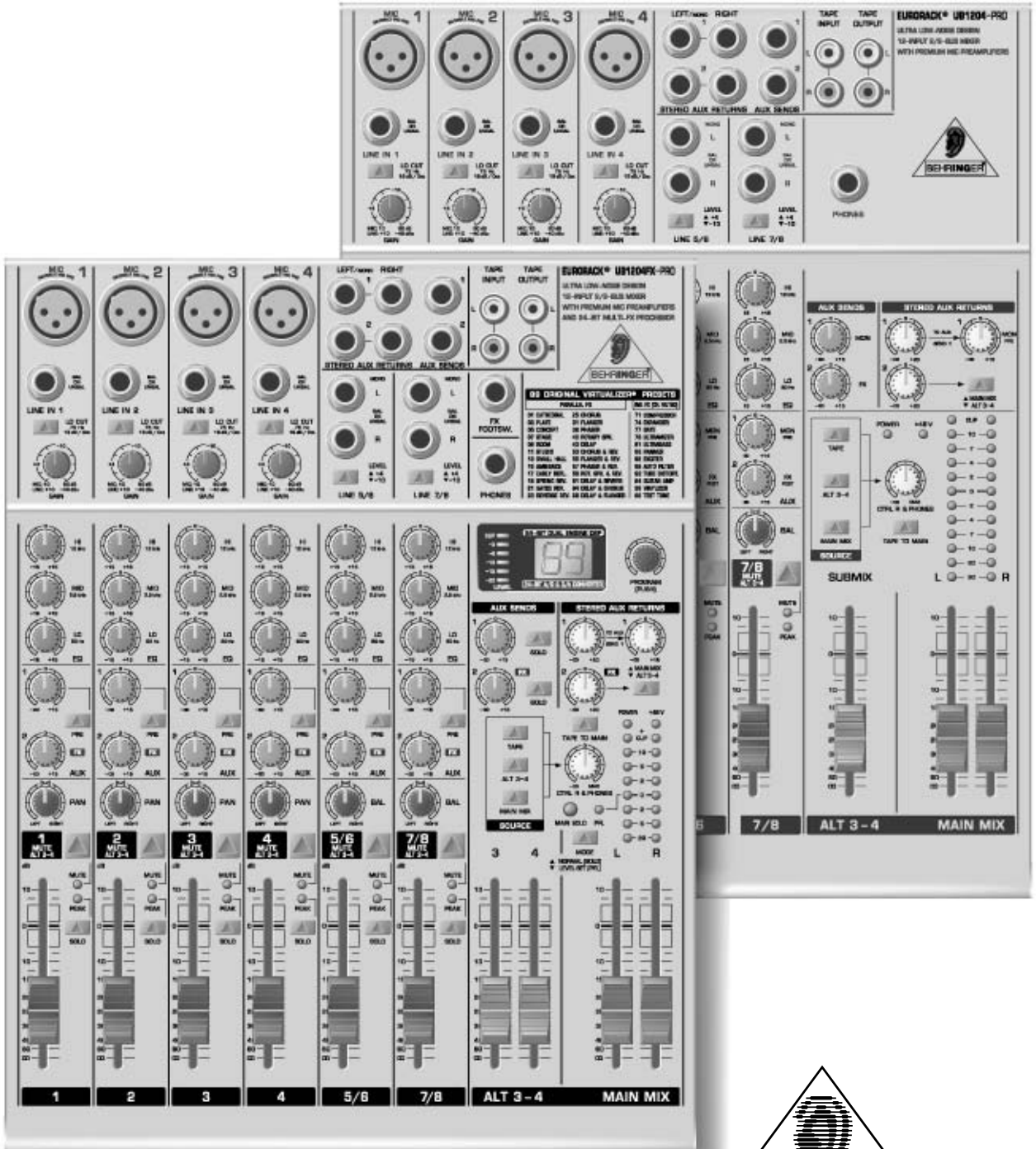# EURORACK® UB1204-PRO/UB1204FX-PRO

User's Manual

Version 1.2   August 2002

BEHRINGER®

www.behringer.com

EURORACK UB1204-PRO/UB1204FX-PRO

SAFETY INSTRUCTIONS

CAUTION
RISK OF ELECTRIC SHOCK!
DO NOT OPEN!
ATTENTION
RISQUE DE CHOC ELECTRIQUE!
NE PAS OUVRIR!

CAUTION: To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside; refer servicing to qualified personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose this device to rain and moisture.

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:

All the safety and operation instructions should be read before the device is operated.

Retain Instructions:
The safety and operating instructions should be retained for future reference.

Heed Warnings:
All warnings on the device and in the operating instructions should be adhered to.

Follow instructions:
All operation and user instructions should be followed.

Water and Moisture:
The device should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool etc.).

Ventilation:
The device should be situated so that its location or position does not interfere with its proper ventilation. For example, the device should not be placed on a bed, sofa, rug, or similar surface that may block the ventilation openings, or used in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Heat:
The device should be situated away from heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.

Power Source:
The device should only be connected to a power supply of the type described in the operating instructions or on the device.

Grounding or Polarization:
This device must be grounded.

Power Cords:
Power cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, sockets, outlets and the point where they exit from the device.

Cleaning:
The device should be cleaned only as recommended by the manufacturer.

Non-use Periods:
The power cord of the device should be unplugged from the outlet when left unused for a long period of time.

Debris and Liquid Entry:
Debris and/or liquids should not be allowed to enter the enclosure through openings.

Damage Requiring Service:
The device should be serviced by qualified service personnel when:

▲ The power cord or the plug has been damaged; or

▲ Debris or liquid has entered the device; or

▲ The device has been exposed to rain; or

▲ The device does not appear to operate normally or exhibits a pronounced change in performance; or

▲ The device has been dropped, or the enclosure damaged.

Servicing:
The user should not attempt to service the device beyond that which is described in the operating instructions. All other servicing should be referred to qualified service personnel.

EURORACK UB1204-PRO/UB1204FX-PRO

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FOREWORD

Dear Customer,

I'm sure you're one of those people who have devoted themselves body and soul to your chosen area and no doubt this has transformed you into an expert in your field!

Well, for over 30 years, my passion has been music and electronics. This not only led me to establish BEHRINGER, but also enabled me to convey and share my enthusiasm with my employees.

During all the years I've been involved with studio technology and end users, Ihave developed a feel for the things that really count, such as sound quality, reliability and ease of use. What's more, I have always had the desire to push the boundaries of technical possibilities to the extreme.

It was precisely this motivation that prompted me to start work on a new series of mixing consoles. Since our EURORACKs had already set new standards world-wide, I knew the development objectives behind the products bearing my initials had to be especially ambitious.

Thus, the concept and design of the new UB mixing consoles bear my signature. The design work, the entire circuit diagram and PCB development, and even the mechanical concepts are my own work. I carefully selected each individual component—with the aim of pushing the mixing consoles' analog and digital technologies to their limits.

My vision was to enable you, the user, to give free rein to your true potential and creativity. The result is incredibly powerful mixing consoles that offer intuitive operation. They cannot fail to impress with their extremely flexible routing possibilities plus fantastic wealth of functions. Innovative technologies, such as the completely new IMP "Invisible" Mic Preamps, guarantee optimum sound quality. And extraordinarily high-quality components provide unrivalled reliability, even under extreme loads.

Your new UB mixing console is of high quality yet is simple to use; you'll soon appreciate that I, both personally and in my capacity as musician and sound engineer, put you, the end user, first and that these products were only possible because of the passion and the attention to detail that went into them.

Thank you for the confidence you have placed in us by purchasing the UB mixing console. I should also like to thank all those who, with their personal commitment and passion, have helped me realize this impressive series of mixing consoles.

Kindest regards,

Uli Behringer

1. INTRODUCTION

Congratulations! In purchasing the BEHRINGER EURORACK you have acquired a mixer whose small size belies its incredible versatility and audio performance.

The BEHRINGER EURORACK mixing console offers you premium-quality microphone preamplifiers with optional phantom power supply, balanced line inputs and the ability to connect external effects devices. Because of its extensive and carefully thought-out routing possibilities, your EURORACK lends itself equally to both live and studio use.

IMP "INVISIBLE" MIC PREAMP

The microphone channels are fitted with BEHRINGER's brand new high-end IMP INVISIBLE MIC PREAMPs that boast the following features:

▲   130 dB dynamic range for an incredible amount of headroom,

▲   a bandwidth ranging from below 10 Hz to over 200 kHz for crystal-clear reproduction of even the finest nuances,

▲   the extremely low-noise and distortionless circuitry guarantees absolutely natural and transparent signal reproduction,

▲   they are perfectly matched to every conceivable microphone with up to 60 dB gain and +48 volt phantom power supply and

▲   They enable full utilisation of the greatly extended dynamic range of your 24-bit/192 kHz HD recorder, thereby maintaining optimal audio quality.

In addition, the BEHRINGER UB1204FX-PRO also offers an effects processor equipped with 24-bit A/D and D/A converters. The processor is fitted with the effect algorithms from our tried and tested 19" multi-effects device, the VIRTUALIZER PRO DSP2024P. 99 presets are available providing first-class room simulations, delay and modulation effects, as well as compression, tube distortion and many other effects, all with stunning audio quality.

The mixing consoles of the PRO series feature a state of the art, integrated switch-mode power supply. One of the great advantages is that (compared to conventional circuits) a switch-mode power supply adapts to mains voltages between 100 and 240 volts automatically. Furthermore, due to its much greater efficiency, it consumes much less energy than a conventional power supply unit.

CAUTION!

☞   **We should like to draw your attention to the fact that extreme volumes may damage your hearing and/or your headphones or loudspeakers. Turn the MAIN MIX faders and phones control in the main section fully down before you switch on the unit. Always be careful to set the appropriate volume.**

1.1 General mixing console functions

A mixing console fulfils three main functions:

▲   **Signal processing**: Preamplification, level adjustment, mixing of effects, frequency equalization.

▲   **Signal distribution**: Summing of signals to the aux sends for effects processing and monitor mix, distribution to one or several recording tracks, power amp(s), control room and 2-track outputs.

▲   **Mix**: Setting the volume level, frequency distribution and positioning of the individual signals in the stereo field, level control of the total mix to match the recording devices/crossover/power amplifier(s). All other mixer functions can be included in this main function.

The interface of BEHRINGER mixing consoles is optimized for these tasks enabling you to easily keep track of the signal path.

1.2 The user's manual

The user's manual is designed to give you both an overview of the controls, as well as detailed information on how to use them. In order to help you understand the links between the controls, we have arranged them in groups according to their function. If you need to know more about specific issues, please visit our website at http://www.behringer.com, where you'll find explanations of e.g. effects and dynamics applications.

☞ **The block diagram supplied with the mixing console gives you an overview of the connections between the inputs and outputs, as well as the associated switches and controls.**

For the moment, just try and trace the signal path from the microphone input to the aux send 1 connector. Don't be put off by the huge range of possibilities; it's easier than you think! If you look at the overview of the controls at the same time, you'll be able to quickly familiarize yourself with your mixing console and you'll soon be making the most of all its many possibilities.

1.3 Before you get started

1.3.1 Shipment

Your mixing console was carefully packed in the factory to guarantee safe transport. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred during transit.

☞ **If the unit is damaged, please do NOT return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted.**

1.3.2 Initial operation

Be sure that there is enough space around the unit for cooling purposes and to avoid over-heating please do not place your mixing console on high-temperature devices such as radiators or power amps. The console is connected to the mains via the supplied cable. The console meets the required safety standards. Blown fuses must only be replaced by fuses of the same type and rating.

☞ **Please note that all units must be properly grounded. For your own safety, you should never remove any ground connectors from electrical devices or power cables, or render them inoperative.**

☞ **Please ensure that only qualified people install and operate the mixing console. During installation and operation, the user must have sufficient electrical contact to earth, otherwise electrostatic discharges might affect the operation of the unit.**

1.3.3 Warranty

Please take time to fill out and return the warranty card within 14 days after the date of purchase, so as to be entitled to benefit from our extended warranty. Alternatively, you can use our online registration option available on the world wide web (www.behringer.com). You will find the serial number on the rear of your mixing console.

2. CONTROL ELEMENTS AND CONNECTORS

This chapter describes the various control elements of your mixing console. All controls, switches and connectors will be discussed in detail.

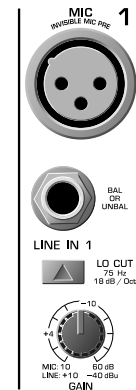### 2.1 Mono channels

2.1.1 Microphone and line inputs

Fig. 2.1: Connectors and controls of mic/line inputs

MIC
Each mono input channel offers a balanced microphone input via the XLR connector and also features a switchable +48 V phantom power supply for condenser microphones.

☞ **Please mute your playback system before you activate the phantom power supply to prevent switch-on thumps being directed to your loudspeakers. Please also note the instructions in chapter 2.4.2 "Voltage supply, phantom power and fuse".**

LINE IN
Each mono input also features a balanced line input on a 1/4" connector. Unbalanced devices (mono jacks) can also be connected to these inputs.

☞ **Please remember that you can only use either the microphone or the line input of a channel at any one time. You can never use both simultaneously!**

LO CUT
The mono channels of the mixing consoles have a high-slope *LO CUT* filter for eliminating unwanted, low-frequency signal components (75 Hz, 18 dB/octave).

GAIN
Use the *GAIN* control to adjust the input gain. This control should always be turned fully counterclockwise whenever you connect or disconnect a signal source to one of the inputs.

2.1.2 Equalizer

All mono input channels include a 3-band equalizer. All bands provide boost or cut of up to 15 dB. In the central position, the equalizer is inactive.
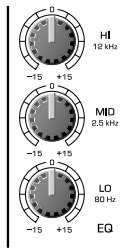
Fig. 2.2: The equalizer of the input channels

The upper (HI) and the lower band (LO) are shelving filters that increase or decrease all frequencies above or below their cut-off frequency. The cut-off frequencies of the upper and lower band are 12 kHz and 80 Hz respectively. The mid band is configured as a peak filter with a center frequency of 2.5 kHz.
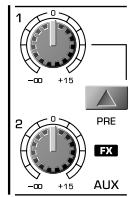
2.1.3 Aux sends

Fig. 2.3: The AUX SEND controls in the channel strips

Aux sends take signals via a control from one or more channels and sum these signals to a so-called bus. This bus signal is sent to an aux send connector and then routed, for example, to an active monitor speaker or an external effects device. The return from an external effect can then be brought back into the console via the aux return connectors.

For situations which require effects processing, the aux sends are usually switched post-fader so that the effects volume in a channel corresponds to the position of the channel fader. If this were not the case, the effects signal of the channel would remain audible even when the fader is turned to zero. When setting up a monitor mix, the aux sends are generally switched to pre-fader; i.e. they operate independently of the position of the channel fader.

Both aux sends are mono, are sourced after the equalizer and offer up to +15 dB gain.

☞ **If you press the MUTE/ALT 3-4 switch, aux send 1 is muted, provided that it is switched post-fader. However, this does not affect the aux send 2 of the UB1204FX-PRO.**

AUX 1 (MON)
In the UB1204FX-PRO, aux send 1 can be switched pre-fader and is thus particularly suitable for setting up monitor mixes. In the UB1204-PRO, the first aux send is labeled *MON* and is permanently switched pre-fader.

PRE
When the *PRE* switch is pressed, aux send 1 is sourced pre-fader.

AUX 2 (FX)
The aux send labeled *FX* is for sending to effects devices and is thus set up to be post-fader.

In the UB1204FX-PRO, the FX send is routed directly to the built-in effects processor.

☞ **If you wish to use the internal effects processor, the STEREO AUX RETURN 2 connectors should not be in use.**

☞ **UB1204FX-PRO: you can also connect an external effects processor to aux send 2, however the internal effects module will be muted.**
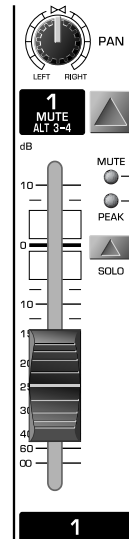
2.1.4 Routing switch, solo and channel fader

Fig. 2.4: Panorama and routing controls

PAN
The *PAN* control determines the position of the channel signal within the stereo image. This control features a constant-power characteristic, which means the signal is always maintained at a constant level, irrespective of position in the stereo panorama.

MUTE/ALT 3-4
You can use the *MUTE/ALT 3-4* switch to divert the channel from the main mix bus to the Alt 3-4 bus. This mutes the channel from the main mix.

MUTE-LED
The *MUTE* LED indicates that the relevant channel is diverted to the submix (Alt 3-4 bus).

PEAK-LED
The *PEAK* LED lights up when the input signal is driven too high. In this case, turn down the GAIN control and, if necessary, check the setting of the channel EQ.

SOLO
The *SOLO* switch (UB1204FX-PRO only) is used to route the channel signal to the solo bus (Solo In Place) or to the PFL bus (Pre Fader Listen). This enables you to monitor a channel signal without affecting the main output signal. The signal you hear is sourced either before (PFL, mono) or after (solo, stereo) both the pan control and the channel fader (see chapter 2.3.6 "Level meters and monitoring").

The channel fader determines the level of the channel signal in the main mix (or submix).

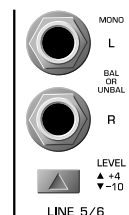## 2.2 Stereo channels

2.2.1 Channel inputs

Fig. 2.5: Stereo channel inputs and LEVEL switch

Each stereo channel has two balanced line level inputs on 1/4" connectors for left and right channels. If only the connector marked "L" is used, the channel operates in mono. Stereo channels are designed to handle typical line level signals.

Both inputs can also be used with unbalanced jacks.

LEVEL

For level matching, the stereo inputs feature a *LEVEL* switch which selects between +4 dBu and -10 dBV. At -10 dBV (home-recording level), the input is more sensitive than at +4 dBu (studio level).

2.2.2 Equalizer stereo channels

The equalizer of the stereo channels is, of course, stereo. The filter characteristics and crossover frequencies are the same as those of the mono channels. A stereo equalizer is always preferable to two mono equalizers if frequency correction of a stereo signal is needed. There is often a discrepancy between the settings of the left and the right channels when using separate equalizers.

2.2.3 Aux sends stereo channels

In principle, the aux sends of the stereo channels function in just the same way as those of the mono channels. As aux send paths are always mono, the signal on a stereo channel is first summed to mono before it reaches the aux bus.

2.2.4 Routing switch, solo and channel fader

BAL

The function of the *BAL*(ANCE) control corresponds to the PAN control in the mono channels.

The balance control determines the relative proportion between the left and right input signals before both signals are routed to the main stereo mix bus.

The MUTE/ALT 3-4 switch, the MUTE-LED, the PEAK-LED, the SOLO switch and the channel fader function in the same way as the mono channels.

2.3 Connector panel and main section

Whereas it was useful to trace the signal flow from top to bottom in order to gain an understanding of the channel strips, we now look at the mixing console from left to right. The signals are, so to speak, collected from the same point on each of the channel strips and then routed to the main section all together.
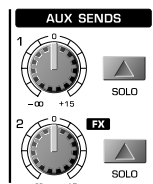
2.3.1 Aux sends 1 and 2

Fig. 2.6: AUX SEND controls of the main section

A channel signal is routed to aux send bus 1 if the AUX 1 control is turned up on the corresponding channel.

AUX SEND 1 (MON)

The AUX SEND control *MON* acts as master control for aux send 1 and determines the level of the summed signal. In the UB1204FX-PRO, the MON control is called AUX SEND 1.

AUX SEND 2 (FX)

Similarly, the *FX* control (AUX SEND 2) determines the level for aux send 2.

SOLO

You can use the SOLO switch (UB1204FX-PRO only) to separately monitor the aux sends via the CONTROL ROOM/ PHONES outputs and check these with the level meters.

☞ **If you want to monitor the signal of just one AUX bus, none of the other SOLO SWITCHES should be pressed and the MODE switch must be in the SOLO position (not pressed down).**
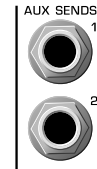
2.3.2 Aux send connectors 1 and 2

Fig. 2.7: Aux send connectors

AUX SEND 1

If you use aux send 1 pre-fader, you would usually connect the *AUX SEND 1* connector to monitors via a power amp (or an active monitor system). If you use aux send 1 post-fader, proceed as described under aux send 2.

AUX SEND 2

The *AUX SEND 2* connector outputs the signal you picked up from the individual channels using the FX control. You can connect this to the input of an effects device in order to process the FX bus signal. Once an effects mix is created, the processed signal can then be routed from the effects device output back into the STEREO AUX RETURN connectors.
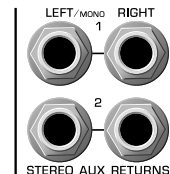
2.3.3 Stereo aux return connectors

Fig. 2.8: Stereo aux return connectors

STEREO AUX RETURN 1

The *STEREO AUX RETURN 1* connectors generally serve as the return path for the effects mix generated using the post-fader aux send. This is where you connect the output signal of the external effects device. If only the left connector is used, the AUX RETURN automatically operates in mono.

☞ **You can also use these connectors as additional line inputs.**

STEREO AUX RETURN 2

The *STEREO AUX RETURN 2* connectors serve as the return path for the effects mix generated using the FX control. If these connectors already function as additional inputs, you can route the effects signal back into the console via a different channel, with the added benefit that the channel EQ can be used to adjust the frequency response of the effects return signal.

☞ **In this instance, the FX control of the channel being used as an effects return should be turned fully counterclockwise, otherwise feedback problems could occur!**

☞ **If you wish to use the internal effects processor, no connectors should be plugged into STEREO AUX RETURN 2.**
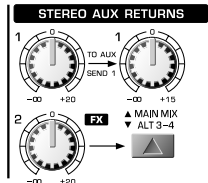
2.3.4 Stereo aux return

Fig. 2.9: Stereo aux return controls

STEREO AUX RETURN 1
STEREO AUX RETURN 1 is a stereo control which determines the level of the signal in the main mix. If STEREO AUX RETURN 1 is used as effects return, you can add the effects signal to any "dry" channel signal.

☞ **In this instance, the effects device should be set at 100% effect.**

STEREO AUX RETURN MON
The *STEREO AUX RETURN MON* control has a special function: it can be used to add an effect to a monitor mix. For example:

Monitor mix with effect
In this instance, the effects device should be set up as follows: AUX SEND 2 is connected to the L/Mono input of your effects device, while its outputs are connected to STEREO AUX RETURN 1. Connect the amplifier of your monitor system to AUX SEND 1. The AUX SEND 1 master control determines the volume of the monitor mix.

You can now use the STEREO AUX RETURN MON control to adjust the level of the effects signal routed to the monitor mix.

You can easily use the headphones distribution amplifier BEHRINGER POWERPLAY PRO HA4600/HA4700/HA8000 to provide you with four (or eight with the HA8000) stereo headphone mixes for your studio.

STEREO AUX RETURN 2 (FX)
The STEREO AUX RETURN 2 control determines the level of signals fed into the AUX RETURN 2 connectors which are routed to the main mix.

MAIN MIX/ALT 3-4
The MAIN MIX/ALT 3-4 switch routes the signal connected to STEREO AUX RETURN 2 to either main mix (not pressed) or submix (Alt 3-4, pressed).
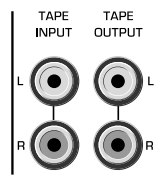
2.3.5 Tape input / tape output

Fig. 2.10: 2-track connectors

TAPE INPUT
The *TAPE INPUT* RCA connectors are provided for connecting a 2 track machine (e.g. DAT recorder). They can also be used as stereo line input. Alternatively, the output signal of a second EURORACK or BEHRINGER ULTRALINK PRO MX882 can also be connected. If you connect a hi-fi amplifier with a source selection switch to the TAPE INPUT, you can easily switch between additional sources (e.g. cassette recorder, CD player, etc.).

TAPE OUTPUT
These connectors are wired in parallel with the MAIN OUT and carry the main mix signal (unbalanced). Connect the TAPE OUTPUT to the inputs of your recording device. The final output level can be adjusted via the high-precision MAIN MIX fader.

☞ **If you connect a compressor or a noise gate after the 2-track output, the faders will probably not be able to create a satisfactory fade-out effect.**
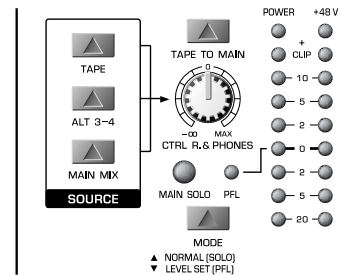
2.3.6 Level meter and monitoring

Fig. 2.11: Control room/phones section, level meter

TAPE
The *TAPE* switch routes the signal from the TAPE IN connectors to the level meter, the CONTROL ROOM OUT outputs and the PHONES connector—this is a simple way to check recorded signals via monitor speakers or headphones.

ALT 3-4
Similarly, the *ALT 3-4* switch routes the signal from the Alt 3-4 bus to the same path for monitoring purposes.

MAIN MIX
The *MAIN MIX* switch sends the main mix signal to the above-mentioned outputs and to the level meter.

CTRL R. & PHONES
Use this control to set control room output level and head-phones volume respectively.

TAPE TO MAIN
When the *TAPE TO MAIN* switch is depressed, the 2-track input is routed to the main mix and thus serves as an additional input for tape machines. You can also connect MIDI instruments or other signal sources here that do not require any further processing. At the same time, this switch disables the main mix to tape output link.

POWER
The blue *POWER* LED indicates that the device is switched on.

+48 V
The red "*+48 V*" LED lights up when the phantom power supply is switched on. The phantom power supply is necessary for condenser microphones and is activated using the switch on the rear of the device.

☞ **Please do not connect microphones to the mixer (or the stagebox/wallbox) while the phantom power supply is switched on. Connect micro-phones before you switch on the power supply. In addition, the monitor/PA loudspeakers should be muted before you activate the phantom power supply. After switching on, wait approx. one minute to allow for system stabilization.**

LEVEL METER
The high-precision level meter accurately displays the appropriate signal level.

LEVEL SETTING:
When recording to a digital device, the recorder's peak meter should not exceed 0 dB. This is because, unlike analog recordings, slightly excessive levels can create unpleasant digital distortion.

When recording to an analog device, the VU meters of the recording machine should reach approx. +3 dB with low-frequency signals (e.g. kick drum). Due to their inertia VU meters tend to display too low a signal level at frequencies above 1 kHz. This is why, for example, a Hi-Hat should only be driven as far as -10 dB. Snare drums should be driven to approx. 0 dB.

☞ **The peak meters of your EURORACK display the level virtually independent of frequency. A recording level of 0 dB is recommended for all signal types.**

MODE (UB1204FX-PRO only)

The *MODE* switch determines whether the channels' SOLO switch operates as PFL (Pre Fader Listen) or as solo (Solo In Place).

PFL

To activate the PFL function, depress the MODE switch. The PFL function should, as a rule, be used for gain setting purposes. The signal is sourced pre-fader and assigned to the mono PFL bus. In the "PFL" setting, only the left side of the peak meter operates. Drive the individual channels to the 0 dB mark of the VU meter.

Solo

When the MODE switch is not depressed, the stereo solo bus is active. Solo is short for "Solo In Place". This is the customary method for listening to an individual signal or to a group of signals. As soon as a solo switch is pressed, all channels in the control room (and headphones) that have not been selected are muted thereby retaining stereo panning. The solo bus can carry the output signals of the channel pan controls, the aux sends and the stereo line inputs. The solo bus is, as a rule, switched post-fader.

☞ **The PAN control in the channel strip offers a constant power characteristic. This means that the signal is always at a constant level, irrespective of its position in the stereo panorama. If the PAN control is moved fully left or right from center, the level increases by 4 dB in that channel. This ensures that, when set in the center, the audio signal is not louder. For this reason, with the solo function activated (Solo in Place), audio signals from the channels with PAN controls that have not been moved fully to the left or right are displayed at a lower volume than in the PFL function.**

As a rule, solo signals are monitored via the control room outputs and headphones connector and are displayed by the level meters. If a solo switch is pressed, the signals from the tape input, Alt 3-4 and main mix are blocked from the control room outputs, the headphone connector and the level meter.

MAIN SOLO (UB1204FX-PRO only)

The *MAIN SOLO* LED lights up as soon as a channel or aux send solo switch is pressed. The MODE switch also has to be set at "Solo".

PFL (UB1204FX-PRO only)

The *PFL* LED indicates that the peak meter is set to PFL mode.

Fig. 2.12: PHONES connector

PHONES

You can connect headphones to this 1/4" TRS connector. The signal on the *PHONES* connection is sourced from the control room output.
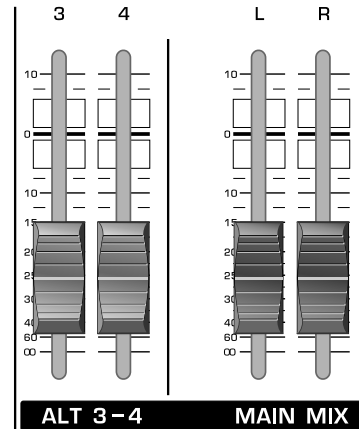
2.3.7 Alt 3-4 and main mix fader

Fig. 2.13: Alt 3-4 and main mix fader

Use the high-precision quality faders to control the output level of the Alt 3-4 subgroup and main mix.

2.4 Rear view of UB1204FX-PRO/ UB1204-PRO

2.4.1 Main mix outputs, Alt 3-4 outputs and control room outputs
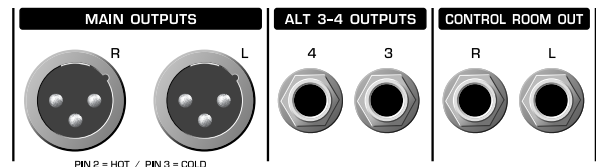
Fig. 2.14: Main mix outputs, Alt 3-4 outputs and control room outputs

MAIN OUTPUTS

The *MAIN* outputs carry the MAIN MIX signal and are on balanced XLR connectors with a nominal level of +4 dBu.

ALT 3-4 OUTPUTS

The *ALT 3-4* outputs are unbalanced and carry the signals of the channels that you have assigned to this group using the MUTE switch. This can be used to route a subgroup to a further mixing console for example, or or it could be used as a recording output working in tandem with the main output. This means you could record to four tracks simultaneously. The icing on the cake, so to speak, is that you could connect Y-cables to these four outputs and then connect your 8-track recorder in such a way that you have 2 x 4 tracks (e.g. channel 1 feeds track 1 and track 2, etc.). In the first recording pass, you record on tracks 1, 3, 5 and 7 and in the second pass, on tracks 2, 4, 6 and 8.

CONTROL ROOM OUTPUTS

The control room output is normally connected to the monitor system in the control room and provides the stereo mix or, when required, the solo signal.

2.4.2 Voltage supply, phantom power and fuse

BEHRINGER® EURORACK®
MODEL UB1204FX-PRO
CONCEIVED AND DESIGNED
BY BEHRINGER GERMANY.
ASSEMBLED IN CHINA UNDER
ISO9000 CERTIFIED
MANAGEMENT SYSTEM.
WWW.BEHRINGER.COM

PATENT PENDING

CAUTION: REPLACE
FUSE WITH SAME TYPE
FUSE AND RATING.
ATTENTION: UTILISER
UN FUSIBLE DE RECHANGE DE
MEME TYPE ET CALIBRE.
FUSE
100 – 240 V~ : T 1.6 A H
POWER SOURCE
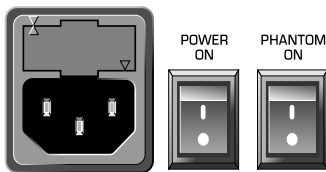100 – 240 V~ : 40 W max.

POWER ON PHANTOM ON

Fig. 2.15: Voltage supply and fuse

FUSE HOLDER

The console is connected to the mains via the cable supplied which meets the required safety standards. Blown fuses must only be replaced by fuses of the same type and rating.

IEC MAINS RECEPTACLE

The mains connection is via a cable with IEC mains connector. An appropriate mains cable is supplied with the equipment.

POWER

Use the *POWER* switch to power up the mixing console.

PHANTOM

The *PHANTOM* switch activates the phantom power supply for the XLR connectors of the mono channels which is required to operate condenser microphones. The red *+48 V* LED lights up when phantom power is on. As a rule, dynamic microphones can still be used with phantom power switched on, provided that they are wired in a balanced configuration. In case of doubt, contact the microphone manufacturer!

☞ **After the phantom power supply has been switched on, do not connect microphones to the mixer (or the stagebox/wallbox). Connect the microphones before you switch phantom power on. In addition, the monitor/PA loudspeakers should be muted before activating the phantom power supply. After switching on, wait approx. one minute to allow the system to stabilize.**

☞ **Caution! You must never use unbalanced XLR connectors (PIN 1 and 3 connected) on the MIC input connectors if you want to use the phantom power supply.**

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 benefit from our extended warranty. Alternatively, you can use our online registration option available on the world wide web (www.behringer.com). You will find the serial number on the rear of your mixing console.

3. DIGITAL EFFECTS PROCESSOR

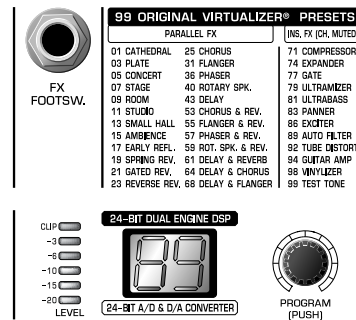| **99 ORIGINAL VIRTUALIZER® PRESETS**		
PARALLEL FX		INS. FX (CH, MUTED)
01 CATHEDRAL	25 CHORUS	71 COMPRESSOR
03 PLATE	31 FLANGER	74 EXPANDER
05 CONCERT	36 PHASER	77 GATE
07 STAGE	40 ROTARY SPK.	79 ULTRAMIZER
09 ROOM	43 DELAY	81 ULTRABASS
11 STUDIO	53 CHORUS & REV.	83 PANNER
13 SMALL HALL	55 FLANGER & REV.	86 EXCITER
15 AMBIENCE	57 PHASER & REV.	89 AUTO FILTER
17 EARLY REFL.	59 ROT. SPK. & REV.	92 TUBE DISTORT.
19 SPRING REV.	61 DELAY & REVERB	94 GUITAR AMP
21 GATED REV.	64 DELAY & CHORUS	98 VINYLIZER
23 REVERSE REV.	68 DELAY & FLANGER	99 TEST TONE

Fig. 3.1: Digital effects module (only UB1204FX-PRO)

99 FIRST-CLASS PRESETS

Here is an overview of all of the multi-effects processor's presets. The effects module gives you various standard effects, such as reverb, chorus, flanger, delay, pitch shifter and several combination effects that have already proved to be indispensable in our 19" effects processor, the VIRTUALIZER PRO DSP2024P. You can route signals to the effects processor via aux send 2 in the channels and the aux send 2 master control. The built-in stereo effects processor has the advantage that it does not need to be cabled up. This eliminates any danger of hum or level mismatch right from the start providing straight-forward operation.

PARALLEL FX

These effect presets are designed to be added to dry signals. If you move the STEREO AUX RETURN FX control, you mix the channel signal (dry) and the effect signal. You can control the balance between the two signals with the channel fader and the STEREO AUX RETURN FX control.

INSERT FX (channel muted)

The right column contains effect presets that are used for complete signal processing. This must not be confused with the previously discussed "mixing effect". If you are using insert presets, you must mute the relevant channel (MUTE/ALT 3-4 switch) and assign only the effect signal to the main mix (STEREO AUX RETURN FX control).

FX FOOTSW.

Connect a standard foot switch to the foot switch connector; use this to switch the effects processor on and off. A dot at the bottom of the display indicates if the effects processor is muted via the foot switch.

☞ **On the following page, you will find an illustration showing how to connect your foot switch correctly.**

LEVEL

The LED level meter on the effects module should display a sufficiently high level. Take care to ensure that the clip LED only lights up at peak levels. If it is lit constantly, you are overloading the effects processor and this could cause unpleasant distortion. The FX control (AUX SEND 2) determines the level that reaches the effects module.

PROGRAM

You can select the effect preset by turning the *PROGRAM* control. The display flashes the number of the current preset. To recall the selected preset, press the button; the flashing stops. You can also recall the selected preset with the foot switch.

4. INSTALLATION

4.1 Rack mounting

The packaging of your mixing console contains two 19" rack mount wings which can be installed on the side panels of the console.

Before you can attach the rack mount wings to the mixing console, you need to remove the screws holding the left and right side panels. Use these screws to fasten the two wings onto the console, being careful to note that each wing fits a specific side. With the rack mount wings installed, you can mount the mixing console in a commercially available 19" rack. Be sure to allow for proper air flow around the unit, and do not place the mixing console close to radiators or power amps, so as to avoid overheating.

☞ **Only use the screws holding the mixing console side panels to fasten the 19" rack mounts.**

4.2 Cable connections

You will need a large number of cables for the various connections to and from the console. The illustrations below show the wiring of these cables. Be sure to use only high-grade cables.
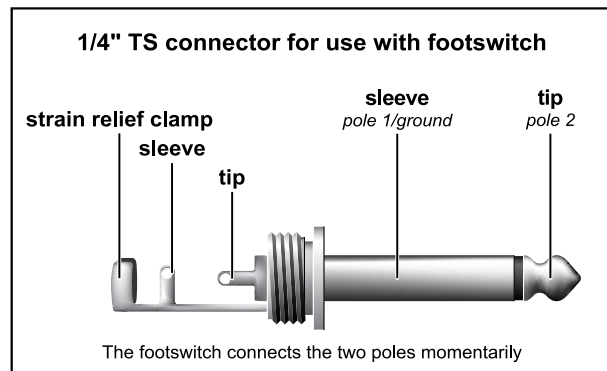
1/4" TS connector for use with footswitch

The footswitch connects the two poles momentarily

Fig. 4.1: 1/4" TS connector for foot switch

4.2.1 Audio connections

Please use commercial RCA cables to wire the 2-track inputs and outputs.

You can, of course, also connect unbalanced devices to the balanced input/outputs. Use either mono plugs, or ensure that ring and sleeve are bridged inside the stereo plug (or pins 1 & 3 in the case of XLR connectors).

☞ **Caution! You must never use unbalanced XLR connectors (pin 1 and 3 connected) on the MIC inputs if you intend to use the phantom power supply.**
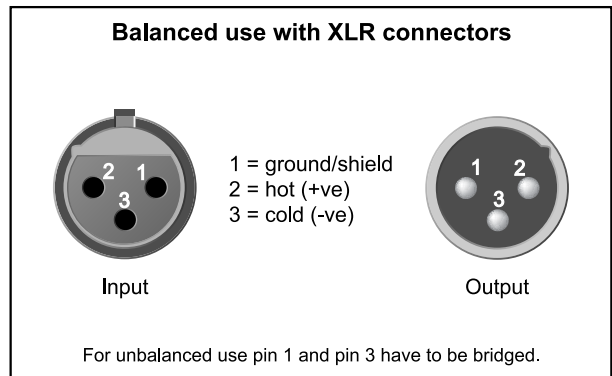
Balanced use with XLR connectors

1 = ground/shield
2 = hot (+ve)
3 = cold (-ve)

Input   Output

For unbalanced use pin 1 and pin 3 have to be bridged.

Fig. 4.2: XLR connections

Unbalanced use of 1/4" TS connector

Fig. 4.3: 1/4" TS connector

Balanced use of 1/4" TRS connector

For connection of balanced and unbalanced plugs, ring and sleeve have to be bridged at the stereo plug.
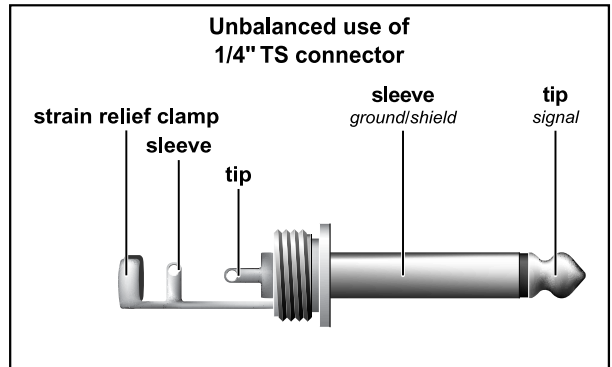
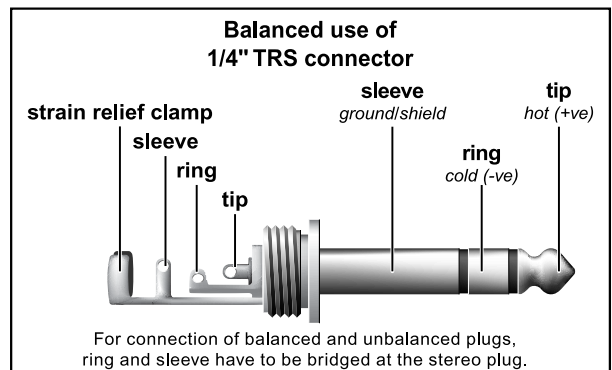*Fig. 4.4: 1/4" TRS connector*

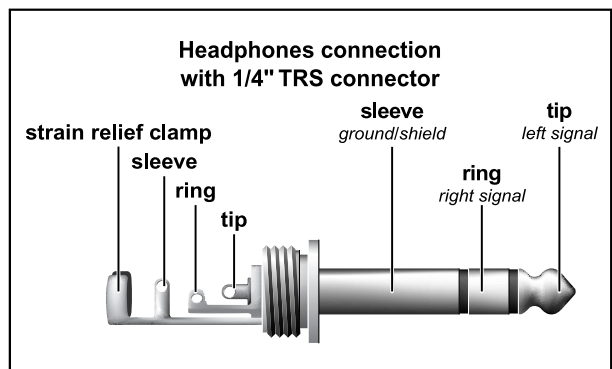**Headphones connection with 1/4" TRS connector**

Fig. 4.5: 1/4" TRS connector for headphones

EURORACK UB1204-PRO/UB1204FX-PRO

5. SPECIFICATIONS

Mono inputs
Microphone inputs (IMP "Invisible" Mic Preamp)
Type	XLR, electronically balanced, discrete input circuit

Mic E.I.N. (20 Hz - 20 kHz)
@ 0 Ω source resistance	-134 dB / 135.7 dB A-weighted
@ 50 Ω source resistance	-131 dB / 133.3 dB A-weighted
@ 150 Ω source resistance	-129 dB / 130.5 dB A-weighted
Frequency response	<10 Hz - 150 kHz (-1 dB), <10 Hz - 200 kHz (-3 dB)
Gain range	+10 to +60 dB
Max. input level	+12 dBu @ +10 dB gain
Impedance	approx. 2.6 kΩ balanced
Signal-to-noise ratio	110 dB / 112 dB A-weighted (0 dBu In @ +22 dB gain)
Distortion (THD+N)	0.005% / 0.004% A-weighted

Line input
Type	1/4" TRS connector electronically balanced
Impedance	approx. 20 kΩ balanced 10 kΩ unbalanced
Gain range	-10 to +40 dB
Max. input level	30 dBu

Fade-out attenuation[1]
(Crosstalk attenuation)
Main fader closed	90 dB
Channel muted	89.5 dB
Channel fader closed	89 dB

Frequency response
Microphone input to main out
<10 Hz - 90 kHz	+0 dB / -1 dB
<10 Hz - 160 kHz	+0 dB / -3 dB

Stereo inputs
Type	1/4" TRS connector, electronically balanced
Impedance	approx. 20 kΩ
Max. input level	+22 dBu

EQ mono channels
Low	80 Hz / ±15 dB
Mid	2.5 kHz / ±15 dB
High	12 kHz / ±15 dB

EQ stereo channels
Low	80 Hz / ±15 dB
Mid	2.5 kHz / ±15 dB
High	12 kHz / ±15 dB

Aux sends
Type	1/4" TS connector, unbalanced
Impedance	approx. 120 Ω
Max. output level	+22 dBu

Stereo aux returns
Type	1/4" TRS connector, electronically balanced
Impedance	approx. 20 kΩ bal. / 10 kΩ unbal.
Max. input level	+22 dBu

Main outputs
Type	XLR, electronically balanced
Impedance	approx. 240 Ω bal. / 120 Ω unbal.
Max. output level	+28 dBu

Control room outputs
Type	1/4" TS connector, unbal.
Impedance	approx. 120 Ω
Max. output level	+22 dBu

Headphones output
Type	1/4" TRS connector, unbalanced
Max. output level	+19 dBu / 150 Ω (+25 dBm)

DSP	24-bit Texas Instruments ™
Converter	24-bit Sigma-Delta, 64/128-times oversampling
Sampling rate	46.875 kHz

Main mix system data[2]
Noise
Main mix @ -∞, Channel fader -∞	-105 dB / -108 dB A-weighted
Main mix @ 0 dB, Channel fader -∞	-95 dB / -97 dB A-weighted
Main Mix @ 0 dB, Channel fader @ 0 dB	-82,5 dB / -85 dB A-weighted

Power supply
Power consumption	40 W
Fuse	100 - 240 V ~: **T 1.6 A H**
Mains connection	Standard IEC receptacle

Physical
UB1204FX-PRO
Dimensions (H x W x D)	approx. 97 mm (3 7/8") x 247 mm (9 11/16") x 334 mm (13 5/32")
Weight (net)	approx. 2.60 kg (5 3/4 lbs)

UB1204-PRO
Dimensions (H x W x D)	approx. 97 mm (3 7/8") x 247 mm (9 11/16") x 328 mm (13")
Weight (net)	approx. 2.56 kg (5 5/8 lbs)

Measuring conditions:

1:   1 kHz rel. to 0 dBu; 20 Hz - 20 kHz; line input; main output; unity gain.

2:   20 Hz - 20kHz; measured at main output. Channels 1 - 4 unity gain; EQ flat; all channels on main mix; channels 1/3 as far left as possible, channels 2/4 as far right as possible. Reference = +6 dBu.

BEHRINGER is constantly striving to manintain 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.

6. 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 § 3 and 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 by BEHRINGER under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER.

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, potentiometers, keys/buttons 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.