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You can read the recommendations in the user guide, the technical guide or the installation guide for BEHRINGER GX212. You'll find the answers to all your questions on the BEHRINGER GX212 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual BEHRINGER GX212
User guide BEHRINGER GX212
Operating instructions BEHRINGER GX212
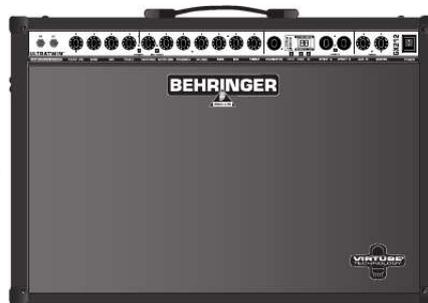**Instructions for use BEHRINGER GX212**
Instruction manual BEHRINGER GX212

GX212

User's Manual

ENGLISH

Version 1.0   May 2001

ULTRATWIN®

BEHRINGER

VINTUBE

BEHRINGER
INSTRUMENT AMPLIFICATION

Manual abstract:

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

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

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

2 ULTRATWIN GX212 FOREWORD Dear Customer, Welcome to the team of ULTRATWIN users and thank you very much for expressing your confidence in BEHRINGER products by purchasing the GX212. It is one of my most pleasant tasks to write this letter to you, because it is the culmination of many months of hard work delivered by our engineering team to reach a very ambitious goal: To present you with a really out-of-the-ordinary guitar workstation, which fully satisfies your and our expectations and delivers a superior sound quality, easy operation and technical specifications. In addition to that the guitar workstation is affordable for almost every musician. The task to design the ULTRATWIN certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. It also meant a lot of work and night shifts to accomplish this goal. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when everybody who participated in such a project can be proud of what weve achieved. It is our philosophy to share our joy with you, because you are the most important member of the BEHRINGER family. With your highly competent suggestions for new products youve greatly contributed to shaping our company and making it successful. In return, we guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely favorable price.

All of this will enable you to fully unfold your creativity without being hampered by budget constraints. We are often asked how we can make it possible to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: its you, our customers! Many satisfied customers, mean large sales volumes enabling us to get better conditions of purchase for components, etc. Isnt it only fair to pass this benefit back to you? Because we know that your success is our success too! I would like to thank the following people, whose help on Project ULTRATWIN GX212 has made it all possible: s The existing users of BEHRINGER equipment, whose comments and suggestions have made them the most important members of the BEHRINGER design team, s Jan, whose passionate work has made the ULRATWIN a revolutionary vintage guitar workstation, s Thorsten who designed this marvelous manual, s Volker for the fine mechanics, s and all the others, who have made very personal contributions. My friends, its been worth the trouble! Thank you very much, Uli Behringer 3 ULTRATWIN GX212 ULTRATWIN ® Ultra-flexible 2 x 60 Watt Guitar Workstation with Digital Multi-Effects Processor s Powerful 2 x 60 Watt RMS Guitar Workstation with authentic VIRTUBE® tube emulation s Two original 100 Watt heavy duty SHARK 12" guitar speakers model 12G100A s Two independent channels with separate volume controls, EQ and effects s CLEAN channel delivers clean and slightly distorted tube sounds s OVERDRIVE channel offers a broad range, from modern crunch to high-gain sounds s Unique Morphing control allows blending between various distortion characteristics s Dedicated vintage-type 3-band EQ s 24-bit stereo multi-effects processor with ultra-high resolution 24-bit AD/DA converters s 31 original VIRTUALIZER®/MODULIZER® presets with world-class effects such as Reverb, Delay, Phaser, Chorus, Flanger, Pitch Shifter, Speaker Simulator, Rotary Speaker, Magic Drive, Compressor, Expander, Wah, Tube Emulator and various effect combinations s 99 outstanding and easy-to-edit user presets s Quasi-analog operation: three FX parameters per preset can be edited with dedicated controls s Adjustable aux and tape input for playback or other line-level signals (e.g. CD player, drum computer, etc.) s Frequency-corrected stereo line output for recording and live applications s Additional speaker outputs s Insert facility for external effects devices (stomp boxes, wah-wah pedals, etc.) s Channel select and effect bypass footswitch FS112 included s Complete MIDI implementation for channel and effect selection as well as real time control s Master volume control and frequency-corrected stereo headphones output s Extremely rugged construction ensures long life, even under the most demanding conditions s Robust power supply ensures excellent transient response s Manufactured under ISO9000 certified management system 4 GX212 ULTRATWIN GX212 TABLE OF CONTENTS 1.

WARNING! + It should be pointed out, that extreme output volumes may damage your ears and/or your headphones. Turn down all LEVEL controls before you switch on the unit.

Always pay attention to an appropriate volume. 5 ULTRATWIN GX212 1. INTRODUCTION Thank you very much for expressing your confidence in BEHRINGER products by purchasing the ULTRATWIN GX212. With the ULTRATWIN, you have acquired a modern guitar workstation that sets new standards in guitar amp engineering. When developing the GX212, our top objective was to reproduce the authentic sound of classic guitar amps as perfectly as we could and combine it with latest DSP technology while focusing on a user interface that can be operated intuitively.

BEHRINGER is an audio engineering company that has been successfully developing products for studio and live applications for many years now. Our range of products includes microphones and a variety of 19" devices (compressors, enhancers, gates, tube processors, headphone amps, digital effects devices, DI boxes, etc.) as well as various monitoring and P.A. speakers plus professional live and recordigently selected elements. The ULTRATWIN uses SMD technology (Surface Mounted Device). These subminiature components adapted from aerospace technology allow for an extreme packing density to further improve the overall reliability. The super-robust steel-plate enclosure of your ULTRATWIN, with its generously dimensioned power supply, ensures that your GX212 will never fail on the stage even when the going gets tough. The enclosure is made of high-grade and non-polluting E1-MDF wood, which consists of multiple tongued/glued layers and is absolutely free of formaldehyde. 1.

1.1 VIRTUBE technology Tube preamps usually employ three to five triode stages in a series configuration, producing different degrees of distortion, dynamic compression and frequency response modification. In addition to the characteristic curve that determines the signal distortion, the order of filter and distortion stages also plays an important role. While you can enhance the sound of clean and slightly distorted signals by adding some bass before feeding them into the distortion stage, the same equalization will lead to a fuzz-like, undifferentiated sound with hi-gain signals. For this reason, tube amplifiers have some sort of passive and usually straightforward filter circuitry installed between the single preamp stages. Using these filters you can determine which frequencies will have an impact on the signal distortion. Additionally, filter circuits following the distortion stage serve to provide for an optimum blend of generated upper harmonics in the output signal. Our VIRTUBE circuits have been designed to accurately simulate this complex interaction with solid-state components. The EQs and filters between the single stages are modeled on the circuitry found in classic tube amps. The non-linear characteristic curves are simulated by means of specially selected diodes.

The result is an amplifier whose sounds feature a pronounced tube character. 1.1.2 Morphing The BEHRINGER ULTRATWIN amplifiers are equipped with a special circuit that gives you enormous flexibility using the overdrive channel. Owing to the rich upper harmonics spectrum of distorted sounds, the

subsequent filter circuits have quite a drastic effect on the overall sound, which is why it seemed only natural to allow for a variety of creative filter options. Therefore, the BEHRINGER morphing circuit uses a tunable filter in addition to a classic 3-band EQ and dedicated presence control. This filter allows you to create new sound nuances that would be impossible with traditional passive EQs. Add to this the mid boost button, the overdrive control, the musically aligned presence control and the passive 3-band EQ, and youll have a range of fantastic options available to tailor the sound perfectly to your personal needs. 1.2 Before you begin Your BEHRINGER ULTRATWIN was carefully packed in the factory and the packaging is designed to protect the unit from rough handling.

Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred during transit. + If the unit is damaged, please do not return it to BEHRINGER, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee. Be sure that there is enough space around the unit for cooling and please do not place the ULTRATWIN on high temperature devices such as radiators etc. to avoid overheating. + Before you connect your ULTRATWIN to the mains, please make sure that your local voltage matches the voltage required by the unit! 1. INTRODUCTION 7 ULTRATWIN GX212 The mains connection of the ULTRATWIN is made by using the enclosed mains cable and a standard IEC receptacle. It meets all of the international safety certification requirements. + Please make sure that all units have a proper ground connection. For your own safety, never remove or disable the ground conductor of the unit or of the AC power cable.

The MIDI connection (IN) is made over standardized DIN plug-in connectors. An optocoupler has been used for isolated data communications. You will find additional information in chapter 5 INSTALLATION. 1.3 Control elements Fig. 1.1: The front panel of the ULTRATWIN GX212 The BEHRINGER ULTRATWIN GX212 features 16 controls, six push-buttons and one 2-digit, 7-segment LED display on its front panel. Additionally, there are two 1/4" jacks for input. 1.3.

1 Front panel Fig. 1.2: The front panel control elements 1 These are the ULTRATWINs 1/4" PHONE JACK INPUTS to which you can connect your guitar. The HI INPUT has been designed for low-output guitars (e.g.

those equipped with single coil pickups), while the LO INPUT should be used for guitars with very high output power (e.g. guitars with humbuckers). Use a commercial 1/4" mono cable (please no DIY (Do It Yourself), better ask your specialized retailer), with good mechanical and electrical shielding, so as to avoid unpleasant surprises during rehearsals or concerts.

The CLEAN channels CLEAN VOLUME control determines the volume of the clean channel.

The BASS control in the EQ section allows you to boost or cut the bass frequencies in the CLEAN channel. With the MID control you can boost/cut the midrange frequencies in the CLEAN channel. The TREBLE control adjusts the CLEAN channels upper frequency range. Please note that with all three EQ controls in the CLEAN channel set fully to the left, there will be no signal sent to the speaker, which is due to the classical and extremely efficient EQ circuit used in the ULTRATWIN. Press the CHANNEL button to toggle between the CLEAN and OVERDRIVE channels. When the OVERDRIVE channel is on, the associated LED lights up. Use the OVERDRIVE control to determine the degree of distortion in the OVERDRIVE channel. 1. INTRODUCTION 2 3 4 5 + 6 7 8 ULTRATWIN GX212 8 9 10 11 The MID BOOST button allows you to raise the midrange frequencies in the OVERDRIVE channel. When the button is on, the associated control LED lights up.

Use the MORPHING control to crossfade between the various distortion characteristics available. The PRESENCE control allows you to boost/cut the high midrange frequencies of the OVERDRIVE channel. The VOLUME control adjusts the volume of the OVERDRIVE channel. Use both VOLUME controls to optimize the volume ratio of the two channels, so that no volume differences can be heard when switching from one channel to the other. This setting is also effective on the level-dependent digital effects! The BASS control in the EQ section allows you to boost/cut the bass frequencies in the OVERDRIVE channel. With the MID control you can boost/cut the midrange frequencies in the OVERDRIVE channel. The TREBLE control adjusts the OVERDRIVE channels upper frequency range. Please note that with all three EQ controls in the OVERDRIVE channel set fully to the left, there will be no signal sent to the speaker, which is due to the classical and extremely efficient EQ circuit used in the ULTRATWIN. The PARAMETER control allows you to edit one effect-specific parameter. Once selected with the PARAMETER control, its value is displayed and the associated LED lights up (see).

The STATUS LEDs inform you about the type of parameter you can edit with the PARAMETER control (an exception being the MIDI LED). + 12 13 14 + 15 16 s MIDI: This LED lights up when you press both UP and DOWN buttons for about two seconds. Subsequently, you can use these buttons to set up a MIDI channel for MIDI data reception (1 through 16, ON = Omni and OF = off, or ON = Omni and 1 through 16 plus one decimal point each = Store Enable mode, see chapter 3.2.1).

Press the ENTER button to confirm your selection. The MIDI LED flashes as soon as MIDI data is being received. + + The Store Enable mode (see chapter 3.2.1) allows you to store presets directly via MIDI.

Please note that by sending MIDI control #18 values, any changes made to the currently active preset will be permanently stored. Whenever the multi-functional MIDI LED flashes and the unit is not in edit mode, this indicates that the DSP modules output level is close to distortion. In this case, you should turn down the VOLUME control a bit. s TIME: This LED lights up when you select a time-domain effect parameter (e.g. reverb or delay time). s SPEED: This LED lights up for all modulation effects and indicates the LFO speed (low-frequency oscillator) or the speed parameter of compress/expander. s SENS: This LED informs you that you can adjust the sensitivity of effects such as Auto-Wah, Expander, Compressor. s PITCH: This LED lights up when you edit the pitch shifter, and shows the detune factor, either in semi-tones or cents. s EQ: This LED lights up when you edit the parameters of a filter-based effect.

The built-in effects module features 31 different effect groups and includes a total of 99 effect variations. 17 18 The DISPLAY reads either the program number of the selected preset or the value of the parameter selected with the PARAMETER, EFFECT A or EFFECT B controls. Use the ENTER button to confirm your program selection. When the MIDI functions are inactive, one effect can be stored for each of the two channels on your ULTRATWIN, which allows for instance, to select a DELAY effect for the OVERDRIVE channel and assign a REVERB/CHORUS effect to the CLEAN channel. The corresponding program 1. INTRODUCTION 9 + ULTRATWIN GX212 numbers will be stored with the channels and can be recalled using the footswitch or the front panel buttons. When MIDI is on, this assignment feature will be disabled, so that in this mode both channels and effects can be selected separately. 19 20 The DOWN button allows you to decrement the program number. With the UP button you can increment the program number of the built-in effects module. Keep the button pressed to scroll through the programs.

When you start editing a preset, the decimal point in the 2-digit display starts flashing. Press the ENTER button for a while to overwrite the factory preset and save your own effect setting. To restore the factory presets, simply press and keep the ENTER button while you switch on your ULTRATWIN. The EFFECT A control determines the ratio of original and effect signals. Depending on the preset selected, you can either control the ratio of original and left-channel effect signals, or of original and first-effect signals (combination effects).

Some effects use this control to edit a second, effect-specific parameter. Use the EFFECTS button to activate/deactivate the selected effect. The EFFECT B control determines the mix of original and effect signals. Depending on the preset selected, you can either control the ratio of original to right-channel effect signals, or of original to secondary-effect signals (combination effects). Some effects use this control to edit a third, effectspecific parameter.

The AUX IN control in the Master section determines the volume of the AUX signal fed in via the AUX IN jacks on the rear of the ULTRATWIN (e.g. drum computer, playback). The POWER LED lights up when you switch on your ULTRATWIN. The MASTER control in the Master section determines the overall volume level of your ULTRATWIN. Use the POWER switch to put the ULTRATWIN into operation. + 21 22 23 24 25 26 27 1.3.2 Rear panel Fig. 1.

3: The rear panel connectors 28 FUSE HOLDER/VOLTAGE SELECTOR. Please make sure that the voltage indicated on the unit matches your local voltage, before you attempt to connect and operate the ULTRATWIN GX212. Blown fuses may only be replaced by fuses of the same type and rating. Some models allow for inserting the fuse holder in two different positions, in order to switch over from 230 V to 115 V operation, and vice versa. Please note that for 115 V operation outside Europe, you need to use a fuse of a higher rating (see chapter 5 INSTALLATION). Use the enclosed power cord to connect the unit to the mains. MIDI IN. This connector gives you MIDI remote control over your ULTRATWIN. You can change parameters using controller information, switch over effect programs, change channels and bypass the effects module by means of program change instructions.

Please take the time to have the warranty card filled out completely by your specialized dealer, and return it within 14 days after the date of purchase, so as to be entitled to benefit from our extended warranty. 1. INTRODUCTION 29 30 31 10 ULTRATWIN GX212 32 The connectors EXT. LEFT and EXT. RIGHT allow for connecting external loudspeakers.

Please always connect speakers with a minimum resistance of 4 W. Maximum power will be delivered if 8 W speakers are connected. Push down the INTERNAL OFF button (see) to operate external speakers. Use the INTERNAL OFF switch to mute the internal speakers of your ULTRATWIN, in particular, when monitoring the amp with a pair of headphones. When external speakers are connected, you need to push down this switch to re-route the audio signal. You can also use the SPK OFF switch to mute the speakers during a concert. The 1/4" stereo jack allows you to monitor the ULTRATWINs audio signal with a pair of commercially available headphones. Since speakers can have quite an impact on the sound of a guitar amp, both the headphones and LINE OUT/TAPE OUT signals are frequency-corrected (Speaker Emulation). Without this frequency correction, extreme treble frequencies would deteriorate the sound. You can still tap the unprocessed signal directly after the pre-amp (INSERT SEND jack), without interrupting the signal path in the amplifier (INSERT RETURN jack may not be used in this case). Starting with a certain volume level, low-impedance headphones may begin to produce distortion. In such a case, please reduce the volume by turning down the VOLUME controls. Using the SLAVE IN jacks you can feed in an external signal to be routed to the ULTRATWINs power stage. In this case, the connection between preamp and power stage will be disabled. These jacks are designed to drive a master guitar amp from the ULTRATWINs power stage.

Of course, you could also insert a guitar preamp. Since the SLAVE IN jacks are configured as insert jacks, you can also insert an external stereo effects device. Use a dedicated insert cable which has a 1/4" stereo plug on the one end, and two mono plugs on the other. Connect the tip contact (return) with the output, and the ring contact (send) with the input of the effects device (see chapter 2.3). The TAPE OUT jack provides the same signal as the LINE OUT jacks, however, has RCA jacks for direct connection to a tape deck or HiFi system. The TAPE IN jacks are the same as the AUX IN, however, have RCA jacks for direct connection to a tape deck or a HiFi system. The LINE OUT provides the ULTRATWINs audio signal in stereo, for example, to send it to a recording machine. This output is frequency-corrected (Speaker Emulation). The AUX IN allows you to feed in additional stereo signals, for example, to play with a drum computer or some sort of playback.

Additionally, you can use the AUX IN in combination with the INSERT SEND as a parallel effect path: connect the INSERT SEND to the input and the AUX IN to the output of the effects device (INSERT RETURN jack should not be used in this case!). Thus, the signal path in the amplifier will not be interrupted and you can add the effect portion from the external device, using the AUX control described in point . Please note that the external effects device must be set to 100 % wet for this purpose. The ULTRATWIN also features a serial insert path for external effects such as a wah-wah pedal. This is the INSERT SEND jack you need to connect to the input of the effects device.

This is the INSERT RETURN jack that can be connected to the output of an external effects device. Please note that when using the serial effects path, the external effect should not be set to 100 % wet (100 % effect signal); otherwise, there will be no direct signal portion fed back to the ULTRATWIN. Connect the enclosed footswitch FS112 via its stereo plug to the FOOTSWITCH jack. The footswitch allows you to change channels or disable the effects module. 33 34 + 35 + 36 37 38 39 40 41 + 42 1.

INTRODUCTION 11 ULTRATWIN GX212 2. WIRING EXAMPLES 2.1 Standard setup consisting of guitar, footswitch and external effects device To use your ULTRATWIN for rehearsals or on stage, please wire up the unit as shown in fig. 2.1. Of course, you can also use a wah-wah or other pedal effect instead of the external 19" effects unit, or simply work with the internal effects without having to use the insert path at all. Connecting the headphones will mute the built-in speaker. When you wish to use a guitar tuner, please connect it to the INSERT SEND of your ULTRATWIN. If there is no further effects device connected, you can leave the INSERT RETURN as it is. However, to use an external effects device, place the tuner before the effects in the signal chain, so that it works on unprocessed signals only.

Fig. 2.1: Standard setup 2.2 Expanded setup with MIDI foot controller, playback source and mixing console To use your ULTRATWIN for advanced applications, please consider the following suggestions. Of course, the expanded configuration suggested in fig. 2.2. builds on the standard setup described in chapter 2.1. Use the MIDI foot controller to change presets and/or channels, set volume and wah, etc.

The line out signal can be fed into a P.A. or recording console, and the AUX input can be used to play back e.g. cassette recorder signals through the GX212. 12 2. WIRING EXAMPLES ULTRATWIN GX212 Fig. 2.2: Expanded setup 2.3 Master/slave setup 2.

3.1 The ULTRATWIN GX212 as master The SLAVE IN jacks can also be used to amplify the ULTRATWINs signal with an additional power amp. Use two conventional instrument cables (one conductor plus shielding) having a mono 1/4" plug on the one end, and a stereo 1/4" plug on the other. On the stereo plug, tip and ring should be bridged. To route the ULTRATWINs audio signal to the external power amp, connect the stereo plug to the SLAVE IN jacks and the mono plug to the power amp input jacks. Fig. 2.3: The ULTRATWIN GX212 as master 2.3.2 The ULTRATWIN GX212 as slave, driven by an external amp/preamp To operate the stereo power stage of your ULTRATWIN from an external amplifier/preamp, connect the line outputs of the external amp to the SLAVE IN jacks on the GX212.

Use conventional instrument cables with mono 1/4" plug. If you use a mono preamp, its signal should be split up among the two SLAVE IN inputs of your ULTRATWIN, using a commercial Y cable. 2. WIRING EXAMPLES 13 ULTRATWIN GX212 3. EFFECTS PROCESSOR A very special feature of your ULTRATWIN is its built-in effects processor, which offers the same audio quality and algorithms as our popular 19" effects devices VIRTUALIZER PRO and MODULIZER PRO. This effects module provides 31 different groups of first-class effects such as reverb, chorus, flanger, delay, pitch shifter, compressor, expander, wah-wah variations, various combination effects and even tube and speaker emulation. The latter, in particular, can make a guitarists life much easier in home recording studios, because they allow you to record the amps signal without having to use a microphone.

A total of 99 presets gives you a broad range of versatile effects, which can be edited in three parameters each. Additionally, the multi-effects processor provides different effects variations, which are permanently linked to the presets. All presets can be overwritten with your own settings.

To restore the factory default settings, simply keep the ENTER button pressed while you power up the ULTRATWIN. The two buttons UP and DOWN allow you to select a preset. To activate the selected preset, simply press the ENTER button. The display reads the number of the currently active preset (the list on the effect module shows the various effect groups available). As soon as you edit a preset with the PARAMETER, EFFECT A and EFFECT B controls, the display will read the respective parameter values.

After about three seconds or when you press ENTER, UP or DOWN, the display will switch back to the program number. Whenever a parameter has been changed, the decimal point in the 2-digit display starts flashing. To save your edits and overwrite the existing preset, simply press the ENTER button for about two seconds. The EFFECT A and EFFECT B controls determine (with a few exceptions) the mix of original and effect signals. EFFECT A controls the left channel and/or the first effect (if combination effects are used), and EFFECT B adjusts the right channel and/or the second effect.

As a rule of thumb, values between 20 % (moderate effect) and 40 % (clearly audible effect) should deliver good results. In the case of reverb and delay presets, the mix ratio is adjustable from 0 % through 50 % in steps of 1 %. 3.1 Description of effects 01-02 Spring Reverb: Even a guitar amp with a digital multi-effects processor should allow you to use a spring reverb. This algorithm emulates the typical sound of a spring reverb, as it is known from numerous guitar amps. However, here you dont have the typical shatter sound when your amp gets knocked over. 03-04 Studio: This effect simulates the characteristics of middle-sized rooms. @@@@@07-08 Stage: A fine reverb e.g. to liven up and widen a clean guitar.

@@@@11-12 Plate: The sound of an ancient plate reverb. @@EFFECTS PROCESSOR ULTRATWIN GX212 Preset-Nr. @@@@@@@@@@@The higher this value, the less reverb you will hear. EFFECT B governs the mix of original and reverb signals. The PARAMETER control adjusts the reverb and gate times. Preset-Nr. Effect 13 GATED 14 REVERB Variation min. Density max. @@@@This algorithm emulates the first 15 of these early reflections. @@@@@@Effect Variation PARAMETER EFFECT A EFFECT B 15 min.

Reflections Room Size Pre-Delay Mix AMBIENCE 16 max. Reflections Room Size Pre-Delay Mix Tab. 3.3: Parameters of effects 15 and 16 3. @@@@@@Use the PARAMETER control to adjust the delay time.

@@With EFFECT B you can edit the delay mix. @@via a MIDI foot controller. In this way, it is possible to use the wah effect like an analog wah foot pedal. Preset-Nr. Effect Variation PARAMETER EFFECT A 17 Feedback 0 % Delay Time Drive WAH / DELAY / 18 Feedback 10 % Delay Time Drive DISTORTION Feedback 30 % Delay Time 19 Drive EFFECT B Delay Mix Delay Mix Delay Mix Tab.

3.4: Parameters of effects 17 through 19 20 Delay/Reverb: This effect produces a normal delay with adjustable delay time that passes a reverb whose mix ratio can be edited. Preset-Nr. Effect 20 DELAY / REVERB Variation PARAMETER EFFECT A EFFECT B Delay Time Delay Mix Reverb Mix Tab. 3.5: Parameters of effect 20 21-29 Delay: This algorithm delays the input signal and generates several repeats. The first five presets (21 through 24) produce a stereo delay, with the PARAMETER control setting the delay time for the right channel. The left channels delay time is 2/3 as long as that on the right side. As usual, EFFECT A and EFFECT B determine the mix of original and effect signals. Delay presets 25 through 29 offer long mono delay, which can be adjusted in their delay time (PARAMETER control), delay feedback (repeats, EFFECT A) and delay mix parameters (EFFECT B).

Preset-Nr. Effect Variation 21 min. Feedback 22 DELAY (stereo) 23 24 max. Feedback 25 26 DELAY 27 (long mono) 28 29 PARAMETER Delay Time R Delay Time R Delay Time R Delay Time R Delay Time Delay Time Delay Time Delay Time Delay Time EFFECT A EFFECT B Mix L Mix R Mix L Mix R Mix L Mix R Mix L Mix R Feedback Mix Feedback Mix Feedback Mix Feedback Mix Feedback Mix Tab. 3.6: Parameters of effects 21 through 29 16 3. EFFECTS PROCESSOR ULTRATWIN GX212 The LFO speed of all modulation effects is controlled by the PARAMETER control. EFFECT A controls the effect intensity or depth. High values produce a very intensive effect. In the case of the tremolo algorithm, EFFECT A adjusts the panning between left and right, and vice versa.

30-33 Phaser: From a technical point of view, phasing is a modulation effect producing a multi-stage phase shift between direct and effect signals. As the frequency-dependent phase shift is controlled by an LFO (low-frequency oscillator), the various frequency ranges of the signal are raised or lowered in their amplitudes. Depending on the setting you choose, the resulting phasing effect is either slightly modulating in character or produces heavy sound coloration reminiscent of a continuously modulated filter. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 30 Feedback 0 % LFO Speed Depth Mix 31 Feedback 62 % LFO Speed Depth Mix PHASER 32 Feedback 62 % LFO Speed Depth Mix 33 Feedback 77 % LFO Speed Depth Mix Tab.

3.7: Parameters of effects 30 through 33 34-37 Chorus: Imagine a string quartet, with each musician playing the same notes. As a matter of fact though, no musician is able to play with an intonation accuracy of 100%. Consequently, slightly detuned signal portions are produced which overlap in the time domain. To emulate this effect, chorusing uses copies of the original signal, which are then delayed by 20 to 40 msec, detuned slightly and modulated by the LFO. The result is a detune effect that is very pleasant in character. As this effect is used so frequently and in such a variety of signal-widening applications, any recommendation given here would mean a restriction of its uses. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 34 fat LFO Speed Depth Mix 35 slow LFO Speed Depth Mix CHORUS 36 stereo LFO Speed Depth Mix 37 stereo LFO Speed Depth Mix Tab. 3.8: Parameters of effects 34 through 37 38-42 Chorus/Reverb: Here, the signal passes a chorus effect with various intensities and then a reverb that can be edited in time. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 38 ultra Reverb Time Chorus Mix Reverb Mix 39 slow Reverb Time Chorus Mix Reverb Mix CHORUS / 40 medium I Reverb Time Chorus Mix Reverb Mix REVERB 41 medium II Reverb Time Chorus Mix Reverb Mix 42 fast Reverb Time Chorus Mix Reverb Mix Tab. 3.9: Parameters of effects 38 through 42 3.

EFFECTS PROCESSOR 17 ULTRATWIN GX212 43-47 Chorus/Delay: First, the signal is chorused with various intensities, then follows a delay effect with various feedback levels and adjustable delay time.

Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 43 ultra Delay Time Chorus Mix Delay Mix 44 slow Delay Time Chorus Mix Delay Mix CHORUS / 45 medium I Delay Time Chorus Mix Delay Mix DELAY 46 medium II Delay Time Chorus Mix Delay Mix 47 hold Delay Time Chorus Mix Delay Mix Tab. 3.10: Parameters of effects 43 through 47 48-51 Flanger: An LFO constantly modulates the pitch of the effect signal up and down by a few cents and then sends the effect signal back to the input. This effect can be excellently combined with distorted guitar sounds. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 48 fat LFO Speed Depth Mix 49 classic LFO Speed Depth Mix FLANGER 50 stereo LFO Speed Depth Mix 51 stereo LFO Speed Depth Mix Tab. 3.11: Parameters of effects 48 through 51 52-56 Flanger/Reverb: Here, a flanger with various intensities is followed by a reverb with adjustable reverb time.

Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 52 ultra Reverb Time Flanger Mix Reverb Mix 53 slow Reverb Time Flanger Mix Reverb Mix FLANGER / 54 medium I Reverb Time Flanger Mix Reverb Mix REVERB 55 medium II Reverb Time Flanger Mix Reverb Mix 56 fast Reverb Time Flanger Mix Reverb Mix Tab. 3.12: Parameters of effects 52 through 56 18 3. EFFECTS PROCESSOR ULTRATWIN GX212 57-61 Flanger/Delay: The first element is a flanger with various intensity levels, then comes a delay effect with adjustable delay time.

Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 57 ultra Delay Time Flanger Mix Delay Mix 58 slow Delay Time Flanger Mix Delay Mix FLANGER / 59 medium I Delay Time Flanger Mix Delay Mix DELAY 60 medium II Delay Time Flanger Mix Delay Mix 61 fast Delay Time Flanger Mix Delay Mix Tab. 3.13: Parameters of effects 57 through 61 62-63 Stereo Tremolo: Tremolo is a more or less fast, intensive variation of the signal amplitude, and is complemented here by a panorama effect. Preset-Nr.

Effect Variation PARAMETER EFFECT A EFFECT B 62 LFO Speed Pan Mix STEREO TREMOLO 63 LFO Speed Pan Mix Tab. 3.14: Parameters of effects 62 and 63 64-66 Tremolo/Delay: A more or less fast, intensive amplitude modulation complemented by a delay effect. The variations provide for various modulation speeds. The delay time can be set with the PARAMETER control. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 64 ultra Delay Time Tremolo Mix Delay Mix TREMOLO / 65 slow Delay Time Tremolo Mix Delay Mix DELAY 66 medium Delay Time Tremolo Mix Delay Mix Tab. 3.15: Parameters of effects 64 through 66 67-68 Rotary Speaker: This is the quintessential simulation of the classical organ effect normally produced by speakers that rotate at slow/fast speed in a bulky and extremely heavy speaker cabinet. This effect uses the physical principle known as Doppler effect.

The PARAMETER control determines the speed of horn (treble) and rotor (bass), while EFFECT A allows you to modify the basic character of the sound. Finally, EFFECT B lets you edit the mix ratio. Preset-Nr. Effect 67 ROTARY SPEAKER 68 Variation PARAMETER EFFECT A EFFECT B Speed Variation Mix Speed Variation Mix Tab. 3.16: Parameters of effects 67 and 68 3. EFFECTS PROCESSOR 19 ULTRATWIN GX212 69-70 Magic Drive: This is an absolutely up-to-date effect combined with a delay. EFFECT A governs the basic character of the effect in 32 steps, PARAMETER adjusts the delay time, and EFFECT B controls the delay mix. As a little extra, this effect includes an LFO-controlled notch filter, which is added as of Variation #24. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 69 Delay Time Variation Delay Mix MAGIC DRIVE 70 Delay Time Variation Delay Mix Tab. 3.17: Parameters of effects 69 and 70 71-72 Auto Wah: Auto Wah is a velocity-sensitive effect that allows low frequencies to pass, while high frequencies are more or less suppressed. PARAMETER controls the effect sensitivity, and EFFECT A sets the cutoff frequency, which can be shifted upwards by raising this value. Preset-Nr.

Effect 71 AUTO WAH 72 Variation fast slow PARAMETER EFFECT A EFFECT B Sensitivity Depth Mix Sensitivity Depth Mix Tab. 3.18: Parameters of effects 71 and 72 73-74 LFO Wah: In the LFO Wah effect the LFO governs the speed of frequency modulation. Here, you can produce wah-wah effects that are repeated at regular intervals. Use the PARAMETER control to set the LFO speed, while EFFECT A determines the threshold frequency. The LFO Wah delivers astounding results. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 73 LFO Band Pass LFO Speed Depth Mix LFO WAH 74 LFO Band Pass LFO Speed Depth Mix Tab. 3.19: Parameters of effects 73 and 74 20 3. EFFECTS PROCESSOR ULTRATWIN GX212 75-81 Pitch Shifter: This effect shifts the pitch of the input signal and can be used to produce musical intervals and harmonies or simply to widen a single voice. Heavy detuning by several semi-tones up creates a Mickey-Mouse-type effect. The preset variations include various fixed intervals for the right channel, while the left channel can be shifted with the PARAMETER control. Depending on your mix settings, you can thus hear a triad for each tone of the input signal. Effects #80 and #81 are used to widen the signal and feature a detune option in the left channel (+/-25 cents).

Preset-Nr. 75 76 77 78 79 80 81 Effect Variation PARAMETER EFFECT A EFFECT B -12 Tune Left Mix L Mix R -5 Tune Left Mix L Mix R +3 Tune Left Mix L Mix R +4 Tune Left Mix L Mix R +7 Tune Left Mix L Mix R +4 % Tune Left Mix L Mix R +8 % Tune Left Mix L Mix R PITCH SHIFTER Tab. 3.20: Parameters of effects 75 through 81 82-85 Pitch/Reverb: Here, a pitch shifter set to various cent and semi-tone intervals is followed by a stereo reverb whose time can be set with the PARAMETER control. Preset-Nr. Effect Variation PARAMETER 82 -12 Reverb Time PITCH 83 +3 Reverb Time SHIFTER / 84 +4 % Reverb Time REVERB 85 +8 % Reverb Time EFFECT A Pitch Mix Pitch Mix Pitch Mix Pitch Mix EFFECT B Reverb Mix Reverb Mix Reverb Mix Reverb Mix Tab. 3.21: Parameters of effects 82 through 85 86-89 Pitch/Delay: First, the signal passes the pitch shifter set to various intervals. Then, a delay effect whose time can be edited with the PARAMETER control is added. The two EFFECT controls adjust the mix of both effects. Preset-Nr. Effect Variation PARAMETER EFFECT A 86 -12 Delay Time Pitch Mix PITCH 87 -5 Delay Time Pitch Mix SHIFTER / 88 +4 Delay Time Pitch Mix DELAY 89 +7 Delay Time Pitch Mix EFFECT B Delay Mix Delay Mix Delay Mix Delay Mix Tab. 3.22: Parameters of effects 86 through 89 3. EFFECTS PROCESSOR 21 ULTRATWIN GX212 90-91 Compressor: Often, the signal level exceeds the headroom of signal-processing devices and therefore needs to be limited in its dynamic range, so as to avoid distortion.

This job is done by compressors and/ or limiters. Limiters abruptly limit the signal above a specific threshold, while compressors provide for a soft control process over a wider range. With the PARAMETER control you can set the compressor threshold.

EFFECT A determines the compression ratio. EFFECT B allows you to raise the volume to adapt the compressed signal to the unprocessed one. To achieve optimum adaptation do as follows: adjust the threshold and ratio as required, then compare the signal levels by switching the effect repeatedly on and off. Adapt the levels with EFFECT B, so that there will be no audible level difference between compressed and uncompressed signals. Use this effect to give your guitar longer sustain, or to make the attack sounds of funky guitar licks (Chicken Scratch) clearly audible, even though the guitar signal is actually limited in level. Preset-Nr. Effect 90 COMPRESSOR 91 Variation fast slow PARAMETER EFFECT A EFFECT B Sensitivity Ratio Gain Sensitivity Ratio Gain Tab. 3.23: Parameters of effects 90 and 91 92-93 Expander: All sorts of background noise and hum limit the dynamic range of the wanted signal. As long as the level of the wanted signal is considerably above the noise floor, background noise is inaudible: the interference signal is masked by the music. Expanders can be used to efficiently expand the dynamic range of signals. Small signal amplitudes are cut additionally, which at the same time reduces background noise.

Use the PARAMETER control to determine the expander threshold. EFFECT A adjusts the expansion ratio, while EFFECT B drives a matching amplifier (much like in the compressor effect) to adapt the level of the processed signal. Preset-Nr. Effect Variation PARAMETER EFFECT A EFFECT B 92 Overdrive Sensitivity Ratio Gain EXPANDER 93 Clean Sensitivity Ratio Gain Tab. 3.24: Parameters of effects 92 and 93 94-96 Guitar Combo: This effect simulates the sound characteristics of a complete guitar amp, mimicking not only two tube stages, but also cabinet and speaker. The PARAMETER control determines the distortion intensity, while EFFECT A adjusts the presence of the sound as the signals high-frequency portions increase. EFFECT B controls the mix ratio. Preset-Nr. 94 95 96 Effect GUITAR COMBO Variation PARAMETER EFFECT A Drive Presence Drive Presence Drive Presence EFFECT B Mix Mix Mix Tab.
3.25: Parameters of effects 94 through 96 22 3. EFFECTS PROCESSOR ULTRATWIN GX212 97-99 Speaker Cabinet: This algorithm emulates three different types of speaker cabinets. Additionally, you can shift the speakers main resonance peak. Various degrees of resonance emphasis allow you to emulate different speaker characteristics.
The PARAMETER control adjusts the cutoff frequency of the low-pass filter. EFFECT A determines the gain of the resonance filter. EFFECT B can be used to adjust the filter frequency. Preset-Nr. 97 98 99 Effect SPEAKER CABINET Variation PARAMETER EFFECT A EFFECT B Stack A HF Cut Peak Gain Peak Frequency Stack B HF Cut Peak Gain Peak Frequency Combo HF Cut Peak Gain Peak Frequency Tab.
3.26: Parameters of effects 97 through 99 3.2 Controlling the ULTRATWIN via MIDI With its built-in MIDI interface you can integrate your ULTRATWIN into any MIDI setup. The GX212 is capable of receiving both program change and MIDI controller information. So, you can change programs via MIDI using a MIDI foot controller or a computer-based sequencer software. Our MIDI foot controller FCB1010 gives you precisely these and more options, and is a perfect match for all BEHRINGER guitar amps. For example, you could wire the ULTRATWIN as follows: Connect the MIDI IN jack of your ULTRATWIN to the MIDI OUT jack of a MIDI foot controller (see fig. 2.2). Now, enable the MIDI functions on your ULTRATWIN by pressing both UP and DOWN (multi-effects processor) for about two seconds.

Select a MIDI channel (1 through 16, ON = Omni mode, OF = off and 1 through 16, or On (Omni) plus decimal point = Store Enable mode, see chapter 3.2.1). Confirm your selection with ENTER. Omni mode means that your ULTRATWIN receives and processes MIDI information on all channels. Of course, you should select the same channel both on your MIDI foot controller and ULTRATWIN (see MIDI foot controller users manual). + Once you activate the MIDI functions, the automatic effect-to-channel assignment feature will be disabled, i.e. changing channels does not automatically load the previously set effect. As this assignment feature would cause some confusion when controlling the ULTRATWIN via a MIDI foot controller, it makes sense only when it is controlled from the enclosed footswitch or directly from the ULTRATWINs front panel.
To operate the ULTRATWIN without MIDI remote control, please disable the MIDI functions (display reads OF). You can select presets via MIDI using program change instructions. Since the range of program change numbers is 0 through 127, program change instruction 0 corresponds to preset 1, #1 to preset 2, and so forth (see table 6.2 in the appendix). After changeover the preset is activated immediately, i.
e. it will not be affected by previously adjusted bypass settings. The three adjustable parameters PARAMETER, EFFECT A and EFFECT B can be controlled in real time from a MIDI foot controller. First, select a controller number for the foot pedal on your MIDI foot controller (controller numbers 12 (PARAMETER), 13 (EFFECT A) and 14 (EFFECT B)). Then, use the foot pedal on your MIDI foot controller to adjust the values for the three parameters. Channel changes can be effected with controller #10. Sending value 0 via this controller will activate the CLEAN channel, while value 1 activates the OVERDRIVE channel. Program change instructions can also be used to change channels. Program change #123 activates the CLEAN channel, program change #124 selects the OVERDRIVE channel of your ULTRATWIN. In addition to changing channels, you can also disable effects, by sending the value 0 via controller #11. Value 1 enables the effect. Alternatively, you can bypass the effect section by sending program change instruction #127. MIDI controller #7 adjusts the input sensitivity of the effects module, enabling you to set the overall volume of your ULTRATWIN as desired. Since this controller has no influence on the Master Volume control, you should adjust the maximum volume before with the Master Volume control, then use MIDI controller #7 to reduce the volume. This function is also known as Volume Controller.

The operating range of the wah effect can be determined with MIDI controller #15. 3. EFFECTS PROCESSOR 23 ULTRATWIN GX212 Additionally, you can deactivate the LFO in LFO-controlled modulation effects, and modulate these effects with MIDI controller #15. To activate this MIDI controller, you need to set the LFO speed to zero, either on the ULTRATWIN or by means of the corresponding MIDI controller. Of course, you can also control the ULTRATWIN from a computer-based sequencer software, particularly in a home recording environment. Specific environments for popular MIDI sequencer programs will soon be available from our web site (www.behringer.com). 3.2.
1 Store Enable mode Store Enable mode allows you to store parameter changes directly, e.g. from a MIDI sequencer.

Activate this mode by pressing both UP and DOWN on the multi-effects processor for about 2 seconds, then use the same keys to select a channel for MIDI reception (1 through 16, or ON (Omni) with decimal point). Confirm your selection with ENTER.

Now, if you use MIDI controller #18 to send data from your MIDI sequencer on the adjusted MIDI channel, any parameter changes made to the currently active preset will be stored. Sending MIDI controller #18 data while Store Enable mode is on has the same effect as a long key press on the effect modules ENTER key. 4. HISTORICAL BACKGROUND by Neville Marten (Guitarist Magazine) The guitar amp: your tone generator Many guitar players think of their amplifier as the least important link in their musical chain. Sure, everyone needs the right guitar, with the right finish, pickups and tremolo; and of course effects these days are so important in looking and sounding cool.

But what of the humble guitar amp? Is it just an ugly box that stands behind you, a heavy hindrance that's just a drag to get into and out of the car? No, it's your powerhouse, a tone generator that should work as an equal member with you, your guitar and effects in the creation of the best possible sound. Ever since the 1940s, when a radio repairman in Orange County California started customising tube radio circuits for the new breed of electric guitarists, guitar amps have been evolving into what we see today. Great American names like Fenderä, Ampegä and Gibsonä supplied small-output amplifiers to the guitarists of the '40s and '50s, creating the sound of electric jazz, rock'n'roll and country music; a sound that's still as fresh as ever at the dawn of this new millennium. As the '50s became the '60s, the British sound was born with Voxä producing small-powered valve amps for groups like The Shadows, then later The Beatles and The Rolling Stones, The Hollies and The Hermits. Then, in the mid-'60s a drummer from London was asked by some budding musicians to build them some amplification. Jim Marshallä took the basic American design and using British components and speakers, created higher Wattage amps and multi-speaker cabinets to give bands like The Who, Cream and The Jimi Hendrix Experience the power to begin their assaults on the rock stadiums of the world. Amp design has come a long way since then. Multi-channels and cascading gain stages, as pioneered by Randall Smith and his Mesa Boogieä amps, are found in the majority of stacks and combos built by amp manufacturers all over the world today. Modern, solid-state circuits and digital effects are now commonplace and in some instances work successfully on their own, or hand-in-hand with classic tube designs, to create versatile performing instruments for working guitarists. Other manufacturers are looking back to the old ways, with hand-wired, vintage-style boutique amps than can cost the earth.

Whichever option you choose, the ears of discerning musicians recognise that, behind the bells, whistles and hype, there must be a great-sounding amplifier a real musical tool that not only uses the best of today's technologies, but pays its respects to the great pioneers that have gone before. (We would like to thank Mr. Neville Marten, the editor of Guitarist Magazine, for this little essay about the history of guitar amp development.) Fenderä, Ampegä, Gibsonä, Voxä, Marshallä, Mesa Boogieä and the names of musical artists and groups are all registered trademarks of their respective owners, which are in no way associated or affiliated with BEHRINGER. 24 4. HISTORICAL BACKGROUND ULTRATWIN GX212 5. INSTALLATION Your BEHRINGER ULTRATWIN was carefully packed in the factory and the packaging is designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred during transit. + If the unit is damaged, please do not return it to BEHRINGER, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.

5.1 Mains connection Please ensure that the ULTRATWIN is set to the correct supply voltage before connecting the unit to the AC power system! Three triangular markings can be found on the fuse holder at the AC power connection socket. Two of these three triangles will be aligned with one another. The ULTRATWIN is set to the operating voltage shown next to these markings and can be switched over by twisting the fuse holder by 180°. IMPORTANT: This does not apply to export models designed only for 115 V ~! The mains connection of the ULTRATWIN is made by using the enclosed mains cable and a standard IEC receptacle.

It meets all of the international safety certification requirements. + 5.2 Please make sure that all units have a proper ground connection. For your own safety, never remove or disable the ground conductor of the unit or of the AC power cable. Audio connections The BEHRINGER ULTRATWIN is installed with unbalanced 1/4" jacks.

Only the headphones output is available via a stereo 1/4" jack. + Please ensure that only qualified persons install and operate the ULTRATWIN. During installation and operation the user must have sufficient electrical contact to earth. Electrostatic charges might affect the operation of the ULTRATWIN! Fig. 5.1: Wiring of a mono 1/4" plug 5. INSTALLATION 25 ULTRATWIN GX212 Fig. 5.2: Wiring of a stereo headphones 1/4" plug 5.2.

1 Loudspeaker connection Your GX212 features two speaker jacks that allow you to hook up supplementary speakers. Optimum adaptation is ensured with 8 W loudspeakers. Use the INTERNAL OFF switch on the rear panel of the GX212 to activate the external speakers connected to your ULTRATWIN. You can also connect speakers with lower impedances. However, this could trigger the power stage protective circuitry on your GX212. Never use speakers with an impedance of less than 4 W. As the connected impedance goes up, the maximum power output will drop in proportion to the resistance connected. 5.3 MIDI connection The MIDI standard (Musical Instruments Digital Interface) was developed in the early 80s to enable electronic musical instruments of different makes to communicate with each other. Over the years the range of MIDI applications has constantly expanded, and today it is completely normal to network entire recording studios using the MIDI standard.

At the heart of this network we find a computer loaded with a sequencer software that controls not only the keyboards but also effects and other peripheral devices. In such a studio you could control your ULTRATWIN in real time from a computer. In particular, when playing live gigs you can use a MIDI footcontroller to control both the effect parameters and channel/effect changes on your ULTRATWIN.

The MIDI connector on the rear of your ULTRATWIN is an internationally standardized 5-pin DIN jack. To connect your ULTRATWIN to other MIDI equipment, you need a dedicated MIDI cable, which is commercially available in various lengths.

However, you can solder your own cables using 2-conductor shielded cables (e.g. microphone cables) and two rugged 180° DIN plugs: pin 2 (center) = shield; pins 4 and 5 (right and left of pin 2) = internal conductor; pins 1 and 3 (the outer pins) are not used. MIDI cables should not exceed a length of 15 meters. + Make sure that pin 4 is connected to pin 4, and pin 5 to pin 5 on both plugs.

MIDI IN: receives MIDI controller information. The receiving channel can be set with the buttons UP and DOWN. On = Omni, i.e. MIDI data are received and processed on all channels (see section 3.2). 6. APPENDIX 6.1 Preset list Table 6.1 on the next two pages provides you with information on effect numbers and names, parameter types and ranges as well as factory default settings.

26 6. APPENDIX ULTRATWIN GX212 Preset-Nr. ER A B ET Default Default FE C R 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 SPRING REVERB STUDIO CHAMBER STAGE CONCERT PLATE GATED REVERB AMBIENCE WAH / DELAY / DISTORTION short Pre-Delay long Pre-Delay short Pre-Delay long Pre-Delay short Pre-Delay long Pre-Delay short Pre-Delay long Pre-Delay short Pre-Delay long Pre-Delay short Pre-Delay long Pre-Delay min. Density max. Density min. Reflections max. Reflections Feedback 0 % Feedback 10 % Feedback 30 % min. Feedback Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time PA 1..32 1.

.32 1..32 1..
32 1..32 1..32 1.
.32 1..32 1..32 1..32 1.

.32 8 14 5 14 8 15 4 12 9 16 7 13 4 17 32 63 35 35 35 50 43 63 20 63 15 25 30 45 63 36 30 48 63 8 1 15 1 Mix L Mix L Mix L Mix L Mix L Mix L Mix L Mix L Mix L Mix L Mix L Mix L Sensitivity Sensitivity Pre-Delay Pre-Delay Drive Drive Drive Delay Mix Mix L Mix L Mix L Mix L Feedback Feedback Feedback Feedback Feedback Depth Depth Depth Depth Depth Depth Depth Depth 0..50 10 0..50 10 0..50 10 0..50 10 0..
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.50 10 0..50 10 0..50 10 0..50 10 0..50 15 0.

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.50 6 6 6 Gt./Rev. Time 1..
32 Gt./Rev. Time 1..32 Room Size Room Size Delay Time Delay Time Delay Time Delay Time Delay Time Delay Time Delay Time 0.
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.63 0..63 0..63 0..63 1..32 1.

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.32 1..32 0..63 63 Delay Mix 0..63 63 Delay Mix 0..63 63 Delay Mix 0.
.50 2 0..50 3 0..
50 8 0..50 0 0..63 2 0.
.63 12 0..63 15 0..63 20 0..63 25 0..63 30 0.

.63 35 0..63 25 0..63 28 0..63 63 0..63 30 0.
.63 20 0..63 63 Mix R Mix R Mix R Mix R Mix Mix Mix Mix Mix Mix Mix Mix Mix Mix Mix Mix Mix Mix 20 DELAY / REV. DELAY (stereo) 0.
.50 7 Reverb Mix 0..50 20 0..
50 11 0..50 11 0..50 16 0..50 35 0..50 0..

50 8 9 0..50 10 0..50 10 0..50 10 0..99 50 0..
99 60 0..99 50 0..99 50 0.
.99 30 0..99 40 0..

99 50 0..99 50 max. Feedback DELAY (long mono) Feedback 0 % PHASER Feedback 62 % Feedback 62 % Feedback 77 % fat CHORUS slow stereo stereo ultra CHORUS / REVERB slow medium I medium II fast ultra CHORUS / DELAY slow medium I medium II hold fat FLANGER classic stereo stereo Delay Time Delay Time Delay Time Delay Time Delay Time Delay Time LFO Speed LFO Speed LFO Speed LFO Speed LFO Speed LFO Speed LFO Speed LFO Speed Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Delay Time Delay Time Delay Time Delay Time Delay Time LFO Speed LFO Speed LFO Speed LFO Speed 24 Chorus Mix 0..99 50 Reverb Mix 0..50 10 10 Chorus Mix 0..99 50 Reverb Mix 0.

.50 10 10 Chorus Mix 0..99 40 Reverb Mix 0..50 10 1 Chorus Mix 0..99 50 Reverb Mix 0..50 10 0.

.50 10 0..50 10 0..
50 10 0..50 10 0..50 14 0.
.99 30 0..99 14 0..99 24 0..99 50 51 Chorus Mix 0..99 50 Reverb Mix 0.

.50 10 63 Chorus Mix 0..99 50 Delay Mix 54 Chorus Mix 0..99 30 Delay Mix 59 Chorus Mix 0..99 50 Delay Mix 48 Chorus Mix 0..99 50 Delay Mix 63 Chorus Mix 0.
.99 40 Delay Mix 15 5 20 10 Depth Depth Depth Depth 0..63 5 0..
63 10 0..63 20 0..63 5 Mix Mix Mix Mix 6.

APPENDIX Default Range Range Range T T 27 ULTRATWIN GX212 Preset-Nr. ER AM ET Default A Default B PA R FE C 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 SPEAKER CABINET COMPRESSOR EXPANDER GUITAR COMBO PITCH SHIFTER / DELAY PITCH SHIFTER / REVERB PITCH SHIFTER ROTARY SPEAKER MAGIC DRIVE AUTO WAH LFO WAH STEREO TREMOLO TREMOLO / DELAY FLANGER / DELAY FLANGER / REVERB ultra slow medium I medium II fast ultra slow medium I medium II fast slow ultra medium fast slow LFO Band Pass LFO Band Pass -12 -5 +3 +4 +7 +4 % +8 % -12 +3 +4 % +8 % -12 -5 +4 +7 fast slow Hell Heaven Stack A Stack B Combo Reverb Time Reverb Time Reverb Time Reverb Time Reverb Time Delay Time Delay Time Delay Time Delay Time Delay Time LFO Speed LFO Speed Delay Time Delay Time Delay Time Speed Speed Delay Time Delay Time Sensitivity Sensitivity LFO Speed LFO Speed Tune Left Tune Left Tune Left Tune Left Tune Left Tune Left Tune Left Reverb Time Reverb Time Reverb Time Reverb Time Delay Time Delay Time Delay Time Delay Time Sensitivity Sensitivity Sensitivity Sensitivity Drive Drive Drive HF Cut HF Cut HF Cut 0..63 0..63 0..63 0..63 0.

.63 0..63 0..63 0..63 0..63 0.
.63 1..32 1..
32 0..63 0..63 0.
.63 0..63 0..63 0..63 0.

.63 0..63 0..63 0..63 -12..12 -12.
.12 -12..12 -12..
12 -12..12 -50..50 0.
.63 0..63 0..63 0..63 0.

.63 0..63 0..63 0..63 0.
.63 0..63 0..
63 0..63 0..63 0.
.63 0..63 0..63 20 Flanger Mix 0..99 50 Reverb Mix 0..50 10 20 Flanger Mix 0.

.99 40 Reverb Mix 0..50 10 50 Flanger Mix 0..99 50 Reverb Mix 0..50 10 50 Flanger Mix 0..99 50 Reverb Mix 0.
.50 10 32 Flanger Mix 0..99 50 Reverb Mix 0..
50 10 63 Flanger Mix 0..99 30 Delay Mix 53 Flanger Mix 0..99 30 Delay Mix 63 Flanger Mix 0.
.99 30 Delay Mix 32 Flanger Mix 0..99 50 Delay Mix 63 Flanger Mix 0..99 30 Delay Mix 10 19 Pan Pan 0..63 0 0..63 0 Mix Mix 0.

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.99 90 0..99 90 0..99 60 0..99 50 0..99 34 0.
.99 34 0..99 20 0..
99 34 0..99 20 0..99 34 19 Tremolo Mix 0.
.99 50 Delay Mix 50 Tremolo Mix 0..99 50 Delay Mix 19 Tremolo Mix 0..99 50 Delay Mix 9 15 5 63 63 63 30 60 0 0 0 0 0 4 18 10 4 63 63 63 63 30 30 35 20 30 63 63 20 30 4 Variation Variation Variation Variation Depth Depth Depth Depth Mix L Mix L Mix L Mix L Mix L Mix L Mix L Pitch Mix Pitch Mix Pitch Mix Pitch Mix Pitch Mix Pitch Mix Pitch Mix Pitch Mix Ratio Ratio Ratio Ratio Presence Presence Presence 1..32 1 1..32 10 Mix Mix 0.

.32 24 Delay Mix 0..32 32 Delay Mix 0..63 27 0..63 20 0..63 45 0.
.63 40 0..99 50 0..
99 50 0..99 50 0..99 50 0.
.99 50 0..99 50 0..99 34 Mix Mix Mix Mix Mix R Mix R Mix R Mix R Mix R Mix R Mix R -50.