MASELEC

MEA-2

precision
stereo equalizer

1. INTRODUCTION

The MEA-2 Precision 2-Channel Equalizer is intended for professional audio use in recording, mixing and mastering applications where high performance is required.

The MEA-2 provides a unique set of tools, carefully crafted to provide an equalizer whose sonic character was the most important design objective.

The unique character of the device is evident in the technical description of the behaviour of the device.

2. SUMMARY OF MEA-2 FEATURES

- Precision stepped controls using silver alloy switches
- Low noise
- Extended headroom with maximum input amplitude of +28dBu
- Extended frequency response
- Low distortion
- Electronically balanced inputs and outputs

3. GETTING STARTED

It is not necessary to read the entire manual before being able to use the MEA-2. This section contains all the information required for you to get going.

3.1. Unpacking your MEA-2

Check that the slide switch mounted on the rear panel is set to the correct mains voltage range.

115V setting: 90V-130V ac 50-60Hz
230V setting: 180-260Vac 50-60Hz

The plug fitted to the mains lead must be of the correct type.
If not, DO NOT CONNECT THE MAINS SUPPLY.

Please keep the packaging for re-use in the event that the unit should be shipped to another location or if it ever needs to be returned to the retailer or distributor.

3.2. Using the MEA-2 for the first time

- Connect a source of balanced audio to the input connectors on the MEA-2.
- Connect the output of the MEA-2 to a balanced audio input.
- Connect the mains supply to the MEA-2 unit.

There is a main power switch on the rear of the unit and an auxiliary (standby) switch on the front, which is more convenient to use if the equipment is rack mounted and the rear panel is inaccessible

The indicator lamp, in the rear-mounted mains switch, should illuminate when switched on. If it fails to light the power may be absent or the unit may be faulty.
Check the fuse and replace if it is blown. (315mAT, slow blow).

If the problem is still evident contact your retailer or distributor.

Switch the secondary power switch on the front of the MEA-2 to 'ON'.

Set the front panel large IN/OUT switches to ‘IN’ (blue light)

The unit is now ready to use.

3.3. MEA-2 product concept and capabilities

The MEA-2 Precision 2-Channel Compressor is designed to provide very high quality signal processing for the most demanding professional applications.

It has been carefully developed in conjunction with balance engineers, producers and mastering engineers to be easy to use, and to provide a natural and warm sound and to offer a greater degree of transparency in the presence of equalization.

The MEA-2 also offers precision controls, which enable exact re-creation of previously used configurations.

4. OPERATION

The unit is designed for either stereo or 2-channel operation and each channel is controlled independently by an identical set of controls.

Each channel has four frequency bands with controls for:

- Bandwidth (dB/octave)
- Frequency
- Cut / Boost
- IN / OUT

The MEA-2 is galvanically bypassed (inputs and outputs) when the power is off.

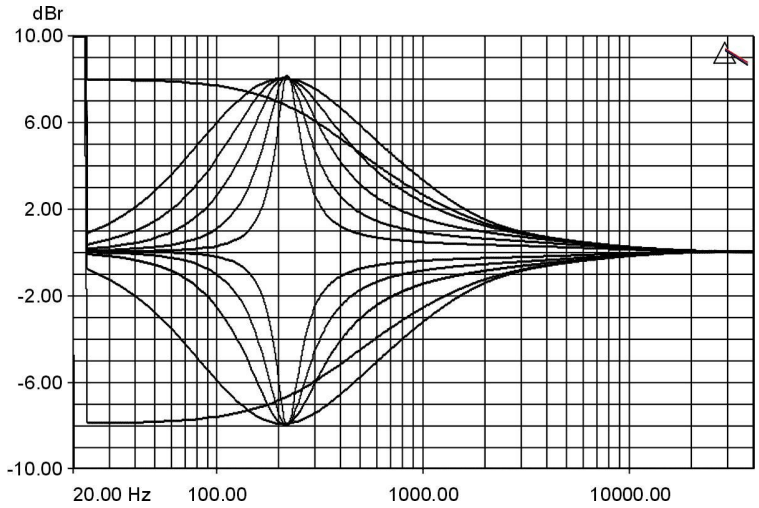
4.1. Bandwidth Control

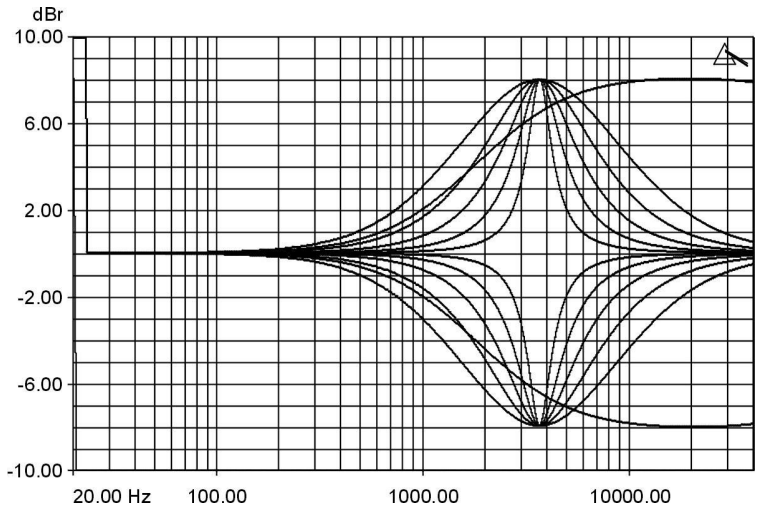
The bandwidth control (Q) of the MEA-2 differs from most other equalizers.

The bandwidth is defined as dB/Octave but in reality it controls the width of the area that is affected by the cut/boost control.

Each frequency band has a control for bandwidth:

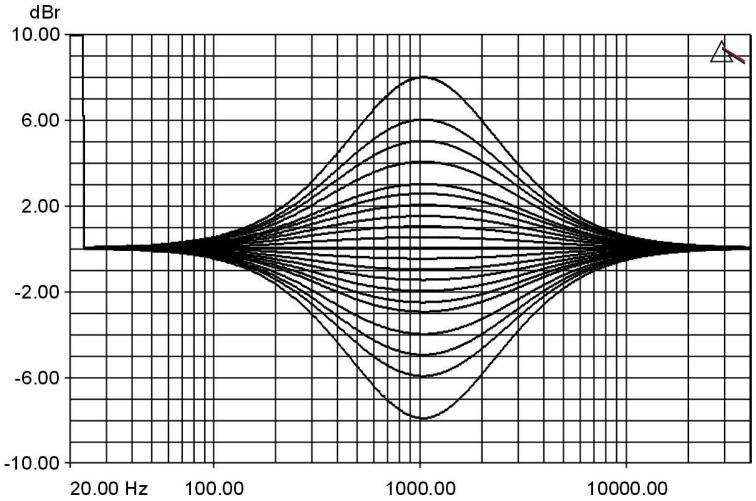
- shelving
- 4dB/octave
- 6dB/octave
- 9dB/octave
- 14dB/octave
- 20dB/octave



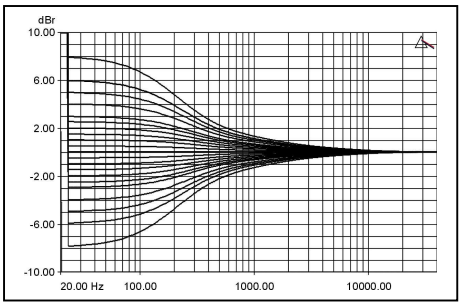


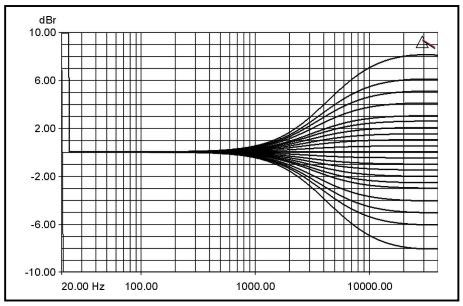
The width of the affected area stays constant for different
Cut and Boost settings.

This feature makes adjustment of music programmes accurate and intuitive.



The shelving curves are similar to traditional bass and treble controls:





4.2. Frequency

Each frequency band has 21 frequencies:

- 19Hz to 530Hz
- 21Hz to 572Hz
- 617Hz to 24kHz
- 665Hz to 27kHz

The frequencies are musically spaced and they are ‘interlaced’ for maximum flexibility:

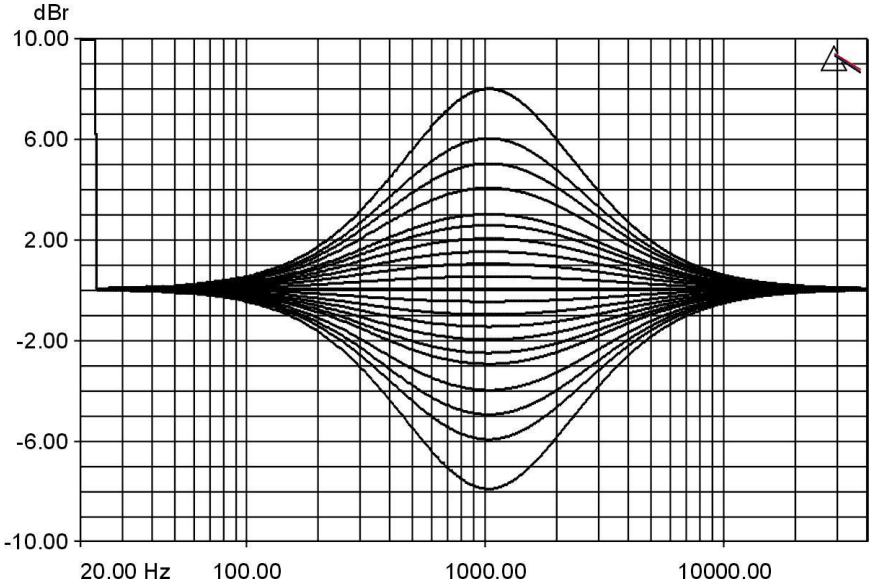
position	band 1 (Hz)	band 2 (Hz)	band 3 (Hz)	band 4 (Hz)
1	19	21	617	665
2	22	24	727	787
3	26	29	862	937
4	31	34	1k0	1k1
5	37	41	1k2	1k3
6	43	48	1k4	1k5
7	51	57	1k7	1k8
8	60	67	2k0	2k2
9	71	79	2k4	2k6
10	84	92	2k8	3k0
11	98	108	3k3	3k6
12	114	126	3k9	4k2
13	134	148	4k6	5k0
14	158	173	5k4	5k9
15	185	203	6k4	7k0
16	218	240	7k6	8k2
17	258	280	9k0	9k7
18	305	332	11k	12k
19	364	400	13k	14k
20	435	477	17k	19k
21	530	572	24k	27k

4.3. Cut / Boost

The cut and boost control has 21 settings:

- +8.0dB
- +6.0dB
- +5.0dB
- +4.0dB
- +3.0dB
- +2.5dB
- +2.0dB
- +1.5dB
- +1.0dB
- +0.5dB
- 0dB (filter by-passed)
- -0.5dB
- -1.0dB
- -1.5dB
- -2.0dB
- -2.5dB
- -3.0dB
- -4.0dB
- -5.0dB
- -6.0dB
- -8.0dB

The circuit adds and subtracts the portion of the frequency spectrum selected by the bandwidth and frequency controls. This arrangement leaves the original programme less affected by adjustments to the frequency response.



Cut and Boost is symmetrical and have the exact reciprocal curves.

5. CONNECTORS

The MEA-2 has symmetrical input and output amplifiers with no impedance or loading difference between pin 2 and pin 3.

Some users and equipment use pin as ‘hot’ and pin 3 as ‘cold’, others implement the opposite.

The MEA-2 works perfectly in both cases.

Balanced analogue audio connections should use a good-quality screened twisted-pair lead. Unbalanced connections must also be screened.

The inputs are ‘ground floating’, and both pin 2 and pin 3 must be connected.

5.1. Output connections

The outputs are electronically balanced and both pin 2 and pin 3 must be connected.

The level remains unchanged when an output is driving an unbalanced input.

Note: When driving unbalanced loads with the MEA-2, the maximum output level is reduced by approximately 6dB from the nominal +29dBu.

5.2. Rear panel connectors

A. Audio I/O

- Left Channel Input
- Left Channel Output
- Right Channel Input
- Right Channel Output

B. Earthing Stud – Connected to mains earth and the case

C. IEC Mains Inlet (fused).

6. SPECIFICATION

6.1. Analogue inputs

The analogue inputs are on three pin gold plated Neutrik XLR connectors with signal on pins 2 and 3 respectively, and screen on pin 1.

Pins 2 & 3 have a very high impedance path to earth.

Differential input impedance: 100kohm (pin 2 to pin 3)

Unbalanced input impedance: 100kohm (pin 1 to 2 or 3)

6.2. Analogue outputs

The analogue outputs are on three pin gold plated Neutrik XLR connectors with signal on pins 2 and 3 respectively, and the screen on pin 1.

Output impedance: 33ohm (pin 2 to pin 3, balanced)

Unbalanced output impedance: 33ohm (pin 1 to 2 or 3)

6.3. Performance specification

- Maximum input amplitude: +29dBu
- THD less than –106dB at +29dBu
- Output noise: Equalizer out < -99dBu
- Equalizer in < -95dBu (all sections set to 0dB
- Frequency response: + 0.1, -0.1dB, <1Hz to > 50 kHz
- Crosstalk: less than -100 dB, 20 Hz to 20 kHz
- Dynamic range: Equalizer out > 128dB
- Equalizer in > 124dB

6.4. Servicing and repair

There are no user serviceable parts inside this unit.
Repairs should only be undertaken by qualified electronics technicians or engineers.

6.5. Mains transformer voltage selection

The mains transformer has a tapped primary to allow operation at nominal voltages of 115V or 230V. Ensure that the correct voltage range is selected before using the MEA-2.

6.6. Fuse

There is one mains fuse, accessible externally in the IEC320 mains inlet. If this fuse is blown it should be replaced by a similar value and type.
(20x5mm 250V 315mAT (antisurge, slow).

6.7. Earthing

The unit has an internal link connecting the audio ground to the chassis.
A chassis earth stud is provided on the rear of the unit.

6.8. Physical dimensions

Weight: (17lb) (8kg)

Width: 19 inch (483mm) (rack-mountable)

Height: 3U (132mm)

Depth: 10.25 inches (260mm) (add clearance for connectors)

7. ELECTROMAGNETIC COMPATIBILITY

This equipment is intended for use in an electromagnetically controlled environment.

To maintain the performance specification it should not be subject to strong magnetic fields (such as in the immediate vicinity of a power amplifier or cathode ray tube)

This equipment does not include digital circuitry or generate high frequencies that could be radiated or conducted from the unit.