

VMX100

PRO MIXER

User's Manual

Version 1.2 July 2004

ENGLISH



www.behringer.com



IMPORTANT SAFETY INSTRUCTIONS



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.

WARNING: 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 and no objects filled with liquids, such as vases, shall be placed on the apparatus.



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.

DETAILED SAFETY INSTRUCTIONS:

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) 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. 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.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15) **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 unless you are qualified to do so.

FOREWORD

Dear Customer,

Welcome to the team of PRO MIXER users and thank you for demonstrating your faith in us by purchasing the BEHRINGER VMX100.

Writing this foreword to you is an extremely pleasant task. After several months of intensive brainstorming and the subsequent realization of their ideas, our engineers finally achieved an ambitious goal: the construction of an outstanding DJ MIXER, which, due to its remarkable functions, provides maximum flexibility and impressive performance. As with any new product, the development of this new PRO MIXER also meant a great deal of responsibility. Throughout the entire planning and development phases, we kept you—the discerning end-user and DJ, your requirements and your requests at the focal point of our considerations. Meeting your professional expectations required a lot of effort and more than a few night shifts, but this is exactly the kind of challenge that keeps us alive and kicking. Developing a new product always brings a large number of people together, and it's a great feeling when all involved can take pride in the results.

It is an important part of our philosophy to share our gratification with you, since you're the most important member of the BEHRINGER team. With your highly competent suggestions for new products, you've contributed immensely to the development and success of our company. In return, we bring you uncompromising quality, guaranteed by the stringent BEHRINGER quality control system, as well as excellent technical and audio specifications, at an extremely favorable price. We hope that this will enable you to fully unfold your creativity without being hampered by budget constraints.

We are often asked how we manage to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Lots of satisfied customers means large sales volumes, which in turn enables us to reduce production and logistics expenses. We believe it's only fair to pass this benefit back to you—after all, your success is our success!

I would like to thank everyone who helped make our new PRO MIXER project possible and successful. Each of those people made very personal contributions, from our engineers and designers to our numerous staff members and finally to you as a BEHRINGER user.

My friends, it's been worth the trouble!

Thank you very much,

A handwritten signature in black ink, appearing to read 'U. Behringer', with a long horizontal flourish extending to the right.

Uli Behringer

PRO MIXER

Professional 2-channel DJ mixer with BPM Counter

- ▲ Intelligent dual auto-BPM counter with time and beat sync display
- ▲ Super-smooth ULTRAGLIDE faders with up to 500,000 life cycles
- ▲ Crossfader curve control
- ▲ Gain and 2-band kill EQ (-32 dB) per channel
- ▲ Extremely precise assignable level meter with peak hold function
- ▲ Extremely low-noise ULN (Ultra Low-Noise) design, like those on professional studio consoles
- ▲ Gold-plated cinch sockets for excellent audio qualities
- ▲ Super-rugged construction ensures long life, even under the most demanding conditions
- ▲ Conceived and designed by BEHRINGER Germany. Made in China

VMX100

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1. INTRODUCTION

With the BEHRINGER PRO MIXER VMX100, you have purchased an absolutely state-of-the-art DJ mixer. Its extensive features open the door to new and creative ways of working, while making it suitable for a variety of professional applications. At the same time, the VMX100 is extremely easy to operate, allowing you to completely unfold your creativity.


Time waits for no one, and neither you nor we want to be left behind. That's why we invested months of research and development in creating a DJ mixer that offers up-to-date features and technology to give you a true cutting edge for your performances. Fully optimized for dance club applications and DJ systems, the VMX100 promises full-blown DJ'ing fun—and success.

Let's be honest: nobody likes reading users' manuals. We know you want to plug in and get jammin', but please take the time to read the following instructions. We've kept them as short as possible, and it will be well worth the few minutes it takes you. Armed with a thorough understanding of the VMX100's features and functions, you'll be able to get the most out of this exciting product.

 **The following instructions will give you a brief run-down on the terminology and functions of the VMX100. After reading, please store this manual in a safe place for future reference.**

1.1 Before you get started

Your PRO MIXER was carefully packed in the factory and the packaging is designed to protect the unit against rough handling. Nevertheless, we recommend that you carefully examine packaging and contents for any signs of physical damage which may have occurred during transit.

 **If the unit is damaged, please do not return it to BEHRINGER, but notify your dealer and the shipping company immediately. Otherwise, claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.**


 **If the unit needs to be shipped, please always use the original packaging to avoid damage.**

 **Never let unsupervised children play with the VMX100 or with its packaging.**

 **Please dispose of all packaging materials in an environmentally-friendly fashion.**

Please take care to always ensure adequate ventilation. Do not place the PRO MIXER near heating units or heat-generating devices in order to avoid overheating.

CAUTION!

 **We would like to point out that high volumes can permanently damage your sense of hearing and/or your headphone or speaker systems. Therefore, please turn the MAIN control in the MIC/MAIN section all the way to the left before turning on the mixer. And please exercise caution and common sense when setting volume levels.**

2. FRONT PANEL

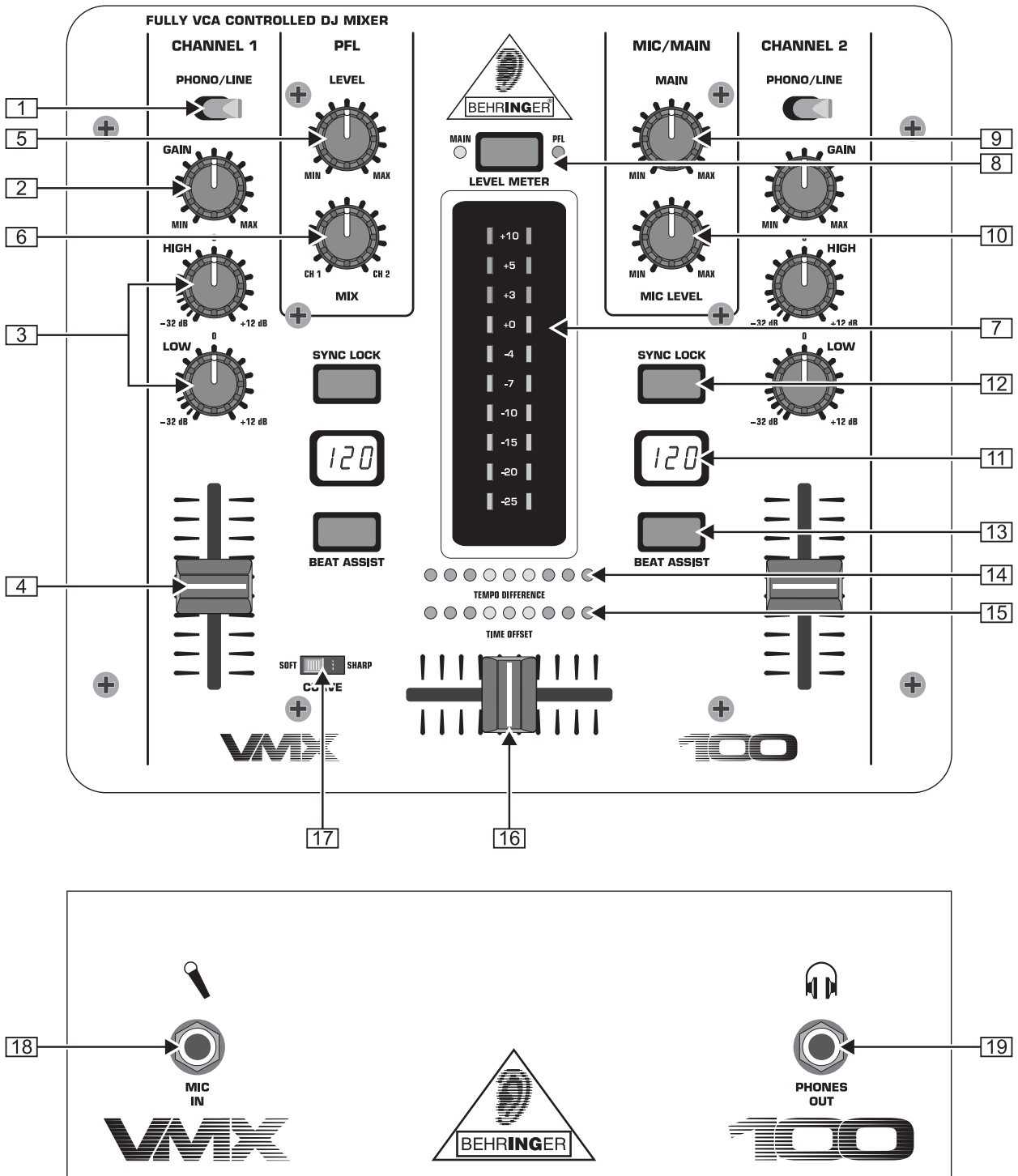



Fig. 2.1 Front view of the PRO MIXER VMX100


2.1 Input channels 1 and 2

- 1 The PHONO/LINE switch selects one of the input pairs on the respective channel. The “PHONO” setting (and inputs) are intended for turntables; for all other signal sources, i.e. a CD or MD player, use the “LINE” setting and inputs.

 **Never connect line-level equipment to the highly sensitive phono inputs! The output levels of phono cartridge systems are in the millivolt range, whereas CD and MD players, as well as tape decks, provide outputs levels in the volt range. In other words, the level of line signals is up to 100 times higher than phono output levels.**

 The *GAIN* control is used to adjust the input signal level.


 **The overall level of your signal is also effected by the EQ settings. It's a good idea to adjust the equalizer before you set the level with the GAIN control.**


 Each of the two input channels is equipped with a 2-BAND EQUALIZER with kill characteristic. The maximum amount of attenuation (-32 dB) is much higher than the maximum boost (+12 dB), allowing entire frequency spectrums to be “removed” from a track.

 The *CHANNEL* fader adjusts the final channel volume.


2.2 PFL section (Pre Fader Listening)

The PFL signal is a pre-fader headphones signal, enabling you to pre-listen to a signal source without effecting the main signal.

 The *LEVEL* control determines the volume of the headphones signal.

 The *MIX* control lets you fade between channels 1 and 2.

 The *LEVEL METER* displays the level of the signal selected via the MAIN/PFL button ().

 The *MAIN/PFL* button allows you to route either the main or PFL signal to the display. Remember: “PFL” is your pre-listening or headphone signal and “MAIN” is the signal assigned to the outputs of the VMX100.

 **In PFL mode, the channel 1 signal is displayed on the left side of the LEVEL METER, and channel 2 on the right.**




2.3 MIC/MAIN section



 The *MAIN* knob controls the overall output volume.

 The *MIC LEVEL* control adjusts the volume of the microphone signal.

2.4 Beat counter



The PRO MIXER VMX100's built-in beat counter is an extremely useful feature, allowing smooth crossfades between two tracks—an important key to the success of your performance. The beat counter analyzes and displays the tempi of your tracks in BPM (Beats Per Minute). The beat counter sections of channel 1 and 2 are identical.

The tempo of the track is shown in the respective channel's *DISPLAY* (). In the case of multiple tempo changes, the display would change continuously, causing unnecessary confusion and rendering the function virtually useless. Enter the *SYNC LOCK* button (): with it, you can limit the range of possible tempo values within a song. Pressing this button once the counter has “caught” and displayed a realistic value will simplify things. The *BEAT ASSIST* button () allows you to set the beat counter's tempo manually, similar to “tap tempo”. Pressing the button three times in time with the track will set the beat counter and its display at that tempo. The *BEAT ASSIST* and *SYNC LOCK* buttons are each equipped with an LED to show that the respective function is activated.

Once the tempo of the two tracks have been determined and locked with the *SYNC LOCK* or *BEAT ASSIST* buttons, the tempo difference between channel 1 and 2 will be depicted via the 9-segment *TEMPO DIFFERENCE* LED display (). It shows the degree of the tempo difference by a respective deflection to the right (channel 2 track is faster) or to the left (channel 1 track is faster). The center LED lights when the tempi are equal. The synchronization of channel 1 and 2 is shown in the *TIME OFFSET* LED display () below the *TEMPO*

DIFFERENCE display. When the center LED is lit, the tracks are in sync with each other. When the display moves to the left or right, the corresponding channel is running out of sync. The TEMPO DIFFERENCE and TIME OFFSET displays are only active when the tempi of both channels have been locked as explained above. To exit the SYNC LOCK or BEAT ASSIST mode, simply press the SYNC LOCK key in both channels again.

2.5 Crossfader section

- 16 The *CROSSFADER* is used to fade between channels 1 and 2.
- 17 The *CURVE* switch, located on the left side of the *CROSSFADER*, enables you to select between two crossfade modes: *SOFT* and *SHARP*. In *SOFT* mode the crossfader fades between the channels in a linear, continuous manner. This mode is recommended for slower, smoother crossfades. In *SHARP* mode the crossfader takes on a more logarithmic effect, working faster towards the outer edges of the fader range. Use this mode for faster, “hard” crossfades.
-  **Flipping the *CURVE* switch may cause a sudden change in volume. We recommend not changing this setting while a signal is present.**
- 18 The *MIC INPUT* connector is a balanced ¼" TRS socket for microphone connection.
-  **We strongly recommend the use of high-grade cables and connectors for the transmission of audio signals. Inferior quality materials cannot supply acceptable audio quality or corrosion protection.**
- 19 The *HEADPHONES* socket allows you to connect your headphones for pre-listening (PFL signal). For best results, use headphones with an impedance rating of at least 32 Ohms.

3. REAR PANEL

With the exception of *MIC INPUT* and *HEADPHONES*, all of the *VMX100*'s audio connections are located on the rear panel and supplied as RCA connectors.

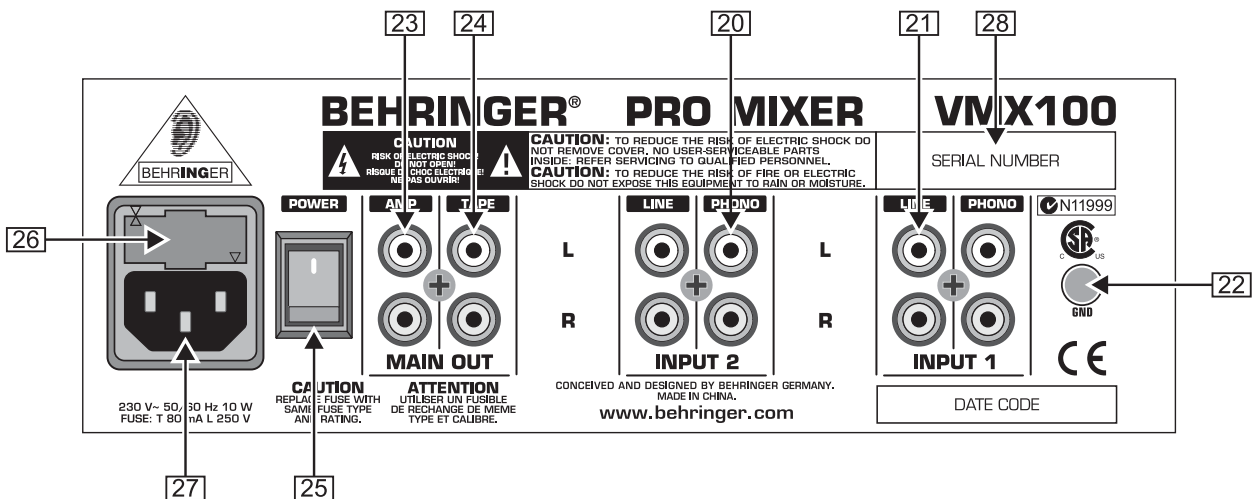



Fig 3.1: Rear view of the PRO MIXER VMX100

- 20 The *PHONO* inputs for channel 1 and 2 are only for turntable connection.
- 21 The *LINE* inputs may be used for connecting tape decks, CD or MD players etc.
- 22 The *GND* connection allows grounding of a turntable.
- 23 Use the *AMP* output to connect the *VMX100* to an amplifier. The level is controlled by the *MAIN* knob in the *MIC/MAIN* section.

 **In order to avoid power-up thumps, which can damage your loudspeakers, please power up your amplifier last. There should be no signal present, e.g. no music playing, when you turn on your amp. In addition, we suggest that you set all volume-related controls to “zero” (down) before powering up your system. Following these precautions will save you from unpleasant and potentially dangerous surprises.**

24 The *TAPE* output enables you to record your performance by connecting a tape deck, DAT recorder etc. Unlike the *AMP* output, the *TAPE* level is fixed, so that you have to adjust the input level on the recorder.

25 The *POWER ON* switch turns on the PRO MIXER.

26 *FUSE HOLDER/VOLTAGE SELECTOR*. Before you connect the equipment to an AC outlet, please be sure that the voltage displayed corresponds with your local AC voltage. If you should need to replace the fuse, be sure to replace it with one of the same type and value. Some units allow you to switch between 240 V and 120 V by rotating the fuse holder.

 **To operate the unit at 120 V, you must install a fuse with the double ampere rating.**

27 This is the socket for the power cable. The impulse behavior of any given amplifier circuit depends largely upon the power supply's inherent reserves. All mixers contain numerous operational amplifiers (op-amps) for processing line-level signals. Due to the restricted performance of their power supplies, many mixers show “stress symptoms” when used under extreme conditions, resulting in inferior audio quality. Thanks to its generously proportioned power supply, this will never happen to your VMX100: The sound will always be clear, transparent and powerful.

28 *SERIAL NUMBER*. Please take the time to fill out and return the warranty card within 14 days after the date of purchase. This will entitle you to all the benefits of our extended warranty. Alternatively, you can register online at www.behringer.com.

4. SPECIFICATIONS

AUDIO INPUTS

Mic input	53 dB gain, servo-balanced
Phono inputs 1 and 2	40 dB gain @ 1 kHz, unbalanced
Line inputs 1 and 2	0 dB gain, unbalanced

AUDIO OUTPUTS

Main Out	max. +21 dBu @ +15 dBu (LINE IN)
Tape Out	typically 0 dBu
Headphones	typically 125mW @ 1 % THD

EQUALIZER

Stereo Low	+12 dB/-32 dB @ 50 Hz
Stereo High	+12 dB/-32 dB @ 10 kHz

GENERAL

Signal-to-noise ratio (S/N)	> 88 dB (Line)
Crosstalk	> 67 dB (Line)
Distortion (THD)	< 0.025 %
Frequency response	20 Hz - 20 kHz
Input gain adjustment	-20 dB - +9 dB

POWER SUPPLY

Mains voltages	USA/Canada	120 V~, 60 Hz
	Europe/U.K./Australia	230 V~, 50 Hz
	Japan	100 V~, 50 - 60 Hz
General export model	120/230 V~, 50 - 60 Hz	
Power consumption	max. 10 W	
Fuse	100 - 120 V~: T 160 mA H 250 V	
	200 - 240 V~: T 80 mA L 250 V	
Mains connection	Standard IEC receptacle	

DIMENSIONS AND WEIGHT

Dimensions (H x W x D)	approx. 2 7/8" (72 mm) x 8" (203 mm) x 9" (229 mm)
Weight	approx. 2 kg

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.

5. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims. Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not excluded from this warranty as described under § 4, BEHRINGER shall, at its discretion, either replace or repair the product using suitable new or reconditioned parts. In the case that other parts are used which constitute an improvement, BEHRINGER may, at its discretion, charge the customer for the additional cost of these parts.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

§ 3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours **BEFORE** returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

§ 4 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement under the terms of this warranty will be repaired or replaced.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user. This also applies to defects caused by normal wear and tear, in particular, of faders, crossfaders, potentiometers, keys/buttons, tubes, guitar strings, illuminants and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

- ▲ improper handling, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.
- ▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- ▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 6 CLAIM FOR DAMAGES

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

§ 7 OTHER WARRANTY RIGHTS AND NATIONAL LAW

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

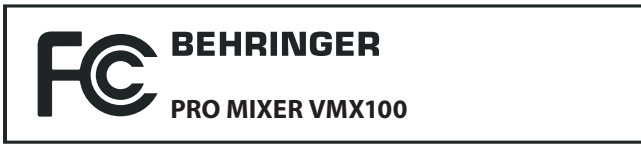
2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

* Customers in the European Union please contact BEHRINGER Germany Support for further details.

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FEDERAL COMMUNICATIONS COMMISSION COMPLIANCE INFORMATION



Responsible party name: **MUSIC Group Services USA, Inc.**
Address: **18912 North Creek Parkway,
Suite 200 Bothell, WA 98011,
USA**
Phone/Fax No.: **Phone: +1 425 672 0816
Fax: +1 425 673 7647**

PRO MIXER VMX100

complies with the FCC rules as mentioned in the following paragraph:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.

Important information:

Changes or modifications to the equipment not expressly approved by MUSIC Group can void the user's authority to use the equipment.