

THERMIONIC

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THERMIONIC CULTURE LTD.

The Little Red Bustard

valve summing mixer with attitude

OPERATING MANUAL



WARNING

For your personal safety, please read this operating manual and warning thoroughly before using the equipment.

This unit must be installed in such a manner that operator access to the mains plug is maintained. Where the product is to be rack mounted, this may be achieved by having access to the disconnection device for the whole rack.

To reduce the risk of electric shock, it is essential that the unit is disconnected from the mains supply before removing the cover.

Please also note that the power supply capacitors within this unit can remain charged even after the mains supply has been disconnected. It is essential that these capacitors are discharged after the mains supply has been disconnected and the covers have been removed.

In the event that this unit has been dropped or has suffered an impact, an electrical safety test must be carried out before reconnection to the mains supply.

This equipment is not intended for use in explosion hazard environments. It must be used and stored in studio conditions, such that the ambient relative humidity does not exceed 80%, nor is the temperature to be allowed to drop to a level, which would cause dew point to be reached.

It is not advisable to operate this equipment if all valves are not in place and working, as voltages will rise and components may overheat and fail.

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1 Introduction

The Little Red Bustard is a compact version of the Fat Bustard summing mixer. It has more inputs – there are 16 in all. These come in on semi floating XLR's and are switched in as required.

The last 4 (Channels 13 – 16) can be switched to centre.

There is no individual level control over any input. The only controls are 'Attitude', 'Air' and Output Levels.

We have provided some simple but unique indication of level at the stereo output by using multicoloured LEDs in the eyes of the Little Red Bustard icon.

Output levels are on XLRs – unbalanced.

A 'balancing box containing 2 Sowter 1:1 transformers can be supplied.

The Little Red Bustard can easily drive a DAW to full level without saturation, or it can be plugged into the aux inputs on a Fat Bustard to give 28 input channels.

2 Controls

2.1 Channels 1 to 12

These channels come as fixed gain stereo pairs. Each pair of channels has an **on/off** switch. The switch cuts the signal from the mix bus when off and the signal is present at unity gain, (at attitude setting 1) when the switch is on.

2.2 Channels 13 to 16

These are as **2.1 Channels** but have a mono switch which switches to centre each pair of channels.

2.3 Attitude

This control is a clone from the Fat Bustard and provides exactly the same 2nd harmonics as are found in it's big brother.

Ranging from 0.01% to 5+% it's a very useful tool to add 'character' to a mix.

Frequency response is a little restricted at high 'Attitude levels so the sound is more 'valvey'.

2.4 Air

The 'Air' control provides a boost of higher frequencies (above 7 kHz) and it peaks at around 30kHz – well above the range of human hearing. Because the sound of valves is soft rather than hard solid state the use of this can create a lovely velvety sheen to the mix.,

2.5 Output Level

These controls vary the signal level going to each output level. They are indented pots for easy recall. Set to zero the input on any 2 channels will equal the output with Attitude at 1 and Output |Levels at 0 dB.

As the Attitude is increased the gain will increase by up to 12dB, so levels will have to be reduced.

3 The Eyes

The multicoloured LEDs situated in the Little Bustard icon's eyes provide a simple indication of level at the stereo output before the output level pots. The ranges shown are :

Yellow for signal present

Green for optimal signal level (0 dBu to +10 dBu)

Red for high signal level (+10 dBu upwards)

Obviously, the higher the signal level goes, the more likely it is that there will be distortion and the associated second harmonics found in triode valve output stages at high levels. However, we have chosen not to make this a serious feature of the Little Red Bustard due to our choice of output valves. The Little Red Bustard stays remarkably distortion free provided that the input stages are not overloaded.

For cleanest results, keep the Output Level controls high, unless you are adding extra attitude.

4 Inputs & Outputs

All audio connectors are standard XLR type.

The Little Red Bustard, as the Fat Bustard, works on an unbalanced system.

The 16 input connectors are wired Pin 1 Earth, Pin 2 Signal ('hot') and Pin 3 Signal negative ('cold'). Pins 1 & 3 are connected by a small resistor, which means that the Little Red Bustard will accept outputs from electronically balanced sources (certain DAWs) without quality deterioration, as well as unbalanced and transformer balanced sources.

The output XLRs are wired Pin 2 Signal, pins 1 & 3 shorted to Earth.

5 Servicing & Maintenance

The unit comes with a 12 month warranty covering all parts, including valves. It is essential that it is returned to our factory or to the dealer from which it was purchased for repairs to be carried out otherwise the warranty is invalidated. There is, however, one important exception to this rule:

5.1 Valves

It is safe for the user to change the valves, but **the unit must not be operated without all valves plugged in**. If a fault occurs, it may be a valve, so **unplug the mains**, remove the top cover, and wait for the valves to cool down a little. DO NOT touch any part of the circuit board.

The two input valves are in screening cans on the left side of the unit (looking from the front). The 2 Output Valves are a little to the right of centre and do not have screening cans. You can swap the valves from side to side to isolate a fault. For optimum results, if valves are replaced, replace them in pairs. DO NOT MIX INPUTS WITH OUTPUTS.

Valve complement:

Input - 2 x 5965;
Output - 2 x 6189 / 13D5 / ECC82 / 12AU7

5.2 Operating voltage / Fuse

The Little Red Bustard is switch selectable to operate from either 230V or 115V 50/60Hz AC mains supply.

NOTE: Mains fuses may be replaced in accordance with the following table:

Operating Voltage	Fuse Rating
115V	T1A 20mm type
230V	T0.5A 20mm type

6 Specification

Input impedance: 10k Ω

Output impedance: 250 Ω . Load impedance should be 2k Ω or greater.

Distortion and MOL specs are for a load of 10k Ω

Distortion: <0.025% @ +4dBu
(THD, unweighted,
30kHz filter)

Maximum o/p level: +25dBu
(MOL @ 1% distortion)

The following specs are for Attitude 1 setting:-

Noise (30kHz filter): < - 82dBu

Frequency response
+/- 1dB: 12Hz to 55kHz

Phase shift @10kHz: 5% (18 $^\circ$)

Crosstalk:
1kHz < - 60dB
10kHz < - 50dB

Power consumption 35 watts

Weight 5.3 kg

THESE SPECIFICATIONS CAN BE SUBJECT TO CHANGE

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