

Hughes & Kettner®
TECHNOLOGY OF TONE

MATRIX *100*

Head & Combo *Manual 1.0*



deutsch

english

español

français

italiano

You want more? Here it is!

Wichtig:

Bitte lies vor der Inbetriebnahme unbedingt die Sicherheitshinweise auf Seite 28-30!

Important:

Before powering up please read the Important Safety Instructions on page 28-30!

Importante:

¡Por favor antes de la puesta en servicio debes leer necesariamente las instrucciones de seguridad en la página 28-30!

Attention:

Avant la mise en fonction de l'appareil, il est fortement recommandé de prendre connaissance des mesures de prudence présentées aux pages 28 à 30 !

Importante:

Prima di utilizzare lo strumento leggete attentamente gli avvisi di sicurezza su pagina 28-30!

Foreword

Thank you for choosing a Hughes & Kettner® product. With the MATRIX™ 100, you now own a unique guitar-driven sound system that offers everything you need to have a blast at rehearsals and on stage. We factored the wishes and suggestions of many guitarists into the design of the MATRIX™ 100, aiming to turn up a modern guitar amp that would stand as a benchmark DFX amp. We accomplished what we set out to achieve. No comparable amp comes close to matching the MATRIX™'s sound quality, flexibility, performance and handling convenience.

Your MATRIX™ 100's nerve center is the innovative Autostore FX MATRIX™. For the first time, an amp in this class is able to store individual effect settings separately for every channel. And it does this automatically, without requiring additional programming steps. Finally, an ingenious function has arrived that makes the DFX amp a true gigging rig!

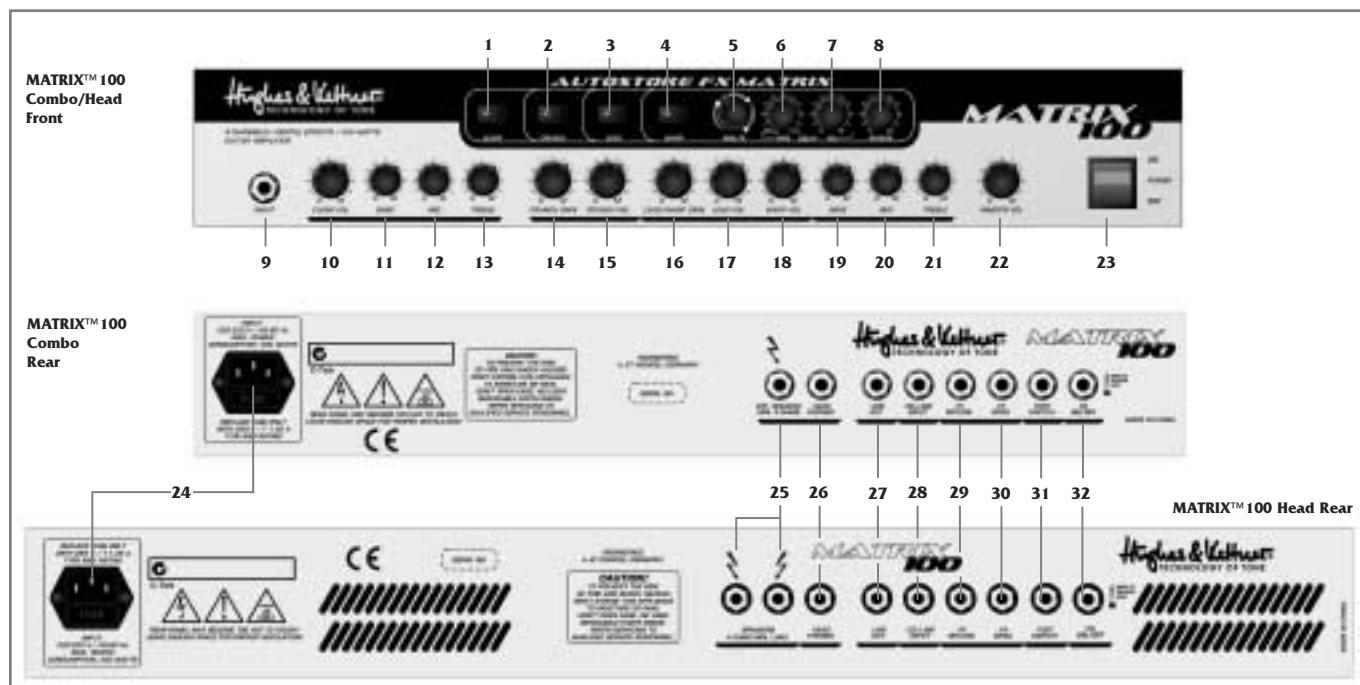
The MATRIX™ 100 is equipped with a digital multi FX processor offering popular effects such as REVERB, DELAY, CHORUS, FLANGER and TREMOLO in remarkably high quality. Four channels, a Current Feedback power amp and 12" RockDriver Ultra speakers, developed in a joint effort with Celestion®, deliver the goods – soul-stirring tone. When you power up and plug in, you'll hear 20 years of Hughes & Kettner® amp engineering experience reflected in that tone.

Whether you opted for the combo or the head, rest assured that the MATRIX™ delivers the kind of inspiring response that is sure to supercharge your playing while practicing and performing on the big stage. You wanted it all – powerful and G-force sound pressure, crystal-clear clean sounds, creamy CRUNCH and lead tones, fire-breathing WARP sounds, and authentic effects. Now you got it, in a great, easily handled gigging amp to boot.

Here's wishing you tons of fun with your new MATRIX™ 100!

Table of Content

1	Overview of Control Features and Connectors	9
1.1	Selecting Channels and Effect Parameters	9
1.2	Instrument Inputs, Channels and Master Volume	9
1.3	Mains Switch and Mains Socket	9
1.4	Speaker out	10
1.5	Headphones out	10
1.6	LINE OUT	10
1.7	CD/LINE INPUT	10
1.8	FX SEND/RETURN	10
1.9	FOOTSWITCH	10
1.9.1	FX ON/OFF	10
2	The MATRIX™ 100'S four Channels	10
2.1	CLEAN	10
2.1.1	CLEAN VOL	10
2.1.2	CLEAN Voicing Section	10
2.2	CRUNCH	10
2.2.1	CRUNCH GAIN	10
2.2.2	CRUNCH VOL	10
2.3	LEAD	10
2.3.1	LEAD/WARP-GAIN	11
2.3.2	LEAD VOL	11
2.4	WARP	11
2.4.1	WARP VOL	11
2.5	CRUNCH, LEAD, WARP Voicing Section	11
3	The MATRIX™ 100's Effects	11
3.1	MOD FX	11
3.1.1	CHORUS	11
3.1.2	FLANGER	11
3.1.3	TREMOLO	11
3.2	DELAY	11
3.3	REVERB	11
4	Technical Specifications	12



1 Overview of Control Features and Connectors

1.1 Selecting channels and effect parameters

Use buttons **1 to 4** to select the MATRIX™ 100's four channels, CLEAN, CRUNCH, LEAD and WARP. These buttons correspond to the buttons on the included footswitch. When the footswitch is connected, buttons 1 to 4 serve display purposes only, and the footswitch switches channels.

Use knobs **5 to 8** to adjust the effect for the given channel. The FX MATRIX's Autostore function automatically saves the edited effect settings for every channel. You do not need to store settings separately. Even if the amp is suddenly switched off or power fails, the FX MATRIX™ will recall your settings.

1.2 Instrument inputs, channels and master volume

Connect your guitar to input **9**. Please use high-quality shielded cords only.

Use knobs **10 to 21** to shape the sound and determine the volume of individual channels. You'll find a detailed description of the channels in section 2. Knob **22** determines the amp's overall volume level. Always turn the MASTER knob all the way down – that is, counterclockwise as far as it will go - before powering your amp up.

Knobs **10 to 22** work in the same tried-and-true manner as the controls on a classic amp. These settings are not stored.

This means that the actual position of the knob determines the amp's sounds.

1.3 Mains switch and mains socket

Use switch **23** to turn the MATRIX™ 100 on and off. Make a habit of checking to make sure that the switch is set to the OFF position before you connect the power cable to a mains power supply. The MATRIX™ 100 ships with a separate power cord that connects to socket **24**. Please ensure that the mains voltage matches the value indicated on the back panel of the MATRIX™ 100. Get in touch with your Hughes & Kettner® dealer immediately if this is not the case or the included mains cord's plug does not fit into the wall outlet.

1.4 Speaker out

Use jack or jack pair **25**, EXTERNAL SPEAKER or SPEAKERS, to connect speakers. All speakers are connected in parallel for both the combo and the head.

MATRIX™ 100 COMBO

EXTERNAL SPEAKER: Connect cabinets with 8 ohms minimum impedance to this jack. The impedance of connected speakers must never be lower than 8 ohms!

MATRIX™ 100 HEAD

SPEAKERS: You can connect two cabinets to the head. The minimum impedance is 4 ohms; ensure your rig's impedance never drops below 4 ohms! If you plug cabs into both jacks, each cabinet's impedance must be 8 ohms or higher. If you

plug a cab into just one jack, its impedance must be 4 ohms or higher.

1.5 Headphones out

Connect standard stereo headphones to jack **26**, HEADPHONES. Adjust the volume via the MASTER knob. Always plug in a stereo 1/4" jack when connecting headphones. The headphones output may be damaged if you insert a mono plug into the jack. The MATRIX™ 100 speaker output is deactivated when a plug is inserted into this jack.

1.6 LINE OUT

Use jack **27**, LINE OUT, (mono 1/4" jack) to patch out the amp's signal, including all effects, to another power amp or a DI box (for example, the Hughes & Kettner® RED BOX).

1.7 CD/LINE INPUT

Use jack **28**, CD/LINE INPUT, to patch in any type of line signal. For example, you could plug in a CD player to play along with a recorded track. Use a cord equipped with stereo 1/4" jack plugs to do this. Adjust the level using knob **22**, MASTER VOLUME.

1.8 FX SEND/RETURN

Connect an effect device's output to jack **29**, FX RETURN; connect an effect device's input to jack **30**, FX SEND. The effects loop is a serial circuit, so adjust the effect amount (or wet-to-dry balance) at the effect device. The entire preamp signal is routed through the inserted effector and processed there. Please note that your rig's sound quality depends to a considerable extent on the quality of the employed effect device. A poor-quality signal processor can have an adverse effect on the MATRIX™ 100's sound quality.

- Use high-quality patch cords only to prevent signal loss, background noise and drop-outs.
- Ensure that the effect device is not being overdriven. Be sure to keep an eye on whatever type of level meter, gain indicator or overload lamp the effects device is equipped with, and adjust its input and output controls accordingly.
- Fuzz boxes, overdrives and distortion units don't belong in an FX loop. Plug them into the amp's input.

1.9 FOOTSWITCH

Your MATRIX™ 100 comes with a four-way footswitch that plugs into jack **31**. The buttons on the footswitch correspond to buttons 1 to 4 on the MATRIX™ 100's front panel. When the footswitch is plugged into the amp, buttons 1 to 4 serve display purposes only, and the footswitch switches channels.

1.9.1 FX ON/OFF

Especially for live performances, the Matrix™ 100 enables you to turn the internal effects on and off individually, in addition to the 4 switchable channels. To do this, you need to connect a footswitch to the stereo **32** FX ON/OFF jack. Using a simple footswitch (such as the Hughes & Kettner® FS-1) will enable you to switch the modulation effects and DELAY at the

same time, leaving REVERB unaffected. You can use a double footswitch (such as the Hughes & Kettner® FS-2) to switch the modulation effects and DELAY, and REVERB separately.

2 The MATRIX™ 100's four Channels

2.1 CLEAN

The Clean is channel is tweaked to sound sweet when driven by single-coil as well as humbucking pickups.

2.1.1 CLEAN VOL

Adjusts the CLEAN channel's volume level. Players who opt for this class of amp demand a clean channel with enough headroom to ensure it remains clean. This amp certainly does that. Depending on the pickups' output power, you may also be able to dial in a touch of grit. For single-coils, we recommend that you turn the knob well up. Do this, and the amp will reward you with tight & punchy midrange response that is both crisp and fat. If your axe sports humbuckers, set this knob somewhere around the 12 o'clock position for crystal-clear clean tone.

2.1.2 Clean Voicing Section: BASS, MID and TREBLE

knobs. MID and TREBLE controls influence each other, as is standard and desirable in the tube amps that this voicing section is patterned on. If you boost the high end, mids are cut and vice versa. This sound-shaping feature lets you to dial in a wide variety of subtle tonal variations. We recommend that you go easy on the bass for the CLEAN channel. Generally, the more mids you dial in, the more assertive your clean tone in the band's soundscape. Note that the TREBLE knob shapes your guitar signal's bell-like overtones.

2.2 CRUNCH

Overdriven sounds à la carte! This channel covers a diverse tonal spectrum ranging from squeaky clean to gritty overdrive. It responds to every nuance in your picking attack, granting you precise control over the amount of overdrive via your guitar's volume knob. Higher CRUNCH knob settings elicit warm sustain that is ideal for singing leads with breathy dynamics.

2.2.1 CRUNCH GAIN

Controls the CRUNCH channel's input sensitivity and thus the amount of saturation. You can dial in anything from tone that is just sweet enough to pass for clean to throaty tones that are distinctly rough around the edges. Again, crank the knob for single-coils; back it off a bit for humbuckers.

2.2.2 CRUNCH VOL

Controls the CRUNCH channel's level; use it to determine the balance between it and the other channels.

2.3 LEAD

Yields hard-hitting, snarling British rock tone.

2.3.1 LEAD/WARP GAIN

Controls the LEAD and WARP channel's input sensitivity and thus the amount of saturation, with distortion option ranges from creamy smooth to British grit and chunky NuMetal thunder.

2.3.2 LEAD Vol

Controls the LEAD channel's level; use it to determine the balance between it and the other channels.

2.4 WARP

Beware! The MATRIX™ 100's heart of darkness, this channel offers fierce high-gain sounds of a flavor favored by popular NuMetal bands. This brand of distortion is best described as an angry roar. Depending on this channel's settings, you can dial monster NuMetal tone, grinding post-grunge and alternative sounds, and thunderous death and Gothic metal noise.

2.4.1 WARP VOL

Controls the WARP channel's level; use it to determine the balance between it and the other channels.

2.5 CRUNCH, LEAD, WARP Voicing Section

For handling ease, the MATRIX™ 100's three overdrive channels share common voicing controls. However, behind these tone controls are three different EQ circuits that are automatically switched along with the channel. This is why an EQ setting that you have dialed in for the LEAD channel works so well with the CRUNCH and WARP channels.

a hip effect sound offering real-world utility.

3.1.1 CHORUS

Low CHORUS settings yield a slow throb for thick, underwater sounds that work great with ballads. Courtesy of automatic effect depth adjustment, higher CHORUS settings do not evoke that dreaded "seasick" tone.

3.1.2 FLANGER

Slow FLANGER settings yield a stately sweeping whoosh effect, while faster settings give you swirl effects often heard in contemporary rock and pop tunes.

3.1.3 TREMOLO

Though the classic TREMOLO effect is great for recreating the sounds of '60s, it also serves up some hip effects that work wonders for contemporary tunes.

3.2 DELAY

DELAY is controlled via two knobs: TIME is an infinitely variable knob that sweeps smoothly to the next repetition from 80 ms to 1400 ms. Feedback is adjusted accordingly and automatically. Short DELAYs with minimal feedback conjure great slap-back rockabilly sounds, while medium-length DELAYs are perfect for U2-style jangle. Long DELAY times let you come up with cascading, Queen-style licks. The VOLUME knob determines the level of repetitions, with a control range sweeping from off to as loud as the original signal.

3.3 REVERB

The REVERB is an authentic-sounding emulation of a classic springreverb. It handles and responds just like the original: Simply twist the REVERB knob to adjust the spring REVERB's volume.

3

The MATRIX™ 100's Effects

The MATRIX™ 100 features three independent effects - modulation, DELAY and REVERB. All three effect models may be used simultaneously and adjusted independently. The MATRIX™ FX automatically stores settings for each channel.

3.1 MOD FX

The MATRIX™ 100 puts at your disposal the three most sought-after modulation effects: A CHORUS, FLANGER and TREMOLO are all assigned to one knob. CHORUS is assigned to the first third of the knob's control range, FLANGER to the second, and TREMOLO to the final third. You can sweep the knob within each third to adjust the effect's characteristics. We staked out the parameters so that you can swiftly and easily dial in settings that elicit good-sounding, useful variations of the desired effect. To switch off modulation effects, simply twist the knob to the far left. Twisting the knob clockwise adjust the modulation effect's rate. Modulation depth is adjusted automatically according to the rate setting so that every knob position yields

4

Technical Specifications

Safety-related Data

Primary fuses:	220 – 230V	T 1.25 A
	117V	T 2.5 A
	100V	T 3.15 A
Secondary fuses:	T 2.5 A (2 each)	
Max. power consumption:	300 watts	
Continuous power:	100 watts	
Minimum impedance:	4 ohms	

Inputs

INPUT:	Jack type:	1/4"
	Input impedance:	1 MΩ
	Sensitivity:	- 16 dBV
	Max. input level:	+ 4 dBV
FX Return:	Jack type:	1/4"
	Input impedance:	6 KΩ
	Sensitivity:	+ 3 dBV
	Max. input level:	+ 14 dBV
CD INPUT:	Jack type:	1/4"
	Input impedance:	22 KΩ
	Sensitivity:	- 2 dBV
	Max. input level:	+ 14 dBV

Outputs

FX Send:	Jack type:	1/4"
	Output impedance:	500 Ω
	Output level:	3 dBV
	Max. output level:	+ 10 dBV
LINE Output:	Jack type:	1/4"
	Output impedance:	220 Ω
	Output level:	6 dBV
	Max. output level:	+ 20 dBV
External Speaker:	Jack type:	1/4"
	Circuit:	parallel
	Impedance:	8 to 16 ohms
Speakers: (HEAD only)	Jack type:	Two 1/4"
	Circuit:	parallel
	Impedance:	1x4 to 2x16 ohms
Headphones:	Jack type:	1/4" stereo
	Output impedance:	550 Ω
	Output level:	100 mW an 4 - 600 Ω

**IMPORTANT SAFETY INSTRUCTIONS
BEFORE CONNECTING, READ INSTRUCTIONS**

- Read all of these instructions!
- Save these instructions for later use!
- Follow all warnings and instructions marked on the product!
- Do not use this product near water, i.e. bathtub, sink, swimming pool, wet basement, etc.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product or to persons!
- Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should not be placed in a built-in installation unless proper ventilation is provided.
- This product should not be placed near a source of heat such as a stove, radiator, or another heat producing amplifier.
- Use only the supplied power supply or power cord. If you are not sure of the type of power available, consult your dealer or local power company.
- Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
- Never break off the ground pin on the power supply cord.
- Power supply cords should always be handled carefully. Periodically check cords for cuts or sign of stress, especially at the plug and the point where the cord exits the unit.
- The power supply cord should be unplugged when the unit is to be unused for long periods of time.
- If this product is to be mounted in an equipment rack, rear support should be provided.
- This product should be used only with a cart or stand that is recommended by Hughes & Kettner.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind on the product.
- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
- Clean only with dry cloth.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for the safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
- When the power cord or plug is damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed.
- If the product has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance, indicating a need of service!
- Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
- Exposure to extremely high noise levels may cause a permanent hearing loss.
- Individuals vary considerably in susceptibility to noise induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

Duration Per Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1 1/2	110
1 1/4 or less	115

- According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss.
- Ear plug protectors in the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.
- Fuses: Replace with IEC 127 (5 x 20 mms) type and rated fuse for best performance only TO PREVENT THE RISK OF FIRE AND SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO MOISTURE OR RAIN. DO NOT OPEN CASE; NO USER SERVICE-ABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**WICHTIGE SICHERHEITSHINWEISE!
BITTE VOR GEBRAUCH LESEN UND FÜR SPÄTEREN GEBRAUCH
AUFBEWAHREN!**

- Das Gerät wurde von Hughes & Kettner gemäss IEC 60065 gebaut und hat das Werk in sicherheitstechnisch einwandfreiem Zustand verlassen. Um diesen Zustand zu erhalten und einen gefahrlosen Betrieb sicherzustellen, muss der Anwender die Hinweise und die Warnmerkmale beachten, die in der Bedienungsanleitung enthalten sind. Das Gerät entspricht der Schutzklasse I (schutzgeerdet).
- DIE SICHERHEIT, ZUVERLÄSSIGKEIT UND LEISTUNG DES GERÄTES WIRD VON HUGHES & KETTNER NUR DANN GEWÄHRLEISTET, WENN:
- Montage, Erweiterung, Neueinstellung, Änderungen oder Reparaturen von Hughes & Kettner oder von dazu ermächtigten Personen ausgeführt werden.
- die elektrische Installation des betreffenden Raumes den Anforderungen von IEC (ANSI)-Festlegungen entspricht.
- das Gerät in Übereinstimmung mit der Gebrauchsanweisung verwendet wird.

WARNUNG:

- Wenn Abdeckungen geöffnet oder Gehäuseteile entfernt werden, ausser wenn dies von Hand möglich ist, können Teile freigelegt werden, die Spannung führen.
- Wenn ein Öffnen des Gerätes erforderlich ist, muss das Gerät von allen Spannungsquellen getrennt sein. Berücksichtigen Sie dies vor dem Abgleich, vor einer Wartung, vor einer Instandsetzung und vor einem Austausch von Teilen.
- Ein Abgleich, eine Wartung oder eine Reparatur am geöffneten Gerät unter Spannung darf nur durch eine vom Hersteller autorisierte Fachkraft (nach VBG 4) geschehen, die mit den verbundenen Gefahren vertraut ist.
- Lautsprecher-Ausgänge, die mit dem IEC 417/5036-Zeichen (Abb.1, s.unten) versehen sind können berührungsgefährliche Spannungen führen. Deshalb vor dem Einschalten des Gerätes Verbindung nur mit dem vom Hersteller empfohlenen Anschlusskabel zum Lautsprecher herstellen.
- Alle Stecker an Verbindungsabläufen müssen mit dem Gehäuse verschraubt oder verriegelt sein, sofern möglich.
- Es dürfen nur Sicherungen vom Typ IEC 127 und der angegebenen Nennstromstärke als Ersatz verwendet werden.
- Eine Verwendung von geflickten Sicherungen oder Kurzschliessen des Halters ist unzulässig.
- Niemals die Schutzleiterverbindung unterbrechen.
- Oberflächen, die mit dem „HOT“-Zeichen (Abb.2, s.unten) versehen sind, Rückwände oder Abdeckungen mit Kühlslitzen, Kühlkörper und deren Abdeckungen, sowie Röhren und deren Abdeckungen können im Betrieb erhöhte Temperaturen annehmen und sollten deshalb nicht berührt werden.
- Hohe Lautstärkepegel können dauernde Gehörschäden verursachen. Vermeiden Sie deshalb die direkte Nähe von Lautsprechern, die mit hohen Pegeln betrieben werden. Verwenden Sie einen Gehörschutz bei dauernder Einwirkung hoher Pegel.

NETZANSCHLUSS:

- Das Gerät ist für Dauerbetrieb ausgelegt.
- Die eingestellte Betriebsspannung muss mit der örtlichen Netzspannung übereinstimmen.
- Achtung: Der Netzschatzer des Gerätes muss in OFF-Position stehen, wenn das Netzkabel angeschlossen wird.
- Der Anschluss an das Stromnetz erfolgt mit dem mitgelieferten Netzteil oder Netzkabel.
- Netzteil: Eine beschädigte Anschlussleitung kann nicht ersetzt werden. Das Netzteil darf nicht mehr betrieben werden.
- Vermeiden Sie einen Anschluss an das Stromnetz in Verteildosen zusammen mit vielen anderen Stromverbrauchern.
- Die Steckdose für die Stromversorgung muss nahe am Gerät angebracht und leicht zugänglich sein.

AUFSTELLUNGSPORT:

- Das Gerät sollte nur auf einer sauberen, waagerechten Arbeitsfläche stehen.
- Das Gerät darf während des Betriebs keinen Erschütterungen ausgesetzt sein.
- Feuchtigkeit und Staub sind nach Möglichkeit fernzuhalten.
- Das Gerät darf nicht in der Nähe von Wasser, Badewanne, Waschbecken, Küchenpüle, Nassraum, Swimmingpool oder feuchten Räumen betrieben werden. Keine mit Flüssigkeit gefüllten Gegenstände -Vase, Gläser, Flaschen etc. auf das Gerät stellen.
- Sorgen Sie für ausreichende Belüftung der Geräte.
- Eventuelle Ventilationsöffnungen dürfen niemals blockiert oder abgedeckt werden. Das Gerät muss mindestens 20 cm von Wänden entfernt aufgestellt werden. Das Gerät darf nur dann in ein Rack eingebaut werden, wenn für ausreichende Ventilation gesorgt ist und die Einbauanweisungen des Herstellers eingehalten werden.
- Vermeiden Sie direkte Sonneneinstrahlung sowie die unmittelbare Nähe von Heizkörpern und Heizstrahlern oder ähnlicher Geräte.
- Wenn das Gerät plötzlich von einem kalten an einen warmen Ort gebracht wird, kann sich im Gerät innen Kondensfeuchtigkeit bilden. Dies ist insbesondere bei Röhrengeräten zu beachten. Vor dem Einschalten solange warten bis das Gerät Raumtemperatur angenommen hat.
- Zubehör: Das Gerät nicht auf einen instabilen Wagen, Ständer, Dreifuß, Untersatz oder Tisch stellen. Wenn das Gerät herunterfällt, kann es Personenschäden verursachen und selbst beschädigt werden. Verwenden Sie das Gerät nur mit einem vom Hersteller empfohlenen oder zusammen mit dem Gerät verkauften Wagen, Rack, Ständer, Dreifuß oder Untersatz. Bei der Aufstellung des Gerätes müssen die Anweisungen des Herstellers befolgt und muss das vom Hersteller empfohlene Aufstellzubehör verwendet werden. Eine Kombination aus Gerät und Gestell muss vorsichtig bewegt werden. Plötzliches Anhalten, übermäßige Kraftanwendung und ungleichmäßige Böden können das Umkippen der Kombination aus Gerät und Gestell bewirken.
- Zusatzvorrichtungen: Verwenden Sie niemals Zusatzvorrichtungen, die nicht vom Hersteller empfohlen wurden, weil dadurch Unfälle verursacht werden können
- Zum Schutz des Gerätes bei Gewitter oder wenn es längere Zeit nicht beaufsichtigt oder benutzt wird, sollte der Netztecker gezogen werden. Dies verhindert Schäden am Gerät aufgrund von Blitzschlag und Spannungsspitzen im Wechselstromnetz.

Abb. 1



Abb. 2



IMPORTANT ADVICE ON SAFETY!
PLEASE READ BEFORE USE AND KEEP FOR LATER USE!

The unit has been built by Hughes & Kettner in accordance with IEC 60065 and left the factory in safe working order. To maintain this condition and ensure non-risk operation, the user must follow the advice and warning comments found in the operating instructions. The unit conforms to Protection Class 1 (protectively earthed).

- HUGHES & KETTNER ONLY GUARANTEE THE SAFETY, RELIABILITY AND EFFICIENCY OF THE UNIT IF:
- Assembly, extension, re-adjustment, modifications or repairs are carried out by Hughes & Kettner or by persons authorized to do so.
- The electrical installation of the relevant area complies with the requirements of IEC (ANSI) specifications.
- The unit is used in accordance with the operating instructions.
- The unit is regularly checked and tested for electrical safety by a competent technician.

WARNING:

- If covers are opened or sections of casing are removed, except where this can be done manually, live parts can become exposed.
- If it is necessary to open the unit this must be isolated from all power sources. Please take this into account before carrying out adjustments, maintenance, repairs and before replacing parts.
- The appliance can only be insulated from all power sources if the mains connection is unplugged.
- Adjustment, maintenance and repairs carried out when the unit has been opened and is still live may only be performed by specialist personnel who are authorized by the manufacturer (in accordance with VBG 4) and who are aware of the associated hazards.
- Loudspeaker outputs which have the IEC 417/5036 symbol (Diagram 1, below) can carry voltages which are hazardous if they are made contact with. Before the unit is switched on, the loudspeaker should therefore only be connected using the lead recommended by the manufacturer.
- Where possible, all plugs on connection cables must be screwed or locked onto the casing.
- Replace fuses only with IEC 127 type and specified rating.
- It is not permitted to use repaired fuses or to short-circuit the fuse holder.
- Never interrupt the protective conductor connection.
- Surfaces which are equipped with the „HOT“ mark (Diagram 2, below), rear panels or covers with cooling slits, cooling bodies and their covers, as well as tubes and their covers are purposely designed to dissipate high temperatures and should therefore not be touched.
- High loudspeaker levels can cause permanent hearing damage. You should therefore avoid the direct vicinity of loudspeakers operating at high levels. Wear hearing protection if continuously exposed to high levels.

MAINS CONNECTION:

- The unit is designed for continuous operation.
- The set operating voltage must match the local mains supply voltage.
- Caution: The unit mains switch must be in position OFF before the mains cable is connected.
- The unit is connected to the mains via the supplied power unit or power cable.
- Power unit: Never use a damaged connection lead. Any damage must be rectified by a competent technician.
- Avoid connection to the mains supply in distributor boxes together with several other power consumers.
- The plug socket for the power supply must be positioned near the unit and must be easily accessible.

PLACE OF INSTALLATION:

- The unit should stand only on a clean, horizontal working surface.
- The unit must not be exposed to vibrations during operation.
- Keep away from moisture and dust where possible.
- Do not place the unit near water, baths, wash basins, kitchen sinks, wet areas, swimming pools or damp rooms. Do not place objects containing liquid on the unit - vases, glasses, bottles etc.
- Ensure that the unit is well ventilated.
- Any ventilation openings must never be blocked or covered. The unit must be positioned at least 20 cm away from walls. The unit may only be fitted in a rack if adequate ventilation is ensured and if the manufacturer's installation instructions are followed.
- Keep away from direct sunlight and the immediate vicinity of heating elements and radiant heaters or similar devices.
- If the unit is suddenly moved from a cold to a warm location, condensation can form inside it. This must be taken into account particularly in the case of tube units. Before switching on, wait until the unit has reached room temperature.
- Accessories: Do not place the unit on an unsteady trolley, stand, tripod, base or table. If the unit falls down, it can cause personal injury and itself become damaged. Use the unit only with the trolley, rack stand, tripod or base recommended by the manufacturer or purchased together with the unit. When setting the unit up, all the manufacturer's instructions must be followed and the setup accessories recommended by the manufacturer must be used. Any combination of unit and stand must be moved carefully. A sudden stop, excessive use of force and uneven floors can cause the combination of unit and stand to tip over.
- Additional equipment: Never use additional equipment which has not been recommended by the manufacturer as this can cause accidents.
- To protect the unit during bad weather or when left unattended for prolonged periods, the mains plug should be disconnected. This prevents the unit being damaged by lightning and power surges in the AC mains supply.

Diagram 1**Diagram 2**

!INDICACIONES DE SEGURIDAD IMPORTANTES!
¡LEÁNSE ANTES DE UTILIZAR EL APARATO Y GUARDENSE PARA SU USO POSTERIOR!

• El aparato ha sido producido por Hughes & Kettner según el IEC 60065 y salió de la fábrica en un estado técnicamente perfecto. Para conservar este estado y asegurar un funcionamiento sin peligros el usuario debe tener en cuenta las indicaciones y advertencias contenidas en las instrucciones de manejo. El aparato corresponde a la clase de protección I (toma de tierra protegida).

• LA SEGURIDAD, LA FIABILIDAD Y EL RENDIMIENTO DEL APARATO SOLO ESTAN GARANTIZADOS POR HUGHES & KETTNER CUANDO:

- el montaje, la ampliación, el reajuste, los cambios o las reparaciones se realicen por Hughes & Kettner o por personas autorizadas para ello;
- la instalación eléctrica del recinto en cuestión corresponda a los requisitos de la determinación del IEC (ANSI);
- el aparato se use de acuerdo con las indicaciones de uso.

ADVERTENCIA:

- Si se destapan protecciones o se retiran piezas de la carcasa, exceptuando si se puede hacer manualmente, se pueden dejar piezas al descubierto que sean conductoras de tensión.
- Si es necesario abrir el aparato, éste tiene que estar aislado de todas las fuentes de alimentación. Esto se debe tener en cuenta antes del ajuste, de un entretenimiento, de una reparación y de una sustitución de las piezas.
- Un ajuste, un entretenimiento o una reparación en el aparato abierto y bajo tensión sólo puede ser llevado a cabo por un especialista autorizado por el productor (según VBG 4) que conozca a fondo los peligros que ello conlleva.
- Las salidas de altavoces que estén provistas de la característica IEC 417/5036 (figura 1, véase abajo) pueden conducir tensiones peligrosas al contacto. Por ello es indispensable que antes de poner en marcha el aparato: la conexión se haya realizado únicamente con el cable de empalmes recomendado por el productor.
- Las clavijas de contacto al final de los cables conectores tienen que estar atornilladas o enclavadas a la carcasa, en tanto que sea posible.
- Sólo se pueden utilizar del tipo IEC 127 con la intensidad de corriente nominal indicada.
- El empalme del conductor de protección no se puede interrumpir en ningún caso.
- Las superficies provistas de la característica „HOT“ (figura 2, véase abajo), los paneles de fondo trasero o las protecciones con ranuras de ventilación, los cuerpos de ventilación y sus protecciones, así como las válvulas electrónicas y sus protecciones pueden alcanzar temperaturas muy altas durante el funcionamiento y por ello no se deberían tocar.
- Niveles elevados de la intensidad de sonido pueden causar continuos daños auditivos; por ello debe evitar acercarse demasiado a altavoces que funcionen a altos niveles. En tales casos utilice protecciones auditivas.

ACOMETIDA A LA RED:

- El aparato está proyectado para un funcionamiento continuo.
- La tensión de funcionamiento ajustada tiene que coincidir con la tensión de la red del lugar.
- Advertencia: el interruptor de la red del aparato tiene que estar en la posición OFF cuando se conecte el cable de red.
- La conexión a la red eléctrica se efectuará con la fuente de alimentación o con el cable de red que se entreguen con el aparato.
- Fuente de alimentación: una línea de conexión dañada no se puede sustituir. La fuente de alimentación no puede volver a ponerse en funcionamiento.
- Evite una conexión de la red eléctrica a distribuidores con muchas tomas de corriente.
- El enchufe para el suministro de corriente tiene que estar cerca del aparato y ser de fácil acceso.

SITUACION:

- El aparato debería estar situado en una superficie limpia y totalmente horizontal.
- El aparato no puede estar expuesto a ningún tipo de sacudidas durante su funcionamiento.
- Se deben evitar la humedad y el polvo.
- El aparato no puede ponerse en funcionamiento cerca del agua, la bañera, el lavamanos, la pila de la cocina, un recinto con tuberías de agua, la piscina o en habitaciones húmedas. Tampoco se pueden poner objetos llenos de líquido - jarrones, vasos, botellas, etc. - encima de él.
- Procure que el aparato tenga suficiente ventilación.
- Las aberturas de ventilación existentes no se deben bloquear ni tapar nunca. El aparato debe estar situado como mínimo a 20 cm de la pared. El aparato sólo se puede montar en un rack, si se ha procurado la suficiente ventilación y se han cumplido las indicaciones de montaje del productor.
- Evite los rayos del sol directos así como la proximidad a radiadores, electro-radiadores o aparatos similares.
- Si el aparato pasa repentinamente de un lugar frío a otro caliente, se puede condensar humedad en su interior. Esto se debe tener en cuenta sobre todo en los aparatos con válvulas electrónicas. Antes de poner en marcha el aparato se debe esperar hasta que éste haya adquirido la temperatura ambiente.
- Accesorios: el aparato no se puede colocar encima de carros, estantes, trípodes, soportes o mesas inestables. Si el aparato se cae puede causar daños personales y se puede estropear. Coloque el aparato sólo en un carro, rack, estante, trípode o soporte recomendado por el productor o que se le haya vendido junto con el aparato. En la instalación se deben seguir las indicaciones del productor así como utilizar los accesorios recomendados por el mismo para colocarlo encima. El conjunto del aparato con el pedestal se debe mover con mucho cuidado. Un paro brusco, la aplicación de una fuerza desmesurada o un suelo irregular puede ocasionar la caída de todo el conjunto.
- Piezas adicionales: no utilice nunca piezas adicionales que no estén recomendadas por el productor, ya que se podrían provocar accidentes.
- Para proteger el aparato de una tormenta o si no se supervisa ni utiliza durante algún tiempo, se debería desconectar la clavija de la red. Así se evitan daños en el aparato a causa de un rayo y golpes de tensión en la red de corriente alterna.

Figura 1**Figura 2**

This is to certify that

HUGHES & KETTNER MATRIX™ 100

complies with the provisions of the Directive of the Council of the European Communities on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive 89/336/EEC) and the low voltage Directive (73/23/EEC). This declaration of conformity of the European Communities is the result of an examination carried out by the Quality Assurance Department of STAMER GmbH in accordance with European Standards EN 50081-1, EN 50082-1 and EN 60065 for low voltage, as laid down in Article 10 of the EMC Directive.



A handwritten signature of "L. Stamer" is written over a horizontal line.

Lothar Stamer Dipl.Ing.
Managing Director
St.Wendel, 02/17/2004

* Stamer Musikanlagen manufactures exclusively for Hughes & Kettner

Für das folgend bezeichnete Erzeugnis

HUGHES & KETTNER MATRIX™ 100

wird hiermit bestätigt, dass es den wesentlichen Schutzanforderungen entspricht, die in der Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit (89/336/EWG) und der Niederspannungsrichtlinie (73/23/EWG) festgelegt sind. Diese Erklärung gilt für alle Exemplare, und bestätigt die Ergebnisse der Messungen, die durch die Qualitätssicherung der Fa. Stamer Musikanlagen GmbH durchgeführt wurden. Zur Beurteilung des Erzeugnisses hinsichtlich elektromagnetischer Verträglichkeit wurden folgende Normen herangezogen: EN 50081-1 • EN 50082-1. Zur Beurteilung der Einhaltung der Niederspannungsrichtlinie wurde folgende Norm herangezogen: EN 60065

Diese Erklärung wird verantwortlich für den Hersteller



A handwritten signature of "L. Stamer" is written over a horizontal line.

Lothar Stamer Dipl.Ing.
Geschäftsführer
St.Wendel, den 17.02.2004

* Stamer Musikanlagen stellt exklusiv für Hughes & Kettner her

Hughes & Kettner®

TECHNOLOGY OF TONE

AUSTRALIA

CMI, Brooklyn, Vic 3025

AUSTRIA

EXACT Vertriebs-GmbH, 8020 Graz

BENELUX

WILS MUZIEKIMPORT, 4706 NJ Roosendaal

BOSNIA and HERZEGOVINA

Allied Music Exports GmbH, Munich/Germany

CANADA

EFKAY MUSIC, Lachine, Quebec H8T 2P1

CROATIA

Allied Music Exports GmbH, Munich/Germany

CZECH REPUBLIC

MUSICDATA, 59401 Velké

DENMARK

REHOLM MUSIK EN-GROS, 7000 Fredericia

ESTONIA

STANFORD TRADING, Tallinn

FINLAND

F-MUSIikki INC., 00100 Helsinki

FRANCE

CAMAC S.A., 44470 Thouaré

GERMANY

MUSIC & SALES' GmbH, 66606 St. Wendel

HUNGARY

LAHA K.F.T., 9400 Sopron

INDONESIA

WIJAYA MUSIC, Jakarta 10710

ITALY

SISME SPA, 60028 Osimo Scalo

JAPAN

Y&P Corp., Yachiyo Chiba 2760034

LETTLAND

MUSIC SERVICE Ltd., Riga

Macedonia

Allied Music Exports GmbH, Munich/Germany

MALAYSIA

GUITAR COLLECTION, 60000 Kuala Lumpur

NEW ZEALAND

MUSIC WORKS, Onehunga, Auckland

NORWAY

BELCO A/S, 3921 Porsgrunn

POLAND

AMTEC, 51-663 Wrocław

PORTUGAL

ALRICA, 1100 Lisboa

RUSSIA

Bayland Music House, 119146 Moscow

SLOVAK REPUBLIC

GB Music spol. s.r.o., 8111 06 Bratislava

SOUTH KOREA

Firtra Trading Co., Ltd., Seoul

SPAIN

ADAGIO, 08110 Montcada i Reixach

SWEDEN

ILT AB, 84100 Ånge

SWITZERLAND

SDS Music Factory AG, 8048 Zürich

TAIWAN

OMEGA MUSIC, Taichung

TURKEY

Lay Lay Lom A.S., Istanbul

UNITED KINGDOM & IRE

SENNHEISER, Highwycombe, Bucks HP12 3SL

USA

HUGHES & KETTNER Inc., Mt Prospect, IL 60056

YUGOSLAVIA

Allied Music Exports GmbH, Munich/Germany

HUGHES & KETTNER • Postfach 1509 • 66595 St. Wendel • Tel. +49 (0) 68 51 - 905 0 • Fax. +49 (0) 68 51 - 905 103
INTERNATIONAL INQUIRIES: Fax +49 - 68 51 - 905 200 • E-Mail: hkinternational@hughes-and-kettner.com