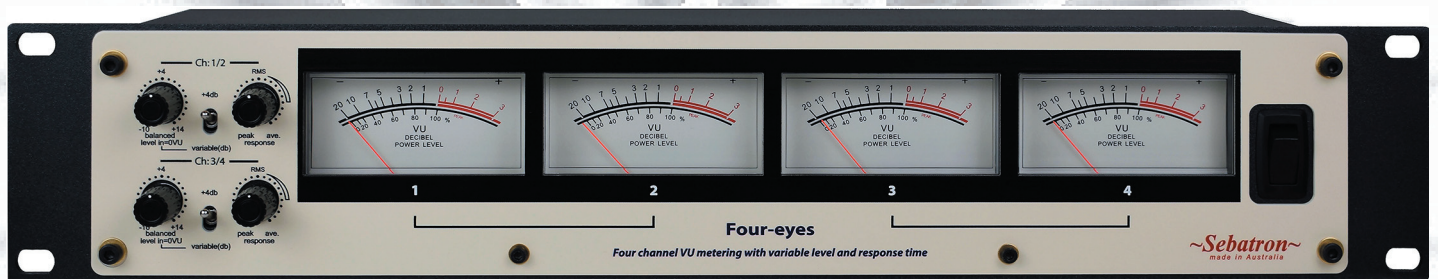


# ~Sebatron~

*Innovative Australian Audio*



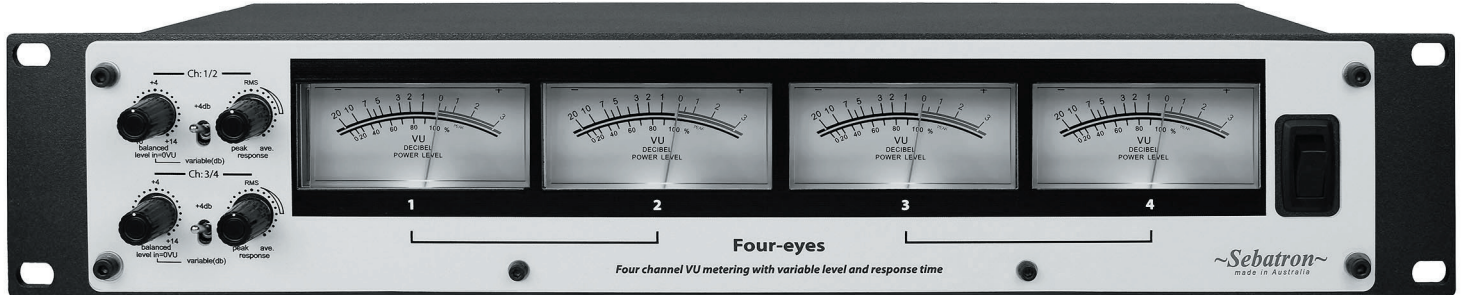
## Four-Eyes - operating manual

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## *Four channel VU metering unit*



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# 1. Introduction

Four-Eyes is a dedicated four channel VU metering device for audio signals designed for use in both pro and semi-pro (Hi-Fi) situations.

Each VU meter is driven by its own set of buffers so that there is no load on the audio signal. VU levels can be visually monitored at either the preset standard of +4dbu=0dbVU or switched to a variable level so that the user may designate a different 0dbVU reference point.

When switched to variable the 0dbVU point can be assigned to be anywhere from -10dbu to +10dbu. This is useful if the user wishes to move the VU meter scale up for digital recording for example or move the VU meter scale down for an appropriate reading for -10dbu calibrated equipment or even domestic Hi-Fi.

Meter response time is also variable from Peak to RMS to approx 1sec average. This is extremely useful when trying to optimize the dynamic range of various equipment and of value when trying to maximize the overall loudness by reading the average energy of a track as opposed to its transient or peak reading.

These adjustments are made in two groups of two i.e channels one and two are linked and channels three and four are linked. This facilitates easier and faster set up times as well as easy matching between all four channels. The two groups of inputs are also auto-linked so that if the user desires to set up a peak mix visual on the left and an average visual on the right only one set of inputs and leads is required.

The unit itself is built into a rugged 2U powder coated mild steel case with a 3mm mild steel powder coated front panel.

Power supply is internal and switchable from 120VAC to 240VAC.



## 2. Features

- Preset input range of 0dbVU=+4dbu
- Variable input range of -10dbu to +10dbu
- Variable time Response from Peak to RMS to approx. 1 sec. average
- Auto-linked stereo input for two channel operation
- High Impedance input so no loading on audio signal
- Fully balanced/unbalanced operation
- Seperate IN and THRU phono sockets for easy wiring configurations
- Solid build with wide scale backlit VU meters



### 3. Inputs/Thru

On the back of the Four-eyes unit there are eight input/thru phono sockets in two groups of four. This is where the four channels to be monitored are to be plugged into. These sockets will accept balanced and unbalanced signals however will display approximately a +6db difference between the two with the balanced signal the stronger of the two.

To make adjustments to the VU reading level so that the two types of signals match up, flick the toggle switch and adjust the level control on the left to an appropriate setting keeping in mind the level difference if using unbalanced leads.

Either socket, upper or lower, can be used as an input or a thru. As the unit does not actually produce an output of its own, there is no output socket as such. The thru socket allows the Four-eyes unit to be patched in series with other units plugged in the audio signal chain. This could be the output of a preamp for example, plugged into a channel and the alternate socket of that channel would go to the soundcard.

As previously mentioned, the first two channels are actually linked to the second two channels (when nothing is plugged into them) to make two channel visual monitoring even easier. In other words, channels one and two are auto-linked to three and four.



# 4. Controls

The control for the four VU channels are grouped into two groups of two. That is, channels one and two are controlled by the top row of dials and channels three and four are controlled by the bottom row of dials.

## -Fixed/Variable toggle

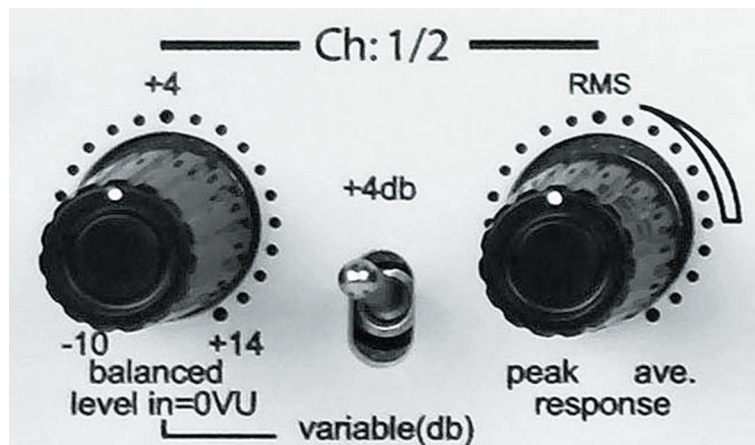
This switch allows the user to choose between the conventional accepted standard operating level of balanced in +4dbu=0dbVU or, when activated, a level as set by the variable level control directly to the left of the switch.

## -Variable VU level control

When the toggle switch is flicked down the VU reference level becomes variable and is determined by this control. The numbers on the dial correspond to the point at which the 0VU reading on the meters are referenced to with a balanced input. For unbalanced signals the range will most likely need to be varied or adjusted.

## -Time Response control

The energy of a track can either be displayed in peak form or smoothed out for RMS or average. This control varies the amount of 'smoothing'. It's not until about the 12 o'clock position that the smoothing becomes visually obvious. The best spot for truest RMS reading is where the arc ends which is around the 3 o'clock position.



# 5. Using Four-Eyes

-Four-eyes is extremely easy to hook-up.

1./ Simply plug the required signal to be monitored into the appropriate channel signal input/thru socket on the back (either top or bottom) .  
Balanced TRS or unbalanced signals can be used.

2./ For the majority of professional audio situations if balanced signals are used the signal level will be referenced to the standard  $0\text{dbVU}=+4\text{dbu}$  and so the toggle switch would be in the up or fixed position. If using unbalanced signals the toggle switch may need to be pressed down and the range adjusted to suit the appropriate levels.

3./ To get the best realistic signal to visual reading on the VU meter itself, we recommend monitoring in the RMS ( 12 o'clock ) position. This gives good indication of transients or peaks as well as room for the body of the signal. However if you require to monitor the overall volume or energy of the track we recommend setting the control to average which is to the far right of the dial. This smoothes out the peaks and fills in the valleys of the signal so that the VU reading represents the average signal or power level over a given time frame. As a rough guide,RMS is approximately 70.7% of peak signal level and average is usually around 60% of peak signal level. The average setting is also very useful for matching up voice over levels and the like orchestral performances that are sparse with occasional transients also benefit from the average type of setting as the dynamic levels are vastly different to a pumpin' rock band signal which can be more or less steady.

-Using Four-eyes with a stereo mix or two channel set-up.

If your requirements are just to monitor two channels, a mix or sub-mix for example, you can simply plug into channels one and two and they will be auto-linked to three and four as well. This allows simultaneous readings in peak and average by setting the top row (channels 1 and 2 ) to peak or RMS and the bottom row (channels 3 and 4 ) to average ....or vice versa.



## 6. Specifications

- Input/thru sockets** : Balanced/Unbalanced (TRS) Phono
- Range of 0VU set** : -10dbu to +10dbu  
(internally can be calibrated another +/- 10db )
- Frequency response** : 10hz to 100 KHz +/- 0.5db
- Response time** : 300ms (peak) to 1sec (approx ave.)
- Input impedance** : 100k
- Fuse rating** : 500 ma

# 7. Safety and Precautions

- Do not operate unit in moist or wet environments.
- Avoid moisture and excessive heat.
- Do not remove lid when mains power cord is connected.
- Always replace with same type of rated fuse.
- Operating temperature range : 0C to +50C approx.
- To prevent the risk of electric shock, do not operate with lid removed. Do not open when connected to mains AC source.
- Do not expose to dripping or splashing and do not place objects filled with liquids , such as vases , on top of the unit.
- For proper safety , the unit must be connected to a mains socket outlet with a protective earthing connection.
- Unit is live even when switched off. Indicator lamp beside the on switch does not mean the apparatus is disconnected from the mains. To disconnect completely from the mains supply cable needs to be removed from the apparatus.
- The mains power disconnect device for apparatus is the appliance coupler on the rear of the apparatus and shall remain readily operable.
- No user servicable parts inside. Refer service to qualified personel.
- Refer to manual illustration for input and outputs connect.



