MIDI

COUPLE

24 BIT AD/DA CONVERTER

SAFETY INSTRUCTIONS

	CAUTION	
⚡	RISK OF ELECTRIC SHOCK DO NOT OPEN	⚠

DETAILED SAFETY INSTRUCTIONS:

Retain Instructions:

Heed Warnings:

Follow instructions:

Water and Moisture:

Ventilation:

Heat:

Power Source:

Grounding or Polarization:

Power-Cord Protection:

Cleaning:

Non-use Periods:

Object and Liquid Entry:

Damage Requiring Service:

Servicing:

FOREWORD

TABLE OF CONTENTS

1. INTRODUCTION

▲
▲

▲

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☞ **The following instructions manual will introduce you to the BEHRINGER VIRTUALIZER PRO and its various functions. After reading the manual carefully, make sure it is always on hand for future reference.**

1.1 The design concept

Fig. 1.1: VIRTUALIZER PRO front panel

2

REV

SPECIAL EFFECTS

01 CA...
02 PLA...
03 SMA...
4 ROOM...
STUD...

RCUSSION
LAY
HO
TED REV.
VERSE RE...

17 PR...
18
1...

+1.8.8.

24 BIT AD/DA CONVERTER

EFFECT   ENGINE L   EDIT A   EQ HI   IN / OUT

VARIATION   ENGINE R   EDIT B   EQ LO   STORE

COUPLE   MIX   MIDI

POWER

BEHRINGER
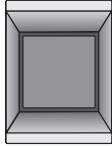
| 8 | ENGINE R | | 7 |
| | | | couple |

| 9 | | | EDIT A |

10	EDIT B
11	
EQ HI	
12	EQ LO
13	IN/OUT

| 14 | STORE |

| 15 | POWER |

Key combinations

▲   **before powering up**

External Mix   *Internal*
Mix

▲

▲

1.4.1 Reverb and delay algorithms

1   Cathedral

VARIATION   **EDIT A**
            EDIT B – ENGINE L   **EDIT B – ENGINE R**

2   Plate   **VARIATION**
EDIT A   **EDIT B**   **ENGINE L**
                            ENGINE R

3   Small Hall   **VARIATION**
                                                                EDIT A
            EDIT B   **ENG. L**   **ENG. R**

4   Room
                        EDIT B
VARIATION
            EDIT A

5   Studio   **EDIT B – ENG. R**
                        EDIT B – ENG. L   **EDIT A**
     VARIATION

6   Concert   **VARIATION**
                                EDIT A
EDIT B – ENG. L   **EDIT B – ENG. R**

7   Stage
            EDIT B – ENG. R   **EDIT B – ENG. L**
                                            VARIATION   **EDIT A**

VARIATION

EDIT A   **EDIT B**

VARIATION

EDIT A   ENGINE L   **EDIT B   ENGINE L**

                                                                EDIT A   ENGINE R

                                          EDIT B   ENGINE R

2. OPERATION

2.1 Effects structure

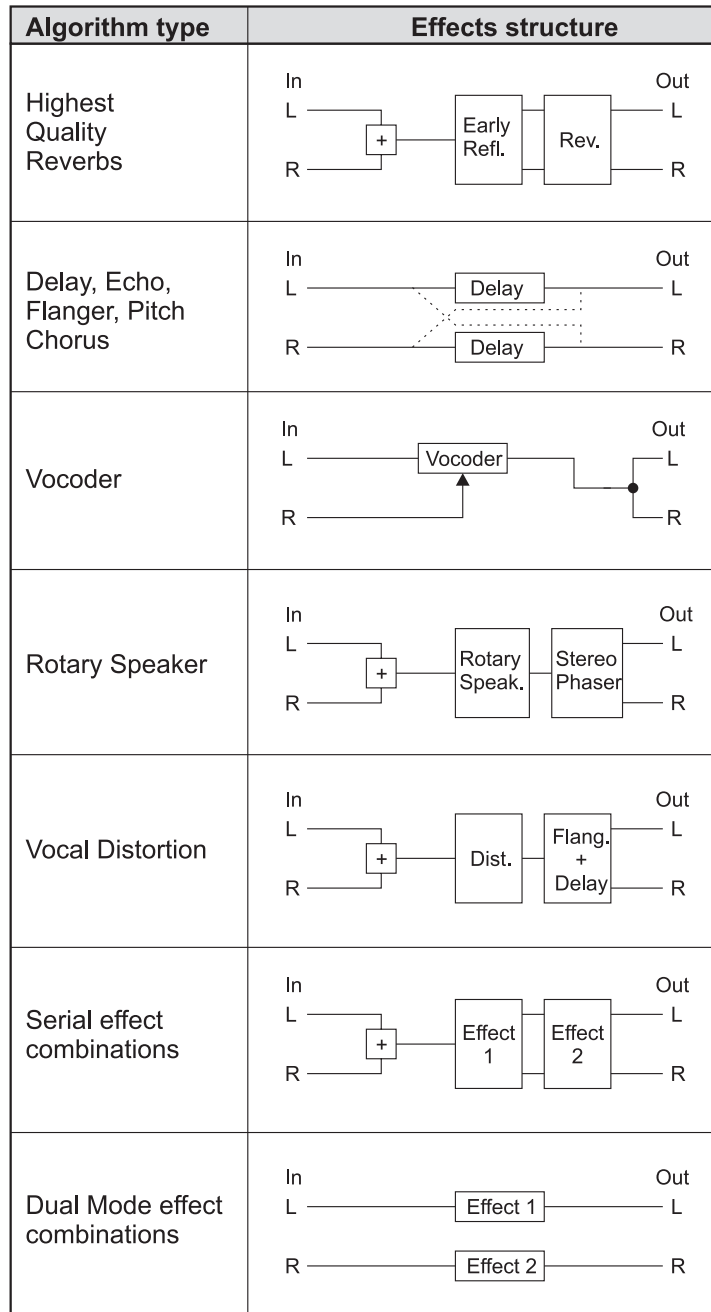| Algorithm type	Effects structure
Highest Quality Reverbs	In L — [+] — [Early Refl.] — [Rev.] — L Out / R — — R
Delay, Echo, Flanger, Pitch Chorus	In L — [Delay] — L Out / R — [Delay] — R
Vocoder	In L — [Vocoder] — L Out / R — R
Rotary Speaker	In L — [+] — [Rotary Speak.] — [Stereo Phaser] — L Out / R — — R
Vocal Distortion	In L — [+] — [Dist.] — [Flang. + Delay] — L Out / R — — R
Serial effect combinations	In L — [+] — [Effect 1] — [Effect 2] — L Out / R — — R
Dual Mode effect combinations	In L — [Effect 1] — L Out / R — [Effect 2] — R

Fig. 2.1: Effects structure

2.2 Selecting presets

☞ **Please note that the VIRTUALIZER PRO generally activates the newly selected presets only after about one second, which is indicated by a dot in the lower right corner of the display. After**

loading the data, the VIRTUALIZER PRO enables the preset and the dot disappears. This brief interruption avoids the direct activation of every preset, as you scroll through the preset list with the JOG WHEEL. Otherwise incomplete "parameter remnants" of presets could reach the audio outputs of the VIRTUALIZER PRO, with possibly disastrous consequences, especially when using a high-power P.A. system. Thus, the VIRTUALIZER PRO makes sure that no "unwanted" programs are loaded unintentionally. Additionally, you can rotate the JOG WHEEL at high speed and still have the time to specifically select the preset of your choice, instead of any of its "neighbours".

☞   The effect algorithms may have greatly varying output levels, reduce the sensitivity (input gain) of subsequent devices before changing programs.

2.3   Editing programs

2.4   Saving programs

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☞   Whenever you have edited a preset and pressed the STORE key twice, all previous settings in this preset are erased and overwritten with the new parameter values. However, if you wish to keep the original preset, use the JOG WHEEL to select another preset *before* you press the STORE key a second time.

2.5   MIDI control

Display	Mode
0	No controller data are transmitted.
1	Controller data are received but not transmitted.
2	Controller data are transmitted but not received.
3	Controller data are transmitted and received.

Tab. 2.1: Controller settings

Display	Modus
0	Program Changes are not transmitted.
1	Program Changes are received but not transmitted.
2	Program Changes are transmitted but not received.
3	Program Changes are transmitted and received.

Tab. 2.2: Program change settings

☞ **Attention! Since the "store enable" mode allows you to access memory locations directly via MIDI, it is possible that stored presets will be replaced or altered if controller #28 messages are sent on the same MIDI channel. The purpose of this mode is to facilitate MIDI backup and restore operations without express confirmation at the VIRTUALIZER PRO. It is therefore recommended to disable (flag = 0) this mode as soon as the intended data transfer has ended. This is done automatically when you switch off the VIRTUALIZER PRO.**

☞ **During a bulk dump, all audio functions of the VIRTUALIZER PRO will be deactivated.**

▲

☞ ...wn ... ...ny ... ...ent against damage. All ...you... ...c... ...hey are wired correctly.

3 Us... he VI... ...RF... ...ort path

In ↓
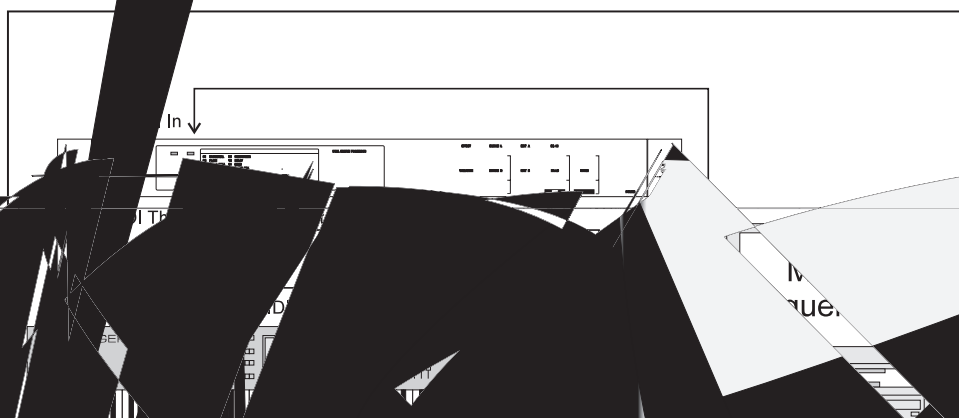
4. TECHNICAL BACKGROUND

4.1 Reverberation and reflection

Fig. 4.1: Direct and reflected sounds reaching the listener's ear
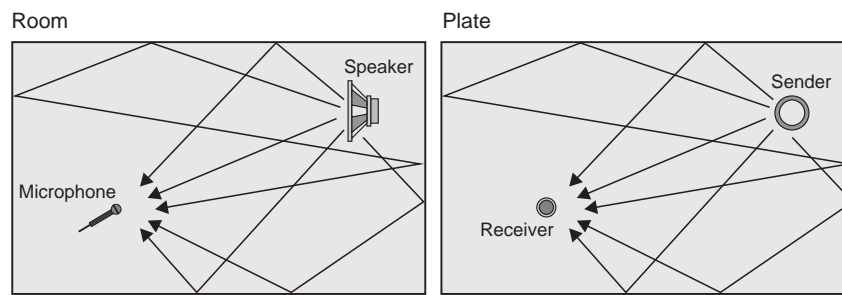
Fig. 4.2: Room reflections and reverb plate reflections

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4.1.3 Digital reverb

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▲
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5. INSTALLATION

5.1 Mains connection

☞ **Please make sure that all units have a proper ground connection. For your own safety, do not remove the ground connection within the units or at the supply, or fail to make this connection at all.**

IMPORTANT: This does not apply for general export models which are built for one operating voltage only.

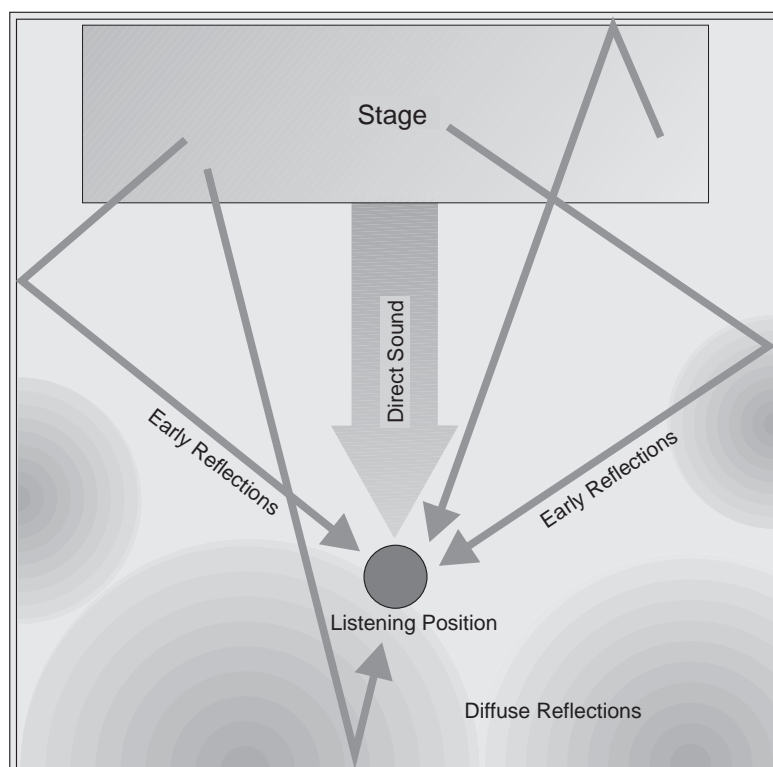☞ **If the unit is switched to an other operating voltage, the ruse rating must be changed. See the technical specifications in the appendix**

5.2 Audio connections

☞ **Please ensure that only qualified persons install and operate the VIRTUALIZER PRO. During installation and operation the user must have sufficient electrical contact to earth. Electrostatic charges might affect the operation of the VIRTUALIZER PRO!**
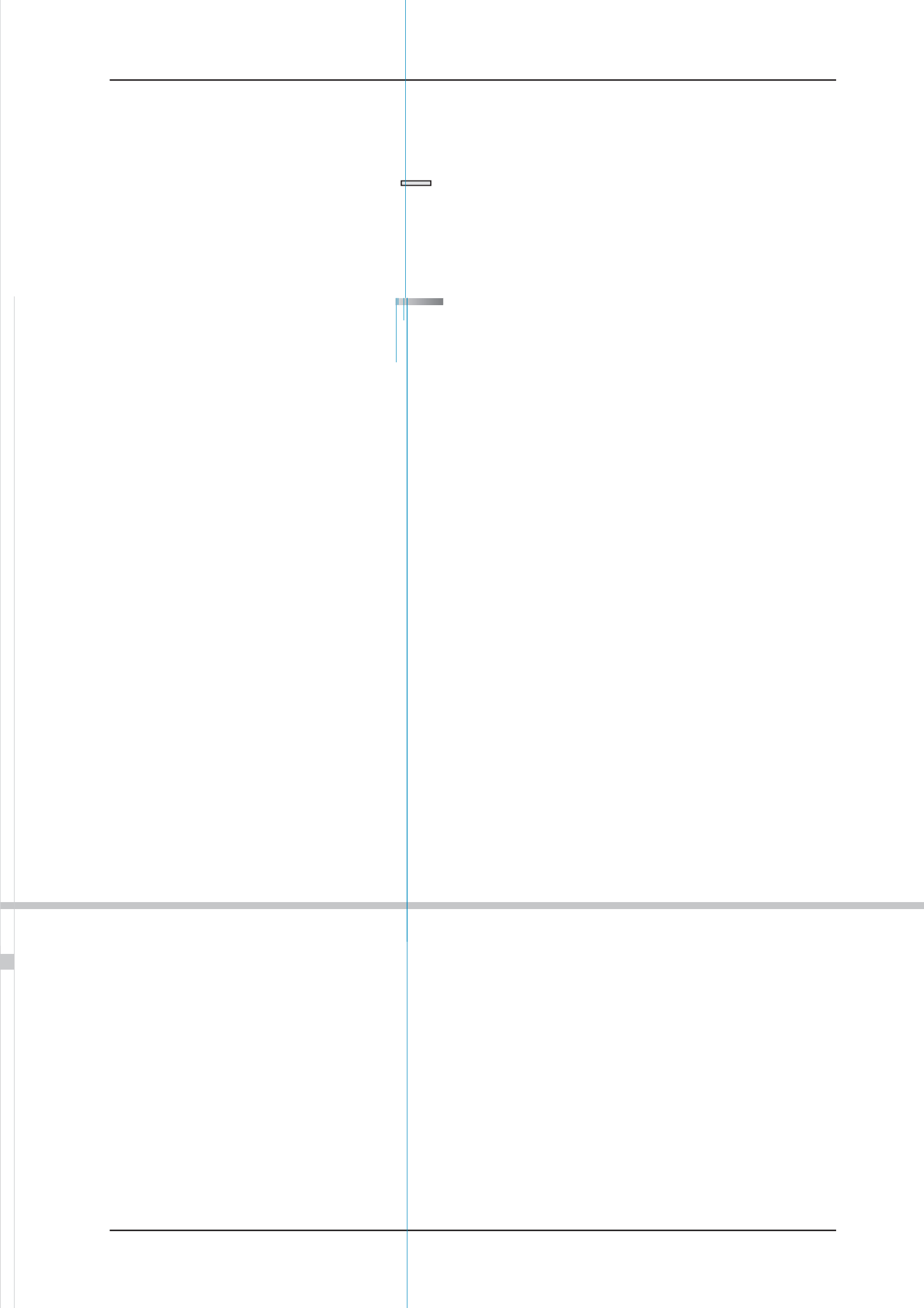
6. APPENDIX

6.1 Parameter overview

Nr.	EFFECT	VARIATION	EDIT A		EDIT B	
			ENGINE L	ENGINE R	ENGINE L	ENGINE R
1	CATHEDRAL	Reverb Time	Diffusion		Early Reflections	High Multiply
2	PLATE	Reverb Time	Pre Delay		Stereo Width	High Multiply
3	SMALL HALL	Reverb Time	Diffusion		Early Reflections	Stereo Width
4	ROOM	Reverb Time	Pre Delay			Wall Damp
5	STUDIO	Reverb Time	Pre Delay		Early Reflections	Wall Damp
6	CONCERT	Reverb Time	Pre Delay		Early Reflections	Diffusion
7	STAGE	Reverb Time	Diffusion		Liveliness	Stereo Width
8	VOCAL	Reverb Time	Pre Delay		Early Reflections	High Mulitiply
9	PERCUSSION	Reverb Time	Diffusion		Early Reflections	High Frequency Decay
10	DELAY	Del. Coarse	Delay Time	Delay Time	Feedback	Feedback
11	ECHO	Del. Coarse	Delay Time	Delay Time	Feedback	Feedback
12	GATED REVERB	Gate Time	Density		Gate Threshold	
13	REVERSE REVERB	Gate Time	Pre Delay		Gate Threshold	
14	VOCAL DISTORTION	Distortion Type	Delay Time (x 10 ms)		Delay Mix	
15	ROTARY SPEAKER	Rotary Type	Horn Speed		Rotor Speed	
16	VOCODER	Vocoder Type	Vocoder Distortion		Vocoder Sens	
17	PITCH		Cent	Cent	Semi Tone	Semi Tone
18	FLANGER	Mod. Frequency	Mod. Depth	Mod. Depth	Mod. Feedback	Mod. Feedback
19	CHORUS	Mod. Frequency	Mod. Delay	Mod. Delay	Mod. Depth	Mod. Depth
20	TREMOLO & DELAY	Mod. Frequency	Mod. Depth	Del. Time (x 10 ms)	Panning	Delay Feedback
21	DELAY & REVERB	Del. Mix	Del. Time (x 10 ms)	Reverb Time	Feedback	Reverb Mix
22	PITCH & REVERB		Cent	Reverb Time	Semi Tone	Reverb Mix
23	FLANGER & REVERB	Mod. Frequency	Mod. Depth	Reverb Time	Mod. Feedback	Reverb Mix
24	CHORUS & REVERB	Mod. Frequency	Mod. Delay	Reverb Time	Mod. Depth	Reverb Mix
25	PITCH / REVERB		Cent	Reverb Time	Semi Tone	High Multiply
26	FLANGER / REVERB	Mod. Frequency	Mod. Depth	Reverb Time	Mod. Feedback	High Multiply
27	CHORUS / REVERB	Mod. Frequency	Mod. Delay	Reverb Time	Mod. Depth	High Multiply
28	TREMOLO / REVERB	Mod. Frequency	Del. Time (x 10 ms)	Reverb Time	Delay Feedback	High Multiply
29	DELAY / REVERB		Del. Time (x 10 ms)	Reverb Time	Delay Feedback	High Multiply
30	PITCH / ECHO		Cent	Del. Time (x 10 ms)	Semi Tone	Delay Feedback
31	FLANGER / ECHO	Mod. Frequency	Mod. Depth	Del. Time (x 10 ms)	Mod. Feedback	Delay Feedback
32	CHORUS / ECHO	Mod. Frequency	Mod. Delay	Del. Time (x 10 ms)	Mod. Depth	Delay Feedback

Tab. 6.1: Parameter overview of the different effect types

6.2 Delay values / increments for presets 10 and 11

Variation Type	Edit A				Step Size (L & R)
	Delay (L)		Delay (R)		
	From (ms)	Until (ms)	From (ms)	Until (ms)	
1	0	315	0	315	5
2	320	635	320	635	5
3	640	955	640	955	5
4	960	1275	960	1275	5
5	0	315	320	635	5
6	0	315	640	955	5
7	0	315	960	1275	5
8	320	635	640	955	5
9	320	635	960	1275	5
10	640	955	960	1275	5
11	0	630	1280	1910	10
12	0	630	1920	2550	10
13	0	630	2560	3190	10
14	0	630	3200	3830	10
15	640	1270	1280	1910	10
16	640	1270	1920	2550	10
17	640	1270	2560	3190	10
18	640	1270	3200	3830	10
19	1280	1910	1920	2550	10
20	1280	1910	2560	3190	10
21	1280	1910	3200	3830	10
22	1280	1910	3840	4470	10
23	1920	2550	2560	3190	10
24	1920	2550	3200	3830	10
25	1920	2550	3840	4470	10
26	1920	2550	4480	5110	10
27	2560	3190	3200	3830	10
28	2560	3190	3840	4470	10
29	2560	3190	4480	5110	10
30	3200	3830	3840	4470	10
31	3200	3830	4480	5110	10
32	3840	4470	4480	5110	10

Fig. 6.2: Increment table for presets 10 and 11

6.3 MIDI Implementation

MIDI Implementation Chart			
Function	**Transmitted**	**Recognized**	**Remarks**
Basic Channel — Default	OFF, 1 - 16	OFF, 1 - 16	memorized
Basic Channel — Changed	OFF, 1 - 16	OFF, 1 - 16	
Mode — Default	1,2,3,4	1,2,3,4	
Mode — Messages	X	X	
Mode — Altered	X	X	
Note Number	X	X	
Note Number — True Voice	X	X	
Velocity — Note ON	X	X	
Velocity — Note OFF	X	X	
After Touch — Key´s	X	X	
After Touch — Ch´s	X	X	
Pitch Bender	X	X	
Control	O 20 - 30	O 20 - 30	see add. Table
Progr. Change	O (0-99)	O (0-99)	
Progr. Change — True #	1-100	1-100	
System Exclusive	X	X	
System Common — Song Pos	X	X	
System Common — Song Sel	X	X	
System Common — Tune	X	X	
System Real Time — Clock	X	X	
System Real Time — Commands	X	X	
Aux Messages — Local ON/OFF	X	X	
Aux Messages — All notes OFF	X	X	
Aux Messages — Active Sense	X	X	
Aux Messages — Reset	X	X	
Notes			

O = YES, X = NO
Mode 1:   OMNI ON, POLY
Mode 2:   OMNI ON, MONO
Mode 3:   OMNI OFF, POLY
Mode 4:   OMNI OFF, MONO

Tab. 6.3: MIDI Implementation Chart

Parameter Name	Display Range	Midi Control Number	Control Value Range	LEDs				
				Couple	Left	Right	IN on	IN off
Effect	1..32	20	0..31					
Variation	1..32	21	0..31					
Engine		22	0,1,2	0	1	2		
Edit A	0..63 / -50..50	23	0..63 / 0..100 (1)					
Edit B	0..63 / -12..12	24	0..63 / 0..24 (2)					
EQ LO	-16..16	25	0..33					
EQ HI	-16..16	26	0..33					
Mix	0..100	27	0..100					
Store	1..100	28	0..99					
IN/OUT		29	0,1				1	0
Mix Intern/Extern	0..100 / --	30	0,1					

(1) when effect has Cent function
(2) when effect has Semi Tone function

Tab. 6.4: Controller functions with MIDI

6.4 Default settings

No.	Effect	Variation	Engine Left		Engine Right	
			Edit A	Edit B	Edit A	Edit B
1	Cathedral	11	63	53	-	50
2	Plate	14	9	50	-	20
3	Small Hall	4	50	39	-	63
4	Room	30	0	29	-	-
5	Studio	9	9	49	-	31
6	Concert	23	20	51	-	63
7	Stage	20	55	60	-	63
8	Vocal	14	28	46	-	52
9	Percussion	8	63	27	-	-
10	Delay	1	24	30	24	30
11	Echo	1	37	30	37	30
12	Gated Reverb	5	50	21	-	-
13	Reverse Reverb	8	63	21	-	-
14	Vocal Distortion	12	15	16	-	-
15	Rotary Speaker	14	18	14	-	-
16	Vocoder	4	10	56	-	-
17	Pitch	-	+0	+0	+0	+0
18	Flanger	1	6	56	6	56
19	Chorus	1	32	63	32	63
20	Tremolo & Delay	19	63	63	0	0
21	Delay & Reverb	21	63	9	57	56
22	Pitch & Reverb	-	+6	+0	50	52
23	Flanger & Reverb	4	63	63	32	38
24	Chorus & Reverb	6	20	30	63	43
25	Pitch / Reverb	-	+0	+0	21	40
26	Flanger / Reverb	4	63	63	21	40
27	Chorus / Reverb	1	27	60	21	40
28	Tremolo / Reverb	17	0	0	21	40
29	Delay / Reverb	-	55	20	21	40
30	Pitch / Echo	-	+0	+0	40	23
31	Flanger / Echo	1	8	60	63	16
32	Chorus / Echo	1	34	40	31	23

Tab. 6.5: Default settings

7. SPECIFICATIONS

Analog Inputs

Ω Ω

Analog Outputs

Ω Ω

System specifications

MIDI Interface

Digital Processing

Display

Power Supply

T 200 mA H
T 100 mA H

Physical

8. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims.

Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not due to normal wear and tear and/or improper handling by the user, BEHRINGER shall, at its sole discretion, either repair or replace the product.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

§ 3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours **BEFORE** returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

§ 4 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement by BEHRINGER under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user.

This also applies to defects caused by normal wear and tear, in particular, of faders, potentiometers, keys/buttons and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

▲ misuse, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.

▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.

▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 6 CLAIM FOR DAMAGES

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

§ 7 OTHER WARRANTY RIGHTS AND NATIONAL LAW

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.