

# Master Sounds

## Radius TWO VALVE 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

Building on the success of its flagship Radius 4V DJ mixer, boutique mixer brand, MasterSounds, has added the compact Radius TWO VALVE to its range. The new 2 channel DJ mixer is manufactured using the highest quality components, and comprises a similar feature set as its award-winning 4 channel sibling, in a smaller footprint.

At the heart of Radius TWO VALVE and its unique sound quality are two dual triode valves, which form part of the input buffer stage to the VCAs.

*“The valves’ high input impedance minimises loading on the preceding stages but provides low output impedance to drive the VCAs, whilst natural compression smooths and warms harsh transients. Careful circuit design around the valves minimises noise and distortion,” explains leading DJ mixer designer, Andy Rigby-Jones, from MasterSounds’ technology partner, Union Audio.*

Radius TWO VALVE comprises 2 fully-featured channel strips with Aux send (switchable pre or post fader), input level trim, illuminated input select switch, a super smooth 3-band asymmetric EQ, large illuminated Cue switch and high quality ALPS rotary faders.

To the right of the channel strip features a 3-band Master EQ/Isolator, Master and Booth level controls, and headphone monitor with split and Cue/add mix control. Below the master section is a high-quality Penny & Giles crossfader, with contour control to adjust the curve from smooth mix to fast cut.

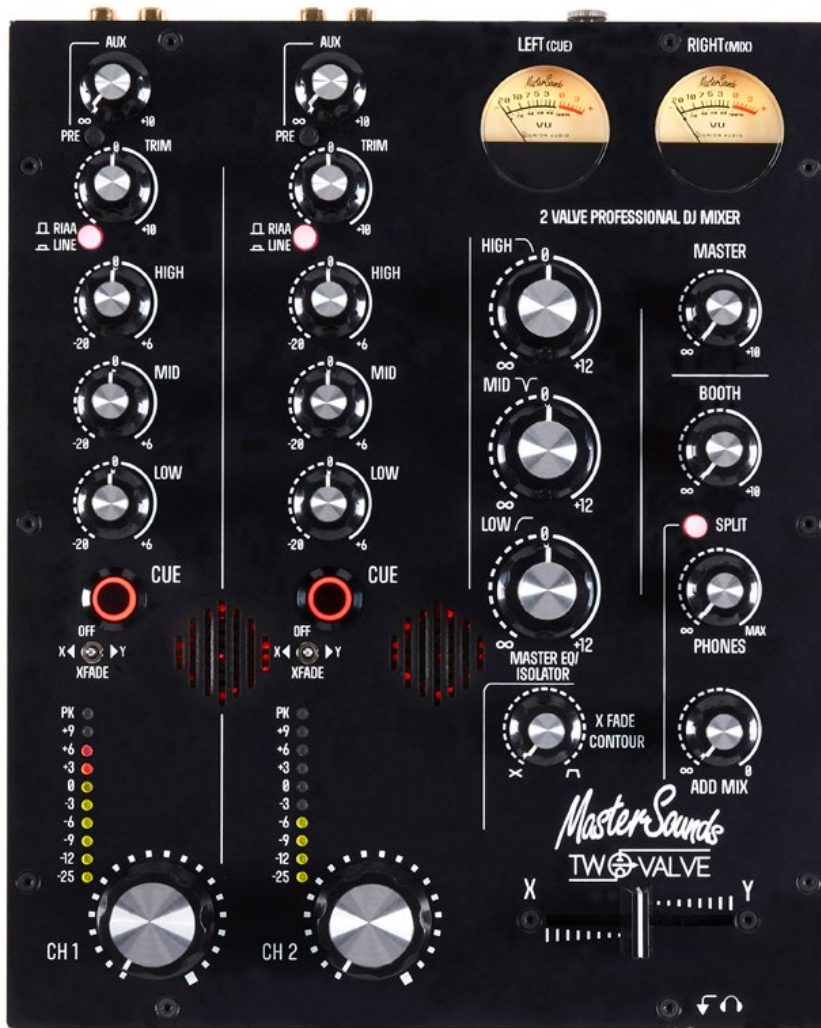
Two 36mm illuminated analogue VU meters provide accurate signal level monitoring of the Mix Buss, and automatically switch to monitoring the Cue level when a channel Cue is activated. If the signal level is excessive, the VU meter illumination will change from warm white to bright red.

A new split composite/passive RIAA stage featuring Vishay 2% Polypropylene capacitors, close tolerance thin film resistors and JFET pre-amplifiers provides outstanding fidelity from the turntable inputs. All circuit coupling is through bypassed Panasonic electrolytics to preserve this fidelity throughout the entire signal chain. The icing on the cake is a pair of MUSES operational amplifiers providing world class summing for the fully balanced main Mix Buss.

Finally, MasterSounds mixers are hand built at Union Audio in Cornwall, UK, ensuring the finest build quality.

*“Radius TWO VALVE has been designed for clubs and DJs requiring a conventional DJ toolkit with ‘no compromise’ audio fidelity. It is the ideal companion for DJ purists who only require 2 audio channels in a premium package. The open, dynamic and transparent sound stage, portable size for carrying between venues, and intuitive feature set gives users an optimal DJ experience, be it at home or in the club,” concludes MasterSounds founder, Ryan Shaw.*

### 3: Front panel controls



**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** – Radius TWO VALVE features 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 2 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 level is controlled by the cross fader and will be at maximum if the cross fader is set to X. When the OFF toggle is selected the cross fader is bypassed, 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 2 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.

**ROTARY FADER** – 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.

**VU METERS** – Radius TWO VALVE features 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 opposite).

**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** – Radius TWO VALVE uses 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 opposite on pg 6) to select which channels to assign to the X or Y position.

## 4: Rear panel controls



**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 18V power supply to the input socket as labelled on the rear panel.

**CH ONE & CH TWO** - Both 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 TWO. The LINE inputs on CH ONE & CH TWO provide input for CD players.



# 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** – Radius TWO VALVE incorporates 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 24 months from the date of purchase. 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.



Radius TWO VALVE complies with the European Electromagnetic Compatibility directives 2014/30/EU and the European Low Voltage directives 2014/35/EU.

## 6: Technical specification

Dimensions	230W x 282D x 84H
Weight	3.3KG
Packed Dimensions	351W x 351D x 180H
Packed weight	5.5KG

### Power Requirement

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

### Audio Performance

Residual Output Noise	<-97dBu 20Hz to 20kHz un-weighted
Mix noise Unity Line IN to Mix Out	<-90bBu 20Hz to 20kHz un-weighted
Distortion THD+N	<0.008% Line IN to Mix OUT 0dBu
Dynamic Range	>116dB
Maximum Signal Level	±27dBu
Frequency Response	10Hz – 50kHz +0/-1dB 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.

*MasterSounds*

 UNION AUDIO

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