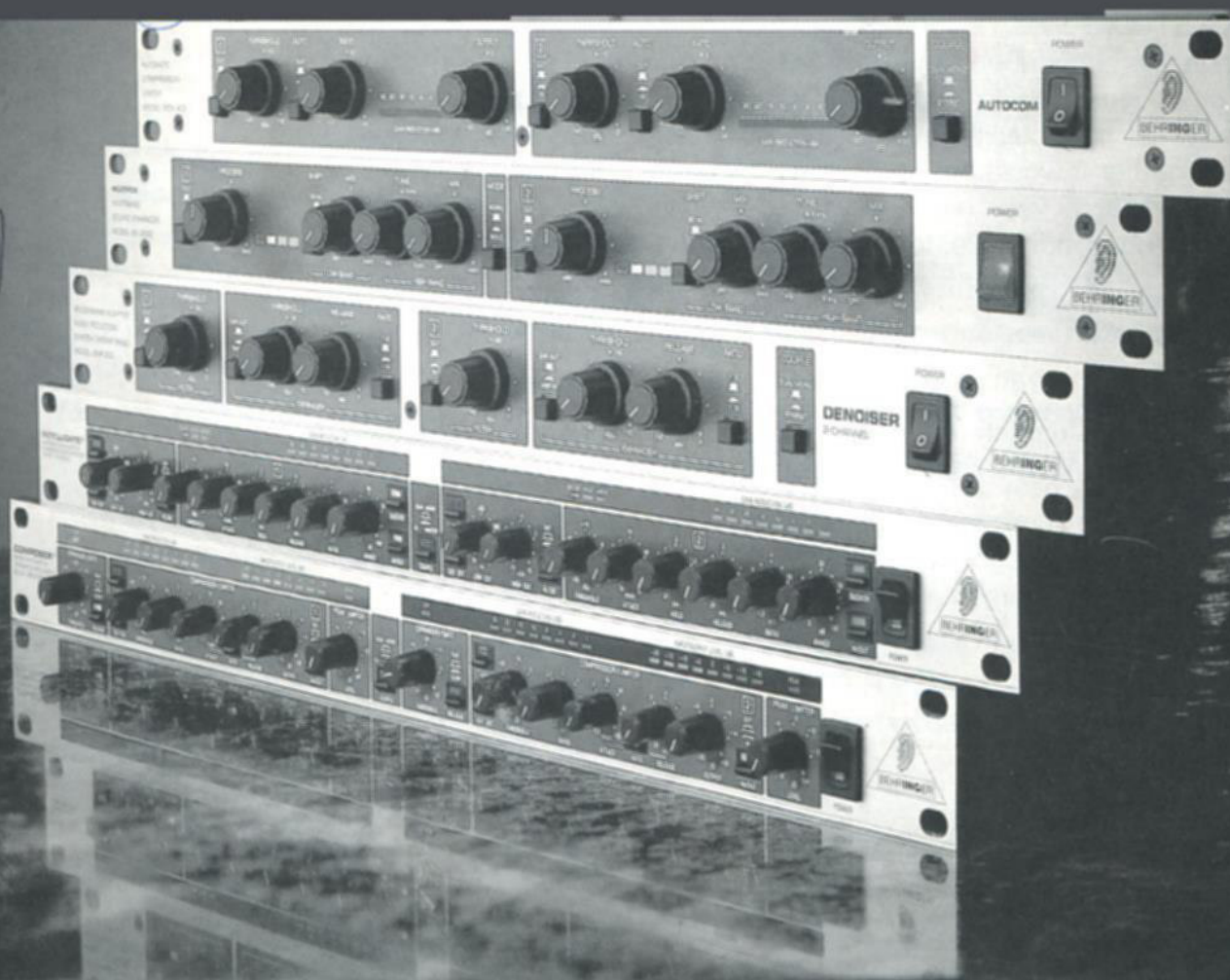


PROFESSIONAL AUDIO PRODUCTS

1993/94



YOUR EAR IS THE JUDGE.

Why They Called Me "BEHRINGER - THE EAR"

When I was five, our music teacher stood me up in front of the entire class and explained that I had perfect pitch - for the rest of my school days, I was nicknamed: "BEHRINGER - THE EAR". This definitely pointed me in the direction of my future career.

My Goal: Professional Performance On Both Sides Of The Microphone

I wanted to master every aspect of sound, and I was convinced that my methods were the best way to achieve this. In fact, I financed my engineering studies by playing piano and keyboards in local jazz clubs.

Improving Off-The-Shelf Studio Equipment

My desire to obtain my own studio equipment made me aware of musician's problems. Equipment was much too expensive, and it could not necessarily be said that the performance matched the price. Upon completion of my studies in Sound Engineering I developed my own equipment, which was initially only for my personal use.

Word Got Around - From Ear To Ear

The STUDIO EXCITER Type D was my first development. A studio magazine described the unit as "extremely noise free" and "tremendously low-priced". Word spread quickly amongst musicians about the high quality level of this equipment. Many friends asked me whether it would not be possible for me to build the same model for them at a very reasonable price. I soon discovered that top quality does not have to cost a fortune. The STUDIO EXCITER Type D laid the foundation for my own company.

I Founded The Company "BEHRINGER" ...

BEHRINGER means studio technology at the highest level !

BEHRINGER means specialized studio equipment at extremely reasonable prices with a full 5-year guarantee* !

BEHRINGER improves your sound production through skillfull computer knowledge, in order to win over the most sophisticated critic of all - the human ear !

Listen for yourself when testing our equipment at specialized dealers. Rely on BEHRINGER - THE EAR whenever you have some questions or simply need expert advice !

PROFESSIONAL AUDIO PRODUCTS

1993/94

Dear customer,

Thank you for showing interest in our products. In this new catalogue, I would like to present our extensive product range in "PROFESSIONAL AUDIO PRODUCTS 1993/94", and provide some additional information about our company.

We listen to you!

Since we started designing, manufacturing and marketing audio equipment we have put your comments regarding improvements and changes at the forefront of our development policy. Your input, as competent users, in the form of letters, phone calls etc. has been invaluable in systematically creating the range which exists today.

You are our most important development engineer.

Based on familiarity with everyday problems, often the result of audio equipment functioning incorrectly or way below standard, who is the individual most qualified to comment on practical needs? In our opinion, it is you, the engineer, musician or technician who uses the equipment on a daily basis. It regularly occurs that your input has provided the basic concept for a new device.

This is how the COMPOSER, INTELLIGATE, AUTOQUAD, AUTOCOM etc. came into existence. They caused a sensation when we announced them. The functional principle of these dynamic processors is based on our Interactive Technology, and no compromise has been accepted in terms of sound quality and features.

Helping you on your way is our goal.

Even though our units are used in more than 20 countries in broadcasting and TV studios, international chart productions, renowned recording studios and by well-known musicians and bands, it is still our goal to make high-quality studio technology available to musicians who have not yet made it to the top. We are well aware of the fact that your success is our success!

You determine the price of our products.

We are often asked how we are able to manufacture devices of such a high quality at such an unbelievably low price. The answer is quite simple: the credit goes to you! A large number of satisfied customers means large-scale manufacture, and large-scale manufacture means that conditions of purchase for components etc. are more favourable. So, is it not only fair to pass these favourable prices on to you?

You deserve European prices.

Our desire is to make our products available for you all over Europe at equal prices. In co-operation with our distributors we have established a system of ensuring that the retail prices are reasonably consistent. Obviously, exchange fluctuations cause slight variances but in general terms a simple conversion into your local currency and the addition of relevant VAT will provide you the price.

You are making a wise decision when you select Behringer quality.

Since the foundation of the Behringer company, quality has been our primary goal. We know that you want to use our products 24 hours a day, and we accept the resulting responsibility. Competent staff members, high-quality components, such as gold-plated switches etc., 8 stages of quality control and 5 years of warranty justify your confidence.

Your ear is the judge.

Test our products, compare them to any other products available on the market and let Behringer quality convince you. Our products are made for people with a fine ear - people like you.

If you have any questions, simply give us a call!

Sincerely yours,



BEHRINGER Specialized Studio Equipment
Dipl.-Ing. Ulrich Behringer

DUALFEX II Model EX 2000

Multiband Sound Enhancement Processor

26100



NEW: DUALFEX II Model EX 2000!

- △ Integrated Bass Processor
- △ VSP (Variable Sound Processing) circuit
- △ Extremely reasonable price

EUROPEAN RETAIL PRICES *
EX 2000J: DM 303,- + VAT *
EX 2000X: DM 390,- + VAT *

Since the 70s, sound enhancement systems such as enhancers, exciters, psycho-acoustic processors etc. have become an indispensable aid in the studio and have found widespread application in almost all film, broadcast and recording productions as well as in PA and sound reinforcement systems.

Functional Description

Since their introduction, psycho-acoustic processors have gained immense popularity. Basically, several principles of sound enhancement prevail in today's market: the sound improving effect produced by the enhancer is based on programme-dependent phase shifting with the goal of enlarging the pulse width, whereas psycho-dynamic processors use a dynamic frequency correction of the programme material and therefore enrich the programme material with high-frequency processing.

Conventional units may work perfectly on pop music, but when processing acoustic instruments, the result is aggressive and unnatural.

Conventional enhancers are preferable for processing classical music and acoustic instruments. The result is a "softer", unobtrusive transparency and an increased richness in sound. However, to make a pop recording more "aggressive", to set up a sound system for maximum intelligibility or to give a rhythm/bass guitar the necessary "punch", process the high-frequency range in a different way is recommended.

VSP (Variable Sound Processing) Circuit

The new VSP (Variable Sound Processing) circuit used in the DUALFEX, permits variable fading from "Classic" to "Pop" enhancer mode. Using the PROCESS control clockwise ("Pop"), engages the VSP circuit to provide a variable and carefully adjusted processing of high frequencies. The result is increased brilliance and transparency. Fading over from one effect to the other can thus adapt the effects perfectly to the respective programme material.

NEW: The Integrated Bass Processor

Unlike its predecessor EX 802 the DUALFEX II is equipped with a separate bass processor for lower frequency band enhancement. Processing the bass range perfectly

complements the high-frequency processing and opens up new dimensions in the field of sound processing.

The ALC (Automatic Level Control) Circuit

With the introduction of a level-independent enhancer circuitry we have revolutionized technology. The problem of restricted levelling capacity in conventional units is eliminated with our new circuit. Consequently, the DRIVE control to be found on conventional units, which adapts the devices to different input levels, is not required on the DUALFEX. Common problems such as insufficient or excessive signal processing are a thing of the past.

Features Of The Behringer DUALFEX II

The DUALFEX II ...

- △ improves the presence and transparency of the programme material
- △ improves the sound of instruments
- △ improves the intelligibility of voice
- △ provides better stereo imaging
- △ produces a powerful and fuller bass. All recordings will benefit from the "dry" and precisely defined bass contouring.
- △ increases the subjective volume level
- △ increases the listener's awareness, and thus avoids listening fatigue.

Specifications

- △ Dual "Natural Sonic" processor
- △ VSP (Variable Sound Processing)
- △ Bass processor with switchable corner frequency
- △ ALC (Automatic Level Control) circuitry
- △ Frequency response : 20Hz to 20 kHz (+0; -0.5 dB)
- △ THD : +0.005 % @ 0 dBu (1 kHz) (MIX set to min.)
- △ Noise & hum : -92 dBu (22 Hz to 22 kHz) (MIX set to min.)
- △ Max. input/output level : +21 dBu
- △ Servo-balanced inputs

- △ Jack connectors, model EX 2000J
- △ XLR connectors, model EX 2000X

* All prices are suggested net prices plus VAT



ULTRAFEX® Model EX 3000

Multiband Sound Enhancement Processor At The Top Of Its Class

44760
(EX3100)



NEW: ULTRAFEX Model EX 3000!

- △ Built-In Surround Processor
- △ Switchable Noise Reduction System
- △ Jack and XLR Connectors

EUROPEAN RETAIL PRICE *
EX 3000: DM 520,- + VAT *

Since its announcement, the ULTRAFEX 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 unit is one of the world's best selling sound enhancers and finds widespread application in some of the world's most renowned studios, sound reinforcement systems as well as in broadcast and TV studios.

Since the introduction of the first devices, the technology of Enhancers and Exciters has made tremendous progress. Although the fundamental principles of this 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 which functions independently of level, we have set new standards. Problems, previously encountered on conventional Enhancers and Exciters are restricted operating level range plus increased noise level during signal processing and audible "distortion". These are typical shortcomings of conventional circuit designs and are completely solved by the development of our new circuitry.

The Behringer "Natural Sonic" Processor

The Behringer "Natural Sonic" principle is based on frequency-selective phase shifting in conjunction with programme-dependent equalization and pulse enlargement. An automatic and natural frequency correction during signal processing offers a quality of sound enhancement that has been almost inconceivable until now. The programme-dependent processor permits the "musical" and unobtrusive transparency required for classical programme material, yet also provides the necessary brilliance for pop recordings, without introducing any additional noise, non-related harmonics or any other kind of distortion.

Integrated Noise Reduction System

Due to the laws of physics, Exciters and Enhancers basically increase noise in the programme material during process. Therefore, we have integrated a special and fully automatic noise reduction system into the ULTRAFEX. In this way, noise produced by the Enhancer's operation is faded out automatically.

Bass Processor

Apart from processing the upper harmonic ranges, users of the Behringer ULTRAFEX 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. 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 low

frequency boost, the bass processor of the Behringer ULTRAFEX is capable of compensating for this loss, giving the programme material new bass presence. Using the SHIFT switch, the corner frequency can be changed from 50 Hz to 100 Hz, and vice versa.

Surround Processor

The fact that hearing impression largely depends on the positioning of the instruments within the stereo field is often neglected. Therefore, we have integrated a switchable and fully automatic Surround Processor in the ULTRAFEX, which is able to dramatically improve the intensity of the spatial stereo effect. The programme material gains in liveliness, "depth" and transparency. As in a cinema or theatre system, the listener has the impression that the orchestral instruments are placed all around him. The Surround Processor enlarges the stereo basis dependent upon the programme material without audibly colouring the sonic image.

Pressure From Above Or Power From The Bottom

Standards in terms of sound quality have never been as high as they are today. For example, the transmission quality in broadcast and TV stations, record or CD productions and live concerts etc., has a decisive impact on the stiff competition for audiences and listening figures.

Take advantage of the famous Behringer sound enhancement systems to make your recordings, tape copies and PA applications etc. gain the attention they merit. Transparent, powerful and low-noise audio experience attracts the listeners, and the more listener you have, the greater your success will be. Enhance your good name as an audio engineer with Behringer equipment.

Specifications

- △ Multiband "Natural Sonic" Processor
- △ Noiseless and level-independent ALC circuit
- △ Bass Processor with switchable corner frequency (50/100 Hz)
- △ Automatic Surround Processor
- △ Switchable Noise Reduction system
- △ Frequency response: 20 Hz to 20 kHz (+0; -0.5 dB)
- △ THD: 0.008% @ 0 dBu (1 kHz) (MIX set to min.)
- △ Noise & hum: -94 dBu (22 Hz to 22 kHz) (MIX set to min.)
- △ Servo-balanced inputs and outputs
- △ Max. input/output level: +21 dBu
- △ SOLO switch for monitoring the pure effect signal
- △ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- △ Cut-in delay to avoid switch-on thumps
- △ Jack and XLR connectors
- △ Optional high-performance output transformer OT-1 available

* All prices are suggested net prices plus VAT



BASSFEX Model EX 1000

The Digital Subharmonic Synthesizer



NEW: BASSFEX Model EX 1000!

- ▲ Produces Ultra-Low Bass
- ▲ Integrated Limiter
- ▲ Integrated Crossover

EX1000 = 44700

EUROPEAN RETAIL PRICE *
EX 1000J: DM 520,- + VAT *

The Behringer BASSFEX is a completely new subharmonic synthesizer based on digital technology for the generation and processing of ultra-low frequencies.

Why is there a need for a Subharmonic Synthesizer?

In many recordings, the low-frequency spectrum has been filtered deliberately or gets lost somewhere in the transmission chain. In most cases, the recording medium is characterized by a limited dynamic range and frequency response. The reproduction quality deteriorates by using a low-performance speaker system. Thus, tape material, records and broadcast transmissions soon reach their limits, in terms of frequency and amplitude range. Vital bass frequencies are therefore not reproduced. Very often, the low frequencies are filtered deliberately to facilitate reproduction via small loudspeakers found in portable radios, car audio systems etc. The recording lacks the essential bass emphasis and the resulting sonic image lacks power.

More bass power with the Behringer BASSFEX

In contrast to simple bass boosting, the BASSFEX generates additional subharmonics, i.e., musically relevant frequencies one octave below the lowest frequency in the signal. This expands the frequency spectrum both naturally and musically. Contrary to conventional designs, the BASSFEX is not a so-called "bass booster" simply raising the lower frequency band in level, but uses completely new circuits based on digital technology which filter specific bass frequencies from the programme material and feed them to the subharmonic synthesizer. With the aid of digital frequency shifting, the circuitry produces a new frequency spectrum that is enlarged towards the bass end, with the signal shape of the generated low-range frequencies being accurately synthesized on the original wave form. The result is a "dry" and exactly defined low-frequency emphasis, without any "booming" or other disturbing side effects.

Protect your system with the integrated limiter

Bass frequencies provide the highest energy yield within the entire frequency spectrum. When reproducing composite signals, both the power amplifiers and the loudspeakers are under extreme duress. Since conventional bass frequency

boosters do not compensate for this, the system is often overloaded with disastrous results.

The BASSFEX incorporates the highly respected Behringer Peak Limiter, which prevents clipping in the system and thus protects it against overloading and damage. Depending on the size and power rating of the system, you can perfectly limit the levels and the resulting maximum displacement of the loudspeaker diaphragm.

Highpass mode for all-purpose application

The BASSFEX features two operational modes: in normal mode the newly generated bass frequencies are added to the original signal and are reproduced by the standard system. In HIGHPASS mode, however, all frequencies below 70 Hz are removed, which clearly reduces the stress put on the system. The actual bass frequencies are routed via the separate subwoofer output to a special low-range loudspeaker/amplifier setup.

Turn your system into a "power station"

The Behringer BASSFEX truly adds power to your system. Whether it is the audio system in discotheques and dance clubs, cinemas, theatres, PA systems, broadcast and TV stations, aerobic and sports studios or simply your home stereo system, the BASSFEX will give you a new audio experience. We are sure, that you will enjoy your new Behringer BASSFEX!

Specifications

- ▲ Digital Subharmonic Synthesizer
- ▲ Stereo unit
- ▲ Waveform Processor with Subharmonics control
- ▲ Switchable crossover (highpass mode) for operating a subwoofer. No additional crossover required.
- ▲ Integrated Programme Limiter
- ▲ Separate Subwoofer output
- ▲ Frequency response : 5 Hz to 20 kHz (+0; -1 dB)
- ▲ Noise & hum : -94 dBu (22 Hz to 22 kHz)

* All prices are suggested net prices plus VAT



EDISON Model EX 1

Stereo Image Enhancer / Phase Correlation Meter



NEW: EDISON Model EX 1!

- ▲ New 3D Processor
- ▲ Integrated Phase Correlation Meter
- ▲ Sensational Price

59700

EUROPEAN RETAIL PRICES *
EX 1J: DM 607,- + VAT *
EX 1X: DM 694,- + VAT *

With the EDISON, we are presenting a new psycho-acoustic processor, which is based on "Virtual Stereo Image" technology and permits total manipulation of spatial content such as width and depth of the stereo image. This three-dimensional technology is a "secret recipe" in American studios and makes it possible to release the untapped stereo resources of your music - an effect which audibly enhances and intensifies the spatial characteristics of the sonic image. We have advanced beyond existing technology, incorporated an additional phase correlation meter into the unit, and offer the EDISON at a price that is just a fraction of what you would have to pay for a comparable system.

Unleash The Stereo Potential Of Your Music

Many years of research in the field of psycho-acoustics have revealed that a typical stereo signal contains much more spatial information than the human ear can perceive. For instance, the ear is very sensitive to changes in phase and frequency, but is fairly immune to changes in level. A similar problem is encountered when human perception tries to locate and position instruments in a complex recording, either left/right and/or front/rear.

The Behringer EDISON is capable of intensifying and processing such spatial information. The result is a distinctly better positioning of instruments in the stereo domain (even beyond the physical position of the loudspeakers), higher resolution and detailed reproduction within the room, and an increased depth separation ("front/rear" localization). By manipulating these effects in "real-time", negative side effects such as "condensed" midrange can be avoided. In addition, the audio experience can be radically enhanced, which until now has only been possible in top productions, using extremely costly and complex systems.

The Integrated Phase Correlation Meter

Basically, any recording should be checked for proper phase response, i.e. for mono compatibility. Very often, serious mistakes are made during the final mixdown: even if the stereo recording sounds great, when combining the stereo signals to one mono signal, phase cancellations can result. Correct mono compatibility is important because most reproduction media (radio, TV, sound reinforcement systems etc.) are mono systems, and mono incompatibility can cause

serious problems. Phase cancellations can even "delete" complete instruments or groups of instruments from the sonic image. Apart from the mono compatibility test, the phase correlation meter also detects incorrect signal polarity and other problems with reference to phase.

Although the EDISON is fully mono compatible owing to its innovative circuitry, i.e. it does not cause any phase shift, the final mixdown should always be checked for proper phase response. EDISON's integrated phase correlation meter precisely indicates the mono and stereo contents of the programme material as well as any phase errors. Therefore, the EDISON forms part of what should be standard equipment in any studio.

In bypass mode, the EDISON's phase correlation meter is disconnected from the signal processing section and can be used as an independent measuring instrument.

EDISON - Total Stereo Experience

In reality, the EDISON can process any stereo signal. The resulting coded stereo signal requires no decoder or similar device during reproduction. For this reason, the EDISON can be used in music and film productions, in mastering and sound reinforcement applications, in broadcast and TV studios, recording studios, dance clubs and, last but not least, in your home hifi system. Capitalize on this technology from top American studios and enhance your high-quality recordings to release the stereo potential of your music!

Specifications

- ▲ Mono compatible "Virtual Stereo Image" processor
 - ▲ Integrated Phase Correlation meter
 - ▲ Servo-balanced inputs and outputs
 - ▲ Max. input/output level : +21 dBu
 - ▲ Frequency response : 20 Hz to 20 kHz (+0; -0.5 dB)
 - ▲ THD : $0.005\% @ 0\text{ dBu (1 kHz)}$
 - ▲ Noise & hum : -92 dBu (22 Hz to 22 kHz)
 - ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
 - ▲ Cut-in delay to avoid switch-on thumps
 - ▲ Optional high-performance output transformer OT-1 available
-
- ▲ Jack connectors, model EX 1J
 - ▲ XLR connectors, model EX 1X

* All prices are suggested net prices plus VAT



DENOISER Model SNR 202/208

Professional Noise Reduction Systems In "Single-Ended" Technology



New Improved Version Of The SNR 202:

- ▲ New Filter Circuitry
- ▲ New "Soft Knee" Expander
- ▲ Servo-Balanced Outputs

System noise is still one of the most aggravating phenomena in electro-acoustics. The background noise produced by one piece of equipment may not disturb the listener. However, whenever a number of instruments, effects devices and tape machines are combined the noise level dramatically increases. Under these circumstances the implementation of a noise reduction system becomes necessary.

Unlike other noise reduction systems based on the compression/expansion principle, the Behringer DENOISER operates as a "single-ended" device. This means no restrictive encode/decode sequence - simply insert the unit after the noise source.

This outstanding feature enables you to reduce the noise from any programme material at the playback end!

Functional Description

The Behringer DENOISER exploits the acoustic masking phenomenon, since noise awareness is dramatically increased when little or no signal is present to mask the noise within adjacent frequencies. The heart of the Behringer circuit is a dynamically controlled low-pass filter which opens and closes the bandwidth, dependent upon the amount of high-frequency information in the audio signal. In contrast to conventional noise filters, the cut-off frequency on the Behringer DENOISER is active over a range from 800 Hz to 20 kHz, which is the area where noise is particularly disturbing. Reducing the high frequencies of signals with only a few high-frequency portions leads to a drastic noise reduction yet minimal signal disturbance.

Precision Technology With The Behringer Processor

The DENOISERs incorporate an innovative dual-filter circuit developed by Behringer (patent pending). The on-board analogue computer scans the level and frequency of the signal; its variable attack and release times allow precise control of the ultra fast-acting filter, without inducing the usual side effects such as breathing, trailing, pumping etc.

The Downward Expander (Model SNR 202)

The DENOISER model SNR 202 contains an additional downward expander to eliminate any annoying signals (hum, noise etc.) by fading them out below the audible range. Compared to conventional noise reduction systems with just a "single-knob" operation, the DENOISER model SNR 202 employs a special "soft knee" expander, which provides

202 44700

208 52200

EUROPEAN RETAIL PRICES *
SNR 202J: DM 433,- + VAT *
SNR 202X: DM 520,- + VAT *
SNR 208J: DM 607,- + VAT *
SNR 208X: DM 781,- + VAT *

"soft" expansion characteristics, extensive control options, and can thus be perfectly adapted to any programme material.

Applications

The Behringer DENOISER is one of the most effective and versatile noise reduction systems available, and can be used in all audio fields.

- ▲ Radio and TV productions, professional recording studios, PA systems, communication facilities
- ▲ Clean up - studio tracks, tape duplications, motion picture sound tracks, mix down recording etc.
- ▲ Use the DENOISER with guitars, keyboards etc.
- ▲ Reduce circuit noise from any noisy effects, compressors, reverb devices and many more.

Make an intelligent move and provide your audience with noise-free and transparent sound quality!

Specifications

- ▲ Noise reduction through Behringer Dual-Filter circuitry
 - ▲ Servo-balanced inputs and outputs
 - ▲ Max. input/output level : +21 dBu
 - ▲ Frequency response: 20 Hz to 20 kHz (+0; -0.5 dB)
 - ▲ THD : 0.03% @ 0 dBu (1 kHz)
 - ▲ Noise & hum : -90 dBu (22 Hz - 22 kHz unweighted)
 - ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
 - ▲ Cut-in delay to avoid switch-on thumps
 - ▲ Optional high-performance output transformer OT-1 available for models SNR 202X and 208X
- DENOISER model SNR 202**
- ▲ Programme optimized "soft knee" downward expander
 - ▲ Max. noise reduction +40 dB
 - ▲ Channels can be linked for stereo operation

2-channel DENOISER: jack connectors, model SNR 202J
8-channel DENOISER: jack connectors, model SNR 208J
2-channel DENOISER: XLR connectors, model SNR 202X
8-channel DENOISER: XLR connectors, model SNR 208X

* All prices are suggested net prices plus VAT



MULTIBAND DENOISER Model SNR 2000

The "Single-Ended" Noise Reduction System At The Top Of Its Class



**German Fachblatt 2/93:
Test Winner In The Comparative Test.
"Best Yet Least Expensive Device!"**

59700

EUROPEAN RETAIL PRICE *
SNR 2000: DM 694,- + VAT *

With the MULTIBAND DENOISER model SNR 2000 we introduce a new generation in noise reduction technology. Using the new Dual-Filter circuitry (patent pend.) in conjunction with Behringer's on-board Audio Detectors represents a breakthrough in "single ended" noise reduction technology.

Allocation of the audio spectrum to a number of frequency bands makes it possible to achieve noise reduction of a quality that was previously inconceivable. The intelligent programme detection technique, developed by Behringer, is based on the theory of sonic energy present in a frequency band. Complex weighting filters for signal analysis are capable of differentiating between useful signal and noise - even if the audio signals applied are of a very complex nature. The end result is substantial noise reduction with minimal signal disturbance.

Interactive Technology

The noise reduction capabilities of the Behringer MULTIBAND DENOISER are based on bandwidth limiting by means of a dynamic low-pass filter, and broadband noise reduction during music pauses by a "downward" expander. This unit fully exploits the new Interactive Technology.

TAC (Transient Attack Control) Filter

Conventional noise reduction systems suffer from several perceivable drawbacks. Either the noise reduction process deteriorates the signal by cutting the high-frequency portions of the signal producing a muffled sound, or percussive signals lose their typical attack response because the dynamic filter reacts too slowly.

This is primarily due to the fact that so-called RMS or effective-value detectors are used to determine the average signal energy. Due to the average time required in RMS rectifiers, cutting percussive signal peaks can simply not be avoided, with the result that the filter does not open sufficiently on such signals. Consequently the noise reduction process also attenuates the high frequencies.

Behringer have broken new ground: innovative TAC (*Transient Attack Control*) circuitry uses peak detectors capable of accurately tracking the signal response, even with extremely fast signal edges. Obviously, this approach yields distinctly better audio results and does not cut the "kick", for instance, of a cymbal.

AUTO Filter Circuitry

The model SNR 2000 also integrates a new AUTO function which controls the filter settings, and in most applications produces optimum noise reduction.

IRC (Interactive Ratio Control) Expander

How do we remove remaining noise during low-level passages?

Usually, additional expanders or gates are used to eliminate this problem by simply fading out the noise during music pauses.

Simple expanders, however, tend to fade out the signals below the threshold quite "unnaturally", even if they are set up correctly (the transition from audio signal to noise is the point where this effect becomes audible). In extreme cases, voices on vocal tracks are cut off at the beginning or end.

The MULTIBAND DENOISER integrates the newly developed IRC (*Interactive Ratio Control*) expander with a ratio setting that adapts automatically to the programme material. The result is an expander which makes set up less critical and which reacts tolerantly when the level of the audio signal just exceeds the level of the background noise floor.

MULTIBAND DENOISER - The Inaudible Noise Reduction System For Mastering Application

The Behringer MULTIBAND DENOISER SNR 2000 is our best noise reduction system and proves to be an excellent tool for all applications in the field of professional sound engineering.

The unit can be used in

- ▲ Broadcasting and TV, professional studios, CD mastering studios and for PA and intercom systems etc.
- ▲ Clean up studio tracks, tape duplications, motion picture sound tracks, during mix-down, and more.

Specifications

- ▲ Multiband concept
- ▲ TAC (Transient Attack Control) Filter
- ▲ AUTO processor offering automatic filter control
- ▲ CUT-OFF control adjusts the lower corner frequency
- ▲ 8-LED bandwidth meter
- ▲ Filter IN/OUT switch
- ▲ IRC (Interactive Ratio Control) expander eliminates "chatter" on or around the threshold point
- ▲ 8-LED gain reduction meter
- ▲ Expander IN/OUT switch
- ▲ Max. noise reduction +80 dB
- ▲ Channels can be linked for stereo operation
- ▲ High-precision VCAs
- ▲ Servo-balanced inputs and outputs
- ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- ▲ Cut-in delay to avoid switch-on thumps
- ▲ Jack and XLR connectors
- ▲ Optional high-performance output transformer OT-1 available

* All prices are suggested net prices plus VAT



GUITAR DENOISER Model SNR 201

The Interactive Guitar Noise Reduction System



EUROPEAN RETAIL PRICE *
SNR 201: DM 346,- + VAT *

Electrical noise is still one of the most irritating problems in the field of electro-acoustics. In particular, with electro-acoustic instruments such as guitars etc. where inductive pickups transform the sound into electrical signals, and where high-impedance, i.e., sensitive conductors, are used to transmit the signals, there is a constant risk of experiencing interference such as noise and hum. Due to the high gain applied to the instrument signal in the subsequent amplifier, interference of this kind becomes an acoustic problem.

When using "single-coil" pickups, which do not provide any noise compensation, such interference becomes audible. Nevertheless, most guitarists accept noise and hum as an inevitable side effect.

Conventional Noise Reduction Systems

Conventional noise reduction systems for guitars often suffer from several perceivable drawbacks: either the noise reduction process deteriorates the signal by cutting the high-frequency portions of the signal and thus making the guitar sound muffled, or the dynamic filter reacts too slowly making the guitar lose its "bite" with slap-style or rhythm work. Other systems are configured as a simple "one knob" noise-gate and produce unnatural "on/off" effects.

The Interactive Technology Of The GUITAR DENOISER

In contrast to conventional systems, the Behringer GUITAR DENOISER features innovative and unique technology: for the first time the Interactive Technology successfully used in the COMPOSER and the INTELLIGATE has been applied to a guitar noise reduction system.

A special "guitar version" of the new TAC (*Transient Attack Control*) circuitry opens the filter even when playing fast riffs or "slaps", without cutting the instrument's percussive "kick" on an acoustic guitars or a "slapped bass guitar.

During music pauses, the integrated IRC expander (*Interactive Ratio Control*), which is also based on Behringer's Interactive Technology fades out interference "inaudibly" and "musically", while at the same time being functionally adaptable to any playing style.

High-Z Instrument Preamp

In order to avoid a colouration of the original guitar sound, the

GUITAR DENOISER integrates a special High-Z preamplifier, which - owing to its high impedance - provides the least possible load for the pickup. A variable gain control allows for connecting any type of guitar.

Further features that complete the GUITAR DENOISER's professional design are: a hard-bypass relay automatically entering bypass mode in case of a power supply failure or if the GUITAR DENOISER is switched off; line-level inputs and outputs as well as a -20 dB output for directly interfacing the unit with the instrument input of a guitar amplifier.

Pure Guitar Sound With The GUITAR DENOISER

The need for both a professional and all-purpose noise reduction system was the basis for the development of the Behringer GUITAR DENOISER. Many years of experience in the field of Denoiser technology enabled us to design the model SNR 201, which is already being used by many renowned guitarists. Despite its excellent quality, the GUITAR DENOISER is very competitively priced and is therefore affordable to those musicians who still have to make it to the top. Pure guitar sound with the GUITAR DENOISER.

Listen to what Behringer can do for you!

Specifications

- ▲ Incorporated High Z-preamplifier (0 to +20 dB gain)
- ▲ TAC (Transient Attack Control) filter
- ▲ 4-LED bandwidth meter
- ▲ IRC (Interactive Ratio Control) expander
- ▲ 4-LED gain reduction meter
- ▲ Expander IN/OUT switch
- ▲ Extensive controls
- ▲ Line inputs and outputs
- ▲ Instrumental inputs and outputs (-20 dBu)
- ▲ Clip LED indicator (+16 dBu)
- ▲ Frequency response: 5 Hz to 20 kHz (+0; -1 dB)
- ▲ Max. noise reduction: 80 dB
- ▲ Noise & hum: -100 dBu (22 Hz to 22 kHz unweighted)
- ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- ▲ Cut-in delay to avoid switch-on thumps



* All prices are suggested net prices plus VAT

AUTOCOM® Model MDX 1000

The Automatic Compressor/Limiter



41000

NEW: AUTOCOM Model MDX 1000!

- ▲ "Soft/Hard Knee" Switchable
- ▲ Manual Attack/Release Controls

EUROPEAN RETAIL PRICE *
MDX 1000: DM 477,- + VAT *

Behringer developed the AUTOCOM model MDX 1000 as an extremely powerful and easy to operate dynamic processor which fulfills even the most stringent requirements for studio equipment. The AUTOCOM was particularly designed for those applications most frequently used in practice. Despite the extremely complex internal circuitry, the unit has a control surface which is clearly laid out and easy to understand. Both in studio and live applications, the AUTOCOM's outstanding features prove to be the precision and flexibility of its functions.

A special AUTO function allows for fully automatic dynamic processing in any application and avoids any time consuming setups. The AUTOCOM utilizes high-precision VCAs delivering excellent technical specifications and sound-quality. Owing to its universal concept, uncomplicated operation and superb technical performance, the unit is suitable for all sound engineering applications.

Using the AUTOCOM means easy operation with superb results!

The Interactive AUTO Processor

The new AUTOCOM MDX 1000 incorporates an interactive AUTO processor with intelligent programme detection which unveils a new compressor/limiter generation. With the help of the AUTO processor, the attack and release times are derived automatically from the respective programme material. Common adjustment errors can therefore be prevented. This feature allows you to compress the signal heavily and "musically" in dynamic range without any audible "pumping", "breathing" or other side effects.

Manually Adjustable Attack And Release Controls

The response of a compressor and the quality of the dynamic processing largely depend on the control times, i.e., the attack and release functions. When processing signals from individual instruments, such as drum, guitar etc., and when using the compressor to protect the audio system against signal transients, it is imperative that the control times be user-adjustable. The AUTOCOM offers this feature by providing both Attack and Release controls, and thus allows for deliberate and variable sound processing.

Examples of Auto versus Manual control

Auto control: *Vocals, mixdown, hard bass sound etc.*

Manual control: *Kick drum, snare, hi hat, piano, slapped bass, loops etc.*

"Knee Selector" Circuitry

The new "Knee Selector" circuitry successfully combines the traditional "Hard Knee" compressor concept with the "Soft Knee" feature. The "Soft Knee" mode with its "soft" control characteristics

is the basis of the "inaudible" and "musical" compression of the programme material, while the "Hard Knee" function is a prerequisite both for creative and effective dynamics processing and for limiting signal peaks reliably and precisely. This function is required to protect equipment elsewhere against distortion, and subsequent damage.

External Sidechain Inputs

Additional sidechain inputs allow for external control of the AUTOCOM. A simple equalizer, for instance, can be inserted into the sidechain to facilitate compression of selected frequencies or application as a de-esser.

Applications

Microphones

Reducing microphone feedback on stage. Variations in microphone levels can be smoothed out. Annoying sibilants can be removed (de-essing).

Instruments

Velvety-to-hard bass sounds, guitar sustain, punchy bass drum sounds, "American" sound for keyboards, brass, strings etc.

Recording

Accentuation or suppression of voices and instruments on an overall mix. Various effect options and general studio applications.

PA Systems

Protection of speakers against damage by overloading or dangerous spikes (transients). High power and volumes can be delivered without distortion. The penetration of the programme material increases since low-level passages become acoustically present.

Specifications

- ▲ AUTO processor for intelligent programme detection
- ▲ Programme-dependent attack and release times
- ▲ Manually adjustable attack and release times
- ▲ Switchable "Soft/Hard Knee" characteristics
- ▲ Servo-balanced inputs and outputs (jack connectors)
- ▲ THD: +0.03% @ 0 dBu (1 kHz)
- ▲ Frequency response: 10 Hz to 100 kHz (+0.5 dB)
- ▲ Noise & hum: -98 dBu (22 Hz to 22 kHz, unity gain)
-105 dBu (20 dB gain reduction)
- ▲ Threshold control: -40 to +20 dBu
- ▲ VCA mute switch
- ▲ Channels can be linked for true stereo operation
- ▲ Max. input/output level: +21 dBu
- ▲ Optional high-performance output transformer OT-1 available

* All prices are suggested net prices plus VAT



COMPOSER Model MDX 2000

The Interactive Dynamics Processor



ABSOLUTE BEST SELLER!
Over 18.000 Composers sold

59700

EUROPEAN RETAIL PRICE *
MDX 2000: DM 694,- + VAT *

The Behringer COMPOSER is our unique dynamics processor, based on new, interactive technology. In a compact package, this extremely powerful and versatile signal processing tool provides the four most commonly dynamic control sections: fully automatic compressor, manually controlled compressor, expander and peak limiter. Precision performance and sound quality are the most attractive features of this high-end, dual-channel unit. The interactive circuit design employed in the COMPOSER offers maximum flexibility combined with very simple operation. Whether you need subtle compression or a creative sound processing tool - the extensive control options in combination with the switchable external sidechain open up new dimensions for improving your sound. The COMPOSER is the ultimate dynamics processor for broadcast and TV applications, professional recording studios and live sound reinforcement systems.

IKA (Interactive Knee Adaptation) Compressor

The innovative IKA (*Interactive Knee Adaptation*) circuit succeeds in combining the "hard knee" compressor approach with "soft knee" characteristics. These variable and programme-dependent control characteristics allow for "inaudible" and musical compression of the programme material plus creative and effective dynamics processing.

The IKA function brings a new dimension to programme material compression. Even with the most extreme compression ratios or when processing difficult music material (classical music etc.), the programme material sounds natural and transparent, and is not affected by "pumping" or other side effects, common shortcomings in conventional compressor designs.

With the help of the IKA circuit, the COMPOSER is capable of producing unrivalled results both in the studio and on stage.

IRC (Interactive Ratio Control) Expander

The basic problem encountered in compressor application is the noise floor which increases during low-level passages, depending on the compression ratio set (compressor noise). Usually additional expanders or gates are used to eliminate this problem by simply fading out the noise during music pauses.

Simple expanders, however, tend to fade out the signal below the threshold quite "unnaturally", even if they are set up correctly. The transition from audio signal to noise is the point where this effect becomes audible. In extreme cases, speech on vocal tracks is cut off at the beginning or end.

The COMPOSER integrates a newly developed IRC (*Interactive Ratio Control*) expander with a ratio setting that adapts automatically to the programme material. The result is an expander which makes setting less critical and which reacts tolerantly when the level of the audio signal just exceeds the level of the

background noise floor. Due to the new IRC circuit, the expander/gate section in the Behringer COMPOSER can also be used as a separate unit for general "disturbance" elimination.

IGC (Interactive Gain Control) Peak Limiter

Another outstanding feature of the Behringer COMPOSER is the IGC (*Interactive Gain Control*) Peak Limiter, which intelligently combines a Clipper and a Programme Limiter. The Clipper comes in above the adjustable threshold and heavily limits the signal level ("brickwall" limiting). However, if the signal exceeds the limiter threshold for more than a few milliseconds, the IGC circuitry activates automatically and reduces the level of the overall output signal so that audible distortion cannot be produced (programme limiter). Having dropped below the threshold, the signal level returns to the original value. The IGC feature is invaluable in live applications (e.g., speaker protection) and in the field of digital recordings, where signals exceeding the threshold can have disastrous consequences.

The COMPOSER meets the highest standards and requirements in terms of operation, sound, specifications and workmanship.

Specifications

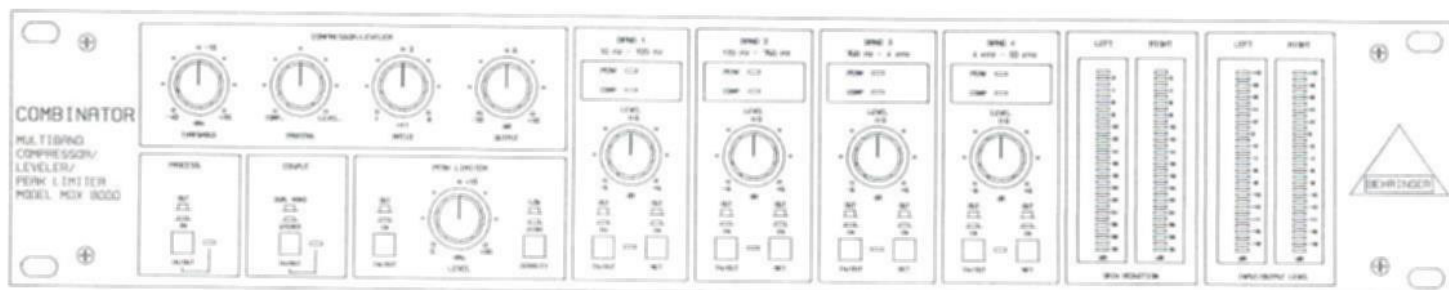
- ▲ IKA (Interactive Knee Adaptation) circuit interactively combines the "musicality" of the "soft knee" function with the precision of "hard knee" characteristics, thus providing subtle and "inaudible" compression of the sound and creative dynamics processing
- ▲ Attack and release times under manual control
- ▲ Auto processor allows for fully automatic control of attack and release times
- ▲ IRC (Interactive Ratio Control) expander eliminates "chatter on or around the threshold point
- ▲ IGC (Interactive Gain Control) Peak Limiter interactively combines a Clipper and a Programme Limiter, and thus allows for "zero" attack, distortion-free limitation of signal peaks
- ▲ High-precision VCAs
- ▲ Operating level switchable from -10 dBV to +4 dBu
- ▲ Servo-balanced inputs and outputs
- ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- ▲ Cut-in delay to avoid switch-on thumps
- ▲ Key Ext. and Key Listen features
- ▲ High-precision meters displaying gain reduction, input and output levels
- ▲ Jack and XLR connectors
- ▲ Behringer output transformer OT-1 can be retrofitted

* All prices are suggested net prices plus VAT



COMBINATOR Model MDX 8000

The Multiband Compressor/Leveler/Peak Limiter Of The Reference Class



EUROPEAN RETAIL PRICE *
MDX 8000: DM 2.591,- + VAT *
(Available December '93)

The Behringer COMBINATOR is a two-channel multiband Compressor/Leveler/Peak Limiter of the reference class. The unique multiband concept in combination with intelligent control functions allows for inaudible analogue and/or digital mastering with outstanding quality of signal processing. The integrated functions correspond to the simultaneous use of 8 Behringer COMPOSERS!

Multiband Versus Broadband Control

A general problem encountered in broadband dynamics processors is known as spectral gain intermodulation. While processing a certain frequency range, for example a bass drum, the remaining frequency bands are also processed (for instance, vocals) which results in audible and annoying "pumping". Due to the high energy present in low-frequency signals the bass always dominates the dynamic control of all broadband units.

COMBINATOR - Perfect Technology In Four Bands

The COMBINATOR splits up the programme material into four bands with each band being controlled independently. A total of 16 Behringer Audio Detectors and 24 high-precision VCAs are incorporated to perform these highly complex control processes. This immense technical effort leads to an extremely "musical" and "inaudible" dynamic processing without spectral intermodulation, "pumping" or colouring of the sonic image. Each of the four audio bands can be individually controlled in level, so you have a dynamic four-band equalizer available.

Simultaneous Compression And Leveling Functions

Two analogue computers have been integrated for each frequency band, which govern the compressor and leveling functions. These two techniques of dynamics processing can be cross-faded using a PROCESS control and can therefore be employed simultaneously, with the ratio between the two being user-definable.

The Leveler provides "soft" gain riding to compensate for differences in the average volume level. Since the compressor function is overriding the Leveler, the instantaneous dynamics of the programme material are retained. Despite extensive dynamic compression, the listener experiences the music material as dynamic, even after processing.

IGC (Interactive Gain Control) Peak Limiter

Another outstanding feature of the Behringer COMBINATOR is the multiband IGC (*Interactive Gain Control*) Peak Limiter, which intelligently combines a Clipper and a Programme Limiter - a principle also used in the COMPOSER.

However, in contrast to conventional multiband limiters, signal

transients are not only limited by means of a master Clipper but each of the four bands integrates an individual Clipper in conjunction with a Programme Limiter.

The Clipper comes in above the adjustable threshold and heavily limits the signal level ("brickwall" limiting). However, if the signal exceeds the limiter threshold for more than a few milliseconds, the IGC circuitry is automatically activated and reduces the level of the individual band so that audible distortion cannot be produced (Programme Limiter). A switchable Density function determines the ratio between Clipper and Programme Limiter and enables the user to select the degree of programme material density. This technique guarantees absolutely perfect limiting of signal peaks, without delay and distortion.

COMBINATOR - The Inaudible Dynamics Processor For Mastering Application

The COMBINATOR has been designed exclusively for professional applications. The unit is packed in a 2U enclosure and features extensive input/output level and gain reduction meters each with 30 LEDs. The main benefits of the COMBINATOR are "inaudible" dynamics processing, smooth gain riding for consistent increased loudness as well as absolute protection against signal peaks.

The COMBINATOR guarantees perfect processing of composite master material for CD mastering and post production, is ideally suited as an overload protector in sound reinforcement systems, increases the loudness in broadcast applications and can be used as a transmission limiter etc.

Specifications

- ▲ Stereo 4-band dynamic processor
- ▲ Simultaneous Compressor and Leveler operation
- ▲ PROCESS control to set the Compressor/Leveler balance
- ▲ 4-band IGC (Interactive Gain Control) Peak Limiter
- ▲ Switchable Density function on Peak Limiter
- ▲ Dynamic equalizer functions
- ▲ Phase coherent filters in crossover
- ▲ Individual LEVEL control for each band
- ▲ Individual IN/OUT switches for each band
- ▲ Individual SET switches for monitoring each band
- ▲ 25/50/75 μ sec. pre/de-emphasis switchable
- ▲ Servo-balanced inputs and outputs
- ▲ Channels can be linked for stereo operation
- ▲ Optional high-performance output transformer OT-1 available

* All prices are suggested net prices plus VAT



INTELLIGATE® Model XR 2000

The Interactive Class-A Expander/Gate/Ducker



EUROPEAN RETAIL PRICE *
XR 2000: DM 694,- + VAT *

The Behringer INTELLIGATE is an innovative expander/gate/ducker featuring Behringer's new Interactive Technology, and was developed to meet the highest demands. The unit incorporates all control functions and displays necessary to enable the professional audio engineer to accomplish rapid and perfect adaptation to the application at hand.

The INTELLIGATE is much more than just a conventional "on/off"-gate. An IRC (*Interactive Ratio Control*) expander offers programme-dependent control characteristics, which open up yet undreamed-of dimensions of sound processing. Furthermore, the INTELLIGATE includes a ducking function: the audio signal can be controlled via an external control input ("voice-over" applications, etc.).

With the Behringer INTELLIGATE, we offer a real high-end dynamics processor, which is manufactured to meet the highest standard in professional recording, broadcast and TV studios, CD and digital production systems etc. Its extensive control options and the innovative circuit design make the INTELLIGATE the perfect tool to "cure" noisy audio tracks, to "auto-mute" stage microphones, to enlarge the dynamic range of compressed recordings, to improve the signal-to-noise ratio in noisy communication facilities and to produce special effects etc.

Behringer's Trend-Setting Technology

In spite of the extreme complexity of the internal control functions, the unit features an easily understandable and clearly arranged front panel. The internal architecture in combination with a switchable external sidechain input give the user creative flexibility for any processing application.

The Behringer INTELLIGATE integrates several innovative circuit designs which make the unit our ultimate expander/gate/ducker:

UTR (Ultra Transient Response) Gate

With a response time of 3 μ sec., the Behringer INTELLIGATE is one of the fastest gates in the world. An extremely short attack time is required for very fast transients, percussion instruments for instance, so that the gate does not cut off the initial signal edge and thus deteriorates the sound.

The new UTR (*Ultra Transient Response*) circuit combined with a Class-A VCA allows for extremely rapid response times without making annoying click and pop sounds audible - a well-known phenomenon on conventional gates.

IRC (Interactive Ratio Control) Expander

A basic problem encountered in noise-gate applications is the fact that these units act as a simple "on/off" switch. When fading out noise from complex programme material, this circumstance can cause annoying side effects.

To eliminate this problem, an additional expander is used to fade out the signal "softly" and gradually. Simple expanders, however, tend to

fade out the signals below the threshold quite "unnaturally", even if they are set up correctly. The transition from audio to noisy signal is the point where this effect becomes audible. In extreme cases, speech on vocal tracks is cut off at the beginning or end.

The INTELLIGATE integrates a newly developed IRC (*Interactive Ratio Control*) expander with a ratio setting that adapts automatically to the programme material. The result is an expander which makes setting less critical and which reacts tolerantly when the level of the audio signal just exceeds the level of the background noise floor.

In conjunction with the gate function, the IRC expander proves to be an excellent tool for any task in professional audio engineering. Additionally, the extensive control options allow for dedicated and successful processing of most different types of programme material.

Applications

- ▲ Professional and home recording studios
- ▲ PA systems and sound reinforcement
- ▲ Broadcast production studios etc.

The INTELLIGATE meets the highest standards and requirements in terms of operation, sound, specifications and workmanship.

Specifications

- ▲ Ultra-fast gate (<3 μ sec.) employing the UTR (Ultra Transient Response) circuit
- ▲ No clicks and pops, regardless of attack speed
- ▲ High-end Class-A VCA MTA 1537
- ▲ Behringer's extremely low-noise audio OpAmps BE027/BE037
- ▲ Ultra-low THD: <0.005% typ.
- ▲ Max. 100 dB of attenuation
- ▲ Servo-balanced inputs and outputs
- ▲ IRC expander (Interactive Ratio Control) eliminates "chatter" on or around the threshold point and allows for "inaudible" expansion
- ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- ▲ Cut-in delay to avoid switch-on thumps
- ▲ High-precision filters for frequency-selective operation
- ▲ Key External and Key Listen facilities
- ▲ "Traffic light" display for visual indication of threshold level
- ▲ Accurate Gain Reduction meter
- ▲ Illuminated switches
- ▲ High-precision potentiometers
- ▲ Jack and XLR connectors
- ▲ Behringer output transformer OT-1 can be retrofitted.

* All prices are suggested net prices plus VAT



AUTOQUAD Model XR 2400

The Interactive Quad Expander/Gate



74600

EUROPEAN RETAIL PRICE *
XR 2400: 868,- + VAT *

Quad gates are not a new invention. In most cases, four single gates are packed into one enclosure, which however, represents a compromise in terms of operational possibilities and functionality. If too many controls are integrated, the unit is difficult to operate, and if control functions are lacking, the operational range is restricted.

The Behringer AUTOQUAD is a quad expander/gate of maximum functionality paired with ease of operation. Intelligent and automatic functions facilitate quick and efficient processing of any kind of programme material; the number of adjustment operations are thus drastically reduced. Each of the four sections in the AUTOQUAD includes an ultra-fast gate, a programme-dependent expander featuring the new interactive technology, a key-filter section, an accurate threshold display, and an intelligent link option for the individual sections.

Auto Function

The interactive control over attack and release time is the AUTOQUAD's most outstanding feature. In Auto mode, both the attack time and the ratio characteristics of the AUTOQUAD are controlled depending on the signal's slew rate and the dynamic analysis of the input signal. The result is an interactive expander which adapts automatically to the audio signal. In this way, guitar sounds, vocals and complex composite signals can be cleaned up without any clicks, "breathing" or other side effects. Furthermore, this function reduces the necessity to set and adjust a whole number of controls.

With the function switched off, the AUTOQUAD uses an ultra-fast attack time of 10 μ sec. to gate all kinds of drums and synthesizer sounds without eliminating their percussive "kick".

IHC (Interactive Hold Control) Circuit

The release time is controlled by another interactive function. By setting the RELEASE control not only the release time but also the required hold time is set. The interactive correlation between the two control times guarantees "inaudible" and musical processing of the signal envelope; additionally, the entire operation can be performed with one single control.

Key Filter Section

When several microphones are used, for instance drum set miking, crosstalk between the microphones can result in unwanted triggering of the gate. The on-board key-filter section allows for precise fading out of the triggering frequencies.

An additional Key Listen function enables the user to pre-monitor the filter and thus facilitate the acoustical adaptation of the gate to the programme material.

FlexLink System

Owing to an innovative link function, any of the four expander/gate sections can be coupled with each other.

User-Oriented Technology

In addition to the auto functions mentioned above, the AUTOQUAD offers further practical features. A 3-segment LED displays the threshold point, a RANGE switch determines the maximum attenuation of 20 or 80 dB. Hard-bypass relays provide the required reliability for live applications.

The AUTOQUAD is the perfect system for your stage and studio application.

Specifications

- ▲ 4 independent expander/gate sections
- ▲ AUTO function for expander/gate operation
- ▲ IRC (Interactive Ratio Control) expander eliminates "chatter" at or around the threshold point and allows for "inaudible" expansion
- ▲ No clicks and pops, regardless of attack speed
- ▲ High-precision VCA's
- ▲ Behringer's extremely low-noise OpAmps BE027/BE037
- ▲ Attenuation 20/80 dB, switchable
- ▲ Servo-balanced inputs and outputs
- ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- ▲ Cut-in delay to avoid switch-on thumps
- ▲ High-precision filters for frequency-selective operation
- ▲ Key-Listen pre-monitoring option
- ▲ "Traffic light" display for visual indication of threshold level
- ▲ Flexible linking of master and slave channels
- ▲ Illuminated switches
- ▲ Jack and XLR connectors
- ▲ Behringer output transformer OT-1 can be retrofitted

* All prices are suggested net prices plus VAT



SUPPRESSOR Model DE 102

The Multiband De-Esser / Feedback Processor



New Improved Version:

- ▲ Dynamic notch/shelf function
- ▲ Broadband limiter function
- ▲ Key External function
- ▲ Servo-balanced inputs/outputs

EUROPEAN RETAIL PRICES *
DE 102J: DM 520,- + VAT *
DE 102X: DM 607,- + VAT *

With the SUPPRESSOR, the Behringer company introduces an innovative de-esser/feedback processor designed to remove objectionable sibilance from vocals on individual tracks or those accompanied by mixed programme material. Acoustic feedback susceptibility of sound reinforcement systems or any other undesired interference can also be removed without affecting high-frequency response, sound integrity or dynamic range.

The Problem

A common problem encountered when amplifying or recording the human voice is the large amount of high-frequency energy, heard as the sibilant ("Sss") sound. These high-frequency sounds can reach levels considerably greater than normal voice levels, and will result in signal breakup or distortion.

Conventional Technology

Conventional de-esser designs either work as a frequency-selective limiter or as a dynamic low-pass filter, which is quite sufficient to effectively remove sibilant sounds when processing speech. However, to remove sibilance from vocal tracks or composite programme material, they are quite useless because they interfere considerably with the signal.

The Behringer Multiband Concept

The function of the Behringer SUPPRESSOR is based on a dynamic notch filter. With the help of a pre-monitoring option, the integrated tunable band pass filter is accurately tuned to the unwanted signal. By measuring the sonic energy present in the band of frequencies in which the unwanted frequency occurs, and by comparing that energy with the energy contained in the broadband signal, the SUPPRESSOR can detect signal resonances. Highly complex signal analysis processes are then used to identify these disturbance signals; subsequently, they are inverted in phase, added to the original signal, and are thus cancelled in the original signal. The analysis and cancellation process does not reduce the overall gain or affect adjacent frequencies. Everything is performed fully automatically and inaudibly - apart from the PROCESS control, no other control needs to be set. Critical parameters, such as attack and release times, are derived accurately from the programme material.

A dual LED display indicates the intensity of the notch filter ("soft" and "heavy") and warns the user of possible misadjustment of the PROCESS control. The maximum filter

attenuation is 25 dB.

Using the SUPPRESSOR As A Dynamic Notch/ Shelving Filter Or As A Broadband Limiter

Depending on the filter quality, the SUPPRESSOR can be used as a dynamic notch or a shelving filter. Additionally, a switchable key input allows for controlling the unit by an external source. For instance, with a parametric equalizer inserted in the key input, several frequencies can be removed simultaneously. If the key input is unused in "key ext." mode, the SUPPRESSOR operates as a broadband limiter. The switchable "Key Listen" function enables the user to pre-monitor the control signal and thus facilitates tuning to the disturbance frequencies by ear.

Applications

The Behringer SUPPRESSOR is a unique de-esser and feedback processor. Its multiband concept, in combination with a dynamic notch function, guarantees the effective and inaudible removal of unwanted signals.

- ▲ Removal of objectionable sibilance in recording and master disk cuttings (records, CD's etc.)
- ▲ "Curing" susceptibility to feedback
- ▲ Removing any kind of unwanted signals
- ▲ Broadband limiting of signal peaks

Specifications

- ▲ Multiband processor
- ▲ 2 separate channels
- ▲ Servo-balanced inputs and outputs
- ▲ Frequency response: 10 Hz to 100 kHz (+0; -0.5 dB)
- ▲ THD: +0.08 % @ 0 dBu (1 kHz)
- ▲ Noise & hum: -96 dBu (22 Hz to 22 kHz, unweighted)
- ▲ Max. input/output level: +21 dBu
- ▲ "Key Extern" and "Key Listen" functions
- ▲ Relay controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- ▲ Cut-in delay to avoid switch-on thumps
- ▲ Channels can be linked for stereo operation
- ▲ Optional high-performance output transformer OT-1 available for model DE 102X

- ▲ Jack connectors, model DE 102J
- ▲ XLR connectors, model DE 102X



* All prices are suggested net prices plus VAT

PARAMETRIC EQUALIZER Model PEQ 305

The Musical Equalizer



New Improved Version:

- △ Servo-balanced output
- △ Improved noise and phase response
- △ Improved band IN/OUT switching
- △ Improved potentiometer characteristics

The Behringer PARAMETRIC EQ incorporates all the required technical features of both a parametric equalizer and a notch filter. Due to its excellent audio performance and its superb technical specifications the unit outperforms most equalizers. The PARAMETRIC EQ can be used to great effect in both creative and corrective applications and offers tremendous flexibility as an equalization device. Where creative equalization is required, such as in audio for video post production, broadcast and recording studios, the PARAMETRIC EQ will find instant popularity whenever powerful equalization is found to be needed. The quality of each of the five frequency bands can be modified gradually from notch to broadband characteristics. This offers more flexibility than any graphic equalizer can provide.

Experience has shown that the switchable shelving/peaking feature of bands 1 and 5 of the PARAMETRIC EQ are extremely useful, since acoustic problems usually occur in the upper and lower frequency bands. A typical system rolloff correction will require the shelving modes of the switchable bands, while feedback control and hum reduction require the use of the notching mode.

The "Constant Q" Principle

One of the most basic design requirements of any equalizer, whether it be a graphic or parametric, is the immunity of the individual filter parameters from control interaction. The special state-variable filters on the PARAMETRIC EQ utilize the "Constant Q" principle to eliminate interaction of the parameters frequency, bandwidth and amplitude. The same applies to interaction between the individual frequency bands. This is an important factor in accurate and reproducible filter setups.

The Parallel Filter Principle

The parallel arrangement of the individual filters makes the PARAMETRIC EQ stand out from conventional parametric equalizers. Decisive advantages over serial types lie in the parallel approach, because phase shifting and associated delays, which are typical of filter applications, can be reduced to a minimum. As with all Behringer products, long, painstaking development stages and acoustic tests have gone into the production to optimize noise floors, harmonic distortion readings and, above all, tonal qualities.

52200

1 Canal

EUROPEAN RETAIL PRICE *
PEQ 305: DM 607,- + VAT *

The PARAMETRIC EQ updated

The Behringer company has succeeded in advancing the PARAMETRIC EQ in several areas. The unit is now equipped with a servo-balanced input and output as a standard. In addition to this feature, phase and noise response, the band switches, the potentiometer characteristics and further technical features have been improved.

The result is a parametric equalizer with absolute top performance.

Applications

- △ PA. systems
- △ Home & professional recording studios
- △ Broadcast, pre & post production

Use the musicality of the Behringer PARAMETRIC EQ in order to support your own musical expression!

Specifications

- △ 5 independent, switchable bands
- △ Phase-compensated state-variable filters
- △ Minimal phase shifting over the entire frequency range
- △ No interaction between the parameters frequency, bandwidth and amplitude ("Constant Q")
- △ Potentiometer response following human hearing characteristics
- △ Bands 1 and 5 switchable to shelf mode
- △ Servo-balanced input and output
- △ Relay-controlled hard-bypass with auto-bypass function during power failure (failsafe relay)
- △ Cut-in delay to avoid switch-on thumps
- △ Signal present and overload LED indicators
- △ Excellent technical data through Behringer operational amplifiers and high-precision components
- △ Noise & hum: -96 dBu (22 Hz - 22 kHz unweighted)
- △ Jack and XLR connectors
- △ Optional high-performance output transformer OT-1 available



* All prices are suggested net prices plus VAT

PRE-Q Model MIC 502

The Microphone Preamp/Level Translator At The Top Of Its Class



EUROPEAN RETAIL PRICE *
MIC 502: DM 520,- + VAT *

With the Behringer PRE-Q we offer a high-quality, extremely low-noise and low-distortion preamplifier designed for the most demanding applications in the field of digital and analogue recording. This dual-channel device provides a combination of those functions most frequently used in practice: level gain and level translation. Useful extra functions will efficiently facilitate your work. Owing to its excellent and low-noise audio quality, the PRE-Q is particularly suited for direct connection to DAT machines or other digital recording equipment.

The Microphone Preamplifier At The Top Of Its Class

The heart of the PRE-Q is a new, extremely low-noise microphone preamplifier circuit providing high transparency in sound. In combination with the Behringer operational amplifiers and a sophisticated circuit design with ultra-low noise and almost unmeasurable distortion, the PRE-Q offers an extremely wide dynamic range of more than 130 dB! A switchable phantom power supply and a 20 dB pad, which reduces the gain of high-level input sources, allow the PRE-Q to operate with almost any kind of microphone.

The Universal Level Translator

In addition to its high-quality microphone amplifier, the PRE-Q also incorporates a separate level translator which can both reduce and increase line-level gain. In this way, it is possible to convert the levels used in home-recording into studio levels so that tape machines, VCR's and other hifi equipment can easily be interfaced with professional devices. This process can also be performed in reverse order, where studio levels can be reduced in gain to match the lower levels used in semi-professional equipment.

User-Oriented Extra Functions

A phase inverter and a tunable high-pass filter are available both for the microphone amplifier and the line-level translator. In contrast to conventional designs using a simple rumble filter with a fixed cut-off frequency, the Behringer PRE-Q includes a tunable high-precision filter with a slope of 12 dB. This feature allows for perfectly adapting the circuitry to different programme sources, thus eliminating low-frequency interference.

Simple Interfacing through Servo-Balancing Circuitry

Like most Behringer equipment, the PRE-Q is equipped with special servo-balancing circuitry. This servo-function is capable of detecting balanced and unbalanced pin assignments and adjusts the output level automatically, thus avoiding level differences. For interfacing the PRE-Q to the outside world, both jack and XLR connectors are available, and three LEDs accurately monitor the output level.

The PRE-Q As A Reference Unit

Do you want to hear the real sound your high-quality microphones produce? Test the PRE-Q, compare it to microphone amplifiers that cost ten times its price, and let your discerning ears decide.

Specifications

- ▲ Microphone Input
 - Type: transformerless, DC decoupled input
 - Input impedance: ≈ 3 kOhms, balanced
 - Gain: +15 to +60 dB
- ▲ Line Input
 - Type: transformerless, DC decoupled input
 - Input impedance: 40 kOhms, balanced
 - Gain: -12 to +12 dB
- ▲ Output
 - Type: servo-balanced output stage
 - Max. output level: +29 dBm, balanced
+23 dBm, unbalanced
- ▲ Noise
 - MIC mode: -99 dBu typ. (20 dB gain, 22 Hz - 22 kHz unweighted)
-72 dBu typ. (60 dB gain)
 - LINE mode: -104 dBu typ. (0 dB gain, 22 Hz - 22 kHz unweighted)
- ▲ -20 dB pad for gain reduction of high-level microphone signals
- ▲ Switchable phantom power (+48 V)
- ▲ Phase switch for inverting the phase
- ▲ Tunable rumble filter (15 to 350 Hz)
- ▲ Level indicators for: -20 dBu, 0 dBu and Clip (+18 dBu)
- ▲ Behringer's extremely low-noise operational amplifiers BE027/037
- ▲ Jack and XLR connectors available
- ▲ Optional high-performance output transformer OT-1 available



* All prices are suggested net prices plus VAT

HEADPHONE AMPLIFIER Model HA 903

The Professional Headphone Distribution System



New Improved Version:

- △ Improved switching matrix
- △ Two separate mixes in Mono mode
- △ High-power amplifiers

EUROPEAN RETAIL PRICE *
HA 903: DM 607,- + VAT *

Featuring switching functions and tonal quality no conventional headphone amplifier can offer, the HEADPHONE AMPLIFIER HA 903 meets all requirements of studio operation. In addition to powerful amplifiers, the unit also offers a unique signal source distribution system.

Excellent Sound Quality

The output stages in Floating Current operation deliver ultimate high-fidelity sound reproduction, even at full power. Conventional amplifiers show a drop-off in quality because distortion increases at high power. The new FCA (*Floating Current Amplifier*) concept - found in high-quality hifi amplifiers - assures minimum distortion in signal transfer and maximum sound fidelity. The result is excellent transparency and definition of the sound reproduction.

The Distribution System

In addition to the high-performance output stages, professional switching functions are available. Each of the three stereo amplifiers can be driven separately or by a common signal source. Each channel can be switched to "Single" mode to select individual inputs, as well as to "Master" mode, where the input is bussed across all output amplifiers. Two master controls determine the level of the common signal.

A completely new feature is the matrix on each channel for mono/stereo switching, as well as left or right output muting.

In Mono mode two different mixes can be applied to the line inputs. As soon as one channel is muted, the signal of the other channel, which is still activated, is automatically routed to BOTH headphone outputs.

Thus, two completely different mixes can be inserted in Mono mode.

In Stereo mode, however, muting one channel means muting the corresponding headphone output. Thus, the received signal can be played back exclusively over the left channel so that the singer can hear his/her own voice on the muted right headphone. Consequently, the performer no longer has to hold the headphones in an awkward half-ear-off position.

Buffered line outputs are included to connect additional headphone amps or to drive external output stages.

All output stages provide output jacks on both the front and rear panels. The front jacks (paralleled with the rear jacks), add considerable flexibility and ease of operation. This feature allows permanent rack-mounting while maintaining instant access to any of the outputs. Front panel connection of headphones also allows you to pre-listen during recording. Each output stage accommodates up to 10 headphones. The minimum output load is 20 Ohms.

A so-called "Direct In" jack is located on the front panel. It is often necessary in the studio to play back a music or click track to the musicians via cassette recorder, which can be done easily and rapidly via the "Direct In" jack. Using this input, the common bus will automatically be disconnected.

Reference Quality In High-Power Technology

We have designed the HEADPHONE AMPLIFIER as a reference device as well as to support you in judging your high-quality mixdowns. The unit also offers you ultra-flexible routing options to comfortably and powerfully feed in playbacks.

A must for your studio!

Specifications

- △ High-power FCA (Floating Current Amplifier) concept
- △ 3 separate stereo power amplifiers
- △ Up to 10 headphones connectable per channel (min. load 20 Ohms)
- △ Output power : +28 dBm
- △ Max. gain : 28 dB
- △ Separate stereo input for each amplifier
- △ All inputs servo-balanced
- △ Toggle switch on each amplifier for single/master signal
- △ Front and rear headphone output jacks
- △ Additional "Direct In" jack on the front panel
- △ Buffered line outputs on the rear panel
- △ LED indicators for master signal "Present" and "Clip"
- △ Master level controls

* All prices are suggested net prices plus VAT



SPLITTER/MIXER Model MX 602

The Super-Flexible Signal Router



37200

EUROPEAN RETAIL PRICES *
MX 602J: DM 433,- + VAT *
MX 602X: DM 520,- + VAT *

Like many Behringer product, the SPLITTER/MIXER model MX 602 has been designed using the competent suggestions made by our customers. This device is a super-flexible "problem solver" in the field of signal distribution. Much like an all-in-one tool, it facilitates virtually unlimited configurations, be it the distribution of a stereo signal to several outputs (*Splitter*), the combination of separate signals on one stereo output (*Mixer*), or the specific level adaption of individual signals (*Buffer Amplifier*): all of these functions can be performed easily - and *simultaneously*.

The Architecture Of The SPLITTER/MIXER

Basically, the unit consists of six single sections, which can be used either as a Splitter or as a Mixer. For instance, a stereo programme source can be inserted via the master input to be subsequently routed to any of the single sections that are set to SPLIT mode. Using the individual MIX/PAN control, the user can - for each section - determine the ratio between the left and right master input signals that are routed to the corresponding output of the section. Thus, the stereo input signal coming from the master section can be distributed as desired among the six single output sections.

In MIX mode, the input signals from the respective section(s) can be mixed on the stereo master output, with the individual MIX/PAN control determining the signal ratio between the left and right master section outputs (pan function). It is of particular advantage in MIX mode that the stereo input signal from the master section is automatically routed to the master outputs. Thus, a total of up to 8 single signals can be combined.

In MIX mode, the input signals are simultaneously applied to the respective single outputs, which allows for using each section as an individual buffer amplifier. The LEVEL controls in the corresponding sections enable the user to adapt the levels at will, with a maximum gain of +12 dB. Levels used in home-recording can therefore be converted into studio levels (+4 dBu), and vice versa.

Typical Applications

The Behringer SPLITTER/MIXER model MX 602 is one of the most flexible systems in the field of mixers and splitters.

The following applications can be realized:

2 IN/6 OUT splitter, 8 IN/2 OUT mixer, 6 IN/6 OUT buffer amplifier or any other combination.

- △ Keyboard submixer
- △ Distribution amplifier for PA systems, discotheques, theatres, churches, hotels, communication systems etc.
- △ Add-on module for mixer channels
- △ Add-on module for effect and monitor paths
- △ Level translator from -10 dBV to +4 dBu etc.

By combining several MX 602 you can set up, for instance, a 24-channel mixer or splitter etc.

And what can the Behringer SPLITTER/MIXER do for you?

Specifications

- △ 6 separately usable splitter/mixer sections
- △ 6 mono inputs
- △ 6 mono outputs
- △ 2 master inputs (splitter)
- △ 2 master outputs (mixer)
- △ Individual LEVEL control per section
- △ Individual MIX/PAN control per section
- △ Master LEVEL input control (splitter)
- △ Master LEVEL output control (mixer)
- △ Servo-balanced inputs
- △ Maximum gain : +12 dB (any input to any output)
- △ Frequency response : 10 Hz to 50 kHz (+/-1 dB)
- △ THD : +0.006 % (+4 dBu)
- △ Noise (mono output) : -95 dBu (22 Hz to 22 kHz)
- △ Maximum input level : +21 dBu
- △ Input impedance : 60 kOhms (balanced)
- △ Maximum output level : +21 dBu
- △ Output impedance : 40 Ohms
- △ Behringer's extremely low-noise operational amplifiers BE027/037
- △ Optional high-performance output transformer OT-1 available

- △ Jack connectors, model MX 602J
- △ XLR connectors, model MX 602X



* All prices are suggested net prices plus VAT

PRODUCT INTRODUCTIONS 1993/94

Further interesting products are under development in the 19" range. This page gives you a brief introduction.

SURROUND PROCESSOR Model SPX 2000

The 5-Channel Surround Processor Integrating The Dolby® Pro Logic System



59700

EUROPEAN RETAIL PRICE *
SPX 2000: DM 694,- + VAT *
(Available Now!)

Do you want to turn your living room into a cinema, and experience your video or TV movies "live"? Then you should listen to our SURROUND PROCESSOR model SPX 2000. This device integrates the original Dolby Pro Logic system, which is used in most cinemas. Any video movie or laser disc etc. which has been encoded using the Dolby Pro Logic system, can be decoded with the SURROUND PROCESSOR. The unit brings the exciting cinema atmosphere into your living room, with spatial resolution providing a three-dimensional sound experience. On-board power amplifiers allow for direct connection of three additional loudspeakers. The existing stereo loudspeakers are complemented by an additional center speaker, and two background speakers deliver the spatial

deliver the spatial background information.

Enjoy The Third Dimension Of Your Mono/Stereo Recordings

In addition to Dolby Surround recordings, you can also process normal mono or stereo programme material. The Matrix mode creates artificial stereo signal from any mono source and the Hall mode adds three-dimensional room acoustics to any programme material. A wireless remote control, subwoofer outputs and a comprehensive array of LED indicators complete this professional device.

Experience three-dimensional transparency!

MULTICOM Model MDX 2400

The Interactive Quad Compressor/Limiter



EUROPEAN RETAIL PRICE *
MDX 2400: DM 694,- + VAT *
(Available December '93)

Quad compressors are basically not a new invention. In most cases, four single compressors are packed into one enclosure. This however, represents a compromise in terms of operational possibilities and functionality. If too many controls are integrated, the unit is difficult to operate, and if control functions are lacking, the operational range is restricted.

The Behringer MULTICOM is a quad compressor/limiter of maximum functionality paired with ease of operation. Based on the successful Interactive Technology, attack and release times are automatically derived from the programme material and provide you with transparent and "inaudible" compression. In 1U package the unit consists of four independent high-precision compressor sections, each offering all the required controls: Threshold, Ratio

and Output, as well as a switchable Soft/Hard Knee mode.

The "Soft Knee" mode with its "soft" control characteristics is the basis of the "inaudible" and "musical" compression of the programme material, while the "Hard Knee" function is a prerequisite both for creative and efficient dynamics processing and for limiting signal peaks reliably and precisely.

Applications

With rack space at a premium both in the studio and in sound reinforcement, the MULTICOM's unique high density design and clean uncluttered layout make it a truly useful audio tool for all applications. The MULTICOM is a perfect and extremely cost-effective solution for all your multi-channel dynamic applications.

SUPER X Model CX 2300

High-Precision Crossover With Limiters



EUROPEAN RETAIL PRICE *
CX 2300: DM 694,- + VAT *
(Available January '94)

The SUPER X model CX 2300 is a 2-way stereo / 3-way mono crossover providing unmatched precision and features. Linkwitz-Riley filters feature 24 dB/oct. rolloff slope with a tolerance of 2% enable an unmatched frequency separation. New circuitry guarantees that all outputs are phase and amplitude compensated at any given frequency. Recognizing the need in large multi-way sound reinforcement systems for control of signal peaks which can exceed a driver's power handling ability, each band of the SUPER X

includes a fast-acting hard limiter. These limiters not only protect expensive drivers from damage but also stop distortion-causing transients, while having minimum effect on the rest of the programme.

Further features are: Switchable 2-way stereo / 3-way mono mode incl. LED displays, clip-led for monitoring the input level, 15 Hz low-cut filter, Mute functions, adjustable delays, mono subwoofer output, CD horn equalization, servo-balanced inputs and outputs etc.

Specifications, circuit designs, appearance, prices etc. subject to change without prior notice.
Dolby, Dolby Surround and Dolby Pro Logic are registered trademarks of Dolby Laboratories

BEHRINGER AUDIO TUNING

With the IC's BE027 and BE037, the Behringer company presents a new generation of operational amplifiers specially designed to meet audio-quality criteria. These high-grade units feature ultra-low noise, distortion that can hardly be measured, excellent audio characteristics and low power consumption.

Behringer's OpAmps Are Compatible

The dual operational amplifier BE027 and the quad unit BE037 are pin-compatible with the majority of conventional components, and can therefore be exchanged without the need for modifying the circuitry. See overleaf for further technical details.

Which Devices Can Be Upgraded

The inherent noise of an audio system is in most cases determined by the amplifying components. For instance, the gain factor to amplify a microphone signal to line level is approximately 80 dB, so the amplitude is amplified by factor of 10,000. As a consequence, the inherent noise of the operational amplifiers is raised by the same amount, i.e., the amplifying components in the circuit have to meet extremely high demands.

The noise-reducing effect provided by Behringer IC's is particularly apparent in any kind of circuitry where signals are heavily amplified.

If, however, the circuit design of the device is less than perfect or if the IC's are not employed in their optimum operating range, no improvements can be achieved. Of course, quantization noise, as can be found in synthesizers, or any noise produced by other sources cannot be reduced.

What Are The Benefits Of Behringer IC's?

- * substantial reduction of noise in audio systems, such as mixing consoles etc.
- * better audio neutrality owing to ultra-low distortion
- * improved sound, e.g., of filter circuits
- * low power consumption reduces the load on the power supply
- * drastically reduced generation of heat, e.g., in mixing consoles

Leading manufacturers of mixing consoles use Behringer IC's. Retrofit your mixer, effects devices or other audio systems and save money. See overleaf for replacement types.

About Transformer-Balancing Circuitry

A balanced transmission is used to suppress hum and other interference noise that might be induced into cable paths. In comparison to electronic-balancing circuits, transformer-balancing circuitry offers two decisive advantages: Firstly the galvanic separation of a transformer provides a complete electrical separation of the circuits, and secondly allows for a floating transmission, which excludes mains hum caused by ground loops. This transformer-balancing circuitry is the general standard both in the field of broadcast and TV and in the professional audio studios. The requirements which the transformer has to fulfill are listed in the so-called IRT standard; up to now, transformers designed to comply with this standard have usually been very expensive.

The Behringer Transformer OT-1

With the OT-1, the Behringer company offers an inexpensive transformer that exceeds the IRT standard in all respects. When designing this component, we focused our attention on a neutral sound and extremely low distortion. An additional mu-metal shield effectively protects the unit against interference caused by induction. The OT-1 is designed for installation on a PCB, however, can also be installed as a separate component.



What The Press Says:

SOUND ON SOUND MAGAZINE - OCT. 93 (Author: Wilf Smarties)

"When I reviewed the 1992 crop, I said that this German company produces analogue dynamics and equalisation processors to a high specification and build quality, but at modest cost."

Last time around I was so impressed with what I saw and heard, I ended up buying some of the review models, and these have served me very well (the constant-Q equaliser PEQ-305, the Autocom compressor MDX 402 and the Dualfex exciter EX 802)."

COMPOSER MDX 2000

"Conclusion. As far as affordable fully functioned stereo compressors go, this one is in a class of it's own. The Composer is just what these premises have been waiting for. It'll be the new industry standard."

INTELLIGATE XR 2000

"Conclusion. With a specification that exceeds those of it's competitors in many respects (2-3 microseconds attack time!) and a price that lies below many, the Intelligate should find it's niche."

ULTRAFEX EX 3000

"Conclusion. I had already decided to swop my Dualfex for a Multifex when the Ultrafex arrived at my studio. No question, this is the one for me. It does rather a lot rather well. I shall be taking it out on the road soon, where it will give an edge to our sound in the clubs. It is certainly capable of enhancing your average mix. More often than not I found myself using all 4 functions (Exciter, Bass Processor, Noise Reduction, Surround Processor) simultaneously when bouncing older mixes through it. I'm convinced. Go Ultra!"

Overall Conclusion

"Once again the Behringer company has impressed me with their attention to audio performance and processing relevance. Of the eight units up to review, I have decided to trade up to two (Composer and Ultrafex) and to add a further 2 to my own inventory, the PRE-Q and Suppressor. If I still had a commercial studio I'd lose no time in getting in an Autoquad. The Combinator is a pricey 4-band stereo compressor which should enable cutting rooms and radio stations to pump up the volume without the usual pumping, and the quantly named Edison promises to be a rival to the Q-sound and Roland RSS 3-D systems at about one zillionth of their price."

Recomendations:

Intelligate XR 2000 recommended for discerning uses

Autoquad XR 2400 recommended for all studios

Composer MDX 2000 recommended for everyone

Ultrafex EX 3000 recommended for mix enlightening

Bassfex EX 1000 recommended for club and PA systems

FACHBLATT MUSIK MAGAZINE (Author: Christoph Bonk)

"The ULTRAFEX is the todays best audio enhancer on the market. It offers an incredible sound improvement for a sensational price!"

Mike Joseph - Editor REP, March 1992

"Simply lovely. Smiles all around. Room agreement was unanimous: We want this DENOISER on all our tracks."

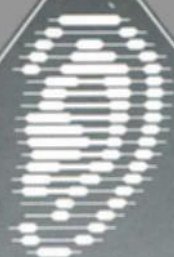
Walter Murch - Film Editor and Music Mixer, LucasArts/Skywalker Sound

"I have used similar "single-ended" devices on the mixes of "Ghost" and "Godfather III" and found the Behringer DENOISER to be superior in every category - from eas of operation to final result.

Consequently, I am - without hesitation - recommending to LucasArts/Skywalker Sound that they buy at least four channels of Behringer DENOISER for each mixing console here and in Los Angeles; a total of twelve mxing rooms."

Robert Scovill - Sound Engineer/Mixer, Rush/Def Leppard

"If the phrase noise floor is in your vocabulary and you would prefer that is was not, get a Behringer DENOISER to the top of your got-to-have list."



BEHRINGER®

Specialized Studio Equipment Ltd.

