orbit.2 LE fx

&

orbit.4 LE fx

PRODUCT USER GUIDE

Orbit LE fx User Guide Issue 1

To the best of our endeavors, we believe the information contained in this user guide to be true and accurate but we do not assume responsibility for inaccuracies or omissions, and reserve the right to make any changes deemed necessary.

This product has been designed to comply with the applicable standards, regulations, and directives for the countries where the product is marketed.

NOTE: Changes or modifications to this mixer, or its associated power supply, could negatively impact compliance and the user's authority to operate it.

Designed and manufactured in the United Kingdom by:

Union Audio Limited

Unit 4 Redruth Enterprise Park

Redruth

Cornwall

TR16 5EZ

UK

http://www.unionaudio.co.uk

Limited One -Year Manufacturer's Warranty

Union Audio warrants the product and accessories contained in the original packaging against defects in materials and workmanship when used in accordance with this user manual for a period of One (1) YEAR from the date of original purchase by the end-user purchaser ("**Warranty Period**").

Repair or replacement under the terms of the warranty does not provide right to extension or renewal of the warranty period. Repair or direct replacement of the product under the terms of this warranty may be fulfilled with functionally equivalent service exchange units.

This warranty is not transferable. This warranty will be the purchaser's sole and exclusive remedy and neither **Union Audio** nor any approved service centres shall be liable for any incidental or consequential damages or breach of any express or implied warranty of this product.

Conditions of Warranty

The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than approved by **Union Audio.** The warranty does not cover potentiometer wear and tear, nor cosmetic damage to paint or screenprint. Any necessary adjustment, alteration or repair has only been carried out by **Union Audio** or distributor or appointed service agent.

The defective unit is to be returned to the place of purchase, an authorised **Union Audio** distributor or agent with proof of purchase. Please discuss this with the distributor or the agent before shipping. Units returned should be packed in the original carton to avoid transit damage.

Check with your **Union Audio** distributor or agent for any additional warranty information which may apply. If further assistance is required please contact **support@unionaudio.co.uk**

Any changes or modifications to the equipment not approved by **Union Audio** could void the compliance of the product and therefore the users authority to operate it.

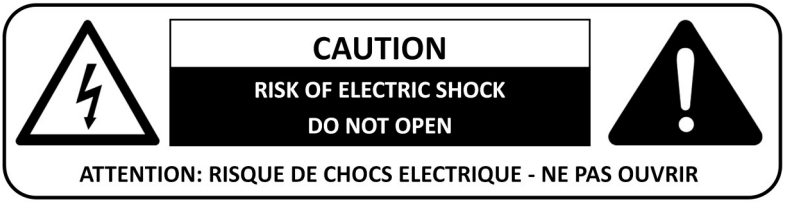
Safety Instructions

Please read and retain these instructions

- Only use the product for the purposes it is intended and heed all warnings.
- **WARNING** - To prevent the risk of fire or electric shock do not use this mixer near water, or in locations where it is likely to be exposed to rain or moisture.
- Always ensure that liquids cannot get spilt over the mixer or its power supply, and keep all objects filled with liquids, such as vases, drinks glasses, etc. well away from the apparatus.
- Ensure adequate ventilation and ensure all ventilation openings are not blocked or restricted.
- Do not connect the output of amplifiers to this apparatus. Always use the correct, high quality cables to connect the mixer to audio sources and power amplifier inputs.
- Do not install the mixer or power supply near any heat sources such as radiators, stoves, amplifiers or other apparatus that generates heat.
- Do not place sharp or heavy objects onto the mixer or power supply as these could damage the controls or cosmetics. Avoid rough handling and protect both units from vibration. Retain the original packing in order to protect the unit during shipping or transit.
- Refer all servicing to qualified personnel. Servicing is required if liquids are split onto the mixer or its power supply, objects have fallen into the apparatus, the unit has been dropped, or does not function normally.

Safety Instructions

- Do not remove any covers, either on the mixer or the power supply.
- Install only in accordance with the manufacturer's instructions.
- Always use a power adaptor appropriate to your local mains supply, and ensure the power supply is correctly specified for the local mains voltage.
- Protect the DC lead from being walked on, pinched, or stretched.
- Unplug the power supply and mixer during electrical storms.
- Do not leave the apparatus unattended for long periods when powered on.



To prevent the risk of electrical shock do not open the mixer or power supply or remove any covers. no user serviceable parts inside. Refer servicing to qualified service personnel only.

These symbols are internationally accepted symbols to warn of potential hazards with electrical products.

This symbol indicates that a dangerous voltage constituting a risk of electric shock is present within this unit.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this product.

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About Orbit LE fx

These high-performance, analogue DJ mixers combine exceptional sound quality and tactile precision, uniquely featuring an integrated DSP FX unit and a powerful 4 band isolator.

Offering unparalleled creative potential in a single, elegantly crafted device, the orbit LE fx Mixers are designed for those who demand the highest standards in audio performance and creativity, engineered to deliver a superior DJing experience by blending the best of analogue warmth with cutting-edge digital effects.

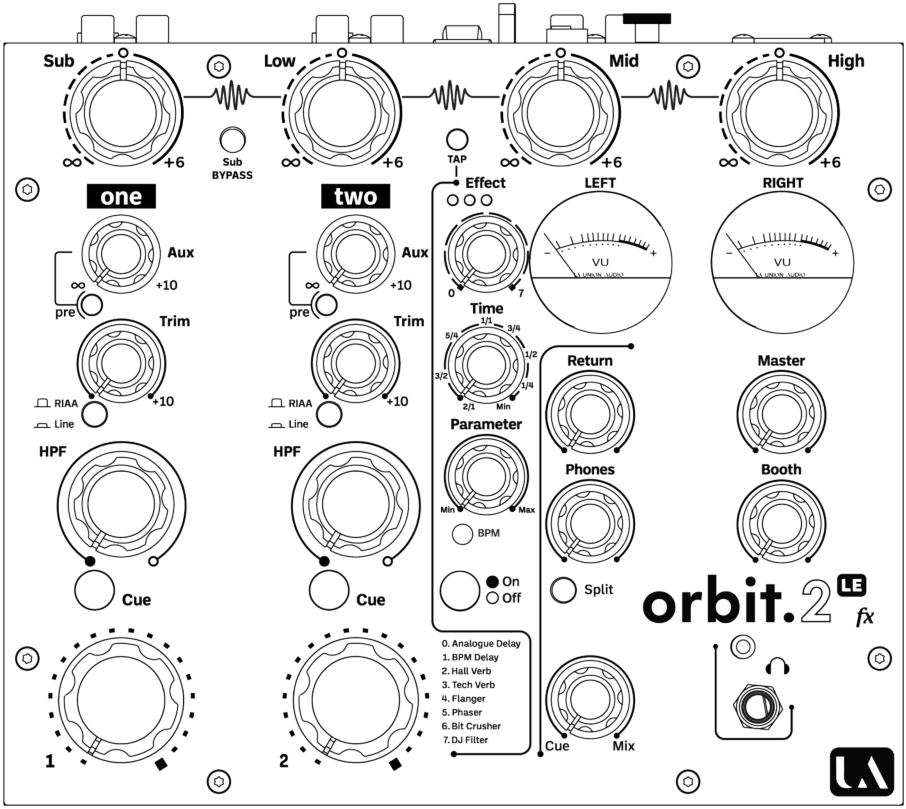
These mixers feature fully independent channels, each equipped with high-quality phono and line inputs, variable Q High-Pass filter and precise Alps rotary fader, allowing seamless transitions between vinyl and digital sources.

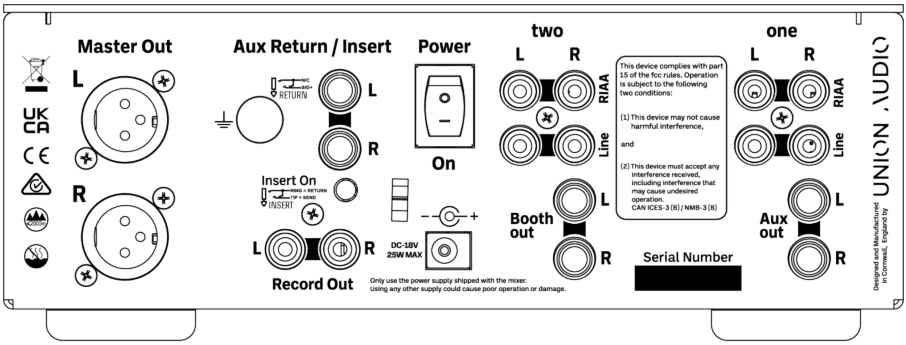
Unique to the orbit LE fx range is the integrated FX unit, with eight carefully chosen effects, including delays, reverbs, phaser, flanger, bit-crusher, and resonant filters.

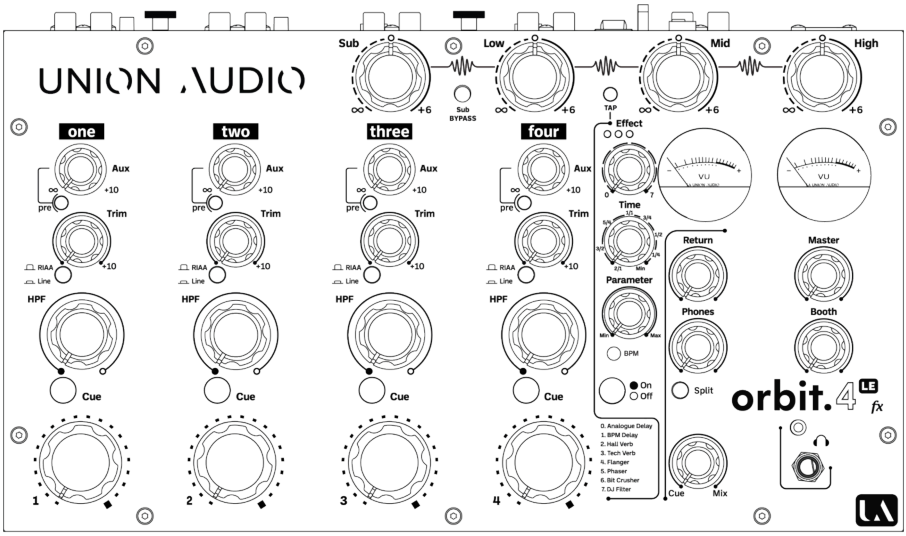
Delay 2 has automatic BPM detection, or beat timing can be overridden by a tap tempo button.

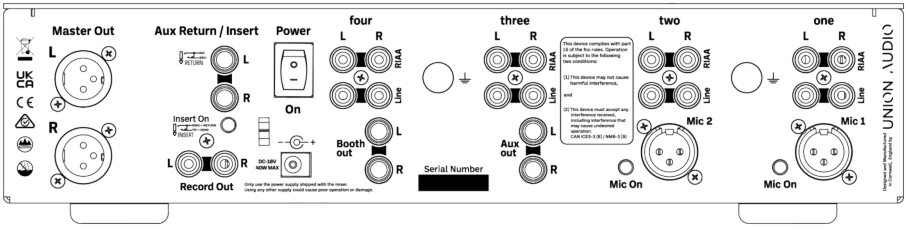
An On/Off push-button seamlessly activates the effects, and can be either latching or momentary, for maximum creativity.

In addition, the mixer can also be connected to an external FX unit for even greater audio manipulation, with the choice of running both internal and external effects simultaneously.


Sub
Low
Mid
High
+6
Sub BYPASS
TAP
one
two
Aux
+10
pre
Trim
RIAA
Line
HPF
Cue
1
2
Effect
0
7
Time
1/1
3/4
1/2
1/4
2/1
Min
5/4
3/2
Parameter
Min
Max
BPM
On
Off
0. Analogue Delay
1. BPM Delay
2. Hall Verb
3. Tech Verb
4. Flanger
5. Phaser
6. Bit Crusher
7. DJ Filter
LEFT
RIGHT
VU
Return
Phones
Split
Cue
Mix
Master
Booth
orbit.2 LE fx

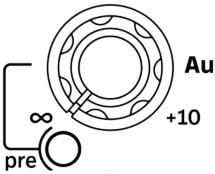

Master Out
L
R
Aux Return / Insert
RETURN
Insert On
INSERT
Record Out
Power
On
DC-18V
25W MAX
Only use the power supply shipped with the mixer.
Using any other supply could cause poor operation or damage.
two
one
RIAA
Line
Booth out
Aux out
This device complies with part 15 of the fcc rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference,
and
(2) This device must accept any interference received, including interference that may cause undesired operation.
CAN ICES-3 (B) / NMB-3 (B)
Serial Number
Designed and Manufactured in Colorado, Quarterly
UNION AUDIO


UNION AUDIO
Sub
Low
Mid
High
+6
Sub BYPASS
TAP
one
two
three
four
Aux
pre
+10
Trim
RIAA
Line
HPF
Cue
1
2
3
4
Effect
Time
Parameter
BPM
On
Off
0. Analogue Delay
1. BPM Delay
2. Hall Verb
3. Tech Verb
4. Flanger
5. Phaser
6. Bit Crusher
7. DJ Filter
VU
Return
Phones
Split
Cue
Mix
Master
Booth
orbit.4 LB fx


Master Out
L
R
Aux Return / Insert
RETURN
INSERT
Insert On
Record Out
Power
On
DC 18V 40W MAX
Only use the power supply shipped with the mixer. Using any other supply could cause poor operation or damage.
four
three
two
one
L
R
RIAA
Line
Booth out
Aux out
Mic 2
Mic 1
Mic On
Serial Number
This device complies with part 15 of the fcc rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
CAN ICES-3 (B) / NMB-3 (B)
UNION AUDIO

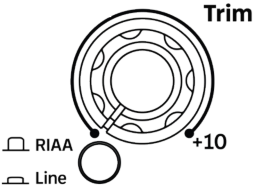
Channel Controls

The Orbit.2 LE fx features two audio channels, while the Orbit.4 LE fx offers four. Each channel on both models includes RIAA preamplifier stages and dual stereo inputs. Additionally, the Orbit.4 LE fx provides microphone inputs on channels one and two.



Aux – The auxiliary send (Aux) allows you to send individual channel audio signal to an external effects processor. The level of this signal can be adjusted with the Aux control knob.

Pre – The auxiliary send can be configured as either pre-fader (down) or post-fader (up), determining when in the signal path the send takes place, and how it interacts with the channel's fader level. Pre-fader sends are useful when you need to send a consistent signal for monitoring or external processing purposes, while post-fader sends are beneficial for adding effects relative to the channel's level in the main mix.



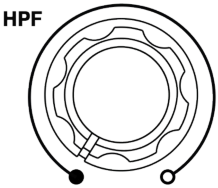
Trim – The channel input trim adjusts the level of the audio signal coming into that specific channel. It is important to set the input trim at an appropriate level to get the best audio quality.

RIAA/Line select – The Input selection switch can be used to select between turntable or Line on each channel.

The RIAA phono input is for use with a turntable and provides accurate frequency equalization corresponding to the RIAA equalization curve.

The Line input is designed to accept line-level audio signals, which are relatively strong and standardized audio signals. Line will be selected when the button is pressed in and illuminated.

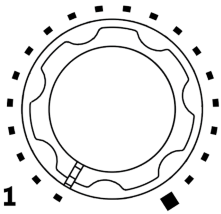
Channel Controls Continued



HPF – The channel High Pass Filter adjusts the low frequency cut-off of the channel signal and features a Variable-Q with a two-pole response with a swept frequency range from 15Hz to 1.5kHz.

The Variable-Q automatically adjusts the filter resonance to reduce excessive lower frequency amplification, while maintaining the classic high resonance filter sound.

Cue – The Cue button illuminates red when active, and routes the pre-fader channel signal to the headphone monitor for auditioning. The button has a toggle function and will turn on/off with each press. Each channel cue is independent and will not be overridden when pressing other channel cue buttons.



Fader – The channel faders provide smooth mix transitions between the different audio sources. They are not intended to be used to set the channel level being fed to the main Mix Buss - use the Channel Trim control for this.

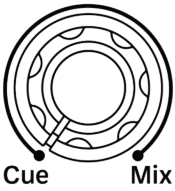
Master Controls

Master – The Master level control adjusts the output level of the Mix buss sent to the Master XLR outputs and to any connected PA system.

It is recommended to operate the mixer with the control aligned on or above its '12 o-clock' position to achieve the best signal to noise ratio (SNR). If this results in excessive volume, then reduce the gain on the connected power amplifies.

Booth – The Booth Output provides for independent local monitoring of the Main Mix buss and is not affected by the Main Mix Level control.

Split – The Split Cue button routes the Channel Cue signal to the Left Headphone, and the Mix Buss signal to the Right Headphone and works in conjunction with the Cue/Mix control. This button will illuminate Red when active.



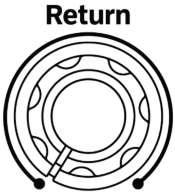
Cue/Mix – When Split Cue is OFF, the Cue/Mix control will fade both headphones channels from 100% Cue signal to 100% Mix signal when rotated from fully anticlockwise to fully clockwise, with a 50% mix of both signals in the centre.

When Split Cue is active, this control will Pan between the Cue signal in the Left Headphone and the Mix signal in the Right Headphone.

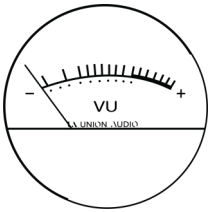
Phones – Adjusts the level of the headphone output. The mixer is fitted with a powerful high-quality headphone amplifier optimised for use with headphones having an impedance between 33ohms to 170ohms. Headphones with impedances above or below the recommended impedance should be avoided, and in particular headphones with impedances below 33ohms could cause damage to the circuitry.

WARNING! Avoid operating the mixer with headphones at high volume or for extended periods of time as this can contribute to severe hearing loss!

Master Controls Continued



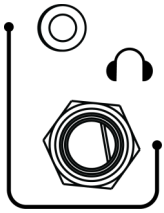
Return – The Return control adjusts the signal level of an external signal source (i.e. effects processor) connected to the Aux Return sockets on the rear panel.



Output Meters – The large analogue VU Meters allow for easy monitoring of the left/right main Mix Buss signal level. The signal level is monitored post-Isolator but pre-Master Level control. The meter response is the VU (Volume Unit) standard and displays the average signal level. Both meters feature warm white illumination for easy monitoring in low light conditions, without being overly bright or distracting.

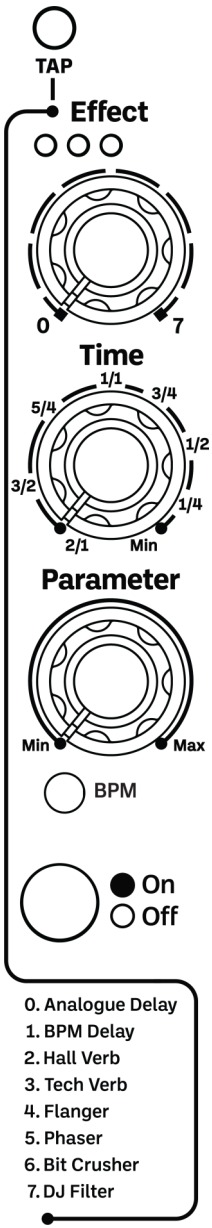
For lowest distortion and best dynamic range, operate the mixer with the meters reading between –5VU and 0VU, with signal peaks no higher than +1VU.

If the mix buss signal level goes above +3VU the meter illumination will start to glow increasingly red as a visual warning of excessive signal level.



Headphones Output – The headphones output sockets are located on the bottom right corner of the front panel and supports both 1/4” and 1/8” TRS Jack connections.

Fx Controls



The FX section is designed to be used as a performance tool to enhance transitions and create anticipation during sets. Effects 0-3 are Auxiliary send effects (they add to the mix), and Effects 4-8 are Inserted effects (they override the mix).

The Channel Aux send control adjusts the audio level sent to the effects unit when an Auxiliary send effect is selected (FX 0-3).

TAP – The Tap Tempo button manually overrides Auto-BPM detection when FX 1 (BPM Delay) is selected. Tap the button an even number of times to manually set the BPM. If you tap once, or an odd number of times, the tempo detection will revert back to Auto-BPM.

Effect – Rotate to select each individual effect. The three LEDs above the control represent the selected fx number in binary. The effects names can be found written on the front panel at the bottom of the fx section, see page (16) for the description of each effect patch. To prevent accidental effects selection intruding into a mix, the FX unit will automatically turn OFF when a new effect is selected.

Time – This controls the delay/reverb-time for the Send effects, and one of the two parameters on the Inserted effects.

Parameter – This controls the 2nd parameter on all the effects.

BPM LED – The LED will flash to indicate the speed of the set BPM. It will flash GREEN when the Auto-BPM is active and will flash RED when the manual TAP Tempo is active.

On/Off – The on/off button toggles ON/OFF when pressed. If the button is held down for more than a second it will automatically turn off when the button is released.

The button illuminates RED when the effects unit is active.

Fx Patches

0. Analogue Delay: This effect emulates the sound of an analogue delay. It repeats the sound without being locked to a specific rhythm, and when you change the delay time, the pitch of the repeated sound shifts, adding a unique character. The parameter control adjusts the delay feedback.

1. BPM Delay: This effect automatically syncs the delay time to the tracks BPM (either automatically or manually) The "parameter" control adjusts the delay feedback, and the Time controls the delay repeat divisions. The auto BMP works best with simple 4/4 beat house or techno, but will not accurately detect odd time signatures or complex rhythms. Use the “Tap tempo” to override the auto BPM.

2. Hall Verb: This effect simulates the sound of a classic hall reverb, making your audio sound like it’s in a large space. The "Time" control adjusts the size of the room, while the "Parameter" adjusts the High Frequency content of the reverb tail.

3. Tech Verb: This is a special reverb effect that emphasizes the low end of the audio and adds noise that syncs with the rhythm. The "Time" control adjusts the size of the reverb space, while the "Parameter" control changes the High Frequency colour of the reverb tail.

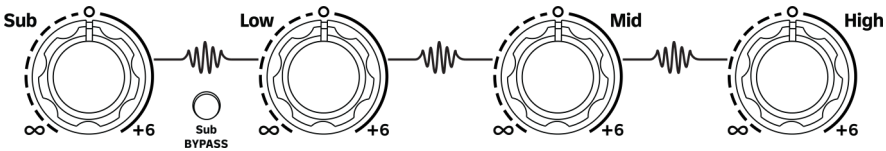
4. Flanger: This effect creates a harsh metallic, resonant sweeping sound. The "Time" controls the LFO sweep frequency, while the "Parameter" controls the depth of the effect.

5. Phaser: This effect creates a smooth, filtered sweeping sound. The "Time" control adjusts the filter sweep speed, while the "Parameter" control changes the filter depth, affecting how strong the effect is.

6. Bit Crusher: This effect simulates digital distortion, giving your audio a gritty, lo-fi sound. The "Time" controls the bit depth, while the "Parameter" control adjust the dry/wet ratio.

7. DJ Filter: This effect functions as both a high-pass and low-pass filter. The "Time" control sweeps the high-pass filter in the first half of its range and the low-pass filter in the second half. When the control is set to the middle position (12 o'clock), the filters don't alter the audio. The "Parameter" control adjusts the resonance of the filters, affecting the sharpness and intensity of the filter.

4-Band Isolator



This is a versatile isolator with four separate frequency controls: Sub, Low, Mid, and High. Each band can be adjusted to either completely cut or boost the frequency range by up to +6dBu. This allows precise control over each frequency range in your audio, letting you enhance or reduce specific elements of the sound.

Sub – Cuts and boosts around 110Hz, can be bypassed by pressing the Sub Bypass button. This will change the isolator EQ from 4-band to 3-band.

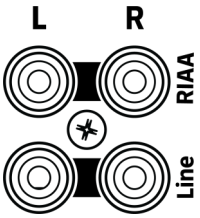
Low – Cuts and boosts around 210Hz. When the Sub Bypass is active, it will cut and boost around 650Hz.

Mid – Cuts and boosts around 1.5kHz.

High – Cuts and boosts around 3kHz

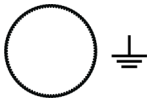
Sub BYPASS– This switch converts the Isolator from 4 band to 3 band and will illuminate RED when pressed.

Rear Panel Connections

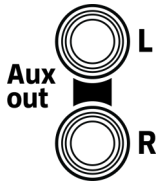


Channel Input – The top row of RCA (Phono) connectors are for use with turntable magnetic cartridges and incorporate RIAA (Record Industry Association of America) equalisation. Do not connect line-level sources to these inputs as it could cause damage to the sensitive circuitry.

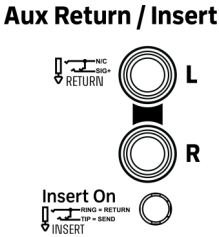
The lower row of RCA connectors are for Line level signals within the range of +26dBu to -10dBu.



Earth terminal – This is for grounding the Turntables to reduce ground hum. Unscrew the knurled post and connect the turntables ground fork terminal between the mixer chassis and the post.



Aux out – The Auxiliary Output is via 1/4" TRS Jack sockets following the standard convention of Tip Hot, Ring Cold, and Sleeve Ground. The nominal output level is 0dBu.



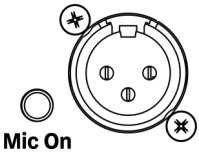
Aux Return / Insert – When the "Insert On" is out these sockets function as the Auxiliary Return and follow the standard convention of Tip Hot, Ring Signal Ground, and Sleeve Chassis Ground. The nominal input level is 0dBu.

When the "Insert On" switch is pressed in these sockets function as a Mix Insert and follow the standard convention of Tip = Send, Ring = Return, and Sleeve the common Ground.

Any External Processor should have a nominal operating level between –2dBu to +18dBu. Be aware that any external equipment plugged into these sockets will have an impact on audio fidelity, and it is strongly recommended to use studio grade equipment.

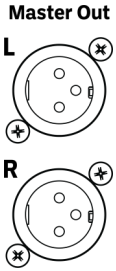
Record Out – The Record Output is via an RCA connector with a nominal level of 316mV, -10dBV (-8dBu) and is compatible with most 2-track recorders. The Record output is taken post Insert and will be affected by the Isolator EQ but not by the Master Level

Rear Panel Connections Continued

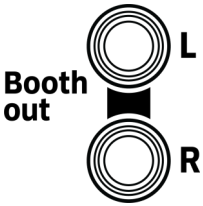


Mic Input – The Mic input (Orbit.4 LE fx only) are assigned to channels one and two. When the Mic On button is pressed in, the RIAA input of that channel is bypassed with the Mic Input balanced XLR.

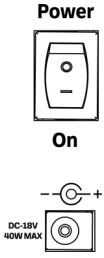
Pin1 = Ground, Pin 2 = + Hot, Pin 3 = - Cold



Master Out – The Master Output XLRs are electronically balanced, with Pin 2 hot (positive phase), Pin 3 cold (negative phase), and Pin 1 ground. When the Master Level control is fully clockwise, with the Meters reading –4VU the output level is approximately +12dBu.



Booth Out – The Booth Output is fitted with ¼" TRS jacks which are impedance balanced, with Tip as hot (positive phase), Ring as cold (negative phase), and the sleeve as a common Ground. When the Booth level control is fully clockwise, with the Meters reading –4VU the output level is approximately +6dBu.



Power – Only use the power supply included with the mixer, which is an 18V DC adapter.

To turn on the mixer, set the rocker switch to the '-' position. To turn it off, set the switch to the 'o' position.

Specification

Distortion plus Noise (THD+N) un-weighted	
0dBu, 20Hz to 20kHz, Line In to Mix Out +4dBu	0.005%
F**requency Response**	
Line in to Mix Out	+/-2dB 20Hz - 100kHz
RIAA Accuracy	+/-1dB 20Hz to 20kHz
Shutoff and Crosstalk	
Fader Shutoff	> -80dB
L/R Crosstalk Line in to Mix Out 1kHz	<-75dB
Noise 22Hz to 22kHz Un-Weighted	
Residual Mix Output noise	<-90dBu
Line In to Mix Out Unity	<-85dBu
Maximum Output Level Mix Out 0.5% THD	+27dBu
Dynamic Range	117dB
EQ and Filter Frequency	
Channel High-Pass Filter Fully Clockwise	-3dB/1500Hz
Master 4 Band Isolator	110Hz, 200Hz, 1500Hz, 3000Hz
Headphone Amplifier	
Maximum output level	750mW RMS - 33 ohms
Power Supply	
Type	External SMPSU
Mains Voltage range	90-260VAC
Output	18V DC 30W
Efficiency	LEVEL VI

*Specification figures shown for Orbit LE2fx - LE4fx will be similar.

Dimensions

Dimensions LE 2fx

Mixer

Height	195mm
Width	230mm
Depth	88mm
Weight	2.6kg

Packed Dimensions

Size L x W x H	37cm x 28cm x 20cm
Weight	3.5kg (7.5lb)

Dimensions LE4fx

Mixer

Height	195mm
Width	350mm
Depth	88mm
Weight	3.6kg

Packed Dimensions

Size L x W x H	48cm x 28cm x 20cm
Weight	4.7kg (10lb)