

*Master Sounds*

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## Linear 4V Radius 4V Operation Manual



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# 1: Important **safety** instructions – Read first

**READ THE INSTRUCTIONS** – Read and retain these instructions for future reference. Adhere to all warnings printed here and on the console and its power unit.

**COVERS** – Do not remove the power unit cover. Operate the console with its cover correctly fitted. Refer servicing work to authorised personnel only.

**MAINS POWER** – Connect the console power unit to a mains power supply only of the type described in this user guide and marked on the unit. The power source must provide a good ground connection. Do not remove or tamper with the ground connection in the power cord. Use the power cord with a sealed mains plug appropriate for your local mains supply as provided with the console. Route the power cord so that it is not likely to be walked on, stretched or pinched by items placed upon or against it.

**INSTALLATION** – Install the console and its power unit in accordance with the instructions printed in this user guide. Do not connect the output of power amplifiers directly to the console. Use audio connectors and plugs only for their intended purpose.

**VENTILATION** – Ensure adequate ventilation around the console and its power unit. Do not obstruct the ventilation slots or position the unit where the air flow required for ventilation is impeded.

**MOISTURE** – To reduce the risk of fire or electric shock do not expose the equipment to rain or moisture or use it in damp or wet conditions. Do not place containers of liquids on it, which might spill into any openings.

**ENVIRONMENT** – Locate the units away from direct sunlight and any equipment which produces heat, such as power supplies, amplifiers and heaters. Protect from excessive dirt, dust, heat and vibration when operating and storing. Avoid tobacco ash, drinks spillage and smoke, especially that associated with smoke machines. Do not mount the power supply on any surface subject to resonance or vibration.

**HANDLING** – To prevent damage to the controls and cosmetics avoid placing heavy objects on the console surfaces, scratching the surface with sharp objects, or rough handling and vibration. Protect the controls from damage during transit. Use adequate packing if you need to ship the unit.

## 2: Overview

Following the worldwide success of the Radius 2 and 4 analogue rotary DJ mixers, MasterSounds and Union Audio continue their award winning partnership with the launch of the Linear 4V and Radius 4V valve DJ mixers.

The Linear 4V & Radius 4V have been designed by Union Audio and MasterSounds and developed by Union Audio at their Cornwall based workshops. Andy Rigby-Jones, former head of design for the world-renowned Allen & Heath Xone DJ mixer range, personally designed, built and tested the analogue electronics, whilst MasterSounds founder Ryan Shaw worked on the mixer's feature set and sound.

Each mixer is lovingly hand-built, tested and shipped directly from Union Audio, ensuring the ultimate in quality, reliability and performance.

Andy says: *"The Linear 4V & Radius 4V's signal path features pure high-end analogue topology for minimal distortion, low noise floor and high headroom, aided by only using components of the highest quality. The addition of a fully discreet mix stage further adds to the sound quality of our unique creation."*

With more than twenty years' experience of DJing, as well as a background in design and manufacturing, MasterSounds founder Ryan Shaw says: *"The Linear 4V and Radius 4V are a fabulous addition to the MasterSounds range and are a response to customers who loved the Radius 2 and 4's design, but required a more traditional mixer layout, including 3 band EQ, LED meter on each channel and a cross fader. The addition of a valve on each of the 4 input channels adds to the Linear 4V & Radius 4V's unique feature set and beautiful sound."*

The Linear 4V and Radius 4V offer a fantastic clean, open and dynamic sound on both LINE and RIAA inputs across all 4 channels, as well as great usability. The mixer features easy-reading backlit VU Meters, a responsive Master EQ/Isolator, 3 band EQ per channel, assignable cross fader, LED meter on each channel and Aux send system.

A unique feature is the ability to reconfigure the Aux Return Jacks as a Mix Buss Insert, giving the user unparalleled flexibility for FX integration, simply at the press of a button. This system marries perfectly with the MasterSounds FX unit.

And last but not least, the addition of two Mic inputs gives 4V the club standard specification seal of approval.

This is a premium product for true music lovers that comes in at a competitive price point for the dedication, quality and love that goes, and will continue to go, into each hand-built unit.

### 3: Front panel controls



(Linear 4V shown)

**MIC I/P SELECT** – The Radius 4V & Linear 4V feature two Microphone inputs on CH1 & CH2, which are located on the rear panel, (see the **MIC ON** paragraph in the Rear Panel Control section).

**AUX** – The AUX send level pot adjusts the amount of channel signal level sent to the Aux Mix Buss (and on to an external FX unit). Fully clockwise the signal level is boosted by +10dBu, allowing for precise adjustment of FX signals.

**PRE** – The PRE button switches the Aux send feed from Post Fader to Pre Fader (i.e. set to Pre Fader it will still send to the Aux Mix Buss with the rotary fader down).

**TRIM** – The TRIM pot adjusts the input signal level from OFF up to a maximum of +10dBu, enabling accurate level matching between different musical sources

**LINE/RIAA** – This button selects either the RIAA (Phono) level input in its top position, or the LINE input in the bottom position as indicated with screen printed text.

**3 BAND EQ** – The Radius 4V & Linear 4V feature a traditional HIGH MID LOW equalisation system, each pot gives -20dB of cut and +6dB of boost per band.

**CUE** – Each CUE button routes the channel signal to the headphones. Pressing the CUE button illuminates the red LED. When CUE buttons are activated you can hear the selected CUE channels playing. When no CUE button is active the headphone signal is automatically routed to the Master Mix Buss.

**VALVE SLOT** – There are 4 valve slots on the front panel, with an attractive perforated mesh below each slot arrangement. Below each slot shows the valve, with a red LED glow around it.

**XFADE SWITCH** – Below each CUE button is a XFADE toggle switch. This switch assigns the cross fader to the desired channel. If the XFADE toggle switch is set to X the channel mix is sent via the cross fader and sound will be heard if the cross fader is set to X. When the OFF toggle is selected sound bypasses the cross fader, and when the toggle switch is set to Y no sound will be heard in the mix if the cross fader is set to X.

**LED METER** – Each of the 4 channels features a 10 bar LED meter. This visually shows the amount of input signal being processed through each channel, ranging from -25dB to PK (**PEAK SIGNAL**). Normal operating range should be -6dB to +6dB with an average of 0dB. This gives enough headroom for unexpected peaks in the musical signal. It is important to be aware that if the signal reaches PK the channel should be turned down as distortion could occur.

**CH1-CH4 ROTARY FADER (Radius 4V)** – Each channel has a large ROTARY FADER for precision control of its level when mixing. The rotary ranges from fully off when anti-clockwise to unity gain (0dB) when clockwise. For best performance operate these controls near to their fully clockwise position for normal music level.

**CH1-CH4 LINEAR FADER (Linear 4V)** – Each channel has a high quality linear fader for precision control of its level when mixing. The fader ranges from fully off when the channel fader is down, to unity gain (0dB).

**VU METERS** – The Radius 4V & Linear 4V feature two high quality analogue VU (Volume Unit) meters, which accurately measure the left and right audio signals. The meters show the post EQ sound level. An added feature of the VU Meters is that when driven over +6VU the meter will illuminate **RED** to warn against clipping. In **SPLIT MODE** the LEFT VU Meter indicates the cue signal level, and the RIGHT VU Meter indicates the MIX level, (see **SPLIT** on pg 7).

**MASTER EQ/ISOLATOR** - The MASTER EQ/ISOLATOR functions as a normal isolator using 12dB/octave filters, with crossover frequencies at 350Hz and 3.5kHz making for a very musical isolator. We have positioned the layout of the pots so it easily works as a Master EQ.

**MASTER** - The MASTER rotary pot adjusts the signal level sent to the Main Output XLRs (House Mix) ranging from off to +10dBu of gain. Set the control to approximately 1 o'clock for unity.

**BOOTH** - The BOOTH rotary pot adjusts the signal level sent to the Booth Output TRS Jacks (Monitor Mix) ranging from off to +10dBu of gain. Set the control to approximately 1 o'clock for unity.

**SPLIT** - The SPLIT CUE button illuminates **RED** when activated and links to the CUE buttons and VU Meters. When the SPLIT CUE is active and a channel CUE is pressed, the Mix Buss Level will be shown on the Right Meter, and the channel Pre-Fade signal (CUE) will be shown on the Left Meter, enabling you to balance the two levels for smoother mixing. The Split button also sends the cued source to the Left headphone and the mix source to the Right headphone, which is very useful if mixing in a quiet environment. SPLIT CUE is automatically disabled when the Channel CUEs are off, and the Meters and Headphones revert to monitoring the Stereo Master Mix Signal.

**PHONES** - Use the headphone pot to control the sound level sent to your headphones. Please take care when monitoring with headphones as excessive sound volumes can cause premature deafness. The ¼" jack headphone input is located on the front of the mixer as shown on the headphone graphic.

**X FADE CONTOUR** - This pot enables precise control of the cross fader slope giving lots of scope for a variety of mixing styles. When the pot is turned full anti clockwise, the cross fader slope is very mild, great for blending tracks. Rotate the pot clockwise and you will hear the cross fader slope sharpen up. Fully rotate the pot clockwise for ultra sharp cuts when scratching.

**ADD MIX** - The add mix knob controls the amount of stereo house mix sent to your cued track in the headphones. When the knob is rotated fully anti clockwise only the cued track will be heard. Turning the knob clockwise increases the amount of house mix that can be heard in the headphones.

**CROSS FADER** - Linear 4V & Radius 4V use a high quality Penny & Giles cross fader. The cross fader enables you to mix between signals assigned to X or Y as indicated in the screen-printed text. The addition of a cross fader enables a variety of DJ styles to be performed with ease, from a basic fade, to smooth beat matching and complex scratch manoeuvres. Use the cross fader with the **XFADE SWITCH** (SEE ABOVE) to select which channels to assign to the X or Y position.

## 4: Rear panel controls



(Linear 4V shown)

**MASTER OUT** - Output level is +14dBu when the MASTER level control is fully clockwise and the VU meters read -4VU. The XLR output is designed to operate with balanced equipment such as powered monitor speakers and amplifiers.

**AUX SEND & RETURN/INSERT** - The AUX SEND & AUX RETURN system has ¼" TRS (balanced) jack sockets for connection to an external FX unit. The SEND is connected to the FX units' input, and the FX units' output is connected to the RETURN, (see USING THE EXTERNAL SEND & RETURN SYSTEM).

**INSERT ON BUTTON** - Reconfigures the Aux Return Jacks as a Mix Buss Insert, giving the user unparalleled flexibility for FX integration at the press of a button (see USING THE EXTERNAL SEND & RETURN SYSTEM).

**GROUND POST** - Unscrew the knurled nut, attach the turntable(s) ground lead(s), and screw back into place without over-tightening the nut.

**RECORD OUT** - Twin RCA sockets enable the user to make a stereo recording of a performance. The overall volume of the Master Output does not affect the Record Out function-this outputs at -6dBu.

**BOOTH OUT** - The ¼" TRS (balanced) Jack Booth Output feeds the DJ's booth (local Monitor) amplifier/loudspeaker system.

**POWER SWITCH** - "0" = OFF. Press the "-" to power the mixer ON with the external power supply connected.

**POWER INPUT SOCKET** - Connect the external 18-19V power supply to the input socket as labelled on the rear panel.

**CH ONE-CH FOUR** - ALL four LINE and PHONO inputs feature twin (Left & Right) RCA Phono Sockets. The PHONO input provides gain and RIAA equalisation for turntable cartridges on CH ONE-CH FOUR. The LINE inputs on CH ONE-CH FOUR provide input for CD players.

**MIC 1 MIC 2 INPUTS** – Two female XLR sockets enable two microphones to be connected with male XLR sockets.

**MIC ON** – Two MIC ON buttons enable a pair of microphones to be used on CH1 & CH2 by pressing each MIC ON button. The microphone signal is attenuated in the same way as a Phono or Line source (see **TRIM & CH1-CH4 ROTARY FADER** paragraphs shown in the **FRONT PANEL CONTROLS** section). To switch off a MIC input press the MIC ON button.

## Using the external Send & Return System

Connect the Mixer Aux Send outputs to the FX unit inputs and connect the FX unit's outputs to the mixer Aux Returns. Set the FX unit to unity gain.

Turning up the mixer channel send control feeds the channel signal to the FX unit. This signal is processed by the FX unit and its output is fed back into the mix, adding an echo, delay, reverb, or other effect to the track that's playing. Turning down the mixer channel send stops the channel signal feeding to the FX unit and so also stops the effect. Turning up the mixer channel send increases the level of FX.

Normally the feed to the channel AUX send is also controlled by the channel fader, so turning down the fader also turns down the level of FX. However if the AUX send PRE button is pressed, the AUX send takes its signal before the Channel Fader so the channel signal can be sent to the FX Unit even if the fader is off. This can be a cool way to mix into a new track: introducing a low level delay of the track you are about to mix into, before mixing in the new track by bringing up the channel fader.

**MIX INSERT** – The Radius 4V & Linear 4V incorporate a unique feature that allows the Aux Return Jack Sockets to be reconfigured as a Mix Buss Insert point, just by pressing the INSERT ON button. This allows you to run the entire mix through an external FX processor or other device, such as a compressor, limiter or graphic equaliser. With the button pressed the two ¼" TRS Jacks become a conventional mixer Insert, with the Tip being the SEND, and the Ring being the RETURN.

## 5: Warranty

MasterSounds warrants that the Mixer shall be free of defects in workmanship and materials for a period of twenty-four months (2 years) from the date of delivery. In the event that the product fails to operate as intended, MasterSounds will repair or replace the product subject to the following conditions.

1. That the failure was not due to improper installation, operation, cleaning or maintenance, accident, damage, misuse, abuse, or non-approved modifications to the Mixer.
2. The warranty does not cover normal wear and tear or any other event, act, default or omission outside MasterSounds control.
3. Faulty products must be returned to MasterSounds or an authorised service agent along with the original invoice or proof of purchase, and the mixer must be returned packed in the original shipping box. Please contact MasterSounds before shipping a faulty unit.
4. The warranty applies only to the original purchaser and is not transferrable.
5. At their sole discretion, MasterSounds may either repair the defective product or replace with an equivalent service exchange item.
6. This warranty constitutes the purchaser's sole remedy. MasterSounds shall not be liable for any other repair or replacement cost or any damage or loss directly or indirectly related to the malfunction of this mixer.



MasterSounds 4V complies with the European Electromagnetic Compatibility directives 2014/30/EU and the European Low Voltage directives 2014/35/EU.

# 6: Technical specification

|                   |                   |
|-------------------|-------------------|
| Dimensions        | 350W x 282D x 80H |
| Weight            | 4.75KG            |
| Packed Dimensions | 460W X 360D 180H  |
| Packed weight     | 6.3KG             |

## Power Requirement

|                         |                                 |
|-------------------------|---------------------------------|
| External Power Supply   | Universal 90V – 265V AC 50/60Hz |
| DC Internal Power Rails | 18-18-19V 50W Max<br>+/- 18V DC |

## Audio Performance

|                                    |                                              |
|------------------------------------|----------------------------------------------|
| Residual Output Noise              | <-97dBu 20Hz to 20kHz un-weighted            |
| Mix noise Unity Line IN to Mix Out | <-89bBu 20Hz to 20kHz un-weighted            |
| Distortion THD+N                   | <0.01% Line IN to Mix OUT 0dBu               |
| Dynamic Range                      | >116dB                                       |
| Maximum Signal Level               | ±27dBu                                       |
| Frequency Response                 | 10Hz – 50kHz +0/-1dB<br>10Hz – 80kHz +0/-3dB |
| Headphone Output Power             | 800mW RMS into 32 Ohms                       |

## EQ/Filters

|                                 |                             |
|---------------------------------|-----------------------------|
| Channel EQ                      | 3 Band -20/+6dB             |
| Channel EQ Frequency            | 100Hz, 1kHz, 5kHz           |
| Master EQ/Isolator Cut/Boost    | OFF to +12dB                |
| Master EQ/Isolator Crossover Fc | 350Hz and 3.5kHz            |
| RIAA Accuracy                   | Within 0.25dB 40Hz – 20kHz. |

MasterSounds reserves the right to change the specification without notice.

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