

# **Chapter 3. Advanced Applications**

This chapter explains advanced techniques and information for the player and composer when using the K4/K4r and MIDI.

## **3-1. MIDI DATA DUMP**

## **3-2. Play Using a Sequencer or Computer**

## **3-3. MULTI Real Time Play**

## **3-4. MIDI for the Advanced User**

# 3-1. MIDI DATA DUMP

The K4/K4r can execute MIDI Data Dumps of individual patches, blocks of patches, or the entire patch memory.

*Data control is easy when a sequencer with a MIDI Data Dump function such as the Q-80 is used. With the Q-80, data equivalent to about 40 times the storage capacity of the K4/K4r can be saved on a 2DD disk.*

Parameter	TONE	*SGL	*MLT	EFCT (OUT)	*EFF (*OUT)	DRUM	ALL
Dump Data							ALL
SINGLE	1Patch	64Patch					
MULTI	1 Patch		64Patch				
DRUM						1KIT	
EFFECT				1Patch	32Patch		
Comment	*1	*2	*2	*1	*2	*2	*2

- \*1 Selected Patch
- \*2 INT (Internal) or EXT (Card)

Before performing the MIDI Data Dump, select the patches set for the EFFECT (OUTPUT) Settings or Patches and Blocks which you wish to transmit.

Example: Transmit EFFECT setting #17

**<Procedure>**

- (1) Choose SINGLE or MULTI PLAY, press **EDIT**, and select the following screen.
- (2) Select "17" with the VALUE Slider or **+YES** and **-NO**.
- (3) Press **WRITE** several times to display the MIDI Data Dump Select screen. Select "EFC" with the VALUE Slider or **+YES** and **-NO**.
- (4) Press **WRITE** once to display the MIDI Data Dump Select screen.

**Note:** If necessary, ready the connected instrument for receiving the MIDI Data Dump.

MIA-1 NYLBI DICE  
EFFECT PACH= 1

MIDI  
DUMP SELECT=EFCT

DATA DUMP  
EXEC?=Y/N

DATA DUMP  
SURE?=Y/N

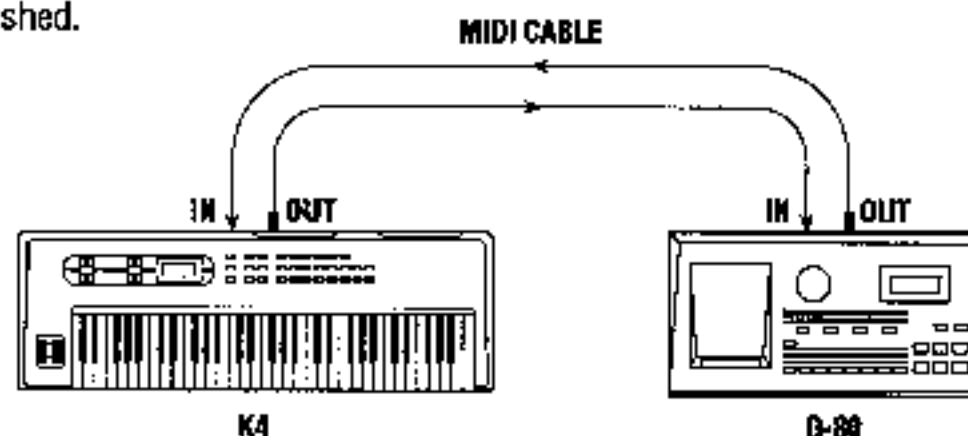
**+YES**

COMPLETED!

**-NO**

CANCELED!

- (5) After you press **+YES**, you will be asked if you are sure – press **+YES** again to confirm. The message "COMPLETED!" will be displayed when the dump has finished.



Refer to the "DATA DUMP" command for the Q-80 Owner's Manual for the Q-80.

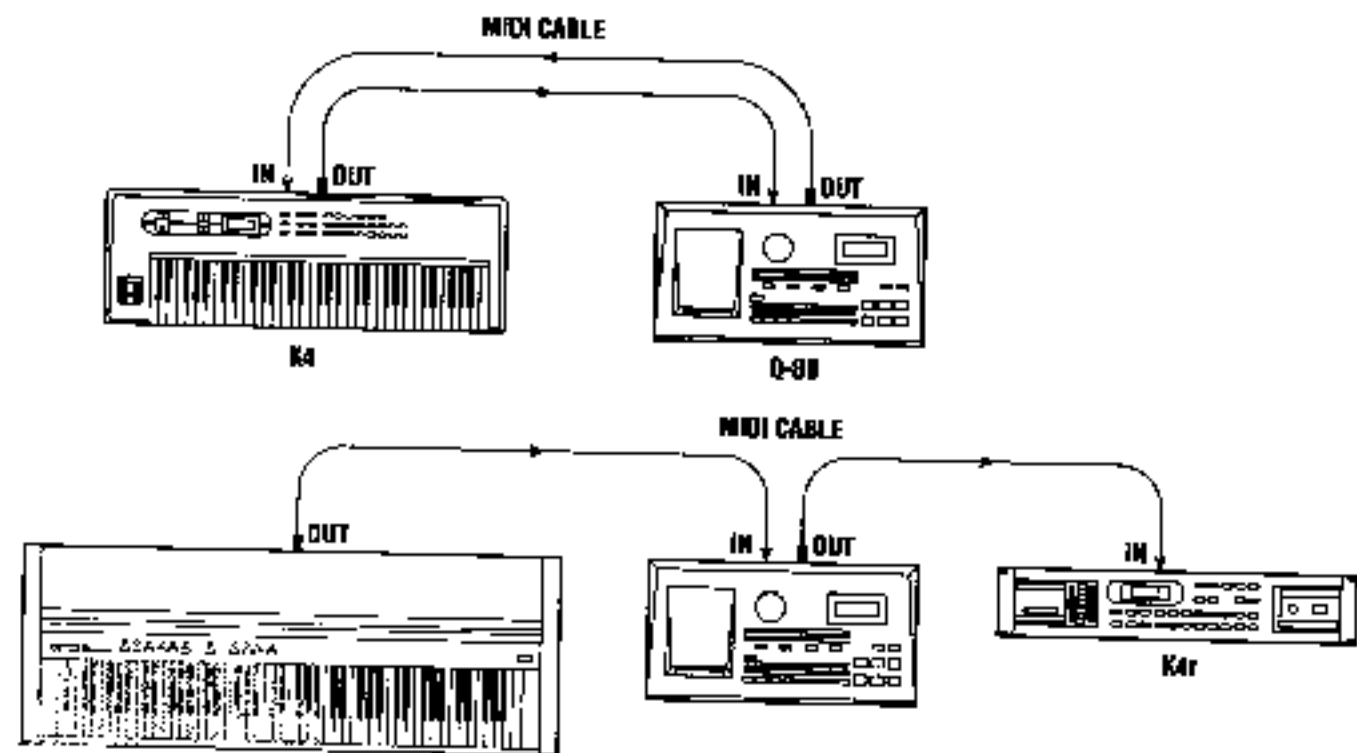
## 3-2. Play Using a Sequencer or Computer

With the MULTI mode, the K4/K4r can function as a synthesizer and drum sound source with up to eight parts. This means that an extremely simple setup such as the K4 (or K4r) and a Q-80 or other MIDI sequencer (or computer) can produce an extensive range of sounds.

Let's use the procedure shown below to actually connect a MIDI sequencer for performance.

### ● MIDI Sequencer Connection

In this example, a Kawai Q-80 is used as the sequencer. Connect it to the K4/K4r as shown in the illustration.



### ● Setting the SYSTEM LOCAL ON/OFF

Since the K4 itself can be used as a control keyboard or sound source, selecting a LOCAL ON/OFF Setting is necessary. The LOCAL Setting should be set to OFF (no sound output from the keyboard) when MULTI Performances on a sequencer or computer are being played with the K4. (Does not affect K4r.)

#### <Procedure>

SYSTEM  
LOCAL = OFF

Press **SYSTEM** several times until "SYSTEM LOCAL" is displayed. Turn off LOCAL using **YES** and **NO**. (See P. 77)

\* This separates the keyboard and sound generator of the K4 so that no sound will be output unless the MIDI Transmit and Receive Channels are matched (except when set at OMNI ON). (See P. 79)

*If you are using the Q-80 sequencer, set ECHO to THRU in order to output sound from the K4/K4r (see the Q-80 Owner's Manual). On other sequencers, this function has various names such as "Patch thru", "loop", etc.*

● **MULTI Settings**

Decide what Sections will be played, and what tones and MIDI Channels they will use. The settings for this are made in the same way as for MULTI real time play. Here we will use the MULTI ID-13 which is preset. The following table shows you what settings to make for this MULTI.

**Example:**

Section number	Timbre	Receive MIDI channel
1	IB-6 Big Brass	1
2	IA-10 Slap Bass	2
3	IA-2 Bright EP	3
DRUM		10

Let's use this MULTI to play a demo song on the sequencer.

● **Demo Song Input**

Input the following demo song score into the sequencer. (Refer to the sequencer's manual for an explanation on how to input music.)

The musical score is presented in two systems. The first system includes staves for Brass, E. Piano, Bass, and Drums. The second system includes a vocal line with lyrics and four accompaniment staves. The lyrics are: "A-N7/B° D7-1° C#7° B°-7° E7-1° A-N7° D-N7° C#7°".

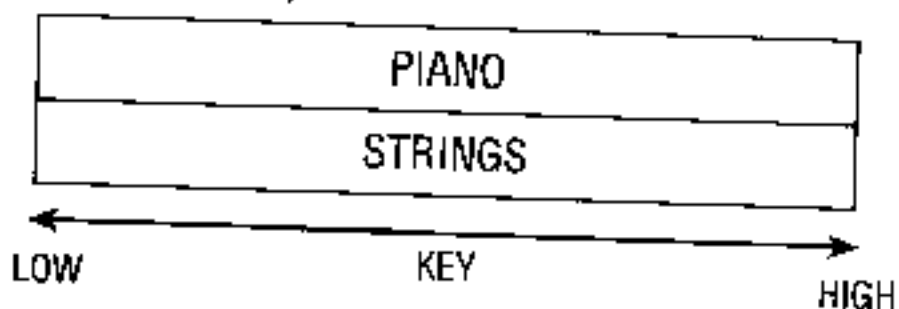
Listen to the song after you have input it. The song is only four bars long, so it might be best to repeat it.

What did you think? As you can see, quite a large range of performances can be obtained simply by connecting the K4/K4r to a sequencer or computer. Also, while the demo song used only four sections, the K4/K4r allows you to play using up nine different sections, including the DRUM Section. When doing this, you should be sure not to play more than 16 voices simultaneously including the DRUM Section.

# 3-3. MULTI Real Time Play

mULTI allows you to create a variety of features using SINGLE Patch Settings. A number of examples of these settings are shown below – experiment with them to make yourself familiar with how they work.

## ● LAYER (UNISON)



For ID-1, as you can see in the illustration above, a PIANO Sound is layered over a STRINGS Sound when a single key is pressed.

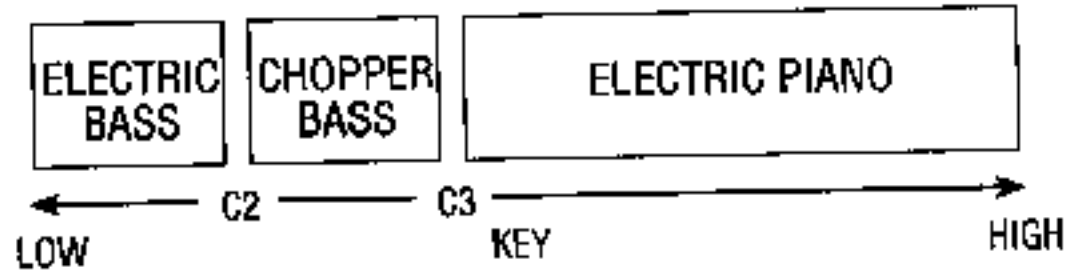
UNISON Settings can be made using data like that shown below.

### Example:

MULTI NO.:	VOL: 86	EFFECT: Chorus (K4 only)				NAME: LAYER 1			
SW	PARAMETER	SEC1	SEC2	SEC3	SEC4	SEC5	SEC6	SEC7	SEC8
(A)	SINGLE	ID-2	IA-3	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE
INST	ASSIGN	C Grand	Strings						
(B)	ZONE LO	C-4	C-4						
ZONE	ZONE HI	G6	G6						
	VEL SW	ALL	ALL						
(C)	RCV CH	1	1						
SEC ch	{MODE}	KYBD	KYBD						
(D)	LEVEL	85	50						
LEVEL	TRANS	0	0						
	TUNE	0	0						
	SUBMIX CH	A	A						

- \* When playing a number of LAYER (UNISON) tones, set MODE for the K4 to KYBD, and RCV CH for the K4r to the same one.

● SPLIT



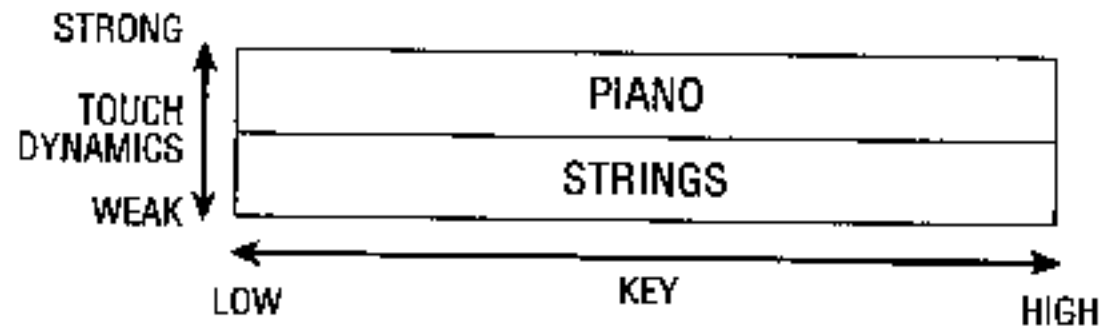
For ID-5, as you can see in the illustration above, the keyboard is set up for three MULTI Patch Timbres. Split Settings are made with data like that shown below.

Example:

MULTI NO.:	VOL: 86	EFFECT: Chorus (K4 only)			NAME: SPLIT 1				
SW	PARAMETER	SEC1	SEC2	SEC3	SEC4	SEC5	SEC6	SEC7	SEC8
(A)	SINGLE	IB-15	IA-15	IA-2	MUTE	MUTE	MUTE	MUTE	MUTE
INST	ASSIGN	Dyno Bass	Slap Bass	Light Piano					
(B)	ZONE LO	C-4	C2	C3					
ZONE	ZONE HI	B1	B2	G6					
	VEL SW	ALL	ALL	ALL					
(C)	RCV CH	1	1	1					
SEC ch	(MODE)	KYBD	KYBD	KYBD					
(D)	LEVEL	69	89	85					
LEVEL	TRANS	0	0	0					
	TUNE	0	0	0					
	SUBMIX CH	A	A	A					

\* When splitting the keyboard, set the play areas for ZONE LO and ZONE HI.

● **VELOCITY Switch**



For ID-9, as you can see in the illustration above, the keyboard is set up so that an **PIANO** Tone is played when a key is pressed forcefully, and a **STRINGS** Tone is played when pressed lightly.

\* When using this **MULTI Patch**, it is necessary to set the force at which the sound will switch (the **Velocity Switch Point**). This setting is made as follows.

```
SYSTEM
VELSW POINT=64
```

Press **SYSTEM** until "VELSW POINT" is displayed.

```
SYSTEM
VELSW POINT=80
```

The **Velocity Switch Point** can be set to any value from 1 to 127, but here we will set it at 80, using the **VALUE Slider** or **+YES** and **-NO**.

For ID-9, the **Velocity Switch Setting** is made using data like the following.

**Example:**

MULTI NO.:	VOL: 86	EFFECT: Chorus (K4 only)				NAME: VEL SW 1			
SW	PARAMETER	SEC1	SEC2	SEC3	SEC4	SEC5	SEC6	SEC7	SEC8
<b>A</b>	SINGLE	ID-2	IA-3						
	INST	Light Piano	Shot Brass						
<b>B</b>	ZONE LO	C-4	C-4						
	ZONE HI	G6	G6						
	VEL SW	SOFT	LOUD						
<b>C</b>	RCV CH	1	1						
	SEC ch (MODE)	KYBD	KYBD						
<b>D</b>	LEVEL	85	85						
	LEVEL	TRANS	0	0					
	TUNE	0	0						
	SUBMIX CH	A	A						

\* The **Velocity Switch Setting** for the sound played when the keys are struck lightly is "SOFT," and when struck forcefully is "LOUD."

The three examples shown here can be combined with each other or with **EFFECTS (K4 only)**, for a wide variety of **MULTI Real Time Playing Combinations**. You can experiment with these combinations to develop your own original sounds.

# 3-4. MIDI for the Advanced User

## ● Control Change Messages

Control Change Number	Transmit	Receive	Remarks
1 Modulation	○ (K4r X)	○	0 ~ 127
7 Volume	X	○	0 ~ 127
64 Hold	○ (K4r X)	○	0, 127
100, 101 RPC	○ (0,1)	○ (0,1)	Values are given by Data Entry (#6)

## ● Program Change Messages

SINGLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
C	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
D	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
MULTI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
B	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
C	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
D	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127

**Notes:** These program change numbers are used for both internal and external memory.

If you want to change from internal to external patch banks (or vice versa), you should send an EXCLUSIVE Message for K4/K4r before sending program change number.

The data format of MIDI EXCLUSIVE Message is as below:

FO 40 00 30 04 00(INT) or 02(EXT) 00 F7

This SYSTEM EXCLUSIVE is also transmitted when the SINGLE  
INT/EXT or MULTI  
INT/EXT.

## ● System Exclusive Messages

### (1) EXCLUSIVE Data Format

Status	F0H	SYSTEM EXCLUSIVE Message
Kawai ID number	40H	
Channel number	0nH	n=0-F
Function number		
Group number	00H	Synthesizer Group
Model ID number	04H	K4/K4r ID number
Subcommand 1		
Subcommand 2		
Data		
Data		
EOX		End of EXCLUSIVE

# A-4. DRUM SECTION and EFFECT Settings (Example)

CARD NAME	VOLUME		RCV CH		10	VELO DEPTH		+38
INST	KEY NAME	NOTE NO	WAVE S1 S2	DECAY S1 S2	TUNE S1 S2	LEVEL S1 S2	SUBMIX CH	
BD 1	C 1	36	97 97	31 31	-3 -3	95 95	H	
RIMSHOT 1	CH1	37	103 103	65 46	+1 +1	90 90	A	
SD 1	D 1	38	101 101	39 37	+3 +3	98 98	A	
CLAPS 1	DH1	39	118 118	37 33	+5 +5	90 90	A	
SD 2	E 1	40	102 101	45 41	-9 +5	95 91	A	
LO E TOM	F 1	41	106 105	50 38	-49 -21	94 85	B	
HHCL 1	F#1	42	107 107	57 57	+12 +12	65 42	E	
LO TOM 1	G 1	43	105 100	60 41	-23 -17	90 61	B	
HHCL 2	G#1	44	108 106	33 42	+6 +6	95 43	E	
MID E TOM	A 1	45	106 132	50 36	-18 +20	94 45	A	
HHOP 1	A#1	46	108 108	50 49	0 0	78 3	E	
MID TOM 1	B 1	47	105 100	62 41	-6 -11	97 80	A	
HI E TOM	C 2	48	106 192	50 35	-5 +20	95 46	E	
CLASH	CH2	49	112 112	63 29	-2 -2	92 9	E	
HI TOM 1	D 2	50	105 101	62 37	+6 -4	96 62	E	
RIDE EDGE	D#2	51	115 115	55 56	0 0	80 65	B	
CLASH 2	E 2	52	112 112	57 49	-13 -13	90 10	B	
RIDE CUP	F 2	53	117 117	59 49	0 0	92 6	B	
TAMB	F#2	54	123 122	39 43	0 0	85 67	A	
SPLASH	G 2	55	112 112	55 43	+18 +18	83 78	A	
COWBELL	G#2	56	119 119	36 36	-6 -6	80 80	G	
MUTE CRASH	A 2	57	112 112	47 41	-2 -2	92 84	E	
SD 3	A#2	58	99 99	38 35	0 0	98 98	A	
MUTE RIDE	B 2	59	116 116	45 45	-1 -1	92 32	B	
HI BONGO	C 3	60	120 120	29 29	+50 +50	96 95	E	
LO BONGO	CH3	61	120 120	29 29	+31 +31	96 95	B	
HI MUTE CONGA	D 3	62	121 121	29 29	+12 +12	80 80	E	
HI CONGA	D#3	63	120 120	41 35	-6 +6	97 92	E	
LO CONGA	E 3	64	120 120	43 41	-16 -16	91 92	E	
HI TIMBALE	F 3	65	125 125	42 39	+2 +2	80 85	E	
LO TIMBALE	F#3	66	125 125	42 38	-16 -16	89 85	B	
HI AGOGO	G 3	67	119 119	30 30	+50 +50	88 88	E	
LO AGOGO	G#3	68	119 119	30 30	+22 +22	88 91	B	
SHAKER	A 3	69	126 127	32 34	0 0	84 43	A	
MARACAS	A#3	70	127 127	32 34	+6 +6	85 78	A	
CHA 1	B 3	71	139 139	38 38	-13 -13	68 75	A	
CHA 2	C 4	72	139 139	38 38	-13 -13	68 75	A	
SLEI BELL	CH4	73	130 130	43 41	+2 +2	91 93	A	
CLICK	D 4	74	133 133	33 33	-3 -3	92 93	D	
CLAVES	D#4	75	124 124	53 53	0 0	95 96	A	
BRUSH 1	E 4	76	237 192	43 40	+6 -11	57 37	A	
BRUSH 2	F 4	77	192 192	51 49	-18 -18	43 0	A	
POLE	F#4	78	134 134	44 41	+3 +3	95 96	A	
TIMPANI	G 4	79	129 129	51 51	-23 -23	95 88	B	
TIMPANI	G#4	80	129 129	49 49	-10 -10	95 88	B	
TIMPANI	A 4	81	129 129	48 48	0 0	95 88	E	
TIMPANI	A#4	82	129 129	47 47	+12 +12	95 88	E	
BD 2	B 4	83	97 127	47 37	-4 -50	95 88	H	
BD 3	C 5	84	125 96	22 45	-28 -11	82 100	H	
BD 4	CH5	85	1 2	44 28	-50 -50	95 95	H	
SD 4	D 5	86	192 1 40	36 +28	-6 61	64 H		
SD 5	D#5	87	100 100	30 37	0 0	100 100	A	
SD 6	E 5	88	101 101	50 52	-25 -9	91 91	A	
BD 5	F 5	89	97 104	33 42	+8 -50	92 58	H	
AFRON BELL	F#5	90	116 119	45 46	-32 -33	100 100	E	
CLAPS 2	G 5	91	118 118	33 47	+5 50	94 95	A	
AFRON BELL	G#5	92	116 119	48 49	-48 -50	100 100	E	
SD 7	A 5	93	102 102	37 37	+3 +3	95 91	A	
WTR DROP	A#5	94	138 138	45 45	-42 -42	94 87	D	
DOOR KNOCK	B 5	95	137 137	34 35	-1 -1	94 95	D	
METAL HIT	C 6	96	132 132	44 27	-7 -7	94 91	A	

1	Big Hall	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	5	SEND1	30 60 100 100 60 100 15 0
r	31	SEND2	0 0 0 0 0 0 0 0
m			

2	Big and Short	E. TYPE : 2	SUBMIX A B C D E F G H
P	4	PAN	0 -7 -3 0 +3 +7 0 0
a	0	SEND1	30 60 100 100 60 100 15 0
r	31	SEND2	0 0 0 0 0 0 0 0
m			

3	Dark Reverb	E. TYPE : 3	SUBMIX A B C D E F G H
P	0	PAN	0 -7 -3 0 +3 +7 0 0
a	6	SEND1	30 60 100 100 60 100 15 0
r	2	SEND2	0 0 0 0 0 0 0 0
m			

4	Small Hall	E. TYPE : 4	SUBMIX A B C D E F G H
P	0	PAN	0 -7 -3 0 +3 +7 0 0
a	5	SEND1	30 60 100 100 60 100 15 0
r	31	SEND2	0 0 0 0 0 0 0 0
m			

5	Big Gate	E. TYPE : 5	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 15 0
r	0	SEND2	0 0 0 0 0 0 0 0
m			

6	Reverse Gate	E. TYPE : 6	SUBMIX A B C D E F G H
P	0	PAN	0 -7 -3 0 +3 +7 0 0
a	0	SEND1	30 60 100 100 60 100 15 0
r	31	SEND2	0 0 0 0 0 0 0 0
m			

7	Soft Delay	E. TYPE : 7	SUBMIX A B C D E F G H
P	1	PAN	0 -7 -3 0 +3 +7 0 0
a	0	SEND1	30 60 100 100 60 100 15 0
r	21	SEND2	0 0 0 0 0 0 0 0
m			

8	Pan Delay	E. TYPE : 8	SUBMIX A B C D E F G H
P	6	PAN	0 -7 -3 0 +3 +7 0 0
a	6	SEND1	30 60 100 100 60 100 15 0
r	18	SEND2	0 0 0 0 0 0 0 0
m			

9	Flanger	E. TYPE : 9	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 15 0
r	3	SEND2	0 0 0 0 0 0 0 0
m			

10	Flanger + Overdrive	E. TYPE : 10	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	0	SEND1	30 60 100 100 60 60 60 0
r	31	SEND2	0 0 0 60 0 0 30 0
m			

11	Overdrive + Delay	E. TYPE : 11	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	6	SEND1	30 60 100 100 60 60 60 0
r	31	SEND2	0 0 0 60 0 0 30 0
m			

12	Lead Distortion	E. TYPE : 12	SUBMIX A B C D E F G H
P	5	PAN	0 -7 -3 0 +3 +7 0 0
a	4	SEND1	30 60 100 100 60 60 60 0
r	20	SEND2	0 0 0 60 0 0 30 0
m			

13	Delay + Delay	E. TYPE : 13	SUBMIX A B C D E F G H
P	1	PAN	0 -7 -3 0 +3 +7 0 0
a	2	SEND1	30 60 100 100 60 60 60 0
r	3	SEND2	0 0 0 60 0 0 30 0
m			

14	Delay + Pan Delay	E. TYPE : 14	SUBMIX A B C D E F G H
P	1	PAN	0 -7 -3 0 +3 +7 0 0
a	2	SEND1	30 60 100 100 60 60 60 0
r	3	SEND2	0 0 0 60 0 0 30 0
m			

15	Chorus + Delay	E. TYPE : 15	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 60 60 0
r	31	SEND2	0 0 0 60 0 0 30 0
m			

16	Solo Echo	E. TYPE : 16	SUBMIX A B C D E F G H
P	4	PAN	0 -7 -3 0 +3 +7 0 0
a	4	SEND1	30 60 100 100 60 60 60 0
r	6	SEND2	0 0 0 60 0 0 30 0
m			

17	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

18	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

19	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

20	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

21	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

22	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

23	User	E. TYPE : 1	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	7	SEND1	30 60 100 100 60 100 0 0
r	31	SEND2	0 0 0 0 0 0 0 100 0
m			

24	The Pan	E. TYPE : 1	SUBMIX A B C D E F G H
P	4	PAN	-7 -5 -2 0 +2 +5 +7 0
a	4	SEND1	0 60 30 60 60 30 0 0
r	31	SEND2	0 0 0 0 0 0 0 0
m			

25	The Smallest Hall	E. TYPE : 1	SUBMIX A B C D E F G H
P	1	PAN	0 -7 -3 0 +3 +7 0 0
a	2	SEND1	30 60 100 100 60 100 15 0
r	31	SEND2	0 0 0 0 0 0 0 0
m			

26	Jazz Chorus	E. TYPE : 9	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	0	SEND1	30 60 100 100 60 100 15 0
r	22	SEND2	0 0 0 0 0 0 0 0
m			

27	Distortion Hall	E. TYPE : 12	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	0	SEND1	0 0 0 100 0 0 60 0
r	31	SEND2	30 30 100 60 30 100 30 0
m			

28	Delay + Pan Delay	E. TYPE : 14	SUBMIX A B C D E F G H
P	1	PAN	0 -7 -3 0 +3 +7 0 0
a	2	SEND1	0 0 0 100 0 0 60 0
r	3	SEND2	60 0 0 0 0 0 0 0
m			

29	Chorus Delay	E. TYPE : 15	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	2	SEND1	0 0 0 100 0 0 60 0
r	15	SEND2	30 30 0 0 0 30 0 0
m			

30	Long Delay Chorus	E. TYPE : 16	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	3	SEND1	0 0 0 100 0 0 60 0
r	10	SEND2	30 30 0 0 30 0 0 0
m			

31	Cutting Delay	E. TYPE : 16	SUBMIX A B C D E F G H
P	7	PAN	0 -7 -3 0 +3 +7 0 0
a	1	SEND1	30 60 100 100 60 100 0 0
r			

# A-5. Blank Chart

## K4 PARAMETER LIST

PATCH No.

SINGLE EDIT					
	VOLUME				
	EFFECT PATCH (OUTPUT PATCH)				
	SUBMIX CH				
	NAME				
	COMMON	SOURCE MODE			
		AM			
		POLY MODE			
		BENDER RANGE			
		PRESS FREQ			
		WHEEL ASSIGN			
		DEPTH			
		AUTO BEND TIME			
		DEPTH			
		KS TIME			
		VEL DEPTH			
	LFO	VIBRATO SHAPE			
		SPEED			
		DEPTH			
		PRESS DEPTH			
		DCF-LFO SHAPE			
		SPEED			
		DELAY			
		DEPTH			
		PRESS DEPTH			
			S1	S2	S3
	S-COMMON	DELAY			
		VEL CURVE			
		KS CURVE			
	DCD	WAVE			
		KEY TRACK			
		COARSE			
		FINE (FIXED KEY)			
		PRESS FREQ			
		VIB/A.BEND			
	DCA	LEVEL			
		ATTACK			
		DECAY			
		SUSTAIN			
		RELEASE			
	DCA MOD	VEL DEPTH			
		PRESS DEPTH			
		KS DEPTH			
		TIME MOD ATTACK			
		RELEASE			
		KS			
	DCF	CUT OFF			
		RESONANCE			
		VEL DEPTH			
		KS DEPTH			
		LFO			
	DCF MOD	ENV DEPTH			
		VEL DEPTH			
		ATTACK			
		DECAY			
		SUSTAIN			
		RELEASE			
		TIME MOD ATTACK			
		RELEASE			
		KS			

PATCH No.

MULTI EDIT									
	VOLUME								
	EFFECT PATCH (OUTPUT PATCH)								
	NAME								
	SECTION		1	2	3	4	5	6	7
	INST	SINGLE NO.							
		NAME							
	ZONE	ZONE LO							
		HI							
		VEL SW							
	SEC CH	RCV CH							
		MODE							
	OUTPUT	LEVEL							
		TRANS							
		TUNE							
		SUBMIX CH							

# MIDI Implementation Chart

Function	Transmitted	Recognized	Remarks
Basic	1-16	1-16	Memorized

CARD NAME			VOLUME		RCV CH		VELO DEPTH				
INST	KEY NAME	NOTE NO.	WAVE S1	S2	DECAY S1	S2	TUNE S1	S2	LEVEL S1	S2	SUBMIX CH
	C 1	36									
	C#1	37									
	D 1	38									
	D#1	39									
	E 1	40									
	F 1	41									
	F#1	42									
	G 1	43									
	G#1	44									
	A 1	45									
	A#1	46									
	B 1	47									
	C 2	48									
	C#2	49									
	D 2	50									
	D#2	51									
	E 2	52									
	F 2	53									
	F#2	54									
	G 2	55									
	G#2	56									
	A 2	57									
	A#2	58									
	B 2	59									
	C 3	60									
	C#3	61									
	D 3	62									
	D#3	63									
	E 3	64									
	F 3	65									
	F#3	66									
	G 3	67									
	G#3	68									
	A 3	69									
	A#3	70									
	B 3	71									
	C 4	72									
	C#4	73									
	D 4	74									
	D#4	75									
	E 4	76									
	F 4	77									
	F#4	78									
	G 4	79									
	G#4	80									
	A 4	81									
	A#4	82									
	B 4	83									
	C 5	84									
	C#5	85									
	D 5	86									
	D#5	87									
	E 5	88									
	F 5	89									
	F#5	90									
	G 5	91									
	G#5	92									
	A 5	93									
	A#5	94									
	B 5	95									
	C 6	96									

OPTION DATA

Synthesizer  
MODEL K4/K4r

# MIDI Implementation Chart

Date: Aug. 1989  
Version: 1.0

Function ...		Transmitted	Recognized	Remarks
<b>Basic Channel</b>	<b>Default Changed</b>	1—16 1—16	1—16 1—16	Memorized
<b>Mode</b>	<b>Default Messages Altered</b>	— X * * *	1, 3 OMNI ON/OFF	Memorized MONO ignored
<b>Note Number</b>	<b>: True Voice</b>	24—108 * * *	0—127 0—127	
<b>Velocity</b>	<b>Note ON Note OFF</b>	* *	* *	
<b>After Touch</b>	<b>Key's Ch's</b>	X *	X *	
<b>Pitch Bender</b>		*	*	
<b>Control Change</b>	1 7 64 100, 101 6	* X * * (0, 1) *	* * * * (0, 1) *	Modulation Volume Hold 1 RPC Data entry
<b>Prog Change</b>	<b>: True #</b>	* * * *	* 0—127	
<b>System Exclusive</b>		*	*	
<b>System Common</b>	<b>: Song Pos : Song Sel : Tune</b>	X X X	X X X	
<b>System Real Time</b>	<b>: Clock : Commands</b>	X X	X X	
<b>Aux Messages</b>	<b>: Local ON/OFF : All Notes OFF : Active Sense : Reset</b>	X ○ (123) ○ X	○ ○ (123-127) ○ X	
<b>Notes</b>	* Can be set to ○ or X Memorized even after turning off the power RPC #0=Pitch Bender sensitivity #1=Master fine tuning Values are given by Data entry			

Mode 1 : OMNI ON, POLY  
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO  
Mode 4 : OMNI OFF, MONO

○ : Y  
X : N

# INDEX


























































<b>A</b>		DECAY (DRUM)	68
AFTERTOUC (DCA)	49	DELAY (S-COMMON)	43
AFTERTOUC (DCF)	53	DRUM DECAY	68
AFTERTOUC (DCO)	36, 47	DRUM FACTORY SETTING	92'
AFTERTOUC (LFO)	41, 43, 47	DRUM INST COPY	69
AM	31, 35	DRUM KEY No.	68, 92
ATTACK (DCA)	48	DRUM MANUAL PLAY	16
ATTACK (DCF-MOD)	55	DRUM SUBMIX CH (EFFECT/OUTPUT)	68
AUTO BEND DEPTH	38	DRUM RCV CH	67
AUTO BEND KS TIME	38	DRUM TUNE	68
AUTO BEND TIME	37	DRUM VELO DEPTH	67
AUTO BEND VEL DEPTH	39	DRUM VOLUME	67, 68
		DRUM WAVE	68
<b>B</b>		DUMP	82
1→2 BAL	72	DUMP REQUEST	89
BENDER RANGE	36		
BLANK CHART	92	<b>E</b>	
		EDIT DRUM	67
<b>C</b>		EDIT EFFECT (K4)	72
CARD	26	EDIT MULTI	60
COARSE	46	EDIT OUTPUT (K4r)	72
COMMON	34	EDIT SINGLE	32
COMPARE	28	EFFECT	24, 71
COMPUTER USE	88	EFFECT FACTORY SETTING	92'
CONFIGURATION OF DRUM	66	EFFECT SUBMIX CH EDIT	73
CONFIGURATION OF EFFECT	24, 71	EFFECT TYPE (K4)	72, 74
CONFIGURATION OF K4	24	EFFECT PATCH (K4)	24, 33, 61, 71
CONFIGURATION OF MULTI	60	EFFECT PARAMETER (K4)	72
CONFIGURATION OF OUTPUT	24, 71	EFFECT SEND (K4)	24, 71
CONFIGURATION OF SINGLE	29, 91'	EFFECT DEPTH (K4)	24, 71
COPY DRUM	69	ENV DEPTH (DCF-MOD)	54
COPY FILTER	57	ERROR MESSAGES	90
COPY SOURCE	57	EXT	11, 12, 24
CUTOFF	52		
		<b>F</b>	
<b>D</b>		FACTORY SETTING (DRUM)	92'
DATA DUMP	82	FACTORY SETTING (EFFECT: K4/K4r)	92'
DC (DIGITAL CYCLIC)	31	FILTER	52
DCA	48	FILTER COPY	57
DCA-MOD	49	FINE	46
DCF	52	FIXED KEY	47
DCF-MOD	54	FORMAT (CARD)	26
DCO	46		
DECAY (DCA)	48		
DECAY (DCF-MOD)	55		

<b>H</b>		<b>N</b>	
HEADPHONES	5, 71	NAME (MULTI MODE)	61
HOLD (K4)	5	NAME (SINGLE)	33
<b>I</b>		<b>O</b>	
INDIVIDUAL OUT	71, 73	OFF VELOCITY (DCA)	51
INST OR SINGLE (MULTI MODE)	61	OFF VELOCITY (DCF)	56
INT	11, 12, 24	OMNI	79
<b>K</b>		OUTPUT SET	24, 33, 61, 71
KEY PRESSURE	AFTER TOUCH	<b>P</b>	
KEY TRACK	46	PAN (EFFECT)	24, 71
KEYBOARD SCALING	45	PAN (OUTPUT)	24, 71
KS CURVE	45	PARA OUT	24, 71
KS DEPTH (DCA-MOD)	50	PARAMETER REFERENCE CHART	91
KS DEPTH (DCF)	53	PATCH SELECT	11, 12, 15
<b>L</b>		PITCH BEND	36
LAYER	13, 85	POLY MODE	35
LEVEL (DCA)	48	PRESS (FREQ)	36, 47
LEVEL (MULTI MODE)	64	PRESS DEPTH (DCA-MOD)	49
LFO (DCF)	42	PRESSURE	AFTER TOUCH
LFO (DCO)	VIBRATO	PREV (PREVIOUS)	28
LFO DELAY (DCF)	42	PROGRAM CHANGE	20, 78, 79, 88
LFO DEPTH (DCF)	42	PROTECT	27
LFO PERSS DEPTH (DCF)	43	<b>R</b>	
LFO SHAPE (DCF)	42	RCV CH (DRUM)	67
LFO SPEED (DCF)	42	RCV CH (MULTI MODE)	63
LINK PLAY	15	RCV CH (SYSTEM)	79
LINK SET	15	RECALL	28
LOAD FROM CARD	27	RELEASE (DCA)	49
LOCAL (SYSTEM)	77, 83	RELEASE (DCF-MOD)	55
<b>M</b>		RELEASE VELOCITY (DCA)	51
MIDI	18	RELEASE VELOCITY (DCF)	56
MIDI DATA DUMP	82	REL VEL	RELEASE VELOCITY
MIDI EXCLUSIVE ON/OFF	80	RESONANCE	53
MIDI IMPLEMENTATION CHART	95	<b>S</b>	
MIDI OMNI	79	S-COMMON	43
MIDI RCV	79	SAVE TO CARD	27
MIDI RCV CH (SYSTEM)	79	SECTION MUTE	60
MIDI TRS	78	SECTION SELECT	60
MIDI TRS CH	78	SEQUENCE PLAY	17, 83, 88
MODULATION WHEEL	5, 37	SINGLE (MULTI MODE)	61
MULTI PLAY	12, 83, 85	SINGLE PLAY	11

SOURCE COPY	57
SOURCE MODE	34
SOURCE MUTE	32
SOURCE SELECT	32
SPLIT	13, 86
STRUCTURE	34
SUBMIX CH	24, 33, 71
SUBMIX CH (DRUM)	68
SUBMIX CH (MULTI MODE)	64
SUBMIX CH EDIT (EFFECT)	73
SUSTAIN (DCA)	48
SUSTAIN (DCF-MOD)	55
SYSTEM LOCAL	77
SYSTEM RCV	79
SYSTEM SYS	77
SYSTEM TRANSPOSE	14
SYSTEM TRS	78
SYSTEM TUNE	14
SYSTEM VEL SW POINT	77
<b>T</b>	
TIME MOD VEL (ATTACK) (DCA-MOD)	50
TIME MOD VEL (ATTACK) (DCF-MOD)	56
TIME MOD KS (DCA-MOD)	51
TIME MOD KS (DCF-MOD)	57
TIME MOD REL VEL (DCA-MOD)	51
TIME MOD REL VEL (DCF-MOD)	56
TRANS (MULTI MODE)	64
TRANSPOSE (SYSTEM)	14
TROUBLE SHOOTING	91
TUNE (DRUM)	68
TUNE (MULTI MODE)	64
TUNE (SYSTEM)	14
<b>V</b>	
VALUE SET	28
VARIABLE	60
VEL CURVE	44
VEL DEPTH (DCA-MOD)	49
VEL DEPTH (DCF)	53
VEL DEPTH (DCF-MOD)	55
VEL SW (MULTI MODE)	63, 87
VEL SW POINT (SYSTEM)	77
VELOCITY	VEL
VIB/A.BEND	47

VIBRATO DEPTH	41
VIBRATO PRESS DEPTH	41
VIBRATO SHAPE	40
VIBRATO SPEED	40
VOLUME (DRUM)	67
VOLUME (MULTI MODE)	61
VOLUME (SINGLE MODE)	33
VOLUME (UNIT)	5
<b>W</b>	
WAH WAH	LFO
WAVE	31
WAVE (DRUM)	68
WHEEL ASSIGN	37
WRITE	below
WRITE DRUM	70
WRITE EFFECT	76
WRITE MULTI	65
WRITE OUTPUT	76
WRITE SINGLE	58
<b>Z</b>	
ZONE (MULTI MODE)	62

# K4/K4r Specifications

KEYBOARD (K4)	61, WEIGHTED, w/Attack & Release Velocity and Aftertouch pressure (K4r: 2U rack-mounted digital synthesizer module)																		
SOUND SYSTEM	16 Bit PCM & DC WAVES (TOTAL 256 WAVES)																		
MAX POLYPHONY	NORMAL:16, TWIN&DOUBLE:8 (32 SOURCES)																		
PROGRAM MEMORY	INTERNAL: 128 (64 SINGLE/64 MULTI) + 61 DRUM																		
SINGLE EDIT	DC-16 MEMORY CARD: 128 (64 SINGLE/64 MULTI) + 61 DRUM																		
	<table border="0"> <tr> <td></td> <td>VOLUME, EFFECT PATCH (OUTPUT PATCH), SUBMIX CH, NAME</td> </tr> <tr> <td></td> <td>SOURCE MODE, AM, POLY MODE, BENDER RANGE, PRESS &gt; FREQ, WHEEL ASSIGN, DEPTH, AUTO BEND TIME, DEPTH, KS &gt; TIME, VEL &gt; DEPTH</td> </tr> <tr> <td></td> <td>VIBRATO SHAPE, SPEED, DEPTH, PRESS DEPTH, DCF-LFO SHAPE, SPEED, DELAY, DEPTH, PRESS DEPTH</td> </tr> <tr> <td></td> <td>DELAY, VEL CURVE, KS CURVE, COPY</td> </tr> <tr> <td></td> <td>WAVE, KEY TRACK, COARSE (FINE), FIXED KEY, PRESS on off, VIB/A.BEND on off</td> </tr> <tr> <td></td> <td>LEVEL, ATTACK, DECAY, SUSTAIN, RELEASE</td> </tr> <tr> <td></td> <td>VEL DEPTH, PRESS DEPTH, KS DEPTH, TIME MOD-VEL, RELEASE VEL, KS</td> </tr> <tr> <td></td> <td>CUTOFF, RESONANCE, VEL DEPTH, PRESS DEPTH, KS DEPTH, LFO</td> </tr> <tr> <td></td> <td>ENV DEPTH, VEL DEPTH, ATTACK, DECAY, SUSTAIN, RELEASE, TIME MOD-VEL, RELEASE VEL, KS</td> </tr> </table>		VOLUME, EFFECT PATCH (OUTPUT PATCH), SUBMIX CH, NAME		SOURCE MODE, AM, POLY MODE, BENDER RANGE, PRESS > FREQ, WHEEL ASSIGN, DEPTH, AUTO BEND TIME, DEPTH, KS > TIME, VEL > DEPTH		VIBRATO SHAPE, SPEED, DEPTH, PRESS DEPTH, DCF-LFO SHAPE, SPEED, DELAY, DEPTH, PRESS DEPTH		DELAY, VEL CURVE, KS CURVE, COPY		WAVE, KEY TRACK, COARSE (FINE), FIXED KEY, PRESS on off, VIB/A.BEND on off		LEVEL, ATTACK, DECAY, SUSTAIN, RELEASE		VEL DEPTH, PRESS DEPTH, KS DEPTH, TIME MOD-VEL, RELEASE VEL, KS		CUTOFF, RESONANCE, VEL DEPTH, PRESS DEPTH, KS DEPTH, LFO		ENV DEPTH, VEL DEPTH, ATTACK, DECAY, SUSTAIN, RELEASE, TIME MOD-VEL, RELEASE VEL, KS
	VOLUME, EFFECT PATCH (OUTPUT PATCH), SUBMIX CH, NAME																		
	SOURCE MODE, AM, POLY MODE, BENDER RANGE, PRESS > FREQ, WHEEL ASSIGN, DEPTH, AUTO BEND TIME, DEPTH, KS > TIME, VEL > DEPTH																		
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	DELAY, VEL CURVE, KS CURVE, COPY																		
	WAVE, KEY TRACK, COARSE (FINE), FIXED KEY, PRESS on off, VIB/A.BEND on off																		
	LEVEL, ATTACK, DECAY, SUSTAIN, RELEASE																		
	VEL DEPTH, PRESS DEPTH, KS DEPTH, TIME MOD-VEL, RELEASE VEL, KS																		
	CUTOFF, RESONANCE, VEL DEPTH, PRESS DEPTH, KS DEPTH, LFO																		
	ENV DEPTH, VEL DEPTH, ATTACK, DECAY, SUSTAIN, RELEASE, TIME MOD-VEL, RELEASE VEL, KS																		
MULTI EDIT	<table border="0"> <tr> <td></td> <td>VOLUME, EFFECT PATCH (OUTPUT PATCH), NAME</td> </tr> <tr> <td></td> <td>SINGLE ASSIGN</td> </tr> <tr> <td></td> <td>ZONE LO, HI, VELOCITY SWITCH</td> </tr> <tr> <td></td> <td>RCV CH, (K4: MODE)</td> </tr> <tr> <td></td> <td>LEVEL, TRANS, TUNE, SUBMIX CH</td> </tr> </table>		VOLUME, EFFECT PATCH (OUTPUT PATCH), NAME		SINGLE ASSIGN		ZONE LO, HI, VELOCITY SWITCH		RCV CH, (K4: MODE)		LEVEL, TRANS, TUNE, SUBMIX CH								
	VOLUME, EFFECT PATCH (OUTPUT PATCH), NAME																		
	SINGLE ASSIGN																		
	ZONE LO, HI, VELOCITY SWITCH																		
	RCV CH, (K4: MODE)																		
	LEVEL, TRANS, TUNE, SUBMIX CH																		
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FRONT AND REAR PANEL CONTROLS & jacks	VOLUME, PATCH SELECT SW, DRUM SW, EFFECT SW (K4r: OUTPUT), (K4: WHEEL X 2) WRITE SW, POWER SW, DC IN, OUTPUT STEREO L/R (MONO) (K4r: +1-6), PHONE jack, CARD SLOT, MIDI IN/OUT/THRU																		
DISPLAY	16 x 2 LCD backlit																		
DIMENSIONS (mm)	K4: 1020 (W) x 310.8 (D) x 88.5 (H), K4r: 483 (W) x 218.5 (D) x 88 (H)																		
WEIGHT	K4: 8.2 kg, K4r: 2.8 kg																		
POWER CONSUMPTION	K4: 5.8 W, K4r: 6.8 W																		