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behringer
DEQ2496
Equalizer
and
Mastering
Processor

behringer DEQ2496 Equalizer and Mastering Processor User Guide

Contents

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Specifications

- **Product Name:** ULTRACURVE PRO DEQ2496

- **Functionality:** Ultra-High Precision 24-Bit/96 kHz Equalizer, Analyzer, Feedback Destroyer, and Mastering Processor
- **Version:** 6.0

Product Information

The ULTRACURVE PRO DEQ2496 is a versatile audio processing unit that provides ultra-high precision equalization, analysis, feedback suppression, and mastering capabilities. With its 24-bit/96 kHz audio quality, this device is designed to enhance audio signals with utmost accuracy and clarity.

Safety Instructions
It is crucial to follow the safety instructions provided in the manual to ensure safe operation of the device. Some key safety points include avoiding exposure to rain or moisture, using only recommended accessories, and ensuring proper grounding for electrical safety.

Usage Instructions

- **Installation**
    1. Before installation, carefully read the safety instructions in the manual.
    2. Ensure the device is placed on a stable surface away from moisture and heat sources.
- **Connection**
    1. Connect the ULTRACURVE PRO DEQ2496 to power using the provided power cord.
    2. For audio input/output connections, use appropriate cables and follow the recommended setup in the manual.
- **Operation**
    1. Power on the device using the designated power button.
    2. Navigate through the menu options using the control interface to access different functions such as equalization, analysis, and mastering.
    3. Adjust settings as needed to achieve the desired audio output.
- **Maintenance**
    1. Regularly clean the exterior of the device with a dry cloth to prevent dust buildup.
    2. Avoid placing any objects filled with liquids on the device to prevent damage.

FAQ

- **Q: Can I use this device for live sound applications?**
  A: Yes, the ULTRACURVE PRO DEQ2496 is suitable for live sound setups due to its precision equalization and feedback suppression capabilities.
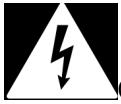- **Q: How do I update the firmware of the device?**
  A: Firmware updates can be found online at **community.musictribe.com/support**. Follow the provided instructions for updating the firmware.

Quick Start Guide

ULTRACURVE PRO DEQ2496
Ultra-High Precision 24-Bit/96 kHz Equalizer, Analyzer, Feedback Destroyer and Mastering Processor

Important Safety Instructions

CAUTION RISK OF ELECTRIC SHOCK! DO NOT OPEN!

- Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock.
- Use only high-quality professional speaker cables with ¼" TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.
- This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure – voltage that may be sufficient to constitute a risk of shock.
- This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.
- **Caution**

  To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.
- **Caution**

  To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.
- **Caution**

  These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.

Warning
Please refer to the information on the exterior of bottom enclosure for electrical and safety information before installing or operating the device.

1. Please read and follow all instructions and warnings.
2. Keep the apparatus away from water (except for outdoor products).
3. Clean only with dry cloth.
4. Do not block ventilation openings. Do not install in a confined space. Install only according to manufacturer's instructions.
5. Protect the power cord from damage, particularly at plugs and appliance socket.
6. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
7. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other (only for USA and Canada). A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
8. Protect the power cord from damage, particularly at plugs and appliance sockets.
9. Use only attachments and accessories recommended by the manufacturer.

10. Use only specified carts, stands, tripods, brackets, or tables. Use caution to prevent tip-over when moving the cart/apparatus combination.

11. Unplug during storms, or if not in use for a long period.

12. Only use qualified personnel for servicing, especially after damage.

13. The apparatus with protective earthing terminal shall be connected to a MAINS socket outlet with a protective earthing connection.

14. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

15. Avoid installing in confined spaces like bookcases.

16. Do not place naked flame sources, such as lighted candles, on the apparatus.

17. Operating temperature range 5° to 45°C (41° to 113°F).

ULTRACURVE PRO DEQ2496 ULTRACURVE PRO DEQ2496 Controls

Controls
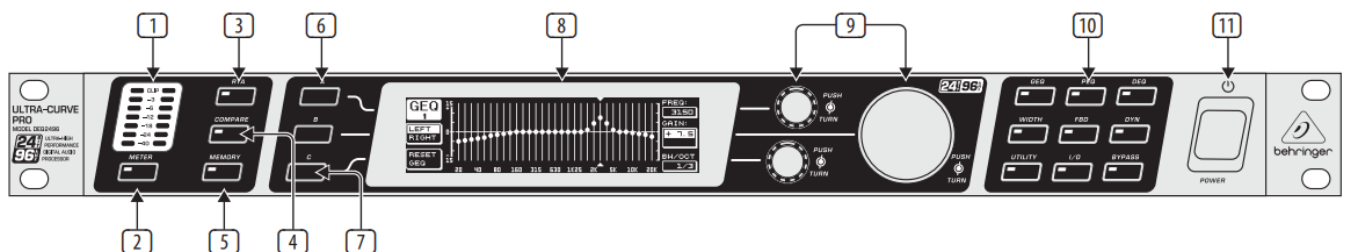
1. The LED METER indicates the DEQ2496's input signal. The top CLIP LED lights up as soon as the input signal level is too high or the peak limiter in the Dynamics menu has been activated.

2. Use the METER key to select the METER menu.

3. The DEQ2496 features a built-in real-time analyzer displaying the entire frequency range. Use the RTA key to select the corresponding menu and adjust the various settings.

4. Depending on the currently selected menu, the COMPARE key allows you to compare either complete presets or individual modules. The following table (9) shows how the COMPARE key works in each module.

COMPARE (complete preset)   COMPARE (module only)

	COMPARE (complete preset)	COMPARE (module only)
GEQ		x
PEQ		x
DEQ		x
FBD	x	
WIDTH		x
DYN		x
UTIL	x	
I/O		x
BYPASS	x	
RTA	not active	
MEMORY	x	
METER	not active	

5. Press the MEMORY key to select the MEMORY menu. Here, you can save or recall complete presets or individual modules from one preset (e.g. GEQ, PEQ etc.). The MEMORY LED lights up as soon as the parameter values of the preset selected in the MEMORY menu differ from currently active settings.

6. The PAGE key allows you to select the various pages within one menu.

7. The functions performed by the keys A and B depend on the selected menu and are indicated in the display.

8. This is the LCD display of your ULTRACURVE PRO.

9. The DEQ2496 has three DATA WHEELS, which can be used to select and edit various parameters—again depending on the currently selected menu. Often, they perform a dual function, i.e. you can edit by turning and pressing a data wheel. Pressing the data wheels also changes the scaling of many parameters (step width) or confirms/resets previously made entries.

10. With the menu keys you can select the individual menus of the various modules. They can also be used to select specific pages from these menus (like PAGE key). Each of these keys has a built-in LED, which lights up when the corresponding module starts modifying the sound. When the DEQ2496 receives MIDI data, the LED of the UTILITY key lights up briefly. Keep this key pressed for about 1 s to bypass active modules or re-activate disabled ones. This function refers only to those modules which can be edited in the BYPASS menu.

11. Use the POWER switch to put the DEQ2496 into operation. This switch should be set to "Off" before you connect the unit to the mains.
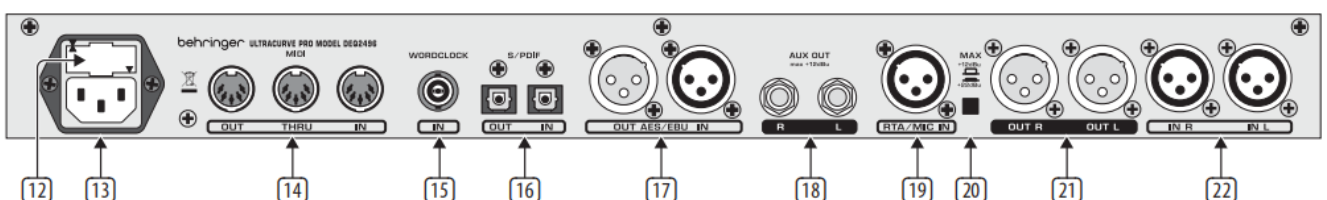
12. The FUSE HOLDER holds the mains fuse of the DEQ2496. Blown fuses must be replaced by fuses of the

same type and rating.

13. The mains connection is made using the enclosed power cord and a standard IEC receptacle.

14. The MIDI jacks enable the DEQ2496 to communicate with a computer or other MIDI equipment. Incoming MIDI data are received on the MIDI IN, outgoing MIDI data are sent via the MIDI OUT. Received MIDI data are also present at the MIDI THRU jack, so as to pass them on unmodified to other devices.

15. Use the WORDCLOCK input to synchronize your DEQ2496 to external equipment via a wordclock signal. This connector is on a BNC coaxial jack.

16. Your DEQ2496 features a digital optical interface for the transmission/ reception of data in both AES/EBU and S/PDIF formats.The digital AES/EBU interface (XLR connectors) also sends/receives AES/EBU or S/PDIF signals.

17. The AUX OUT phone jack is an additional stereo output, which allows you to tap the audio signal present at the digital outputs in analog form.

18. The RTA/MIC IN XLR connector can be used to connect a measurement microphone providing an input signal for the real-time analyzer or SPL meter. This connector has a switchable +15 V phantom power supply for condenser microphones and can be set to microphone or line sensitivity.

19. The MAX switch raises the maximum level present at the MAIN inputs/outputs from +12 dBu to +22 dBu.

20. These balanced XLR connectors provide the analog output signal of the DEQ2496.

21. These balanced XLR inputs are used to connect analog input signals.

Specifications

Analog Inputs

Type	electronically balanced
Connector	XLR
Impedance	22 kΩ at 1 kHz
Max. input level	+12 or +22 dBu, switchable
CMRR	40 dB typ.

Analog Outputs (Main)

Type	servo-balanced
Connector	XLR
Impedance	100 Ω at 1 kHz
Max. output level	+12 or +22 dBu, switchable

Analog Outputs (Aux)

Type	servo-balanced
Connector	¼" stereo jack
Impedance	100 Ω at 1 kHz
Max. output level	+12 dBu

System Specifications

Frequency range	10 Hz to 35 kHz (-1 dB) @ 96 kHz sampling rate
Signal-to-noise ratio	> 113 dB main input/output > 107 dB aux output
THD	0.007 % typ. @ +4 dBu, 1 kHz, unity gain
Crosstalk	< -92 dB/-95 dB

Bypass

- Type
  - Relay, hard-bypass in case of power failure

Measurement Microphone Input

Type	electronically balanced
Input impedance	2 kΩ
Max. input level (LINE)	variable from -14 dBu to +22 dBu
Max. input level (MIC)	variable from -42 dBV/Pa to -6 dBV/Pa
Phantom power	+15 V, switchable

Digital Input 1

Type	XLR transformer-balanced
Standard	AES/EBU or S/PDIF
Input impedance	110 Ω
Nom. input level	0.2 – 5 V peak-to-peak

Digital Input 2

Type	TOSLINK optical
Standard	AES/EBU or S/PDIF

Digital Input 1

Type	XLR transformer-balanced
Standard	AES/EBU or S/PDIF
Impedance	110 Ω
Output level	3.5 V peak-to-peak

Digital Input 2

Type	TOSLINK optical
Standard	AES/EBU or S/PDIF

Sync Input

Type	BNC
Standard	Wordclock (1 x sample rate)
Input impedance	50 kΩ
Nom. level	2 – 6 V peak-to-peak

MIDI Interface

Type	5-pole DIN jacks In/Out/Thru
Implementation	cf. MIDI implementation chart

Digital Processing

Converter	24-bit Delta-Sigma, 64/128-oversampling (AKM)
Sample rate	44.1, 48, 88.2, 96 kHz

Graphic Equalizer (GEQ)

Type	digital 1/3-oct EQ
Frequency range	20 Hz to 20 kHz, 31 1/3-oct. bands according to ISO frequencies
Bandwidth	1/3-oct.
Control range	+15 to -15 dB

Parametric Equalizer (PEQ)

Type	max. 10 independent, fully parametric filters per channel
Frequency range	20 Hz to 20 kHz
Bandwidth	1/10 to 10 oct., shelving filters (6 and 12 dB)
Control range	+15 to -15 dB

Dynamic Equalizer (DEQ)

Type	max. 3 independent, fully parametric filters per channel
Frequency range	20 Hz to 20 kHz
Bandwidth	1/10 to 10 oct., shelving filters (6 and 12 dB)
Control range	+15 to -15 dB
Threshold	variable from 0 to -60 dB
Attack	0 to 200 msec
Release	20 to 4,000 msec
Ratio	1:2 to 1:100

Feedback Destroyer (FBD)

Type	digital signal analysis for feedback identification
Filter	max. 10 digital notch filters per channel, programmable or as automatic feedback suppression system
Frequency range	20 Hz to 20 kHz
Bandwidth	1/10 to 1/60 oct.
Control range	0 to -60 dB

Digital Delay

Type	digital stereo delay
Max. delay time	300 ms, independently adjustable for each channel
Min. resolution	0.02 ms
Delay units	seconds, meters or feet

Level Meter

Type	digital level meter with simultaneous graphic display of peak and RMS values and virtual analog VU meter

SPL Meter

Weighting	dB (A), dB (C) or OFF
Microphone calibration	-42 dBV/Pa to -6 dBV/Pa

Dynamics

Type	Expander or compressor with digital IGC (Interactive Gain Control)
Threshold	variable from 0 to -60 dB
Attack	0 to 200 msec
Release	20 to 4,000 msec
Ratio	1:1.1 to 1:100

Limiter

Type	Peak limiter (zero attack)
Hold	0 to 1,000 msec
Threshold	variable from 0 to -24 dB
Release	20 to 4,000 msec

Real-Time Analyzer

Type	digital 61-band FFT analyzer
Frequency range	20 Hz to 20 kHz, 61 bands according to ISO frequencies
Detectors	peak and average
Noise generator	pink noise, levels from 0 to -60 dB

Display	
Type	320 x 80 dot-matrix LC display
Backlighting	LED, orange
Contrast	adjustable
Memory	
Presets	64 memory locations with 16-character names, single modules can be recalled and saved
Power Supply	
Mains voltage	100 to 240 V~, 50/60 Hz
Power consumption	10 W typ.
Fuse	T 1 A H
Mains connector	Standard IEC receptacle
Dimensions/Weight	
Dimensions (H x D x W)	approx. 44.5 x 482.6 x 215 mm (1.75 x 19 x 8.5")
Weight	approx. 2.24 kg (4.9 lbs)
Shipping Weight	approx. 3.09 kg (6.8 lbs)

Important information

1. Register online. Please register your new Music Tribe equipment right after you purchase it by visiting **musictribe.com**. Registering your purchase using our simple online form helps us to process your repair claims more quickly and efficiently. Also, read the terms and conditions of our warranty, if applicable.

2. Malfunction. Should your Music Tribe Authorized Reseller not be located in your vicinity, you may contact the Music Tribe Authorized Fulfiller for your country listed under "Support" at **musictribe.com**. Should your country not be listed, please check if your problem can be dealt with by our "Online Support" which may also be found under "Support" at **musictribe.com**. Alternatively, please submit an online warranty claim at **musictribe.com** BEFORE returning the product.

3. Power Connections. Before plugging the unit into a power socket, please make sure you are using the correct mains voltage for your particular model. Faulty fuses must be replaced with fuses of the same type and rating without exception.

FEDERAL COMMUNICATIONS COMMISSION COMPLIANCE INFORMATION

Behringer
ULTRACURVE PRO DEQ2496

- **Responsible Party Name:** Music Tribe Commercial NV Inc.
- **Address:** 122 E. 42nd St.1,
- **8th** Floor NY, NY 10168,
- United States
- **Email Address: legal@musictribe.com**

ULTRACURVE PRO DEQ2496
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment 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.

Warning: Operation of this equipment in a residential environment could cause radio interference.

Important information:
Changes or modifications to the equipment not expressly approved by Music Tribe can void the user's authority to use the equipment.

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Hereby, Music Tribe declares that this product is in compliance with Directive 2014/35/EU,Directive 2014/30/EU, Directive 2011/65/EU and Amendment 2015/863/EU, Directive 2012/19/EU, Regulation 519/2012 REACH SVHC and Directive 1907/2006/EC.
Full text of EU DoC is available at **https://community.musictribe.com/**
EU Representative: Music Tribe Brands DK A/S
Address: Gammel Strand 44, DK-1202 København K, Denmark
UK Representative: Music Tribe Brands UK Ltd.
Address: 8th Floor, 20 Farringdon Street London EC4A 4AB, United Kingdom

Correct disposal of this product: This symbol indicates that this product must not be disposed of with household waste, according to the WEEE Directive (2012/19/EU) and your national law. This product should be taken to a collection center licensed for the recycling of waste electrical and electronic equipment (EEE). The mishandling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the efficient use of natural resources. For more information about where you can take your waste equipment for recycling, please contact your local city office, or your household waste collection service.

We Hear You

Documents / Resources

Quick Start Guide EN ES FR DE PT IT NL SE PL GP CN ULTRACURVE PRO DEQ2496 behringer	**behringer DEQ2496 Equalizer and Mastering Processor** [pdf] User Guide DEQ2496 Equalizer and Mastering Processor, DEQ2496, Equalizer and Mastering Processor, Mastering Processor, Processor

References