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You can read the recommendations in the user guide, the technical guide or the installation guide for BEHRINGER EX2200. You'll find the answers to all your questions on the BEHRINGER EX2200 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual BEHRINGER EX2200
User guide BEHRINGER EX2200
Operating instructions BEHRINGER EX2200
Instructions for use BEHRINGER EX2200
Instruction manual BEHRINGER EX2200



User's Manual

ENGLISH

Version 1.3 April 2001



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Manual abstract:

DETAILED SAFETY INSTRUCTIONS: All the safety and operation instructions should be read before the appliance is operated. Retain Instructions: The safety and operating instructions should be retained for future reference. Heed Warnings: All warnings on the appliance and in the operating instructions should be adhered to. Follow instructions: All operation and user instructions should be followed. Water and Moisture: The appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool etc.). Ventilation: The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Heat: The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat. Power Source: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance. Grounding or Polarization: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated. Power-Cord Protection: Power supply 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, convenience receptacles and the point where they exit from the appliance. Cleaning: The appliance should be cleaned only as recommended by the manufacturer.

Non-use Periods: The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time. Debris and Liquid Entry: Care should be taken that debris and/or liquids do not enter the enclosure through openings. Damage Requiring Service: The appliance should be serviced by qualified service personnel when: - The power supply cord or the plug has been damaged; or - Debris or liquid has entered the appliance; or - The appliance has been exposed to rain; or - The appliance does not appear to operate normally or exhibits a marked change in performance; or - The appliance has been dropped, or the enclosure damaged. Servicing: The user should not attempt to service the appliance beyond that which is described in the operating instructions. All other servicing should be referred to qualified service personnel.

2 DUALFEX PRO EX2200 FOREWORD Dear Customer, Welcome to the team of DUALFEX PRO users and thank you very much for expressing your confidence in BEHRINGER products by purchasing this unit. It is one of my most pleasant tasks to write this letter to you, because it is the culmination of many months of hard work delivered by our engineering team to reach a very ambitious goal: making an outstanding device better still. The DUALFEX has for quite a long time been a standard tool used by numerous studios and PA rental companies. The task to improve one of our best-selling products certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. It also meant a lot of work and night shifts to accomplish this goal. But it was fun, too. Developing a product usually brings a lot of people together, and its a great feeling, when everybody who participated in such a project can be proud of what weve achieved. It is our philosophy to share our joy with you, because you are the most important member of the BEHRINGER family. With your highly competent suggestions for new products youve greatly contributed to shaping our company and making it successful. In return, we guarantee you uncompromising quality (manufactured under ISO9000 certified management system) as well as excellent technical and audio properties at an extremely favorable price.

All of this will enable you to fully unfold your creativity without being hampered by budget constraints. We are often asked how we can make it to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: its you, our customers! Many satisfied customers means large sales volumes enabling us to get better conditions of purchase for components. Isnt it only fair to pass this benefit back to you? Because we know that your success is our success, too! I would like to thank all people whose help on Project DUALFEX PRO has made it all possible. Everybody has made very personal contributions, starting from the designers of the unit via the many staff members in our company to you, the user of BEHRINGER products. My friends, its been worth the trouble! Thank you very much, Uli Behringer 3 DUALFEX PRO EX2200 DUALFEX PRO ® Professional and multi-purpose Sound Enhancement system for studio and home applications s Gives your music that extra sparkle and makes your instruments and mixes stand out s Releases untapped resources and details instruments, vocals and mixed program material EX2200 s Multiband concept for bass power and high frequency transparency s Natural Sonic processor for ultra-musical sound improvement s VSP (Variable Sound Processing) circuit for simultaneous Enhancer and Exciter process s Dual Mode ultra-bass enhancer produces soft or tight bass sounds s Surround processor provides real spatial enhancement and improved stereo imaging s Servo-balanced 1/4" TRS and RCA inputs s Ultra low-noise 4580 audio operational amplifiers for superior sound performance s High-quality detent potentiometers and illuminated switches s Manufactured under ISO9000 certified management system 4 DUALFEX PRO EX2200 TABLE OF CONTENTS 1. INTRODUCTION....

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The sound precision and flexibility of the functions are the main outstanding features of this high-end unit. The DUALFEX PRO is one of our state-of-the-art sound enhancement systems offering a special combination of sound improvement designs. The unit can be used wherever professional sound improvement is required. The BEHRINGER DUALFEX PRO is the no-compromise answer when the situation demands a no-compromise solution.

+ The following operational manual will introduce you to the BEHRINGER DUALFEX PRO and its various functions. After reading the manual carefully, make sure it is always on hand for future reference. 1.1 The Design Concept Since its announcement of the first DUALFEX model in year 1990, it has caused a sensation. This high-end sound enhancement processor is based on our many years of experience and discoveries in the field of psycho-acoustics.

The DUALFEX PRO finds widespread application throughout the world, in renowned studios, sound reinforcement systems as well as in broadcast and TV studios. The task to improve our famous DUALFEX PRO II was a big challenge. We are very proud that we succeeded. Compared to its predecessors, the DUALFEX PRO offers several advanced features and we have succeeded in dramatically refining the audio qualities. The unit now features a Mode function which enables you to select either a soft and warm bass sound or a super-tight bass.

Beside that a new VSP circuitry (Variable Sound Processing) has been added to allow you to use simultaneous exciter and enhancer sound processing. Since the introduction of the first psycho-acoustic processors, technology in this field has made tremendous progress. Although the fundamental principles of enhancer and exciter technology have been well-known for a long time, engineers have been able to refine and improve the essential components over and over again. The BEHRINGER company has also contributed considerably to this development: With the introduction of our Natural Sonic processor, we have set new standards. Previously encountered problems of restricted leveling range, plus increased noise level and audible distortion during signal processing, are typical shortcomings of conventional circuit designs. They were completely solved by the development of our new circuitry. Sophisticated manufacturing and quality assurance meets all of the international safety certification requirements. + Please make sure that all units have a proper ground connection. For your own safety, never remove or disable the ground conductor of the unit or of the AC power cable. As standard, the BEHRINGER DUALFEX PRO is installed with electronically servo-balanced inputs and outputs.

The circuit design features automatic hum rejection for balanced signals, permitting trouble-free operation even at the highest operating levels. Externally induced power-line hum, etc. is thus suppressed effectively. The automatic servo function recognizes the presence of unbalanced connectors and adjusts the nominal level internally to avoid level differences between the input and output signals (6 dB correction). You will find additional information in chapter 4 AUDIO CONNECTIONS AND INSTALLATION. 1. INTRODUCTION 7 DUALFEX PRO EX2200 1.3 Control Elements Fig. 1.1: DUALFEX PRO front panel

The BEHRINGER DUALFEX PRO has two identical channels and provides two illuminated push-button switches and four rotary controls.

1.3.1 The Bass and Multiband Processor Section 1 2 3 4 5 6 Fig. 1.2: Controls of the bass and multiband processor section 1 The IN/OUT switch activates the corresponding channel into operation.

With the switch in the OUT position, the unit is bypassed. The LOW MIX control of the low band determines the amount of signal used for sound enhancement (from zero to six). The setting depends on the application you are addressing. With the BASS MODE switch you can define the sound effect of the bass processor. If the switch is on (Tight) the bass will sound dry and punchy, whereas the released switch mode (Soft) creates a warm and full bass.

Please note that the bass processor should be set carefully to avoid possible speaker damage. Most near-field monitors are not capable of handling the bass produced by the DUALFEX PRO. The TUNE control sets the lower cutoff frequency of the high-pass filter. Using this control you can select the frequencies that are routed to the Natural Sonic processor. The cut-off frequency can be adjusted within a range of 1 to 8 kHz. The PROCESS control determines the function of the device. When turning the control in clockwise direction, the Exciter function is activated, which increases the signals transparency and sharpness. Consequently, the DUALFEX PRO can be adapted to the program material to suit the application on hand as well as any personal sound preferences. Please note that with classical program material, acoustic instruments or with output signals that already include sufficient treble frequencies, the Enhancer setting should be preferred. However, when processing, for instance, a slapped bass guitar, it is the Exciter setting which should dominate.

The HIGH MIX control of the high band determines the amount of signal used for sound enhancement (from zero to six). It would depend on the application as to whether a high-quality system is to be given the finishing touch with the DUALFEX PRO, or whether maximum intelligibility is to be achieved in a relatively poor sound reinforcement system. 2 3 + 4 5 + 6 8 1. INTRODUCTION DUALFEX PRO EX2200 1.3.2 Surround Processor Section 7 8 Fig. 1.3:

Controls of the surround processor section 7 With the SURROUND switch you can activate the surround processor section. Please note that this switch has to be released if you want to process two separate input signals. Otherwise there will be undesired cross-talk between the two channels.

The SURROUND control determines the effect of the surround processor. This function serves to improve the intensity of the stereo effect and to enlarge the stereo basis dependent on the program content. Therefore, this function can only be used in conjunction with stereo program material. 8 1.3.

3 Rear Panel Control Elements of the DUALFEX PRO 10 9 11 13 Fig. 1.4: Control elements of the rear panel 12 9 SERIAL NUMBER. Please take the time to have the warranty card filled out completely and return it within 14 days after the date of purchase, so as to be entitled to benefit from our extended warranty.

Or use our online registration option available on the World Wide Web under www.behringer.com.

FUSE HOLDER / VOLTAGE SELECTOR. Please make sure that your local voltage matches the voltage indicated on the unit, before you attempt to connect and operate the DUALFEX PRO. Blown fuses may only be replaced by fuses of the same type and rating. MAINS CONNECTION. Use the enclosed power cord to connect the unit to the mains. Please also note the instructions given in chapter 1.2 Before You Begin.



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AUDIO IN.

These are the audio inputs of your DUALFEX PRO, available both as balanced 6.3 mm jack and RCA connectors. AUDIO OUT. These are the audio outputs of your DUALFEX PRO. Matching phone jack and RCA connectors are wired in parallel. 10 11 12 13 1. INTRODUCTION 9 DUALFEX PRO EX2200 2. APPLICATIONS 2.1 Basic Settings We recommend setting the controls as indicated in the following three sections. This will give you a better idea of switch and control functionality: 1.

Set the BEHRINGER DUALFEX PRO to bypass mode (IN/OUT switch not depressed), the TUNE controls to center position and all switches to their OUT position. 2. Turn all other controls fully CCW and depress both IN/OUT switches. Now turn the MIX controls of the low and high-frequency sections slowly clockwise until the fundamental bass and high frequencies become more emphasized and the sonic image begins to open up or to widen. 3.

The quality of the sound enhanced signal can be adapted to the program material by varying the cut-off frequency using the SHIFT and MODE switches and/or the TUNE and PROCESS controls. When using enhancers or exciters it is easy to get carried away. Therefore, we recommend regular A/B comparisons (IN/OUT) while setting the controls, in order to constantly check the signals integrity. Rule of thumb: the enhancers effect only should be noticeable when it is lacking, but not when it is present! Listening at high volume levels over long periods (in studios, for example) leads to listening fatigue and thus reduces sensitivity to higher frequencies. Regular pauses keep your hearing healthy and thereby help to avoid exaggerated sound processing.

2.2 Typical Applications 2.2.1 Sound Enhancement During Replay For this application, the BEHRINGER DUALFEX PRO follows the master or multi-track recorder, i.e., inserted between tape machine and mixer (or amplifier). Of course, a cassette recorder, or similar, can also be used as signal source. If a companding noise reduction system is used in this situation, it should precede the BEHRINGER DUALFEX PRO. 2.2.

2 Sound Enhancement During Recording The sound enhancing effect can be increased by using the BEHRINGER DUALFEX PRO not only during replay, but during recording. This method of sound processing is recommended, in particular, if the subsequent storage medium is of poor quality. When doing tape duplications, the enhancer signal added during the recording will compensate for the loss in quality which occurs when several generations of copies are made from the master tape. In this scenario, insert the BEHRINGER DUALFEX PRO directly after the master output of the mixer into the recording path of the master or multi-track machine. Set up the unit as described in section 3.2.1 Sound Enhancement During Replay. In particularly difficult cases, we recommend using the BEHRINGER DUALFEX PRO both during recording and replay. 2.2.

3 Enhancing the Sound of Subgroups, Monitor and Effect Paths For this application there are several options: 1. If your mixer features subgroup outputs with insert points, you can process the subgroups separately. 2. You can also combine monitor and effect paths and route them via the BEHRINGER DUALFEX PRO to a free input channel. The respective signals have to be taken pre-fader, the respective channels must be muted.

@@@. Background music in bars and restaurants can be heard easily. @@2. The sound of any PA system will be improved by using the BEHRINGER DUALFEX PRO. For example, the vocals of music groups or speech transmissions will be considerably more transparent and intelligible, the instruments can be distinguished more easily. The bass will gain in depth and power. The BEHRINGER DUALFEX PRO will increase the speaker systems acoustic performance and its ability to penetrate a room, particularly in places with difficult acoustics. The system also needs less effective amplifier power, since the subjectively heard volume level increases. Powerful and detailed sound reproduction can also be achieved in weak systems. It helps that you do not have to spend a small fortune on upgrading your system. 2. APPLICATIONS 11 DUALFEX PRO EX2200 2.2.7 Sound Enhancement in Hi-fi and Video Of course, the BEHRINGER DUALFEX PRO can also find applications in the fields of hi-fi and video. The unit is simply placed between the signal source (cassette recorder, tuner, VCR etc.) and the power amplifier.

We recommend using the tape monitor inputs most preamplifiers provide, thus the BEHRINGER DUALFEX PRO can be switched into any signal source. 3. TECHNICAL BACKGROUND 3.1 The DUALFEX PROs Main Features The BEHRINGER DUALFEX PRO... s increases presence and transparency. The program material will sound lively and natural again. s improves the intelligibility of speech: voices become clearly articulated, text easily intelligible, the transparency of the vocal increases. s provides a distinct sound improvement, particularly for instruments played in a percussive styleslapped guitars or drums will sound incredibly funky.

s provides better stereo imaging: the sound becomes more differentiated, speaker setup poses less problems, yet the signal remains fully mono-compatible. s does not require any decoding process, since sound enhancement with the BEHRINGER DUALFEX PRO is not created independently of the signal itself, and remains available even during numerous processing or copying stages. Even digital recordings or CD replaying will gain from the use of the BEHRINGER DUALFEX PRO. s increases the listeners awareness. Even with low sound pressure levels, the DUALFEX PRO avoids listening fatigue.

s finds useful application in Hi-fi systems by providing better resolution of the sonic image, due to its suitability for the studio and its outstanding specifications. In particular, the processing of old analogue recordings (disks and tapes) proves to be very efficient with the DUALFEX PRO. s produces a more powerful and fundamental bass which does not sound muddy. All recordings will benefit from the dry and precisely defined bass contouring. s produces an improved spatial enhancement and stereo effect intensity with the surround processor without audibly colouring the sonic image.

3.2 Psycho-Acoustic Background The term psycho-acoustics refers to the psychological aspect of hearing in contrast to the physiological transfer of impulses (transmission of nervous impulses). Psycho-acoustics examines the effect of sound on the listener and the reasons for certain sonic impressions. The way sounds are interpreted is being determined by a lot of factors. Modern science is able to explain some of them, due to their complexity measuring them is yet another story. For instance, those portions which are responsible for the spatial localization of a sound consist of multiple reflections of the sound, depending on the acoustical setting and the listeners position. Nevertheless, they determine the quality of a recording to an extraordinarily large extent. There are also portions of the audio spectrum which we perceive as presence or naturalness.



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If this kind of information is missing, the recording suffers from a loss in freshness, liveliness and spatial transparency. Furthermore, natural harmonics are essential components of the sound.

Often enough, they only represent a minor portion of the signal and are easily lost. It's the harmonic structure that makes a tone's colour unique. Without this structure, different instruments would not be distinguishable. Numerous factors determine the sound of an instrument: the design and materials to name but two, but with such bearing on the eventual sound produced by that instrument. When comparing acoustic musical instruments, for instance acoustic guitars, you will note that even two instruments from the same series have a different sound. From a physical point of view, a guitar produces a tone by means of a vibrating string which, in turn, sets air in motion. The subsequent propagating sound waves reach the ear and are identified by the brain as a tone. Since the string vibrates within itself, the tone not only consists of the fundamental oscillation, but also innumerable upper harmonics which are based on the fundamental wave. The complex vibrations of the string are transferred to the body which, in turn, is also set in motion.

The combination of string and body produces the sound of the instrument. For example, certain harmonics may be amplified due to resonance effects in the body, while other frequencies may be canceled due to the properties of the wood. This phenomenon creates complex sounds and is underlined by the fact that a combination of harmonics can produce additional tones, known as interference or residual tones. All of these tiny sound portions contribute to the sound of certain instruments. The human ear, which is highly sensitive, can detect even minimum changes in the harmonic structure of a sound.

By experiencing the CD quality of 18 bit-converters, it appears to be obvious, that considerable advances have been made toward the reproduction of a sound's naturalness, yet still recordings do not sound like the music in a concert hall. Why is there a difference? Here, the keyword is intelligent hearing: the visual contact with the musicians enables us to concentrate our attention on a certain instrument which results in an intensification of the sonic experience.

The listener sitting in front of a speaker system lacks this spatial experience and at the same time the visual feedback aspect of listening to live music. The perceived positioning of instruments is made even more difficult since the dispersion of the sound is not homogeneous, i.e., widely panoramic, but usually reduced to two sound sources. In particular, the loss of upper harmonics during the transmission of the sound additionally affects the perceived positioning of the instruments and the transmission of room ambiance. The reason for this loss in sound quality is the inadequacy of the sound recording and reproduction processes. Each link in the transmission chain from the microphone via mixers, effects devices, tape recorders, amplifiers etc., to the loudspeakers causes a loss in sound quality. Each time the sound is processed, it becomes audibly less natural. 3.3 On Psycho-Acoustic Devices In the field of what is known as psycho-acoustics, numerous terms such as enhancer, exciter, psychoacoustic processor, psycho-dynamic processor, clarifier etc., are commonly used. What do these terms actually mean? The following chapter will shed some light on this.

Although the psycho-acoustic effect of enhancers and exciters etc., has been known for several decades, the function of these devices has been deliberately surrounded in mystique, to increase their appeal. However, it is fairly clear that all devices in this field are based on certain technically repeatable methods of functioning. Basically, three principles apply: s Sound improvement by means of dynamic frequency correction. s The generation of a wider sound with the help of phase shifting with respect to delay times. s The enrichment of the program material with artificially generated harmonics. Independently of each other, each of these methods produces a certain effect which is perceived as a subjective enhancement within the sound. These methods are described in more detail in the following: 3.3.1 Frequency Correction The boosting or cutting of certain frequency ranges is the simplest form of sound modification.

Equalizers can correct the sonic image in order to produce a sound that is more pleasing to each taste. So-called treble boosters achieve this effect by emphasizing the high frequencies, which the listener perceives as a transparent sonic image. Within the BEHRINGER DUALFEX PRO, any frequency correction is combined with a frequency-dependent phase shift, which results in a sound that is warmer and more musical. 3. TECHNICAL BACKGROUND 13 DUALFEX PRO EX2200 3.

3.2 Phase Shifting The term phase shift describes the displacement of a signal's phase in relation to its point of origin. As a matter of principle, the phase shift produces a delay within the signal. If the delayed signal is added to the original signal, the resultant signal becomes wider. Below time delay values of 20 msec.

the brain perceives the delayed arrival of the two signals as the arrival of one signal, which results in the desired pulse enlargement effect, sometimes called 3-D effect by other manufacturers. The effect produced by so-called chorus units is based on the same principle of phase shift and signal delay. Here, several delayed signals are added to evenly intensify this effect. The BEHRINGER DUALFEX PRO is equipped with a frequency-selective phase shift circuit that comprises several stages. Due to the program-dependent delayed signal, the sonic impression becomes more vivid, as with an orchestra, where the musical liveliness is the result of inaccurate entries by musicians. 3.3.3 Generating Artificial Harmonics By 1955 an American, Charles D. Lindridge, had already invented the first EXCITER (a unit that EXCITES upper harmonics), when he presented a unit for improving the sound of music and speech. He enriched signal sources with artificially generated upper harmonics and found that both sound quality, transparency and perceived positioning of musical instruments could be considerably improved using this effect.

He was granted an American patent on his circuit design under the number US 2 866 849. Compared to modern technology, Lindridge's circuit was anything but fully developed, however, it featured many of the aspects found in today's modern circuit designs. Psycho-acoustic discoveries and greater knowledge, gathered over the years, have allowed for new and improved circuit designs applying advanced technology. 3.4 The Bass Processor of the DUALFEX PRO Apart from processing the upper harmonic ranges, users of the BEHRINGER DUALFEX PRO have access to an innovative bass processor. The numerous stages of processing during the recording, reproduction, copying and effecting processes, increasingly delay the phase of the bass frequencies, when compared to the remaining frequency ranges.



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This is why the low-frequency range suffers from a loss in power and fundamental bass definition. With the help of frequency-selective phase shift combined with sub-bass boost, the bass processor of the BEHRINGER DUALFEX PRO is capable of compensating for this loss, giving the program material new bass presence. Using the MODE switch, you can select between two different bass sounds. Be extremely careful when using the bass processor: excessive use of the bass processor might lead to speaker damage.

The amplified sub-bass frequencies may well place a heavy load on the amplifier and the woofers. Therefore, carefully adjust the bass processor and observe the power rating of your system! 3.5 The Surround Processor of the DUALFEX PRO Sound quality during signal transmission is given top priority today. The signal is processed with the help of reverb devices, compressors, exciters, denoisers and other studio devices to produce a compact, low-noise and transparent sound. However, the fact that hearing impression depends largely upon the positioning of the instruments within the stereo panorama is often enough neglected.

Using the surround processor of the DUALFEX PRO, the intensity of the stereo effect can be dramatically improved. The program material gains in liveliness, loudness and transparency. As in a cinema with its special acoustics, the listener has the impression that the orchestral instruments are placed all around him. The surround processor enlarges the stereo basis dependent on the program material, without audibly colouring the sonic image. The function of the surround processor is based on the derivation of a special signal, which is generated from the difference of the left and right channel.

This signal is then delayed program dependently and mixed with the original signal. The difference between the two channels is the stereo substance whose ambient and spatial information is improved by delaying the signal. Due to the described function, the surround processor is principally useful only with stereo program material. 14 3. TECHNICAL BACKGROUND DUALFEX PRO EX2200 4. AUDIO CONNECTIONS AND INSTALLATION As standard, the

BEHRINGER DUALFEX PRO is installed with electronically servo-balanced inputs. The circuit design features automatic hum and noise reduction for balanced signals and thus allows for trouble-free operation, even at high operating levels. Externally induced mains hum etc. will be effectively suppressed. The audio inputs on the BEHRINGER DUALFEX PRO are balanced.

If possible, connect the unit to other devices in a balanced configuration to allow for maximum interference immunity. + + Please ensure that only qualified persons install and operate the DUALFEX PRO. During installation and operation the user must have sufficient electrical contact to earth. Electrostatic charges might affect the operation of the DUALFEX PRO! Please read chapter 1.2 Before You Begin for additional information concerning rack mounting, general installation advice and especially the mains connection! Fig. 4.1: Different plug types 4. AUDIO CONNECTIONS AND INSTALLATION 15

DUALFEX PRO EX2200 5. SPECIFICATIONS AUDIO INPUT Connectors Type Impedance Max. input level CMRR AUDIO OUTPUT Connectors Type Impedance Max.

output level SYSTEM SPECIFICATIONS Bandwidth Frequency response Noise THD IMD Crosstalk BASS PROCESSOR Type Low Mix MULTIBAND PROCESSOR Type Tune Process High Mix SURROUND SECTION Surround RCA and 1/4" jack RF filtered, servo balanced input 30 kW balanced, 15 kW unbalanced +21 dBu balanced and unbalanced (unity gain) typ. 40 dB, >55 dB @ 1 kHz RCA and 1/4" jack Unbalanced output stage 30 W +21 dBu, +20 dBm 20 Hz to 20 kHz, +0/-0.5 dB 0.35 Hz to 200 kHz, +0/-3 dB >95 dBu, unweighted, 22 Hz to 22 kHz 0.008 % typ.

@ +4 dBu, 1 kHz, Gain 1 0.04 % typ. @ +20 dBu, 1 kHz, Gain 1 0.01 % typ. SMPTE <-100 dB, 22 Hz to 22 kHz Dual Mode bass processor variable (0 to 6) Natural Sonic processor with VSP (Variable Sound Processing) variable (1 to 8 kHz) variable (Enhancer to Exciter) variable (0 to 6) variable (0 to 6)

FUNCTION SWITCHES AND CONTROLS Mode Switches the bass sound from Soft to Tight In/Out Activates the relay controlled hard-bypass Surround Activates the surround processor INDICATORS Function switch POWER SUPPLY Mains voltages LED indicator for each function switch USA/Canada 120 V ~, 60 Hz U.

K./Australia 240 V ~, 50 Hz Europe 230 V ~, 50 Hz General export model 100 - 120 V ~, 200 - 240 V ~, 50 - 60 Hz 100 - 120 V ~: T 250 mA H 200 - 240 V ~: T 125 mA H max. 10 Watts standard IEC receptacle approx. 1 3/4" (44.5 mm) * 19" (482.6 mm) * 8 1/2" (217 mm) approx. 2.2 kg approx. 3.4 kg Fuse Power consumption Mains connection PHYSICAL Dimension Weight Shipping Weight 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 shown. 16 5. SPECIFICATIONS DUALFEX PRO EX2200 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 Studioteknik 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 Studioteknik 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 due to normal wear and tear and/or improper handling by the user, BEHRINGER shall, at its sole discretion, either repair or replace the product. 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. @ @ All inquiries must be accompanied by a description of the problem.

BEHRINGER will then issue a return authorization number. 2. @ @ 3. Shipments without freight prepaid will not be accepted. § 4 WARRANTY REGULATIONS 1. @ @ @ 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.



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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: s misuse, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals. s 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. s 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 buyers 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 buyers 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. The information contained in this manual is subject to change without notice. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording of any kind, for any purpose, without the express written permission of BEHRINGER Spezielle Studiotechnik GmbH. BEHRINGER and DUALFEX are registered trademarks.

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