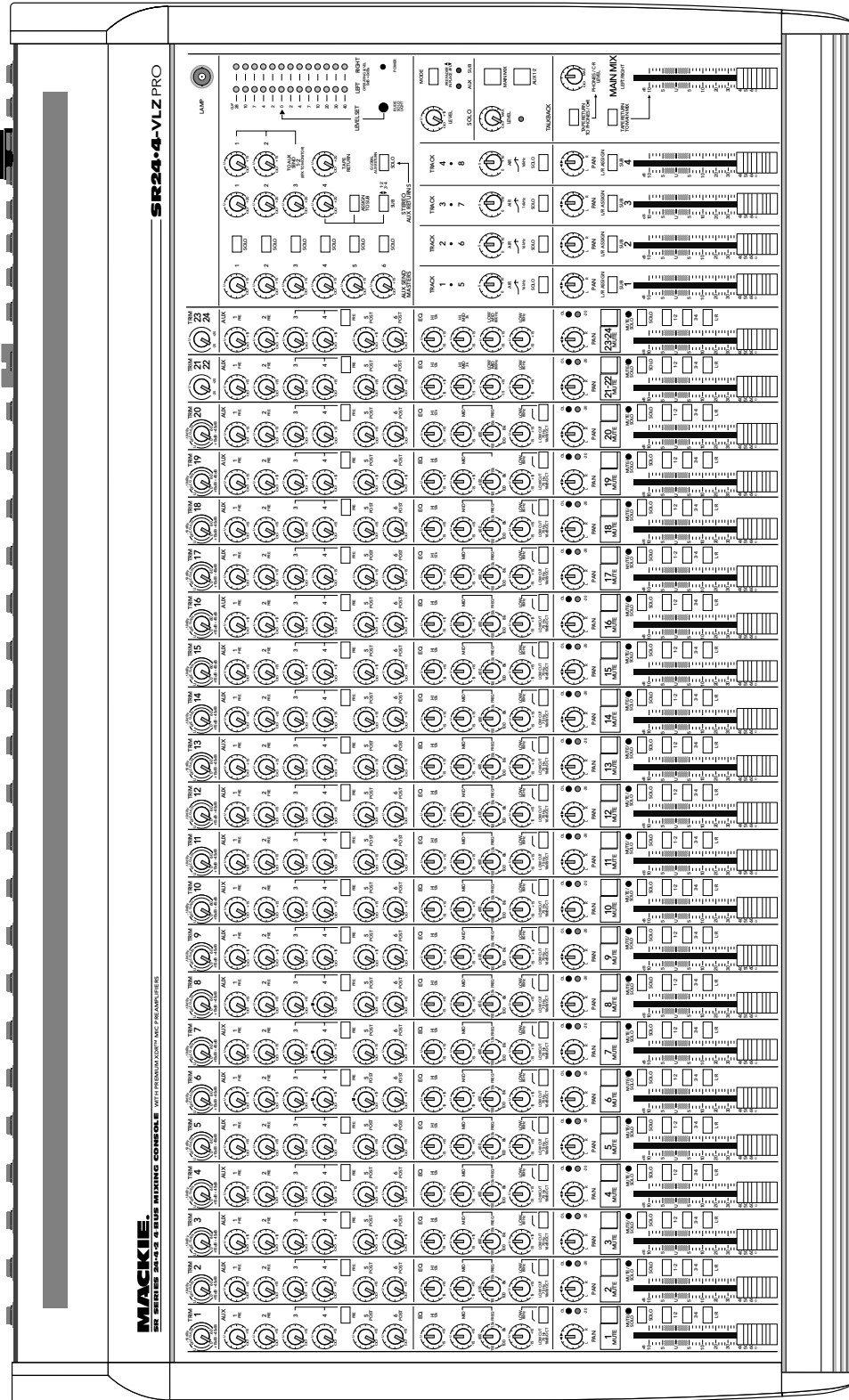
■ Each of the six aux sends has its own individual master send control, driving 1/4" TRS output jacks. Six stereo aux returns are provided, with 1/4" TRS input jacks. Two aux returns can be folded back into Aux Sends 1 and 2 via their own volume controls to add effects in stage monitors.

■ An XLR input is provided for a talkback mic, which can be assigned to the Main Mix or to Aux 1-2. The talkback mic has a level control in the talkback section.

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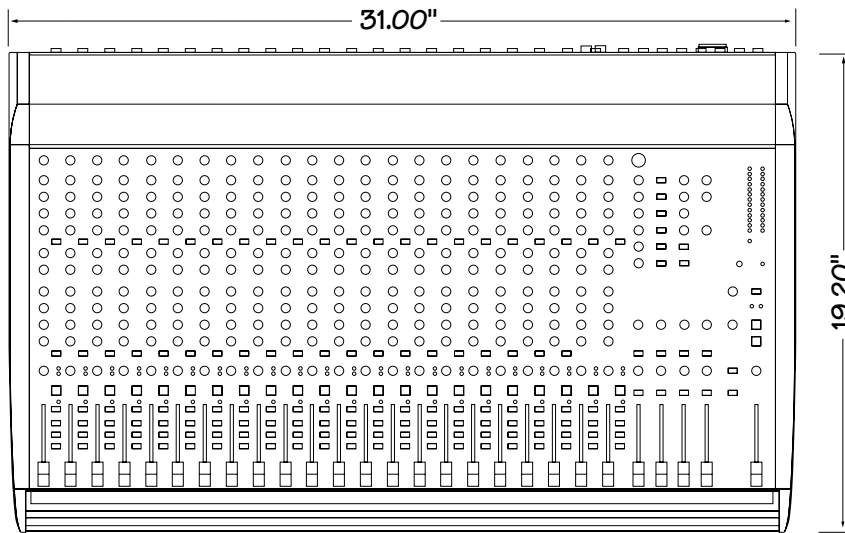
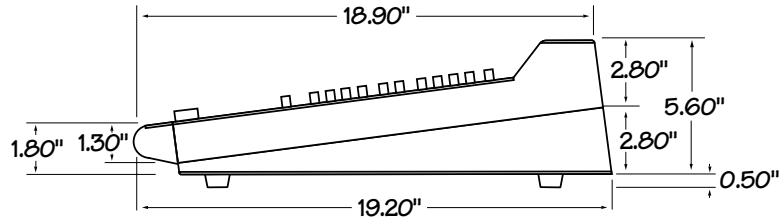
SR24•4-VLZ PRO Top



SR24•4-VLZ PRO

24-Channel Sound
Reinforcement Console

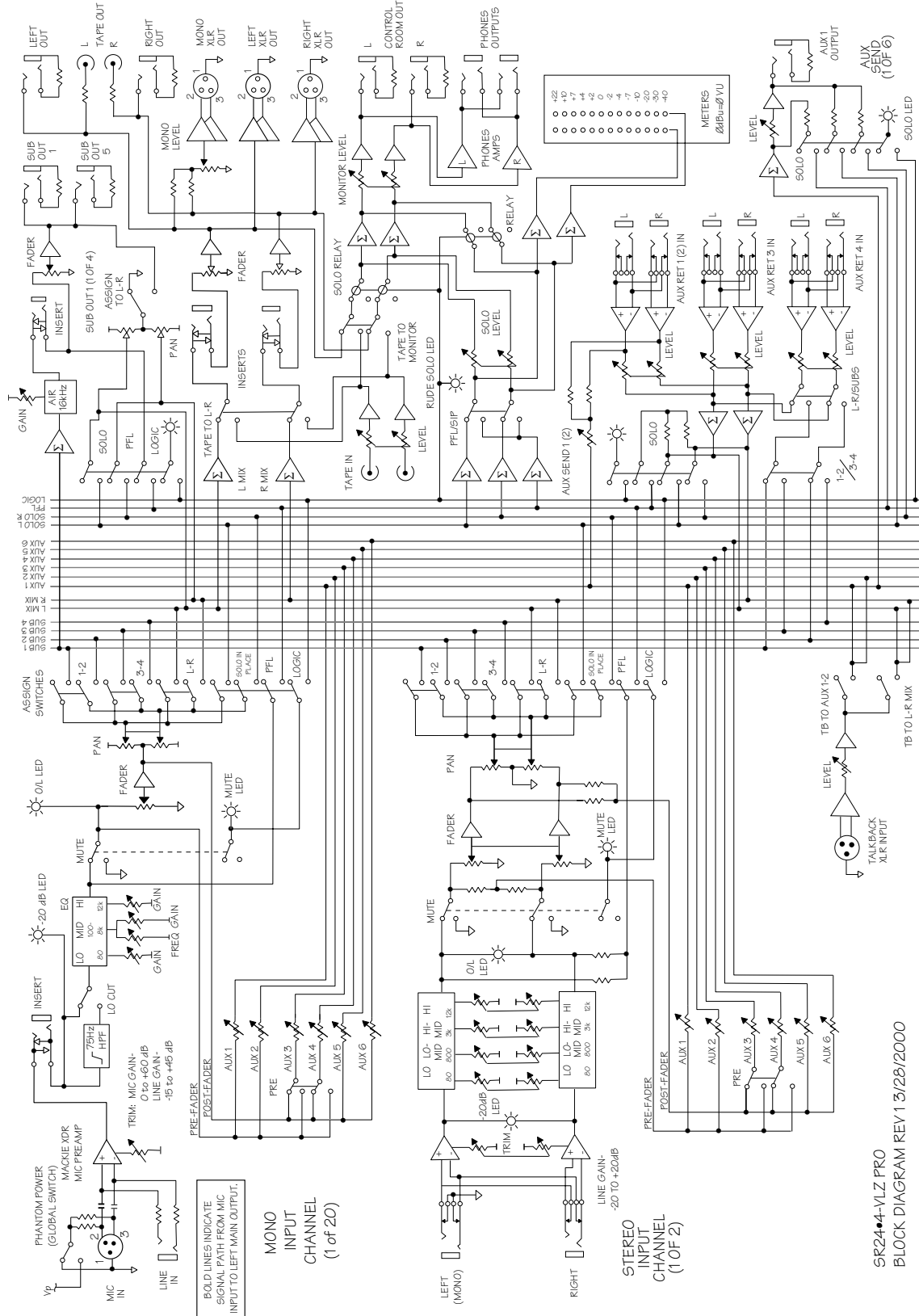
SR24•4-VLZ Pro Dimensions



SR24•4-VLZ PRO

24-Channel Sound Reinforcement Console

SR24•4-VLZ PRO Block Diagram



SR24•4-VLZ PRO
BLOCK DIAGRAM REV 1 3/28/2000

Architects' and Engineers' Specifications

1. GENERAL CONFIGURATION. The audio mixer shall have a free-standing frame fitted with four resilient feet suitable for tabletop placement. The frame shall be comprised of 20 monaural input channels, 2 stereo input channels, 4 submix output channels and 2 main output channels. The monaural input channels shall be capable of accepting either microphone- or line-level signals, and shall be fitted with trim, equalization, balance, and auxiliary send controls; solo, mute, and bus assign switches; level-indicating LEDs and insert jacks. The stereo input channels shall be capable of accepting either stereo or monaural line-level signals, and shall be fitted with stereo trim, equalization, balance, and auxiliary send controls; solo, mute and bus assign switches; and level indicating LEDs. The submix outputs shall each have level, pan, and "air" controls; solo and assign switches; and a bus access insert jack. The main outputs shall share a stereo master output fader and shall be fitted with insert jacks. Additionally, the mixer shall include a pre-fader/post fader solo function, a main monaural output with level control derived from the main stereo outputs, 6 monitor/effects send outputs, 4 stereo effects return inputs with switching and control functions, 1 stereo control room monitor output, 2 stereo headphone outputs, 1 set of stereo tape recorder convenience outputs, and 1 set of stereo tape monitor inputs.

2. POWER SUPPLY. All necessary operating voltages for the mixer shall be provided by an internal power supply.

3. INPUT CHANNEL CONNECTIONS. Each monaural channel (1-20) shall include an XDR™ (Extended Dynamic Range) electronically balanced microphone input, using an XLR-3-F-type connector, accepting nominal levels from -60 dBu to +4 dBu via a rotary Trim control. Phantom power shall be globally controlled via a rocker-type switch. Each monaural input channel shall also have an electronically balanced line level input, accommodating a nominal line level of between -10 dBV and +4 dBu, and appearing on the rear panel as a 1/4" TRS phone jack. Each stereo input channel shall have left and right electronically balanced line level input, accommodating a nominal line level of between -10 dBV and +4 dBu, and appearing on the rear panel as 1/4" TRS phone jacks. These jacks shall be fitted with internal switching contacts to accommodate monaural configuration. Additionally, each of the monaural input channels (1-20) shall offer an unbalanced insert connection, appearing on the rear panel as a 1/4" TRS phone jack.

4. INPUT CHANNEL LEVEL AND ASSIGNMENT CONTROLS AND INDICATORS. Each monaural input channel shall be equipped with a preamplifier gain control, a solo switch, a mute switch, three bus assignment

switches, and a stereo pan control. Each stereo input channel shall be equipped with a dual preamplifier gain control, a solo switch, a mute switch, three bus assignment switches and a stereo balance control.

5. INPUT CHANNEL EQUALIZATION. Each monaural input channel shall be equipped with an equalization function. The equalizer shall have three sections: a low-frequency shelving equalizer with the knee set at 80 Hz and a range of ± 15 dB; a mid-frequency peaking equalizer with a center frequency sweepable from a range of 100 Hz to 8 kHz, and a range of ± 15 dB; and a high-frequency shelving equalizer with the knee set at 12 kHz and a range of ± 15 dB. Each stereo input channel shall be equipped with a stereo equalization function. The equalizer shall have four sections: a low-frequency shelving equalizer with the knee set at 80 Hz and a range of ± 15 dB; a low-mid-frequency peaking equalizer centered at 800 Hz and a range of ± 15 dB; a high-mid-frequency peaking equalizer centered at 3.5 kHz and a range of ± 15 dB; and a high frequency shelving equalizer with the knee set at 12 kHz and a range of ± 15 dB.

6. INPUT CHANNEL AUXILIARY SENDS. Each mixer input channel shall have 6 monaural auxiliary send controls. Two auxiliary send controls shall be fixed as pre-fader sends; two shall be fixed as post-fader sends; and two shall be switchable between pre-fader and post-fader. All auxiliary sends shall be post-mute switch.

7. MAIN OUTPUT CONNECTIONS. The mixer shall have electronically balanced, line-level left and right main outputs, appearing on male XLR-3 type connectors and impedance balanced on 1/4" phone TRS jacks on the rear panel. Additionally, the main buses shall offer left and right unbalanced insert connections, appearing on the rear panel as 1/4" phone TRS jacks. Further, there shall be a main, electronically balanced, monaural output derived from the main stereo output, appearing as a male XLR-3 type connector on the rear panel. There shall be an output level control to adjust the main monaural output level.

8. OTHER OUTPUT AND MONITORING CONNECTIONS. The mixer shall have the following impedance balanced line-level connections, appearing as 1/4" TRS jacks on the rear panel: submix bus outputs 1-4, also wired in parallel respectively to submix outputs 5-8; left and right control room monitor outputs, left and right tape monitor outputs, left and right tape monitor inputs. For convenience, the left and right main outputs (unbalanced) and the left and right tape monitor inputs shall also appear as RCA phono jacks on the rear panel. There shall also be two stereo headphone outputs on the rear panel of the mixer, carrying the control room monitor signals at levels and impedances proper for headphones. Each headphone output connection shall be a stereo 1/4" jack.

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9. OUTPUT AND MONITORING CONTROLS AND SWITCHES.

The mixer shall include one linear fader control for gain adjustment of main L/R outputs, covering a range from infinite attenuation to +10 dB above unity gain. A tape monitor switch shall alternately select either the main L/R outputs or the signal at the tape inputs as the source for the control room and headphones monitoring circuits. There shall be a stereo dual-channel rotary control for gain adjustment of the control room and headphone monitor output. The mixer shall have a stereo dual-channel control for adjustment of the monitoring level of the internal solo signals, and a light to indicate channel solo condition. The solo system shall be capable of switching between PFL (pre-fader listen) and AFL (after-fader listen—solo in place) operation.

10. OUTPUT METERING. The mixer frame shall include two 13-segment LED meters each displaying a signal range from -40 dBu to +10 dBu, each with an additional LED indicating mixer clipping level at +22 dBu. The meters shall monitor the main left and right output channels; alternately, the meters shall monitor the tape return signals when the tape monitor switch is depressed; or, the soloed input channel signals when the solo switch is depressed.

11. AUXILIARY SEND CONNECTIONS. The mixer shall include impedance balanced, line-level outputs from the six auxiliary send buses, appearing on the rear panel as 1/4" TRS phone jacks.

12. AUXILIARY RETURN CONNECTIONS. The mixer shall include 4 stereo auxiliary return inputs. Each auxiliary return shall have a left and a right balanced line-level input, accommodating a nominal line level of between -10 dBu and +4 dBu, and shall appear on the rear panel as 1/4" TRS phone jacks. The jacks shall be fitted with internal switching contacts to accommodate monaural configuration.

13. AUXILIARY RETURN CONTROLS AND SWITCHES. The mixer shall include 4 dual-channel auxiliary return gain controls, each feeding the main stereo buses. Auxiliary returns 1-2 shall have their signals assignable to auxiliary send buses 1 and 2, respectively, through rotary level controls. Auxiliary return 4 shall be assignable to three different pairs of destinations, feeding either the main left and right buses or the submix buses.

14. PHYSICAL CONFIGURATION. The mixer shall have a steel chassis frame painted grey-black and designed to rest on a horizontal surface. The SR24•4-VLZ PRO's dimensions shall be 6.1" (155mm) high by 31" (787mm) wide by 19.2" (487mm) deep.

15. SPECIFICATIONS. In addition to specifications previously cited, the mixer shall meet or exceed the following specifications. Frequency response, microphone input to any output, 20 kHz to 60 kHz, +0 dB/ -1 dB; Total Harmonic Distortion (THD), any input to any output, 1 kHz @ +14dBu, 0.004%; Equivalent Input Noise (EIN), microphone input to insert send, -129.5 dBm; Common Mode Rejection (CMR), microphone input to insert send, maximum gain, 1 kHz, better than 90 dB; Typical Main Output noise, all channels assigned, odd channels panned left, even channels panned right, all faders down -94.7 dBu; Signal to Noise ratio, ref +4 dBu operating level, 90 dB; Attenuation, ref. 0 dB @ 1 kHz, Main Mix level control down, -85 dBu; Channel Mute engaged, -84 dBu; Channel Gain control down, -83 dBu; Input impedance, microphone inputs, 1.5 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 .

16. DESIGNATION. The mixer shall be a Mackie Designs SR24•4-VLZ PRO.

Electronic files for this product available at:
www.mackie.com/installed

This Specification Sheet	SR24VLZPRO_SS.PDF
Owner/Operator's Manual	SRVLZPRO_OM.PDF
CADD files	SR24VLZPRO.DXF

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