

CME

모바일톤 USB MIDI 마스터키보드 사용자 설명서 (한글)

U-Key

Model:

Read "Precautions" on page 5 before use



Please read this manual carefully before use.
Please keep this manual for reference.

**Thank you for choosing CME U-Key Mobiltone
USB MIDI Master Keyboard**

Please keep all the important information here

Attach your invoice or receipt here



for reference

Purchase date _____	Serial (on the back of the keyboard) _____
Dealer's name and addr. _____	
Dealer's tel. _____	

Warning:

- Improper connection may cause damage to the device.

Copyright

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Open the package

Please check all the items in your U-Key keyboard package:

- USB MIDI Master keyboard 1 pcs
- USB cable 1 pcs
- User's manual 1 pcs



Special Message Section

This product utilizes batteries or an external power supply (adapter). Do NOT connect this product to any power supply or adapter other than one described in the manual, on the product, or specifically recommended by CME.

WARNING: Do not place this product in a position where anyone could walk on, trip over, or roll anything over power or connecting cords of any kind. The use of an extension cord is not recommended! If you must use an extension cord, make sure that the cord has the ability to handle maximum current needed by this product. Please consult a local electrician when possible.

This product should be used only with the components supplied or recommended by CME. When used with any components, please observe all safety markings and instructions that accompany the accessory product.

SPECIFICATIONS SUBJECT TO CHANGE:

The information contained in this manual is believed to be correct at the time of printing. However, CME reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

This product, either alone or in combination with an amplifier and headphones or speaker(s), may be capable of producing sound levels that could cause permanent hearing loss. Do NOT operate for long periods of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

IMPORTANT: The louder the sound, the shorter the time period before damage occurs.

Some CME products may have stands and/or accessory mounting fixtures that are either supplied with the product or as optional accessories. Some of these items are designed to be dealer assembled or installed. Please make sure that stands are stable and any optional fixtures (where applicable) are well secured BEFORE using.

Stands supplied by CME are designed for the respect products only. No other uses are recommended.

NOTICE:

Service charges incurred due to a lack of

knowledge relating to how a function or effect works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

ENVIRONMENTAL ISSUES:

CME strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

Battery Notice:

This product MAY contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

This product may also use "household" type batteries. Some of these may be rechargeable. Make sure that the battery being charged is a rechargeable type and that the charger is intended for the battery being charged.

When installing batteries, do not mix batteries with new, or with batteries of different type. Batteries MUST be installed correctly. Mismatches of incorrect installation may result in overheating and battery case rupture.

Warning:

Do not attempt to disassemble, or incinerate any battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by the laws in your area. Note: Check with any retailer of household type batteries in your area for battery disposal information.

Disposal Notice:

Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc. If your dealer is unable to assist you, please contact CME directly.

FCC INFORMATION (U.S.A)

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by CME may void your authority, granted by the FCC, to use the product.

2. **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable(s) supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. **NOTE:** This product has been tested and found to comply with the limits for a Class B Digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problems by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter(s).

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you cannot locate the appropriate retailer, please contact CME.

The above statements apply **ONLY** to those products distributed in the USA.

PRECAUTIONS

IMPORTANT

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, damages, fire or other hazards. These precautions include, but are not limited to, the follows:

1. Read and understand all the instructions.
2. Always follow the instructions on the instrument.
3. Before cleaning the instrument, always remove the electric plug from the outlet as well as the USB cable. When cleaning, use a soft and dry cloth. Do not use gasoline, alcohol, acetone, turps or any other organic solutions; do not use liquid cleaner, spray cleaner or too wet cloth.
4. Do not use the instrument near water or moisture, such as bathtub, washbasin, washing pool in the kitchen or similar places.
5. Do not place the instrument in an unstable position where it might accidentally fall over.
6. Do not jam sinks or holes of the instrument; those sinks or holes are used for air circulation to prevent the instrument from overheating. Do not place the instrument near heat sink or any places with poor air circulation.
7. Do not place anything on the power cord. Make sure the power cord is set on a safe place, so nobody will step on it and no body will trip over it.
8. Do not overload the outlet and the AC cable to avoid fire or electrical shock.
9. Do not insert anything in the instrument, which may cause fire or electrical shock. Do not splash any kind of liquid to the instrument.
10. Do not disassemble the instrument in case of accidental electrical shock.
11. Always take the instrument to a qualified service center in need of repair. You will cause yourself in danger if you open or remove the cover, and improper assembly may cause electrical shock in the future use.
12. Unplug all the connectors and take the instrument to a qualified service center if anything in the below listed happens:
 - A. The power cord or connector get hurt or worn out.
 - B. Any liquid get in the instrument.
 - C. The instrument gets rain or water splash.
 - D. The instrument dose not work properly after following all the instructions regarding to the troubleshootings.
 - E. The instrument falls down or gets broken.
 - F. The instrument functions poorly.
13. Do not use the instrument when thundering; otherwise the thundering may cause long-distance electrical shock.
14. Do not use the instrument when there is a gas leak nearby.

Keep this manual in safe place

CAUTION:

Do not connect the instrument when thundering.

Do not set up the cord or outlet to a moist place, except for that the outlet is specially designed for moist places.

When the power cord is connected to the AC outlet, do not touch the naked part of the cord or the connector.

Always follow the instructions carefully when setting up the instrument.

WARNING:

- Do not expose the instrument to rain or moisture, to avoid fire or electrical shock.

Other precautions:

- Keep the instrument away from electrical interface sources, such as fluorescent light and electrical motors.
- Keep the instrument away from dust, heat and vibration.
- Do not expose the instrument to sunlight.
- Do not place heavy objects on the instrument; do not place containers with liquid on the instrument.
- Do not touch the connectors with wet hands
- Central Music Co. is not responsible for any damage or data loss caused by improper operation to the instrument.
- All the pictures and the LED display in the manual are used for demonstration; they may be different from the real instrument.

Features

- 49 키의 수려한 외형의 풀액션 휴대용 세미 웨이티드 키보드
- 1 개의 프로그래밍 가능한 조이스틱
- 8 개의 프로그래밍 가능한 벨로시티 센서티브 트리거 패드
- 8 개의 프로그래밍 가능한 노브 컨트롤러 (무한 인코더 기능) – 어떤 종류의 미디 컨트롤도 가능
- 빠른 데이터 변환을 위한 1 개의 데이터 입력용 로터리 방식 인코더
- 생음악 연주를 돕는 “패드 스타일” MIDI 송 & 스타일
- 퍼포먼스 스킬을 향상시키는 인터랙티브 테스트 모드 & 게임
- 다양한 종류의 에스닉 음악을 위한 멀티 스케일 키
- 음악 소프트웨어와의 완벽한 호환을 위한 U-CTRL 기능
- 음악 소프트웨어 컨트롤 템플릿
- 고급 3 자리 LED 창
- **USB 연결**을 통한 펌웨어, 데이터, 송 업그레이드 및 교류
- Windows XP and Mac OS X 표준 **USB MIDI** 드라이버 사용
- 전가동 스위치 & 연속 페달용 **유니버설 페달 커넥터**
- 1 개의 스테레오 라인 아웃풋 (1/8” 폰잭) / 1 개의 스테레오 헤드폰 아웃풋 (1/8” 폰잭)
- 1 개의 MIDI IN / MIDI OUT
- USB 버스파워 사용, 혹은 아답터를 사용한 전원공급
- 64 polyphony 음원 내장 & 스피커
- 풀가동 MIDI 기능 (SEQ 트랜스포트와 빠른 실행 액세스)

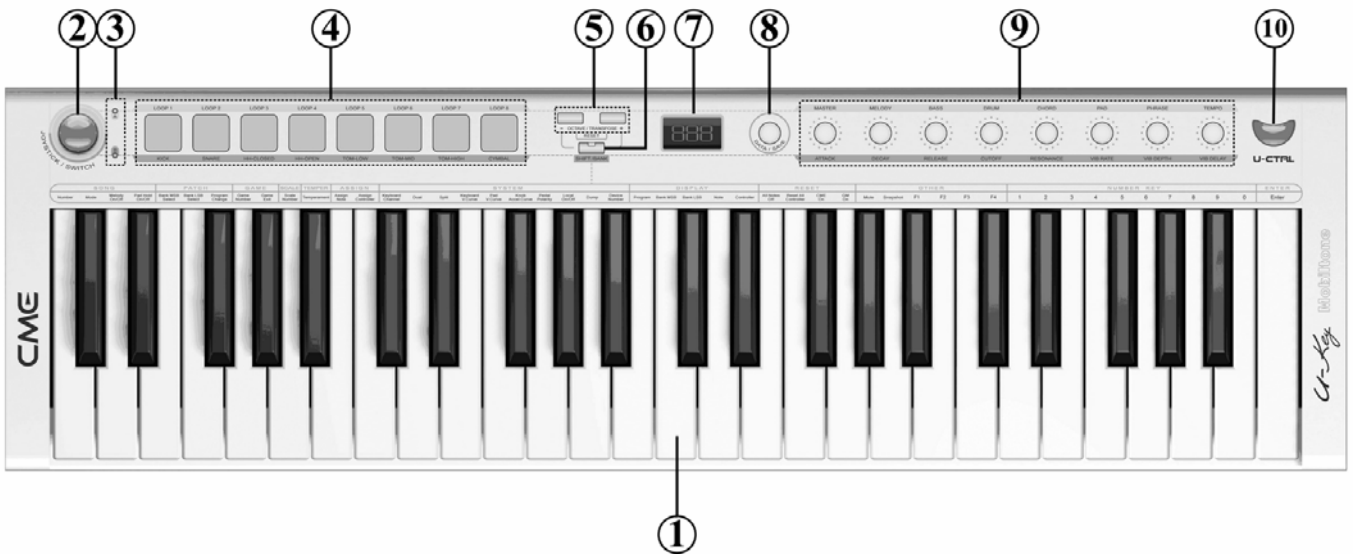
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1 General View (오버뷰)

1.1 Front Panel (전면패널)



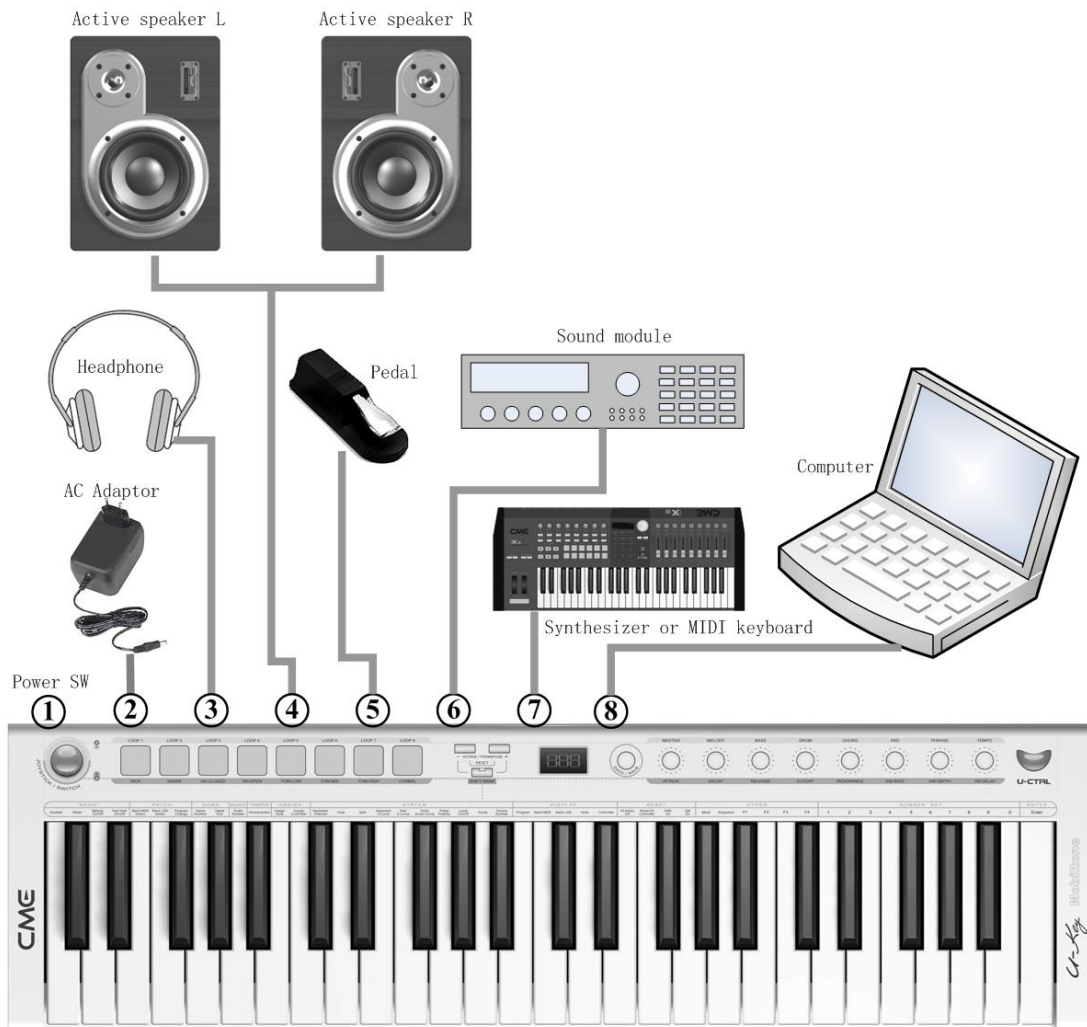
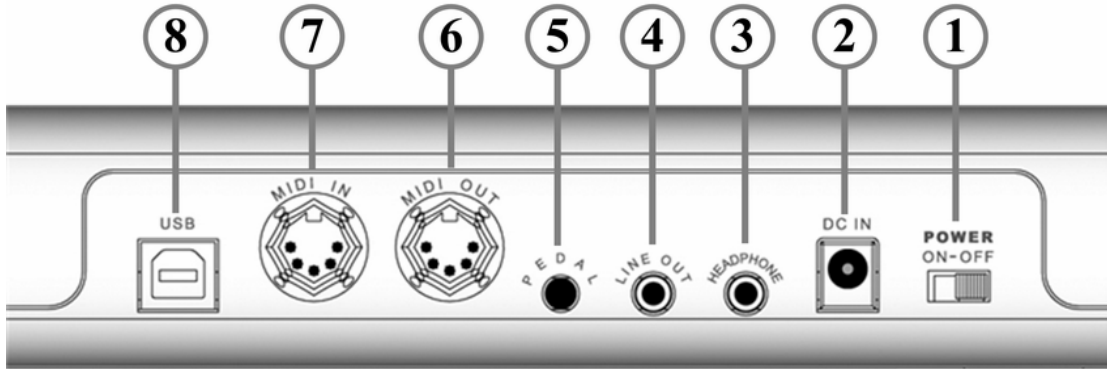
1. Keyboard (키보드 본체)
2. Joystick (조이스틱)
3. 2 A & B status indicators (A B 옵션 인디케이터)
4. 8 drum pads (8 드럼 패드)
5. 2 buttons (2 버튼)
6. SHIFT button (쉬프트 버튼)
7. LED display (LED 창)
8. Data dial (로터리식 데이터 다이얼)
9. 8 knobs (8 개의 노브)
10. U-CTRL button (U-컨트롤 버튼)

1.2 Rear Panel (후면패널)



1. Power switch(ON/OFF) 전원 온/오프
2. Power connector (DC IN) 전원 DC 연결부
3. Headphone jack (HEARDPHONE) 헤드폰 잭
4. Line out jack (LINE OUT) 라인 아웃
5. Pedal jack (PEDAL) 페달
6. MIDI OUT port (MIDI OUT) 미디 아웃
7. MIDI IN port (MIDI IN) 미디 인
8. USB MIDI port (USB) USB 미디포트

2 Connection (연결 및 설정)



2.1 Power Switch (파워 스위치)

파워스위치를 이용하여 U-Key 를 키고 끕니다. USB 버스파워 혹은 DC 전원 모두 이용 가능합니다. (컴퓨터 전원이 켜있지 않은 상태에서는 USB 파워를 사용하실 수 없습니다.)

2.2 DC In (DC 전원부)

DC 전원으로 사용할때 U-Key 사양에 맞는 AC 아답터 연결부



AC 아답터는 구매시에 대리점에서 별도로 제공하고 있습니다. 따로 구매시에는 반드시 U-Key 의 스펙에 맞는 제품을 사용하여야 합니다.

2.3 Headphone Jack (헤드폰잭)

스테레오 헤드폰 연결부.

2.4 Line Out Jack (라인아웃잭)

라인아웃잭을 통해 믹서, 앰프, 액티브 스피커등과 연결합니다.

2.5 Pedal Jack (페달잭)

페달잭에는 각종 스위치 페달들을 옵션으로 연결할 수 있습니다. (댐퍼페달, 볼륨페달등)

2.6 MIDI Out Port (미디아아웃 포트)

스탠다드 미디 아웃 포트입니다. U-Key 의 모든 MIDI 데이터들이 이곳을 통해 전달됩니다.

2.7 MIDI In Port (미디인 포트)

스탠다드 미디 인 포트입니다. 이 포트에 다른 MIDI 컨트롤러를 연결하면 그를 통해 U-Key 를 연주할 수 있습니다.

2.8 USB Port (USB 포트)

USB 포트를 통해 여러분의 컴퓨터와 U-Key 가 양방향 데이터 교류 연결이 가능합니다.

처음 USB 를 연결하면, 여러분의 컴퓨터는 자동으로 드라이버를 설치하고, U-Key 를 “USB Audio Device” 라 명명합니다. 만약 이미 USB Audio Device 이름이 존재하면, U-Key 는 “USB Audio Device [2]” 와 같은 식으로 숫자가 확장되 나타납니다.



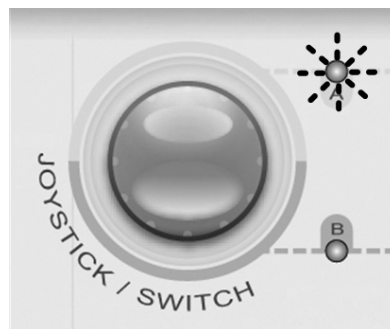
빠르고 완벽한 데이터 호환을 위해 U-Key 구입시 번들된 USB 케이블을 사용할 것을 권장합니다.

3 Basic Operation (기본 작동)

3.1 Turn On The Power (Power) 파워를 켜자

- ◆ 연결이 제대로 되어있는지 확인후 뒷면 파워스위치를 켭니다.
- ◆ 청력 및 스피커를 보호하기 위해, U-Key 의 전원을 켤때 반드시 볼륨조절부를 최저레벨로 세팅하도록 합니다.
- ◆ 여러분이 선호하는 최적의 볼륨상태에 맞추고 U-Key 를 연주하시면 좋습니다.

3.2 Function Switch (Switch) 기능변환 버튼



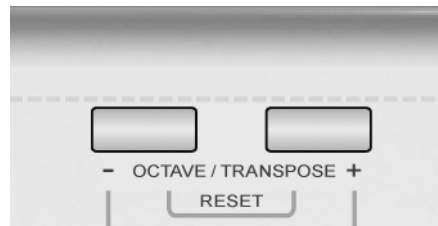
- ◆ 조이스틱이 기능 변환 버튼의 역할을 합니다. 조이스틱을 누르면, 패드와 버튼의 기능이 변환합니다. 조이스틱을 누를때마다 기능 상태가 status A(song), status B(master keyboard), status A+B(remote) 등으로 바뀝니다. 각각의 상태에서 패드와 버튼은 각기 다른 기능을 제공합니다.

3.3 Change Voice 보이스를 바꾸자 (프로그램 체인지)



- ◆ 【DATA / SAVE】 노브를 돌려서 LED 값을 바꿀수 있습니다.
- ◆ 【DATA / SAVE】 노브는 데이터를 정하고 저장할때 버튼으로도 사용합니다.
- ◆ 기본세팅에서 【DATA / SAVE】 노브는 보이스 넘버 변환에 사용되는데, 바뀐 넘버가 깜빡거리면 노브를 그곳이 눌러 바뀐 넘버로 전송 및 저장합니다.

3.4 Factory Setup 공장초기화 (리셋)

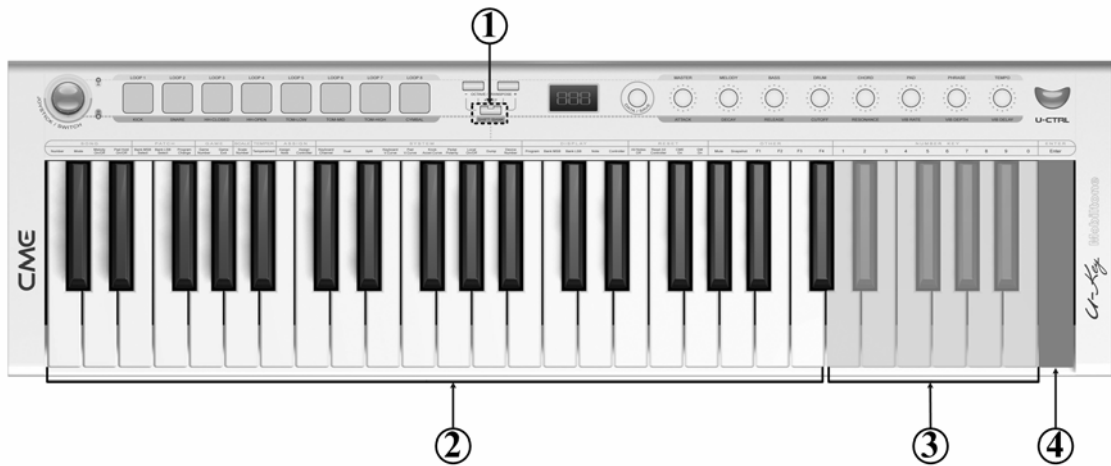


- ◆ 일반적으로 키보드는 자동으로 마지막 세팅을 기억하여 저장해두었다가 다시 전원을 켤때 그 상태로 켜지게 됩니다. U-Key 의 출고시 초기화 세팅으로 리셋도 물론 가능합니다.
- ◆ 공장초기화 세팅은 【OCTAVE -】와 【OCTAVE +】 버튼을 한꺼번에 이곳이 눌러줍니다. LED 가 깜빡거리다가 멈추면 세팅이 완료된것입니다.



초기화 리셋은 지금까지 여러분이 키보드를 다루며 저장해두었던 모든 데이터가 지워지게 되므로 주의하시기 바랍니다

3.5 Key Function (각 키로 기능 수행)



- ◆ 대부분의 U-Key 의 기능들은 각 건반 (Keys) 로 세팅하곤 합니다.
 1. **SHIFT** 버튼이 켜져 있으면 키보드의 각 키들은 연주가 아닌 기능수행모드에 들어갑니다.
 2. 이 키들이 키 기능모드에서 기능수행 키로 작동합니다.
 3. 이 키들은 넘버키로 작동합니다. LED 값을 이 키들을 이용하여 변환합니다.
 4. 이 키는 **Enter** 버튼의 역할로써, 누르면 조절 동작을 컨펌하고 데이터를 전송합니다.



몇몇 기능은 **Enter** 키를 누르지 않고도 곧바로 수행이 됩니다.

3.6 Joystick (조이스틱)

조이스틱은 4 가지 방향 (위/아래/좌/우) 으로 움직입니다. 기본 세팅에는 아래와 같이 저장되어 있습니다:

Direction (방향)	Function (기능)	MIDI data (미디 데이터)
Up (위)	Modulation (모듈레이션)	CC#1
Down (아래)	Brightness (밝기)	CC#74
Left (좌)	Pitch Bend Down (피치밴드다운)	Pitch Bend Down
Right (우)	Pitch Bend Up (피치밴드업)	Pitch Bend Up

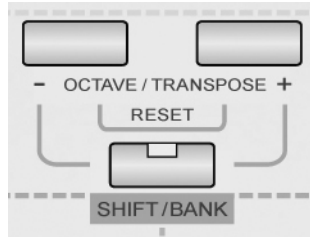
3.7 Pedal Jack (페달잭)

- ◆ 페달잭에는 전형적인 스위치 페달인 서스테인 (음지속) 페달 혹은, 연속

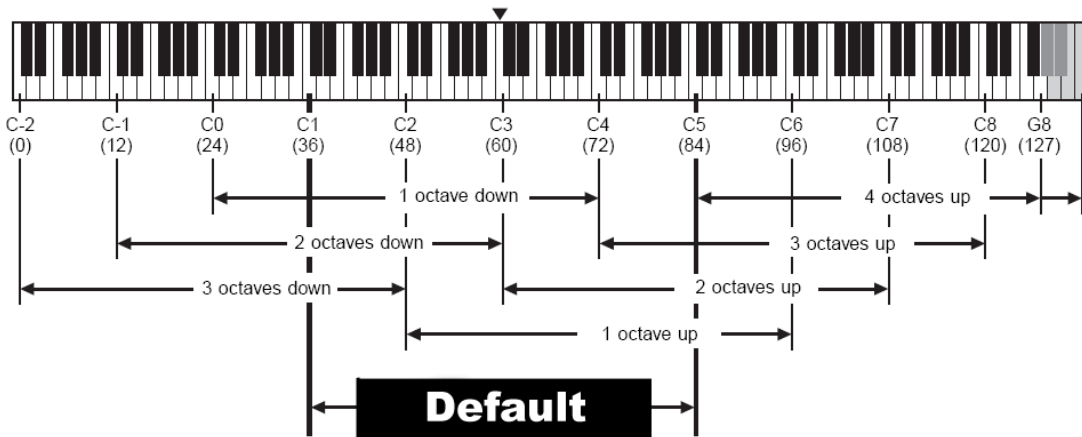
페달인 볼륨 페달등을 상황에 맞게 연결하여 사용할 수 있습니다.

- ◆ 기본 세팅에는 서스테인 페달 (스위치 모드), 미디 데이터는 CC#64, 127 은 ON / 0 은 OFF 로 세팅되어 있습니다.
- ◆ 볼륨페달 같은 연속페달로 바꾸려면 키 기능모드에서 F1 (Pedal setup) 을 누르고, "001" (서스테인) 이나 "002" (익스프레션) 등으로 바꾸면 됩니다.

3.8 Octave Shift / Transpose (옥타브 이동 및 키변환)



- ◆ 【Octave / Transpose】버튼으로 3 옥타브를 올리거나 내릴수 있습니다. 원 레벨로 복원하려면 두 버튼을 동시에 누르시면 됩니다.
- ◆ SHFIT 버튼을 누르면서 【Octave / Transpose】버튼을 조절하 12 반음을 올리거나 내릴수 있습니다. 역시 원 레벨로 복원하려면 두 버튼을 동시에 누르시면 됩니다.
- ◆ 아래는 기본 음역 차트입니다.



- ◆ MIDI 노트와 피치(음조) 맵핑입니다.

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

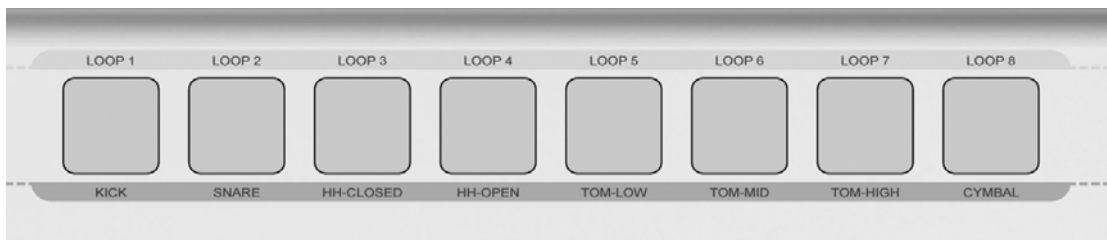
4 Song Mode (송모드)

- ◆ 조이스틱을 누르면 옆 A 표시등이 켜지고 송모드로 전환됩니다.



송모드에서는 패드들은 음악을 연주하는 기능으로, 노브들은 각 파트의 볼륨을 조절하는 기능으로 사용됩니다.

4.1 Use Pads To Play Songs (Pad Style Songs) 패드를 이용하여 연주하기 (패드 스타일 송)



- ◆ 키보드에는 **【LOOP1】**에서**【LOOP8】**까지 8개의 패드가 있는데 이는 **U-Key** 패드 스타일 송이라 불리는 8 소절의 각기 다른 내장 MIDI 송을 연주합니다.
- ◆ **U-Key** 패드 스타일 송은 아래와 같이 3가지의 모드로 연주 가능합니다:
 1. 싱글 루프 플레이 모드 (Single-loop play mode):
 - ◆ 패드중 한가지를 가볍게 손바닥으로 치면, 그 패드에 불이 들어오면서 저장된 소절을 연주합니다. 다시 치면 멈춥니다.
 - ◆ 패드 하나가 연주되고 있을때 (다른 패드를 건들지 않으면) 같은 소절이 계속 반복적으로 연주됩니다.
 - ◆ 패드 하나가 연주되고 있을때 다른 패드를 치면, 앞 패드 소절의 마디 연주가 끝난후 이어져서 다음 패드 소절이 연주됩니다.
 2. 멀티 루프 플레이 모드 (Multi-loop play mode):
 - ◆ 두개의 패드를 동시에 손바닥으로 치면, 두개의 패드를 비롯하여 그 가운데에 있는 패드들이 모두 한꺼번에 불이 들어오면서 각 소절을 차례대로 연주합니다. 연주되고 있는 패드는 깜빡거리며 표시합니다.
 - ◆ 깜빡거리는 패드를 치면 연주가 멈춥니다.
 - ◆ 깜빡거리지 않는 패드를 치면 싱글 루프 플레이모드로 연주됩니다.
 3. 송 플레이 모드 (Song play mode):
 - ◆ **【LOOP1】**을 3초정도 누르면, 모든 패드들이 한꺼번에 불이 들어오면서 송모드로 전환됩니다.

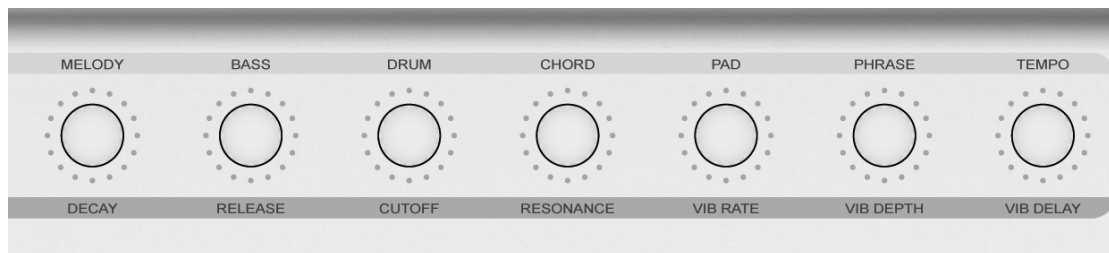
- ◆ 송모드에서는 모든 패드들이 연주됩니다. 연주되고 있는 패드는 깜빡거리며 표시합니다.
- ◆ 첫번째 패드를 치면 연주가 멈춥니다.



U-Key 패드 스타일 송에 대한 자세한 정보는 www.cme-pro.com
(영문) www.cme-pro.co.kr (한글) 홈페이지를 참고하세요!

4.2 Use Knobs For Volume Control (Part Volume)

노브를 이용한 파트 볼륨조절



- ◆ 송모드에서는 8 개의 노브를 아래와 같이 사용할수 있습니다:

knob	Control	ID	MIDI data
knob1	Master volume	MASTER	F0 7F 7F 04 01 00 rr F7
knob2	Melody volume	MELODY	CH8,CC#7
knob3	Bass volume	BASS	CH9,CC#7
knob4	Drum volume	DRUM	CH10,CC#7
knob5	Chord volume	CHORD	CH11&12,CC#7
knob6	Pad volume	PAD	CH13&14,CC#7
knob7	Phrase volume	PHRASE	CH15&16,CC#7
knob8	Tempo	TEMPO	off, 20-250

4.3 Song Related Functions (송과 관련된 기능들)

4.3.1 Select A Song By Song Number (번호로 송 선택)

- ◆ 동작: **SHIFT** ⇒ **C1** 【Number】 ⇒ Value ⇒ **Enter**
- ◆ MIDI data: none
- ◆ Range (선택범위): 1-15
- ◆ Default (기본세팅): 1



개인적으로 컴퓨터를 통해 스탠다드 MIDI 파일을 키보드에 넣을수 있습니다. MIDI 파일 사이즈는 56KB 가 초과될 수 없습니다.

4.3.2 Select Performance Mode (연주 모드 선택)

- ◆ 동작: **SHIFT** ⇒ **C#1** 【Mode】 ⇒ Value ⇒ **Enter**
- ◆ MIDI data: none
- ◆ Range (선택범위): Off, 1, 2
- ◆ Default (기본세팅): Off
- ◆ 아래는 Performance Mode (연주모드)에 대한 설명입니다:
Off. 기본 연주모드.
 1. 쉬운 연주모드: 반주에 따라 이것저것 쉽게 연주할수 있습니다.
키보드는 연주자가 플레이하는대로 쏙 멜로디를 연주합니다.
 2. 가라오케 연주모드: 반주에 따라 이것저것 쉽게 연주할수 있습니다.
키보드는 연주자가 플레이하는대로 쏙 멜로디를 작은 볼륨으로 연주합니다. 연주를 멈추면 키보드는 원래 볼륨으로 돌아옵니다.

4.3.3 Mute Melody (Melody On/Off) 멜로디 온/오프

- ◆ 쏙을 연주할때 멜로디를 뮤트할 수 있습니다. 연주자는 원하는 멜로디로 반주에 따라 연주할 수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **D1** 【Melody On/Off】 ⇒ **Enter**
- ◆ Default (기본세팅): on
- ◆ Range (선택범위): {on}, {off}

4.3.4 Pad Hold On/Off (패드 홀드 온/오프)

- ◆ 패드 홀드 기능에서 온/오프는 패드를 누르고 있으면 계속 연주가 되고 손을 떼면 연주가 멈춥니다.
- ◆ 동작: **SHIFT** ⇒ **D#1** 【Pad Hold On/Off】 ⇒ **Enter**
- ◆ Default (기본세팅): Off
- ◆ Range (선택범위): On, Off

5 MASTER Mode (마스터 모드)

5.1 Use Pads For Drum Kit (패드를 드럼킷으로 이용)

- ◆ 마스터 모드로의 전환은 조이스틱을 눌러 B 에 불이들어오게 합니다.



마스터모드에서, 패드를 이용해 드럼킷을 연주하고 노브를 이용해 음색을 편집합니다.

패드 드럼킷 기본세팅 맵

Pad (패드)	MIDI note number(H)	Pitch name (패치이름)	Percussion (퍼커션)
pad1	24	C 2	KICK (킥)
pad2	28	E 2	SNARE (스네어_)
pad3	2A	F#2	HH-CLOSED (하이햇-닫힘)
pad4	2E	A#2	HH-OPEN (하이햇-열림)
pad5	2B	G 2	TOM-LOW (탐탐-저음)
pad6	2D	A 2	TOM-MID (탐탐-중음)
pad7	30	C 3	TOM-HIGH (탐탐-고음)
pad8	31	C#3	CYMBAL (심벌)

5.2 Use The Knobs To Select A Voice (노브를 이용한 음색선택)

- ◆ 기본적으로 【DATA / SAVE】 노브를 돌려서 음색을 선택할 수 있습니다. LED 창에서 번호가 바뀌어 나오는 것을 확인한후 【DATA / SAVE】 버튼을 눌러서 선택된 음색이 Bank / Program 에 보내지고 저장되는 것을 확인합니다.

5.3 Use The Knobs To Edit A Voice (노브를 이용한 음색편집)

- ◆ 마스터모드에서, 8 개의 노브를 이용해 아래의 음색 파라미터를 조절/편집할수 있습니다.

Knob	Control	ID	MIDI data
Knob1	Attack time	ATTACK	CC#73
Knob2	Decay time	DECAY	CC#75
Knob3	Release time	RELEAS	CC#72
Knob4	Cutoff frequency	CUTOFF	CC#74
Knob5	Resonance	RESONANCE	CC#71
Knob6	Vibration rate	VIB RATE	CC#76
Knob7	Vibration depth	VIB DEPTH	CC#77
Knob8	Vibration delay	VIB DELAY	CC#78

5.4 Bank Number And Patch (Voice) 뱅크 넘버와 보이스패치

5.4.1 Bank MSB Select (뱅크 MSB 선택)

- ◆ 동작: **SHIFT** ⇒ **E1** 【Bank MSB Select】 ⇒ 【Select number】 ⇒ **Enter**
- ◆ MIDI data: **CC#0 + CC#32 + Program**
- ◆ Default (기본세팅): 0
- ◆ Range (선택범위): 0-127

5.4.2 Bank LSB Select (뱅크 LSB 선택)

- ◆ 동작: **SHIFT** ⇒ **F1** 【Bank LSB Select】 ⇒ 【Select number】 ⇒ **Enter**
- ◆ MIDI data: **CC#0 + CC#32 + Program**
- ◆ Default (기본세팅): 0
- ◆ Range (선택범위): 0-127

5.4.3 Select patch (Program Change) 패치선택

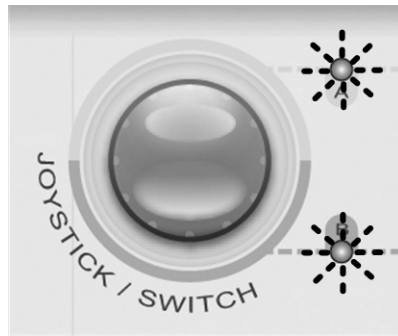
- ◆ 동작: **SHIFT** ⇒ **F#1** 【Program Change】 ⇒ 【Select number】 ⇒ **Enter**
- ◆ MIDI data: CC#0 + CC#32 + Program
- ◆ Default (기본세팅): 1
- ◆ Range (선택범위): 1-128



처음에 3 개의 번호를 선택하고 **Enter** 버튼을 한번만 눌러서 MIDI 데이터를 송신할수 있습니다.

6 REMOTE Mode (리모트 모드)

- ◆ 리모트 모드로의 전환은 조이스틱을 눌러 A,B 양쪽에 불이 들어오게 합니다.



6.1 Use The Pads To Control The Software (패드를 이용한 소프트웨어 콘트롤)

- ◆ 리모트 모드에서, 패드를 각종 MIDI note, MIDI controller 등에 할당할 수 있습니다. (appendix 10.1 을 참고하세요) 그럼으로써 패드를 통해 사용중인 소프트웨어의 여러가지를 컨트롤 할수 있습니다.

6.2 Use The Knobs To Control The Software (노브를 이용한 소프트웨어 콘트롤)

- ◆ 리모트 모드에서, 노브를 각종 MIDI note, MIDI controller 등에 할당할 수 있습니다. (appendix 10.1 을 참고하세요) 그럼으로써 노브를 통해 사용중인 소프트웨어의 여러가지를 컨트롤 할수 있습니다.

6.3 Assign Notes & Channel (노트와 채널 어싸인)

- ◆ 동작: **SHIFT** ⇒ **B1** 【Assign Note】 ⇒ 【Select part】 ⇒ 【Adjust parameter】
⇒ **Enter** ⇒ 【Assign Channel】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ 여기서 【Select part】 란 키보드의 파트를 이용하는 것을 말합니다. 이 모드에서 패드나 패달등을 노트 어싸인을 위한 파트로 선택할 수 있습니다.
- ◆ Note Range (노트 범위): 0-127
- ◆ Channel Range (채널 범위): 1-16
- ◆ 키보드 채널을 바꾸는 것은 여기서 파트 채널을 어싸인 하는것에 영향을 주지 않습니다.

6.4 Assign Controllers & Channel (컨트롤러와 채널 어싸인)

- ◆ 동작: **SHIFT** ⇒ **C2** 【Assign Controller】 ⇒ 【Select part】 ⇒ 【Adjust parameter】
⇒ **Enter** ⇒ 【Assign Channel】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ 여기서 【Select part】 란 키보드의 파트를 이용하는 것을 말합니다. 이 모드에서 Octave 와 SHIFT 버튼을 제외한 어떠한 버튼도 컨트롤러 어싸인을 위한 파트로 선택할 수 있습니다.
- ◆ Controller Range (노트 범위): 0-168
- ◆ Channel Range (채널 범위): 1-16

6.5 Save & Recall User Bank (유저뱅크 저장 및 불러오기)

- ◆ 자신만의 세팅을 8 개의 유저뱅크중 하나에 저장하고 불러올 수 있습니다.
- ◆ 현재의 세팅을 저장하려면, data dial (데이터 다이얼)을 누르면서 8 개중의 하나의 패드를 누릅니다.
- ◆ 다시 유저뱅크에서 불러오려면, SHIFT 버튼을 누르면서 8 개중 한개패드를 누릅니다.



- ◆ 유저뱅크에서 기존 세팅을 불러오면 현재 세팅은 교체됩니다.
- ◆ U-KEY Brain software 를 이용해 컴퓨터에 무한대의 유저뱅크를 생성할 수 있습니다.

7 SYSTEM setup (시스템 셋업)

7.1 Keyboard Channel (키보드 채널)

- ◆ 동작: **SHIFT** ⇒ **C#2** 【Keyboard Channel】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 1
- ◆ Range (선택범위): 1-16



키보드 채널은 키보드, 조이스틱, 페달 채널에만 영행을 줍니다. 패드 채널과 노브 채널은 독자적인 세팅을 가지며 키보드 채널에 의해 바뀌지 않습니다. 패드/ 노브 채널을 바꾸는 것은 위에서 언급한 어싸인 동작을 따르시기 바랍니다.

7.2 Dual (듀얼)

- ◆ 듀얼 기능이 켜져있을때는 키보드의 연주되는 각 노트가 두개의 MIDI 채널로 보내져 복사된 노트를 만듭니다.
- ◆ 듀얼 기능이 켜져있을때는 Transpose (키변환)/ Octave shift (옥타브 변환) 등은 늦게 생성된 쪽에만 적용이 되고, joystick (조이스틱) 과 pedal (페달) 은 양쪽다 적용됩니다.
- ◆ 동작: **SHIFT** ⇒ **D2** 【Dual】 ⇒ **Enter**
- ◆ Default (기본세팅): Off
- ◆ Range (선택범위): Off, On



Dual (듀얼) 과 Split (스플릿) 기능은 동시에 사용할수 없습니다.

7.3 Split (스플릿)

- ◆ 스플릿 기능이 켜져있을때는 키보드가 두 영역으로 나뉘집니다. (왼쪽/ 오른쪽) 나뉘진 두 영역은 각각 다른 세팅이 가능합니다. MIDI channel (미디채널), patch (패치), octave (옥타브)/ transpose (키변환) 등. 기본 세팅은 왼쪽영역에 적용됩니다.
- ◆ 듀얼 기능이 켜져있을때는 Transpose (키변환)/ Octave shift (옥타브 변환)

등은 오른쪽 영역에만 적용이 되고, joystick (조이스틱) 과 pedal (페달) 은 양쪽 영역 모두 적용됩니다.

- ◆ 동작: **SHIFT** ⇒ **D#2** 【Split】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): off, 54
- ◆ Range (선택범위): off, 36-84



Dual (듀얼) 과 Split (스플릿) 기능은 동시에 사용할수 없습니다.

7.4 Keyboard Velocity Curve (Keyboard V.Curve)

벨로시티 커브

- ◆ 키보드의 벨로시티 커브를 원하는 터치 형태로 바꿀수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **E2** 【Keyboard V.Curve】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 1
- ◆ Range (선택범위): 0-9

Code	Curve Name	Description
0	Normal	Straight line
1	Soft 1	Concave curve
2	Soft 2	Concave curve
3	Hard 1	Convex curve
4	Hard 2	Convex curve
5	Expand	Concave then convex
6	Compress	Convex then concave
7	Fixup 1	Fixed velocity 64
8	Fixup 2	Fixed velocity 100
9	Fixup 3	Fixed velocity 127



appendix 10.5 를 참고하세요

7.5 Pad Velocity Curve (Pad V.Curve) 패드 벨로시티

커브

- ◆ 동작: **SHIFT** ⇒ **F2** 【Pad V.Curve】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 1
- ◆ Range (선택범위): 0-9



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7.6 Knob Acceleration Curve (Konb Accel.Curve) 노브 악셀레이션 커브

- ◆ 노브 악셀레이션 커브를 조절해서 노브변환 속도 (센서티버티) 를 조절할수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **F#2** 【Konb Accel.Curve】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 1
- ◆ Range (선택범위): 0-3

7.7 Pedal Polarity (페달의 극성)

- ◆ 페달의 극성을 바꿀수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **G2** 【Pedal Polarity】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 0
- ◆ Range (선택범위): 0-1

7.8 Local On / Off (로컬 온/ 오프)

- ◆ Local 이 On 으로 세팅되어 있으면, 키보드는 MIDI data 를 양 internal tone generator 와 MIDI out port 에 전송합니다. Local 이 Off 이면, MIDI data 는 MIDI out port 로만 보내집니다.
- ◆ 동작: **SHIFT** ⇒ **G#2** 【Local On/Off】
- ◆ Default (기본세팅): On
- ◆ Range (선택범위): {on}, {off}

7.9 Data Dump (데이터 덤프)

- ◆ sysx data 를 이용하여 키보드 세팅을 다른 MIDI 장치로 보낼수 있어 같은 세팅을 저장해서 다시 불러올수 있도록 합니다.

- ◆ 동작: **SHIFT** ⇒ **A2** 【Dump】 ⇒ **Enter**

MIDI data: F0 00 20 63.....F7

7.10 Device Number (디바이스 넘버)

- ◆ 다른 여러 장치로 구성된 MIDI 시스템에 동종 모델이 있을 경우, **sysx** 와 대응시켜 같은 디바이스 넘버를 사용할수 있습니다. 또한 키보드의 디바이스 넘버는 모든 **sysx** 전송시 포함되어 집니다.

- ◆ 동작: **SHIFT** ⇒ **A#2** 【Device Number】 ⇒ 【Adjust parameter】 ⇒ **Enter**

- ◆ Default (기본세팅): 0
- ◆ Range (선택범위): 0-16

7.11 Select Information To DISPLAY (필요한 정보 디스플레이하기)

- ◆ LED 가 수많은 정보들을 표시해내는데, 필요한 정보를 디스플레이하기 위해서 아래와 같이 키보드의 노브나 패드를 누르거나 움직여 필요한 정보를 표시하도록 합니다.

7.11.1 Program Number (프로그램 번호)

- ◆ 현재 프로그램 번호 (패치 혹은 음색 번호) 디스플레이
- ◆ 동작: **SHIFT** ⇒ **B2** 【Program】 ⇒ **Enter**
- ◆ Range (선택범위): 1-128

7.11.2 Bank MSB (뱅크 MSB)

- ◆ Bank MSB 디스플레이 .
- ◆ 동작: **SHIFT** ⇒ **C3** 【Bank MSB】 ⇒ **Enter**
- ◆ Range (선택범위): 0-127

7.11.3 Bank LSB (뱅크 LSB)

- ◆ Bank LSB 디스플레이.
- ◆ 동작: **SHIFT** ⇒ C#3 【Bank LSB】 ⇒ **Enter**
- ◆ Range (선택범위): 0-127

7.11.4 Note Number (노트 넘버)

- ◆ 노트 넘버 디스플레이
- ◆ 동작: **SHIFT** ⇒ D3 【Note】
- ◆ Range (선택범위): 0-127

7.11.5 Controller Number (컨트롤러 넘버)

- ◆ 컨트롤러 넘버 디스플레이
- ◆ 동작: **SHIFT** ⇒ D#3 【Controller】
- ◆ Range (선택범위): 0-127

7.12 Send RESET Message (리셋 메세지 보내기)

7.12.1 All Notes Off (모든 노트 꺼짐)

- ◆ 길게 끌어지는 노트음을 듣게 되면 다음과 같이 멈추게 합니다.
- ◆ 동작: **SHIFT** ⇒ E3 【All Notes Off】
- ◆ MIDI data: CC#123

7.12.2 Reset All Control (모든 컨트롤 리셋)

- ◆ 모든 MIDI controllers 공장 초기화.
- ◆ 동작: **SHIFT** ⇒ F3 【Reset All Control】

- ◆ MIDI data: CC#121

7.12.3 CME On (CME On 메시지)

- ◆ 다른 CME 장비들이 CME On 메시지를 받을수 있도록 CME 메시지를 보낼수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **F#3** 【CME On】
- ◆ MIDI data: F0 00 20 63 00 01 00 00 7F F7

7.12.4 GM On (GM On 메시지)

- ◆ 제너럴 MIDI 호환 장치들과의 교류를 위해 GM On 메시지를 보낼수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **G3** 【GM On】
- ◆ MIDI data: F0 7E 7F 09 01 F7

8 Feature Function (특색있는 기능)

8.1 GAME Mode (게임모드)

- ◆ 게임모드에서, 키보드의 수행 기능들을 테스트하고 연습해볼수 있습니다.

8.1.1 Select A Game By Game Number (게임선택)

- ◆ 동작: **SHIFT** ⇒ **G1** 【Game Number】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 1
- ◆ Range (선택범위): 1-56
- ◆ 게임모드에 들어서면 키보드는 연주자가 게임을 선택해주길 기다립니다. 아무 키나 누르면 게임이 시작되고 LED 가 짧은 단계별로 사용된 시간을 보여줍니다. 송연주를 끝내면, LED 는 단계별 시간 표시를 끝내고 전체 시간을 보여줍니다.
- ◆ 송 리스트는 appendix 10.3 을 참고하세요.

8.1.2 Exit Game (게임모드 나가기)

- ◆ 동작: **SHIFT** ⇒ **G#1** 【Game Exit】
- ◆ Range (선택범위): {off}

8.2 Select Scale (스케일 선택)

- ◆ 기호에 맞는 다양한 뮤직 스타일 스케일을 선택할수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **A1** 【Scale】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 0
- ◆ Range (선택범위): 0-41
- ◆ 스케일 리스트는 appendix 10.2 를 참고하세요

8.3 Select Temperament (Temperament 선택)

- ◆ 기본세팅된 Temperament 대신 기호에 맞게 선택할수 있습니다.
- ◆ 동작: **SHIFT** ⇒ **A#1** 【Temperament】 ⇒ 【Adjust parameter】 ⇒ **Enter**
- ◆ Default (기본세팅): 0
- ◆ Range (선택범위): 0-12
- ◆ temperament 인포메이션은 appendix 10.4 를 참고하세요

8.4 Mute Pads And Knobs (패드와 노브 뮤트)

- ◆ MIDI 데이터 전송을 하지 못하도록 pads 와 knobs 를 뮤트시킬수 있습니다. 이 작업은 keyboard, joystick, pedal 에는 영향을 미치지 않습니다.
- ◆ 동작: **SHIFT** ⇒ **G#3** 【Mute】 ⇒ **Enter**
- ◆ Default: (기본세팅): Off
- ◆ Range (선택범위): On, Off

8.5 Send Out Snapshot (스냅샷 전송)

- ◆ 키보드 스냅샷 (세팅) 을 보내서 리시버 장치들이 같은 세팅을 신속하게

접하도록 합니다.

- ◆ 동작: **SHIFT** ⇒ **A3** 【Snapshot】

8.6 U-CTRL Mode (U-컨트롤 모드)



- ◆ U-CTRL 모드를 이용해 각종 소프트웨어들을 컨트롤 할수 있습니다. 이 모드에서 패드와 노브들은 **SHIFT** 버튼을 통해 프리셋 컨트롤 데이터를 보낼수 있습니다. 반면 키보드, 페달, 조이스틱은 **REMOTE** 모드에서처럼 동작합니다.
- ◆ 동작:
 1. 프론트 패널의 오른쪽 U-CTRL 버튼을 누르면 불이들어옵니다.
 2. 사용하는 컴퓨터 소프트웨어를 시작합니다. 소프트웨어 메뉴얼을 참고하여 **MackieControl template** (템플릿) 을 로딩합니다.
 3. 템플릿에서 리모트 컨트롤 포트를 "**USB AUDIO DEVICE [2]**" (Device name for U-Key) 로 세팅합니다.
- ◆ U-CTRL 모드사용중, **SHIFT** 버튼과 함께 패드와 노브는 소프트웨어를 컨트롤 하는데 사용됩니다. 모드 **A**(A 에 불이들어올때) 혹은 모드 **B**(B 에 불이들어올때) 혹은 모드 **A+B**(A,B 모두 불이들어올때) 에서.
- ◆ U-CTRL 모드사용중, 키보드, 페달, 조이스틱, 옥타브 버튼은 **REMOTE** 모드에서처럼 동작합니다.
- ◆ 아래 **MackieControl function** 리스트 맵을 참고하세요:

U-KEY control part	MCU function (A)	MCU function (B)	MCU function (A+B)
Knob1	Fader1	Fader1	Fader1
Knob2	Fader2	Fader2	Fader2
Knob3	Fader3	Fader3	Fader3
Knob4	Fader4	Fader4	Fader4
Knob5	Fader5	Fader5	Fader5
Knob6	Fader6	Fader6	Fader6
Knob7	Fader7	Fader7	Fader7
Knob8	Fader8	Fader8	Fader8
Knob9	Fader9	Fader9	Fader9
SHIFT+Knob1	Data dial	Data dial	Data dial
SHIFT+Knob2	Knob1	Knob1	Knob1
SHIFT+Knob3	Knob2	Knob2	Knob2
SHIFT+Knob4	Knob3	Knob3	Knob3

SHIFT+Knob5	Knob4	Knob4	Knob4
SHIFT+Knob6	Knob5	Knob5	Knob5
SHIFT+Knob7	Knob6	Knob6	Knob6
SHIFT+Knob8	Knob7	Knob7	Knob7
SHIFT+Knob9	Knob8	Knob8	Knob8
Pad1	SOLO 1	REC/RDY 1	F1
Pad2	SOLO 2	REC/RDY 2	F2
Pad3	SOLO 3	REC/RDY 3	F3
Pad4	SOLO 4	REC/RDY 4	F4
Pad5	SOLO 5	REC/RDY 5	F5
Pad6	SOLO 6	REC/RDY 6	F6
Pad7	SOLO 7	REC/RDY 7	F7
Pad8	SOLO 8	REC/RDY 8	F8
SHIFT+Pad1	MUTE 1	SELECT 1	READ
SHIFT+Pad2	MUTE 2	SELECT 2	WRITE
SHIFT+Pad3	MUTE 3	SELECT 3	MIXER
SHIFT+Pad4	MUTE 4	SELECT 4	REW
SHIFT+Pad5	MUTE 5	SELECT 5	FF
SHIFT+Pad6	MUTE 6	SELECT 6	STOP
SHIFT+Pad7	MUTE 7	SELECT 7	PLAY
SHIFT+Pad8	MUTE 8	SELECT 8	REC

9 Update Program And Data (프로그램 및 데이터 업데이트)

U-Key 는 U-Key Brain program 덕분에, 키보드의 프로그램 및 데이터를 USB 전송으로 업데이트 할수 있습니다. 자주 www.cme-pro.com (한글 홈페이지 <http://cme-pro.co.kr>) 등을 방문하여 업데이트를 확인하시기 바랍니다.

10 Appendix

10.1 Assignable Controllers List

Controller		Data Format	Data Range
No.	Name		
0	Bank Select	Controller	0-127
1	Modulation wheel	Controller	0-127
2	Breath control	Controller	0-127
3	Undefined	Controller	0-127
4	Foot controller	Controller	0-127
5	Portamento time	Controller	0-127
6	Data Entry	Controller	0-127
7	Channel Volume	Controller	0-127
8	Balance	Controller	0-127
9	Undefined	Controller	0-127
10	Pan	Controller	0-127
11	Expression	Controller	0-127
12	Effect control 1	Controller	0-127
13	Effect control 2	Controller	0-127
14	Undefined	Controller	0-127
15	Undefined	Controller	0-127
16	General Purpose #1	Controller	0-127
17	General Purpose #2	Controller	0-127
18	General Purpose #3	Controller	0-127
19	General Purpose #4	Controller	0-127
20	Undefined	Controller	0-127
21	Undefined	Controller	0-127
22	Undefined	Controller	0-127
23	Undefined	Controller	0-127
24	Undefined	Controller	0-127
25	Undefined	Controller	0-127
26	Undefined	Controller	0-127
27	Undefined	Controller	0-127
28	Undefined	Controller	0-127
29	Undefined	Controller	0-127
30	Undefined	Controller	0-127
31	Undefined	Controller	0-127
32	Bank Select	Controller	0-127
33	Modulation wheel	Controller	0-127
34	Breath control	Controller	0-127
35	Undefined	Controller	0-127
36	Foot controller	Controller	0-127
37	Portamento time	Controller	0-127
38	Data entry	Controller	0-127

39	Channel Volume	Controller	0-127
40	Balance	Controller	0-127
41	Undefined	Controller	0-127
42	Pan	Controller	0-127
43	Expression	Controller	0-127
44	Effect control 1	Controller	0-127
45	Effect control 2	Controller	0-127
46	Undefined	Controller	0-127
47	Undefined	Controller	0-127
48	General Purpose #1	Controller	0-127
49	General Purpose #2	Controller	0-127
50	General Purpose #3	Controller	0-127
51	General Purpose #4	Controller	0-127
52	Undefined	Controller	0-127
53	Undefined	Controller	0-127
54	Undefined	Controller	0-127
55	Undefined	Controller	0-127
56	Undefined	Controller	0-127
57	Undefined	Controller	0-127
58	Undefined	Controller	0-127
59	Undefined	Controller	0-127
60	Undefined	Controller	0-127
61	Undefined	Controller	0-127
62	Undefined	Controller	0-127
63	Undefined	Controller	0-127
64	Damper pedal	Controller	0-127
65	Portamento on/off	Controller	0-127
66	Sostenuto on/off	Controller	0-127
67	Soft pedal on/off	Controller	0-127
68	Legato Footswitch	Controller	0-127
69	Hold 2	Controller	0-127
70	Sound Variation	Controller	0-127
71	Timbre/Harmonic Intens.	Controller	0-127
72	Release Time	Controller	0-127
73	Attack Time	Controller	0-127
74	Brightness	Controller	0-127
75	Decay Time	Controller	0-127
76	Vibrato Rate)	Controller	0-127
77	Vibrato Depth	Controller	0-127
78	Vibrato Delay	Controller	0-127
79	Sound Cont.	Controller	0-127
80	General Purpose #5	Controller	0-127
81	General Purpose #6	Controller	0-127
82	General Purpose #7	Controller	0-127
83	General Purpose #8	Controller	0-127

84	Portamento Control	Controller	0-127
85	Undefined	Controller	0-127
86	Undefined	Controller	0-127
87	Undefined	Controller	0-127
88	Undefined	Controller	0-127
89	Undefined	Controller	0-127
90	Undefined	Controller	0-127
91	Reverb Send Level	Controller	0-127
92	Tremolo Depth	Controller	0-127
93	Chorus Send Level	Controller	0-127
94	Celeste/Detune Depth	Controller	0-127
95	Phaser Depth	Controller	0-127
96	Data entry +1	Controller	0-127
97	Data entry -1	Controller	0-127
98	NRPN LSB	Controller	0-127
99	NRPN MSB	Controller	0-127
100	RPN LSB	Controller	0-127
101	RPN MSB	Controller	0-127
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113	Undefined	Controller	0-127
114	Undefined	Controller	0-127
115	Undefined	Controller	0-127
116	Undefined	Controller	0-127
117	Undefined	Controller	0-127
118	Undefined	Controller	0-127
119	Undefined	Controller	0-127
120	All Sound Off	Controller	0-127
121	Reset All Controllers	Controller	0-127
122	Local control on/off	Controller	0-127
123	All notes off	Controller	0-127
124	Omni mode off	Controller	0-127
125	Omni mode on	Controller	0-127
126	Poly mode off	Controller	0-127
127	Poly mode on	Controller	0-127

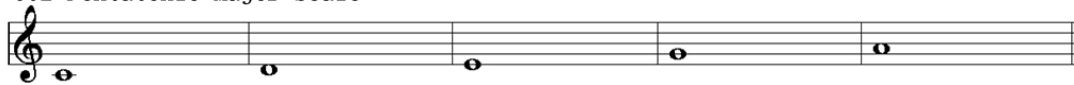
10.2 Scales List

Int ctrl No.	Scale No.	Pitch name	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
			Note number:	1	2	3	4	5	6	7	8	9	10	11
128	001	Major Scale	C	C	D	D	E	F	F	G	G	A	A	B
129	002	Pentatonic Major Scale	C	C	D	D	E	E	E	G	G	A	A	A
130	003	Blues Major Scale	C	C	D#	D#	F	F	F#	G	G	A	A	A
131	004	Minor Scale	C	C	D	D#	D#	F	F	G	G#	G#	A#	A#
132	005	Melodic Minor Scale	C	C	D	D#	D#	F	F	G	G	A	A	B
133	006	Harmonic Minor Scale	C	C	D	D#	D#	F	F	G	G#	A	A	B
134	007	Pentatonic Minor Scale	C	C	D#	D#	D#	F	F	G	G	A#	A#	A#
135	008	Blues Minor Scale	C	C	D#	D#	D#	F	F#	G	G	A#	A#	A#
136	009	Augmented Scale	C	C	D#	D#	E	E	G	G	G#	G#	B	B
137	010	Be-Bop Scale	C	C	D	D	E	F	F	G	G	A	A#	B
138	011	Whole-Half Scale	C	C	D	D#	D#	F	F#	F#	G#	A	A	B
139	012	Half-Whole Scale	C	C#	C#	D#	E	E	F#	G	G	A	A#	A#
140	013	Whole Tone Scale	C	C	D	D	E	E	F#	F#	G#	G#	A#	A#
141	014	Augmented fifth Scale	C	C	D	D	E	F	F	G	G#	A	A	B
142	015	Algerian Scale	C	C	D	D#	D#	F#	F#	G	G#	G#	B	B
143	016	Arabian Scale	C	C	D	D	E	F	F#	F#	G#	G#	A#	A#
144	017	Balinese Scale	C	C#	C#	D#	D#	D#	G	G	G#	G#	G#	G#
145	018	Bartok Scale	C	C	D	D	E	E	F#	G	G	A	A#	A#
146	019	Byzantine Scale	C	C#	C#	E	E	F	F	G	G#	G#	B	B
147	020	Egyptian Scale	C	C	D	D	F	F	F	G	G	A#	A#	
148	021	Enigmatic Scale	C	C#	C#	E	E	E	F#	F#	G#	G#	A#	B
149	022	Spanish Scale	C	C#	C#	E	E	F	F	G	G#	G#	A#	A#
150	023	Spanish 8 Tone Scale	C	C#	C#	D#	E	F	F#	F#	G#	G#	A#	A#
151	024	Gypsy Scale	C	C#	C#	E	E	F	F	G	G	A	A#	A#
152	025	Hungarian Gypsy Scale	C	C	D	D#	D#	F#	F#	G	G#	G#	A#	A#
153	026	Hindu Scale	C	C	D	D	E	F	F	G	G#	G#	A#	A#
154	027	Iwato Scale	C	C#	C#	C#	F	F	F#	F#	F#	A#	A#	A#
155	028	Japanese Scale	C	C#	C#	C#	F	F	F	G	G#	G#	G#	G#
156	029	Javanese Scale	C	C#	C#	D#	D#	F	F	G	G	A	A#	A#
157	030	Hawaiian Scale	C	C	D	D#	D#	F	F	G	G	A	A	B
158	031	Hirajoshi Scale	C	C	D	D#	D#	D#	G	G	G#	G#	G#	G#
159	032	Hungarian Minor Scale	C	C	D	D#	D#	F#	F#	G	G#	G#	B	B
160	033	Hungarian Major Scale	C	C	D#	D#	E	E	F#	G	G	A	A#	A#
161	034	Leading Whole Tone Scale	C	C	D	D	E	E	F#	F#	G#	G#	A#	B
162	035	Mohammedan Scale	C	C	D	D#	D#	F	F	G	G#	G#	B	B
163	036	Mongolian Scale	C	C	D	D	E	E	G	G	G	A#	A#	A#
164	037	Neapolitan Minor Scale	C	C#	C#	D#	D#	F	F	G	G#	G#	B	B
165	038	Neapolitan Major Scale	C	C#	C#	D#	D#	F	F	G	G	A	A	B
166	039	Oriental Scale	C	C#	C#	E	E	F	F#	F#	A	A	A#	A#
167	040	Pelog Scale	C	C#	C#	D#	D#	D#	G	G	G	A#	A#	A#
168	041	Persian Scale	C	C#	C#	E	E	F	F#	F#	G#	G#	B	B

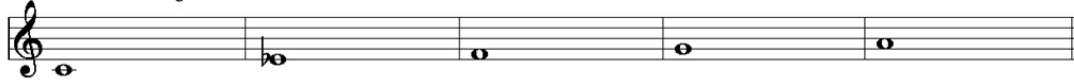
001-Major Scale



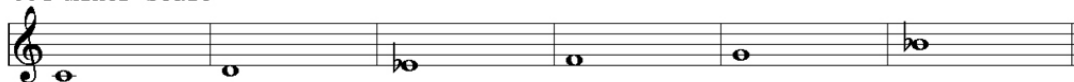
002-Pentatonic Major Scale



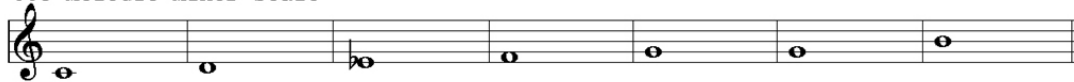
003-Blues Major Scale



004-Minor Scale



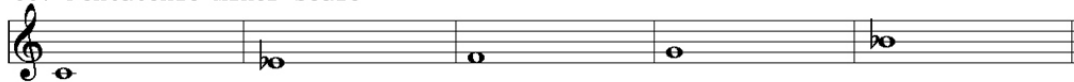
005-Melodic Minor Scale



006-Harmonic Minor Scale



007-Pentatonic Minor Scale



008-Blues Minor Scale



009-Augmented Scale



010-Be-Bop Scale



011-Whole-Half Scale



012-Half-Whole Scale



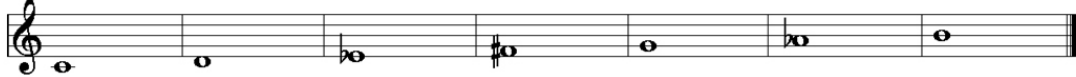
013-Whole Tone Scale



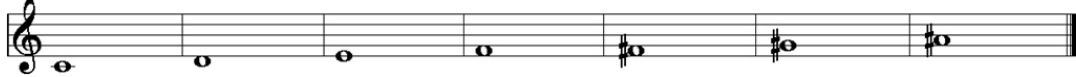
014-Augmented fifth Scale



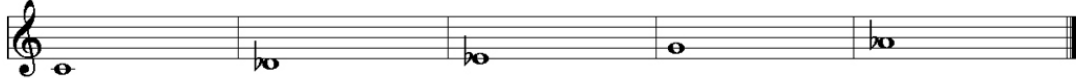
015-Algerian Scale



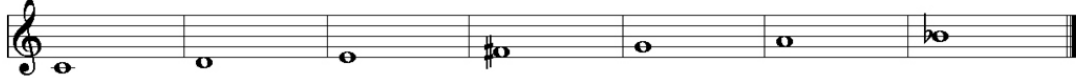
016-Arabian Scale



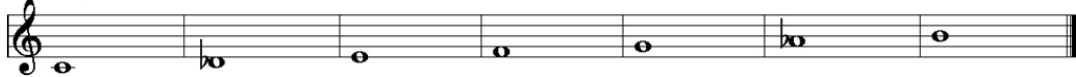
017-Balinese Scale



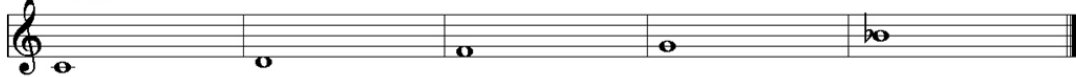
018-Bartok Scale



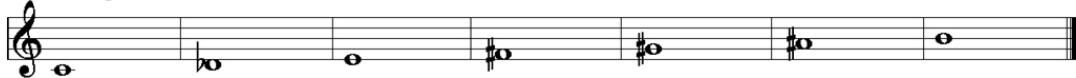
019-Byzantine Scale



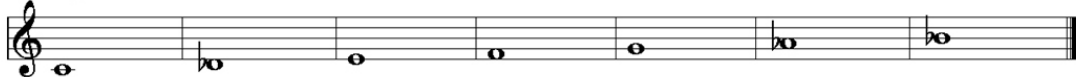
020-Egyptian Scale



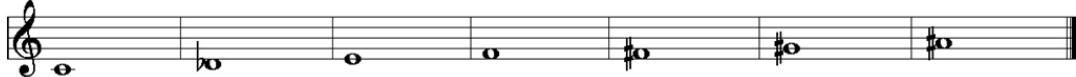
021-Enigmatic Scale



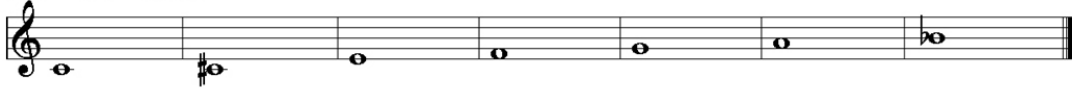
022-Spanish Scale



023-Spanish 8 Tone Scale



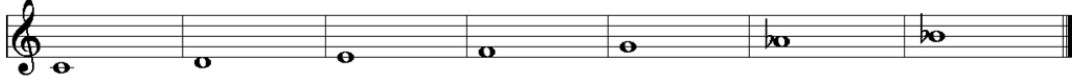
024-Gypsy Scale



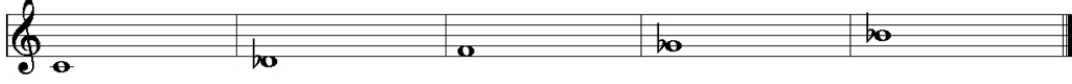
025-Hungarian Gypsy Scale



026-Hindu Scale



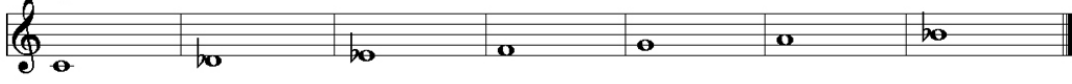
027-Iwato Scale



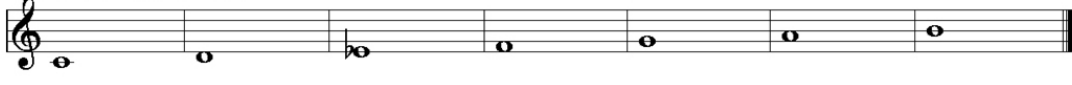
028-Japanese Scale



029-Javanese Scale



030-Hawaiian Scale



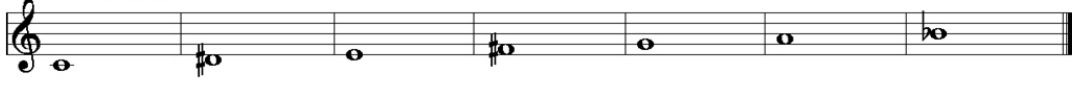
031-Hirajoshi Scale



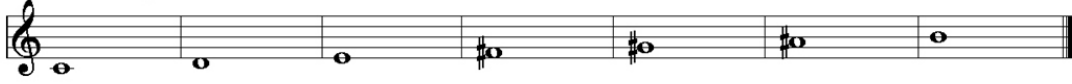
032-Hungarian Minor Scale



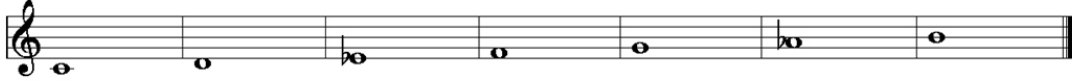
033-Hungarian Major Scale



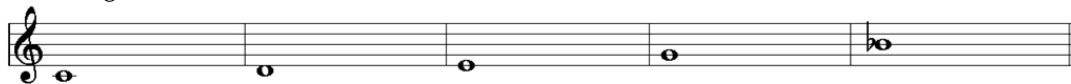
034-Leading Whole Tone Scale



035-Mohammedan Scale



036-Mongolian Scale



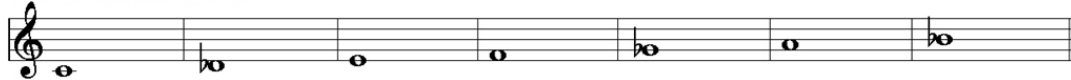
037-Neapolitan Minor Scale



038-Neapolitan Major Scale



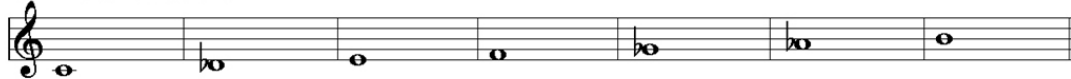
039-Oriental Scale



040-Pelog Scale



041-Persian Scale



10.3 Testing Songs List

No.	Song description	Key points
01	C major scale, one octave, up and down	C4→C5→C4
02	G major scale, one octave, up and down	G3→G4→G3
03	F major scale, one octave, up and down	F3→F4→F3
04	D major scale, one octave, up and down	D3→D4→D3
05	Bb major scale, one octave, up and down	Bb3→Bb4→Bb3
06	A major scale, one octave, up and down	A3→A4→A3
07	Eb major scale, one octave, up and down	Eb3→Eb4→Eb3
08	E major scale, one octave, up and down	E3→E4→E3
09	Ab major scale, one octave, up and down	Ab3→Ab4→Ab3
10	B major scale, one octave, up and down	B3→B4→B3
11	Db major scale, one octave, up and down	Db3→Db4→Db3
12	Gb major scale, one octave, up and down	Gb3→Gb4→Gb3
13	a harmonic minor scale, one octave, up and down	A3→A4→A3
14	e harmonic minor scale, one octave, up and down	E3→E4→E3
15	d harmonic minor scale, one octave, up and down	D3→D4→D3
16	b harmonic minor scale, one octave, up and down	B3→B4→B3
17	g harmonic minor scale, one octave, up and down	G3→G4→G3
18	f# harmonic minor scale, one octave, up and down	F#3→F#4→F#3
19	c harmonic minor scale, one octave, up and down	C4→C5→C4
20	c# harmonic minor scale, one octave, up and down	C#3→C#4→C#3
21	f harmonic minor scale, one octave, up and down	F3→F4→F3
22	g# harmonic minor scale, one octave, up and down	G#3→G#4→G#3
23	bb harmonic minor scale, one octave, up and down	Bb3→Bb4→Bb3
24	eb harmonic minor scale, one octave, up and down	Eb3→Eb4→Eb3
25	C major arpeggio, two octaves, up and down	C3→C5→C3
26	G major arpeggio, two octaves, up and down	G2→G4→G2
27	F major arpeggio, two octaves, up and down	F2→F4→F2
28	D major arpeggio, two octaves, up and down	D2→D4→D2
29	Bb major arpeggio, two octaves, up and down	Bb2→Bb4→Bb2
30	A major arpeggio, two octaves, up and down	A2→A4→A2
31	Eb major arpeggio, two octaves, up and down	Eb2→Eb4→Eb2
32	E major arpeggio, two octaves, up and down	E2→E4→E2
33	Ab major arpeggio, two octaves, up and down	Ab2→Ab4→Ab2
34	B major arpeggio, two octaves, up and down	B2→B4→B2
35	Db major arpeggio, two octaves, up and down	Db2→Db4→Db2
36	Gb major arpeggio, two octaves, up and down	Gb2→Gb4→Gb2
37	a harmonic minor arpeggio, two octaves, up and down	A2→A4→A2
38	e harmonic minor arpeggio, two octaves, up and down	E2→E4→E2
39	d harmonic minor arpeggio, two octaves, up and down	D2→D4→D2
40	b harmonic minor arpeggio, two octaves, up and down	B2→B4→B2
41	g harmonic minor arpeggio, two octaves, up and down	G2→G4→G2

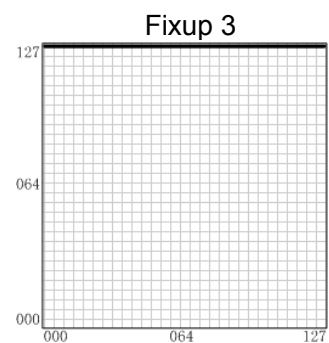
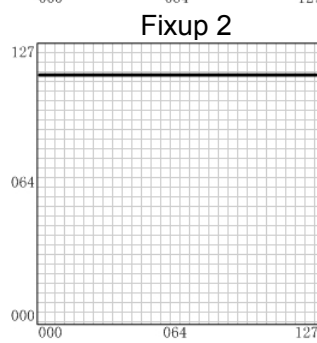
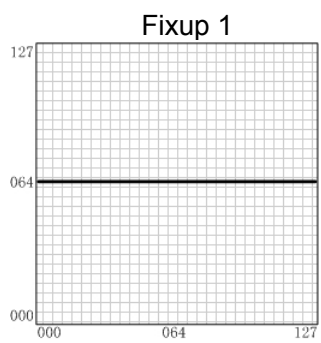
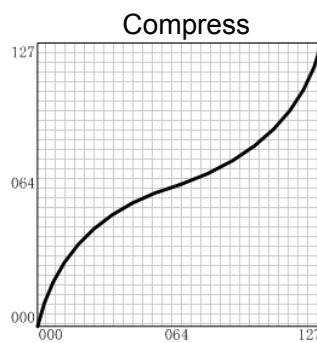
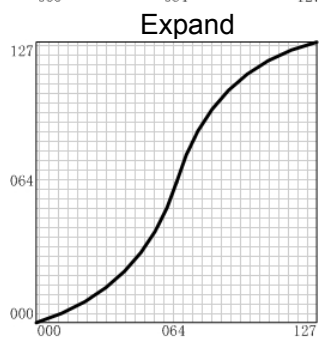
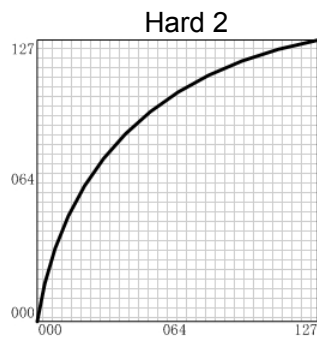
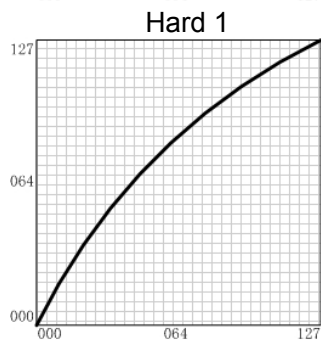
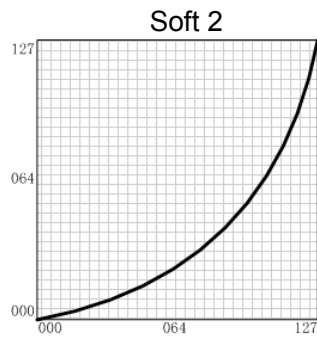
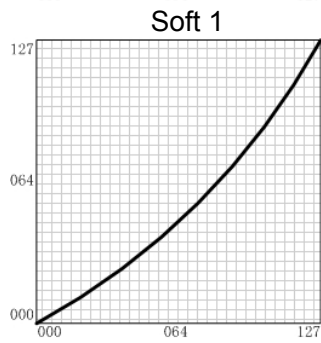
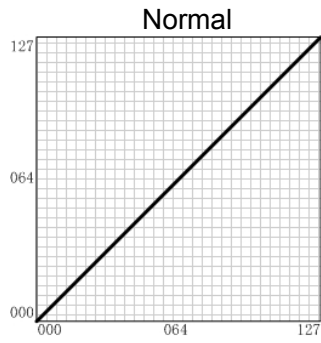
42	f# harmonic minor arpeggio, two octaves, up and down	F#2→F#4→F#2
43	c harmonic minor arpeggio, two octaves, up and down	C3→C5→C3
44	c# harmonic minor arpeggio, two octaves, up and down	C#2→C#4→C#2
45	f harmonic minor arpeggio, two octaves, up and down	F2→F4→F2
46	g# harmonic minor arpeggio, two octaves, up and down	G#2→G#4→G#2
47	bb harmonic minor arpeggio, two octaves, up and down	Bb2→Bb4→Bb2
48	eb harmonic minor arpeggio, two octaves, up and down	Eb2→Eb4→Eb2
49	chromatic scale, one octave, up and down	C2→C3→C2
50	chromatic scale, two octaves, up and down	C3→C5→C3
51	chromatic scale, three octaves, up and down	C2→C5→C2
52	chromatic scale, four octaves, up and down	C1→C5→C1
53	5 seconds of vibration (alternately play any two different note)	—
54	10 seconds of vibration (alternately play any two different note)	—
55	5 seconds of unison (repeatedly play any note)	—
56	10 seconds of unison (repeatedly play any note)	—

10.4 Temperament List

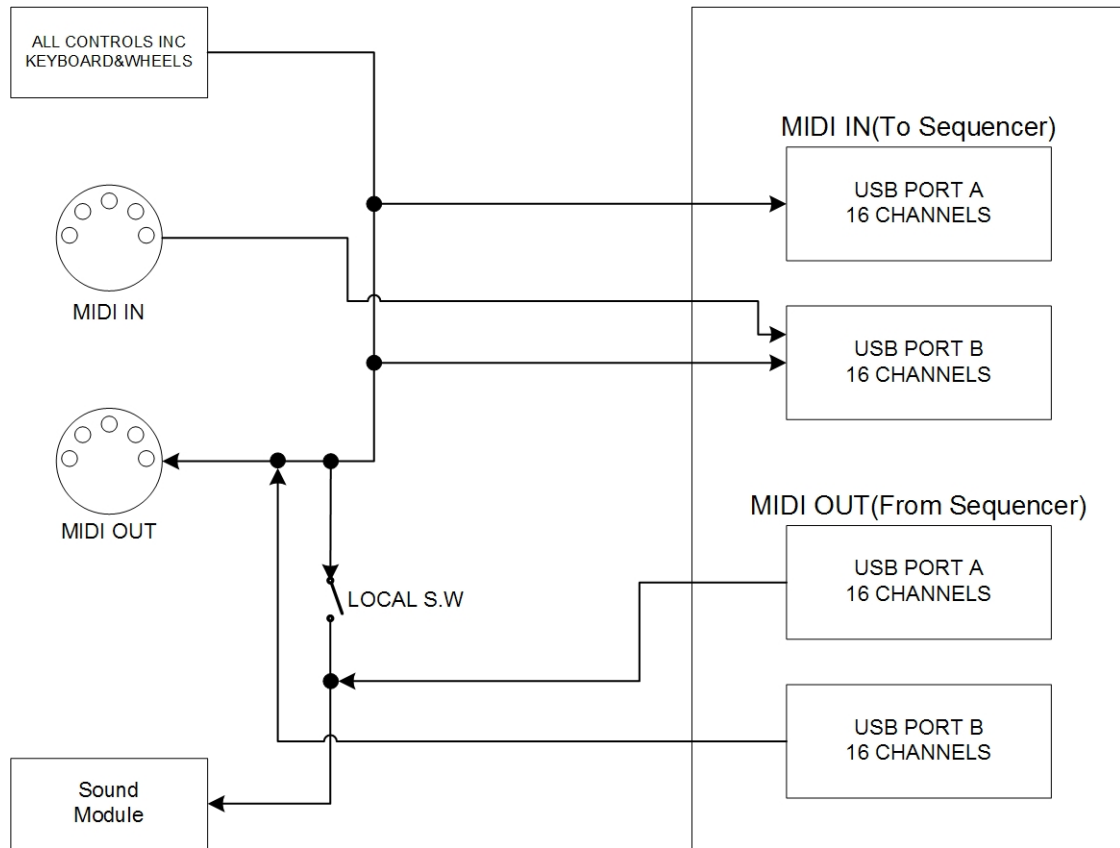
No.	Type	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
0	EQUAL	△	△	△	△	△	△	△	△	△	△	△	△
1	ARABIC	△	△	△	△	▲	△	△	△	△	△	△	▲
2	ARABIC	△	▲	△	△	△	△	△	△	△	△	△	△
3	ARABIC	△	△	△	△	△	△	▲	△	△	△	△	▲
4	ARABIC	△	▲	△	△	△	△	▲	△	△	△	△	△
5	ARABIC	△	△	▲	△	△	△	△	▲	△	△	△	△
6	ARABIC	△	△	▲	△	△	△	△	△	△	▲	△	△
7	ARABIC	△	△	△	▲	△	△	△	△	▲	△	△	△
8	ARABIC	△	▲	△	△	△	△	△	△	▲	△	△	△
9	ARABIC	△	▲	△	△	△	△	△	△	△	△	▲	△
10	ARABIC	△	△	△	△	▲	△	△	△	△	△	△	△
11	ARABIC	△	△	△	△	△	△	△	△	△	▲	△	△
12	ARABIC	△	△	△	△	△	△	△	△	△	△	△	▲

Note: △=Normal pitch, ▲=Changed pitch

10.5 Velocity Curve List




10.6 MIDI Route



10.7 Troubleshooting

Trouble	Possible reasons and solution
After turning on the power switch, the keyboard is not powered on	<ol style="list-style-type: none"> 1. Make sure you have connected the keyboard to its AC adaptor with the proper AC supply 2. If the power is supplied via host USB, please check the USB connection, and make sure that the host computer is turned on.
No sound when playing the keyboard	<ol style="list-style-type: none"> 1. Check the volume settings of the tone generator and speaker system 2. Check the MIDI connection and the audio cable 3. Check Master Volume fader 4. Check Channel Volume knobs 5. Check Channel Expression Knobs 6. Check the attack time of the filter 7. Make sure you have the right settings in you music software 8. Check the MIDI route settings 9. Check the Controller Pedal position
Continuous long sound	<ol style="list-style-type: none"> 1. Check Sustain pedal (Damper pedal) 2. Check the release time of the filter 3. Use All notes off or Reset
Improper voice	Tone generator not set properly, please Initialize or Reset
Wrong pitch	Check Pitch bend, Transpose or Octave function of the keyboard
Tempo knob dose not work	Make sure your sequencer software support this function with the right settings(Refer to the Sync section of your software manual)
Some functions do not work	It is possible that your tone generator or music software dose not support those functions
You hear two sounds when playing one key	Check DUAL function of the keyboard
Cannot select voice	Read the data list of your tone generator for voice select detail, and properly set the tone BANK MSB and LSB

10.8 Specifications

- Keyboard
 - ✧ 49 keys (C1-C5), velocity sensitive
 - Functions
 - ✧ Basic functions: Octave Shift (-3 – +3 octaves), Programmable Joystick
 - ✧ MIDI Data: Sequencer control, MIDI clock, Bank Select, Program Change, GM System On, GS System on, XG System On, Control Change, All Notes Off, and others
 - ✧ Assignable Parameters: Transpose (± 12 semitones), MIDI Transmit Channel, Velocity Curve(Touch Sensitivity)
 - Panel Controls and Indicators
 - ✧ 8 Assignable knobs, Data dial, Function switch button, 2 LED indicators, 2 Transpose and Octave buttons
 - Display
 - ✧ 7 segments, 3 digits LED display
 - Input/Output Terminals
 - ✧ MIDI OUT, MIDI IN, assignable Pedal, USB port, DC IN, Power switch, LINE OUT, HEADPHONE jack
 - Power Supply
 - ✧ Power can be supplied via USB port (when connected to computer via USB)
 - ✧ Power can also be supplied via AC Power Adaptor (When used separately.)
 - ✧ AC Power Adaptor requirement: 9V 500mA
- 
- Dimensions (W x D x H)
 - ✧ 726.5 x 210 x 58.3 mm
 - Weight
 - ✧ 3.320 kg

* Specifications and appearance are subject to change without notice.

10.9 U-Key Tone Generator Information

Special MIDI Controls

NRPN # (High/Low)	Description		Power-up Default
3700h	Low-band Equalizer (bass)	0 = -12 dB, 40h = 0 dB, 7Fh = +12 dB	60h
3701h	Medium-/Low-band Equalizer	0 = -12 dB, 40h = 0 dB, 7Fh = +12 dB	40h
3702h	Medium-/High-band Equalizer	0 = -12 dB, 40h = 0 dB, 7Fh = +12 dB	40h
3703h	High-band Equalizer (treble)	0 = -12dB, 40h = 0dB, 7Fh = +12 dB	60h
3707h	Master Volume	0 to 7Fh	7Fh
3708h	Low-cutoff Frequency Equalizer	0 = 0 Hz, 7Fh = 4.7 kHz	0Ch
3709h	Medium-/Low-cutoff Frequency Equalizer	0 = 0 Hz, 7Fh = 4.2 kHz	1Bh
370Ah	Medium-/High-cutoff Frequency Equalizer	0 = 0 Hz, 7Fh = 4.2 kHz	72h
370Bh	High-cutoff Frequency Equalizer	0 = 0 Hz, 7Fh = 18.75 kHz	40h
3713h	Clipping Mode Select	0 = soft clip, 7Fh = hard clip	00h
3715h	General MIDI Reverb Send	0 = no send, 40h = default send, 7Fh = max	40h
3716h	General MIDI Chorus Send	0 = no send, 40h = default send, 7Fh = max	40h
3718h	Post Effects Applied on GM	0 = Post effects not applied 7Fh = Post effects applied	7Fh
371Ah	Post Effects Applied on Reverb/Chorus	0 = Post effects not applied 7Fh = Post effects applied	7Fh
3720h	Spatial Effect Volume	0 = no effect, 7Fh = maximum effect	00h
3722h	General MIDI Volume	0 to 7Fh	7Fh
3723h	General MIDI Pan	0 = left, 40h = center, 7Fh = right	40h
372Ch	Spatial Effect Delay	0 = shortest to 7Fh = longest	1Dh
372Dh	Spatial Effect Input	0 = stereo, 7Fh = mono	00h
372Eh	Spatial Effect Output Mode	0 = 2 speaker mode, 7Fh = 4 speaker mode	00h
3751h	Auto-test	See Section 5	
3757h	System Exclusive Device ID	0 to 1Fh, 20h = all accepted	20h

Control Messages Overview

Ctrl #	Control Name	Action	Compatible NRPNSYSEX
7h	MASTER_VOL	Master Volume	Nrpn 3707h
10h	EQ_LBL	Low-band Equalizer Left	Nrpn 3700h
11h	EQ_MLBL	Medium-/Low-band Equalizer Left	Nrpn 3701h
12h	EQ_MHBL	Medium-/High-band Equalizer Left	Nrpn 3702h
13h	EQ_HBL	High-band Equalizer Left	Nrpn 3703h
14h	EQ_LBR	Low-band Equalizer Right	Nrpn 3700h
15h	EQ_MLBR	Medium-/Low-band Equalizer Right	Nrpn 3701h
16h	EQ_MHBR	Medium-/High-band Equalizer Right	Nrpn 3702h
17h	EQ_HBR	High-band Equalizer Right	Nrpn 3703h
18h	EQF_LB	Low-band Equalizer Frequency	Nrpn 3708h
19h	EQF_MLB	Medium-/Low-band Equalizer Frequency	Nrpn 3709h
1Ah	EQF_MHB	Medium-/High-band Equalizer Frequency	Nrpn 370Ah
1Bh	EQF_HB	High-band Equalizer Frequency	Nrpn 370Bh
25h	GMREV_SEND	General MIDI Reverb Send	Nrpn 3715h
26h	GMCHR_SEND	General MIDI Chorus Send	Nrpn 3716h
30h	SUR_VOL	Spatial Effect Volume	Nrpn 3720h
31h	SUR_DEL	Spatial Effect Delay	Nrpn 372Ch
32h	SUR_INP	Input Mono/Stereo Select for Spatial Effect	Nrpn 372Dh
38h	GM_VOL	General MIDI Volume	SysEx 40h 00h 04h
39h	GM_PAN	General MIDI Pan	SysEx 40h 00h 06h
3Ah	REV_VOL	Reverb General Volume	SysEx 40h 01h 33h
3Bh	CHR_VOL	Chorus General Volume	SysEx 40h 01h 3Ah
3Fh	UART_MOD	Switch to UART Mode	
62h	GM_POST	Post Effects Applied on General MIDI (1)	Nrpn 3718h
66h	EFF_POST	Post Effects Applied on Reverb-chorus (1)	Nrpn 371Ah
69h	REV_TYPE	Reverb Program Select	SysEx 40h 01h 30h
6Ah	CHR_TYPE	Chorus Program Select	SysEx 40h 01h 38h
6Bh	EQU_TYPE	Equalizer On/Off	Nrpn 3755h
6Ch	REV_ONOFF	Reverb On/Off	Nrpn 3755h
6Dh	CHR_ONOFF	Chorus On/Off	Nrpn 3755h
6Eh	SUR_ONOFF	Spatial Effect On/Off	Nrpn 3755h
74h	CHR_DEL	Chorus Delay	SysEx 40h 01h 3Ch
75h	CHR_FEED	Chorus Feedback	SysEx 40h 01h 3Bh
76h	CHR_RATE	Chorus Rate	SysEx 40h 01h 3Dh
77h	CHR_DEPTH	Chorus Depth	SysEx 40h 01h 3Eh
78h	REV_TIME	Reverb Time	SysEx 40h 01h 34h
79h	REV_FEED	Reverb Feedback	SysEx 40h 01h 35h
7Eh	CLIP_MODE	Clipping Mode	Nrpn 3713h
BEh	EN_CONTROL	Enable Dream Control in Stand-alone Mode	
FFh	RESET	Reset UART Mode	

Note: Post effects are spatial effect + equalizer

System Messages

Ctrl #	Control Name	Parameters (Data)	Action	Answer
07h	MASTER_VOL	Data (byte 0–FFh, FFh)	Master Volume	
BEh	EN_CONTROL	None	Enable Dream Control in Stand-alone Mode	
FFh	RESET	None	Reset UART Mode	
3Fh	UART_MOD	None	Switch to UART Mode	Data = FEh

MASTER_VOL Master volume. Data range: 0–FFh. Default = FFh.

EN_CONTROL This control allows the user to send any control even in stand-alone mode. Only one control can be sent at a time, which means that each control sent in stand-alone mode should start with EN_CONTROL.

RESET Switch ATSAM2193 in stand-alone mode.

UART_MODE Switch ATSAM2193 in UART mode.

Spatial Effect Device The spatial effect must be set ON for using these four controls. Send SUR_ONOFF (control 6Eh) = 7Fh.

Spatial Effect Device

Ctrl #	Control Name	Parameters (Data)	Action	Answer
30h	SUR_VOL	-Data (byte 0–FFh, 0)	Spatial effect volume	
31h	SUR_DEL	-Data (byte 0–7Fh, 1Dh)	Spatial effect delay	
32h	SUR_INP	-Data (byte 0/7Fh, 0)	Input mono/stereo select for spatial effect	

SUR_VOL Spatial effect volume; default = 0.

SUR_DEL Delay time; default = 1Dh

SUR_INP Input type select:

0 Stereo (default), stereo wide Input to delay line is left – right.
 7Fh Mono, pseudo stereo Input to delay line is left + right.

Routing Messages

Ctrl #	Control Name	Parameters (Data)	Action	Answer
62h	GM_POST	-Data (byte 0/7Fh, 7Fh)	Post effects applied on general MIDI	
66h	EFF_POST	-Data (byte 0/7Fh, 7Fh)	Post effects applied on reverb-chorus	

xxx_POST Post effects are spatial effect and equalizer.

Post effects can be separately applied on each module. However, general settings of post effects (EQ_XXX, EQF_XXX, EQU_TYPE, SUR_VOL, SUR_DEL, SUR_INP) are common for all modules.

Data = 0; post effects not applied on module.

Data = 7Fh; post effects applied on module.

Default value = 7Fh

MIDI Messages

Ctrl #	CONTROL NAME	Parameters (Data)	Action	Answer
38h	GM_VOL	-Data (byte 0–FFh, FFh)	General MIDI volume	
39h	GM_PAN	-Data (byte 0–7Fh, 40h)	General MIDI pan	

GM_VOL Range 0–FFh, linear scale.

Default value: GM_VOL = FFh

GM_PAN 0 = hard left, 40h = center, 7Fh = hard right

Pseudo logarithmic scale.

Same as GM system exclusive message "40h 00h 06h".

Default value: GM_PAN = 40h

Reverb Device

Ctrl #	CONTROL NAME	Parameters (Data)	Action	Answer
69h	REV_TYPE	-Data (byte 0-7, 4)	Reverb program select	
3Ah	REV_VOL	-Data (byte 0-FFh)	Reverb general volume	
78h	REV_TIME	-Data (byte 0-7Fh)	Reverb time	
79h	REV_FEED	-Data (byte 0-7Fh)	Reverb feedback	
25h	GMREV_SEND	-Data(byte 0-FFh, 80h)	General MIDI reverb send	

REV_TYPE Reverb program. Same as GM system exclusive message "40h 01h 30h" or GM control 80.

room1	room2	room3	hall1	hall2	plate	delay	pan delay
0h	1h	2h	3h	4h	5h	6h	7h

Default = 4 (hall2)

REV_VOL Reverb volume; same as GM system exclusive message "40h 01h 33h".

Default values:

room1	room2	room3	hall1	hall2	plate	delay	pan delay
90h	90h	90h	C0h	90h	90h	FFh	FFh

REV_TIME Reverb time; same as GM system exclusive message "40h 01h 34h".

Default values:

room1	room2	room3	hall1	hall2	plate	delay	pan delay
7Fh	7Fh	7Fh	7Fh	7Fh	7Fh	18h	7Fh

REV_FEED Reverb delay feedback; only if reverb number = 6 or 7 (delays).

This control is same as GM system exclusive message "40h 01h 35h".

Default values:

delay	pan delay
22h	26h

GMREV_SEND Modify reverb send level for general MIDI.

80h: Original reverb send levels of MIDI sequence not modified.

0 to 7Fh: Original reverb send levels decreased.

81h to FFh: Original reverb send levels increased.

Default = 80h

Chorus Device

Ctrl #	Control Name	Parameters (Data)	Action	Answer
6Ah	CHR_TYPE	-Data (byte 0-7, 2)	Chorus program select	
3Bh	CHR_VOL	-Data (byte 0-FFh)	Chorus general volume	
74h	CHR_DEL	-Data (byte 0-7Fh)	Chorus delay	
75h	CHR_FEED	-Data (byte 0-7Fh)	Chorus feedback	
76h	CHR_RATE	-Data (byte 0-7Fh)	Chorus rate	
77h	CHR_DEPTH	-Data (byte 0-7Fh)	Chorus depth	
26h	GMCHR_SEND	-Data (byte 0-FFh, 80h)	General MIDI chorus send	

CHR_TYPE Chorus program; same as GM system exclusive message "40h 01h 38h" or GM control 81.

chorus1	chorus2	chorus3	chorus4	FB chorus	flanger	short del	FB delay
00h	01h	02h	03h	04h	05h	06h	07h

Default = 2 (chorus3)

CHR_VOL Chorus volume; same as GM system exclusive message "40h 01h 3Ah".

CHR_DEL Chorus delay; same as GM system exclusive message "40h 01h 3Ch".

CHR_FEED Chorus feedback; same as GM system exclusive message "40h 01h 3Bh".

CHR_RATE Chorus rate; same as GM system exclusive message "40h 01h 3Dh".

CHR_DEPTH Chorus depth; same as GM system exclusive message "40h 01h 3Eh".

GMCHR_SEND Modify chorus send level for General MIDI.

Data = 80h: original chorus send levels of MIDI sequence not modified.

Data = 0 to 7Fh: original chorus send levels decreased.

Data = 81h to FFh: original chorus send levels increased.

Default = 80h

Default values:

	chorus1	chorus2	chorus3	chorus4	FB chorus	flanger	short del	FB delay
CHR_VOL	90h	90h	90h	90h	90h	90h	FFh	FFh
CHR_DEL	4Bh	40h	40h	2Bh	7Fh	56h	7Fh	7Fh
CHR_FEED	00h	07h	09h	0Ch	48h	7Fh	00h	50h
CHR_RATE	03h	09h	03h	09h	02h	01h	00h	00h
CHR_DEPTH	05h	13h	13h	10h	0Ch	03h	00h	00h

Equalizer Device

Ctrl #	Control Name	Parameters (Data)	Action	Answer
10h	EQ_LBL	-Level (byte 0-7Fh, 60h)	Low-band Equalizer Left	
11h	EQ_MLBL	-Level (byte 0-7Fh, 40h)	Medium-/Low-band Equalizer Left	
12h	EQ_MHBL	-Level (byte 0-7Fh, 40h)	Medium-/High-band Equalizer Left	
13h	EQ_HBL	-Level (byte 0-7Fh, 60h)	High-band Equalizer Left	
14h	EQ_LBR	-Level (byte 0-7Fh, 60h)	Low-band Equalizer Right	
15h	EQ_MLBR	-Level (byte 0-7Fh, 40h)	Medium-/Low-band Equalizer Right	
16h	EQ_MHBR	-Level (byte 0-7Fh, 40h)	Medium-/High-band Equalizer Right	
17h	EQ_HBR	-Level (byte 0-7Fh, 60h)	High-band Equalizer Right	
18h	EQF_LB	-Data (byte 0-7Fh, 0Ch)	Low-band Equalizer Frequency	
19h	EQF_MLB	-Data (byte 0-7Fh, 1Bh)	Medium-/Low-band Equalizer Frequency	
1Ah	EQF_MHB	-Data (byte 0-7Fh, 72h)	Medium-/High-band Equalizer Frequency	
1Bh	EQF_HB	-Data (byte 0-7Fh, 40h)	High-band Equalizer Frequency	

EQ_xxx: Band level

00h	20h	40h	60h	7Fh
-12 dB	-6 dB	0 dB	+6 dB	+12 dB

Default = 60h (+6 dB) for LB-HB, = 40h (0 dB) for MLB-MHB

EQ_xxx: Band frequency (0-7Fh), linear scale

Band	Range	Default
LB	0-4.7 KHz	0Ch
MLB	0-4.2 KHz	1Bh
MHB	0-4.2 KHz	72h
HB	0-18.75 KHz	40h

Detailed MIDI Implementation

MIDI Message	HEX Code	Description	Compatibility
NOTE ON	9nH kk vv	MIDI channel n (0–15) note ON #kk (1–127), velocity vv (1–127). vv = 0 means "note off."	MIDI
NOTE OFF	8nH kk vv	MIDI channel n (0–15) note OFF #kk (1–127), vv is "don't care."	MIDI
PITCH BEND	EnH bl bh	Pitch bend as specified by bh bl (14 bits) Maximum swing is +/- 1 tone (power-up). Can be changed using "pitch bend sensitivity." Center position is 00H 40H.	GM
PROGRAM CHANGE	CnH pp	Program (patch) change. Specific action on channel 10 (n = 9): select drumset. Refer to sounds/drumset list. Drumsets can be assigned to other channels (see SYSEX MIDI channel to part assign and part to rhythm allocation)	GM/GS
CHANNEL AFTER-TOUCH	DnH vv	vv pressure value. Effect set using Sys. Ex. 40H 2nH 20H-26H	MIDI
MIDI RESET	FFH	Reset to power-up condition.	GS
CTRL 00	BnH 00H cc	Bank select. Refer to sounds list. No action on drumset.	
CTRL 01	BnH 01H cc	Modulation wheel. Rate and maximum depth can be set using SYSEX.	MIDI
CTRL 05	BnH 05H cc	Portamento time.	MIDI
CTRL 06	BnH 06H cc	Data entry: provides data to RPN and NRPN.	MIDI
CTRL 07	BnH 07H cc	Volume (default = 100)	MIDI
CTRL 10	BnH 0AH cc	Pan (default = 64 center)	MIDI
CTRL 11	BnH 0BH cc	Expression (default = 127)	MIDI/GM
CTRL 64	BnH 40H cc	Sustain (damper) pedal	MIDI

Detailed MIDI Implementation (Continued)

MIDI Message	HEX Code	Description	Compatibility
CTRL 65	BnH 41H cc	Portamento ON/OFF	MIDI
CTRL 66	BnH 42H cc	Sostenuto pedal	MIDI
CTRL 67	BnH 43H cc	Soft pedal	MIDI
CTRL 80	BnH 50H vv	Reverb program vv = 00H to 07H (default 04H) 00H: Room1 01H: Room2 02H: Room3 03H: Hall 1 04H: Hall2 05H: Plate 06H: Delay 07H: Pan delay	DREAM
CTRL 81	BnH 51H vv	Chorus program vv = 00H to 07H (default 02H) 00H: Chorus1 01H: Chorus2 02H: Chorus3 03H: Chorus4 04H: Feedback 05H: Flanger 06H: Short delay 07H: FB delay	DREAM
CTRL 91	BnH 5BH vv	Reverb send level vv = 00h to 7Fh	GS
CTRL 93	BnH 5DH vv	Chorus send level vv = 00h to 7Fh	GS
CTRL 120	BnH 78H 00H	All sound off (abrupt stop of sound on channel n)	MIDI
CTRL 121	BnH 79H 00H	Reset all controllers	MIDI
CTRL 123	BnH 7BH 00H	All notes off	MIDI
CTRL 126	BnH 7EH 00H	Mono on	MIDI
CTRL 127	BnH 7FH 00H	Poly on (default power-up)	MIDI
CTRL CC1	BnH ccH vvH	Assignable Controller 1. cc = Controller number (0–5Fh), vv = Control value (0–7Fh). Control number (ccH) can be set on CC1 CONTROLLER NUMBER (Sys. Ex 40 1x 1F). The resulting effect is determined by CC1 controller function (Sys.Ex. 40 2x 40-4A)	GS
CTRL CC2	BnH ccH vvH	Assignable Controller 2. cc = Controller number (00h–5Fh), vv = control value (0–7Fh). Control number can be set on CC2 CONTROLLER NUMBER (Sys.Ex. 40 1x 20). The resulting effect is determined by CC2 controller function (Sys.Ex.40 2x 50-5A).	GS
RPN 0000H	BnH 65H 00H 64H 00H 06H vv	Pitch bend sensitivity in semitones (default = 2)	MIDI/GM
RPN 0001H	BnH 65H 00H 64H 01H 06H vv	Fine tuning in cents (vv = 00–100, vv = 40h 0, vv = 7Fh +100)	MIDI
RPN 0002H	BnH 65H 00H 64H 02H 06H vv	Coarse tuning in half-tones (vv = 00–64, vv = 40h 0, vv = 7Fh +64)	MIDI
NRPN 0108H	BnH 63H 01H 62H 08H 06H vv	Vibrate rate modify (vv = 40h → no modif)	GS
NRPN 0109H	BnH 63H 01H 62H 09H 06H vv	Vibrate depth modify (vv = 40h → no modif)	GS
NRPN 010AH	BnH 63H 01H 62H 0AH 06H vv	Vibrate delay modify (vv = 40h → no modif)	GS
NRPN 0120H	BnH 63H 01H 62H 20H 06H vv	TVF cutoff freq modify(vv = 40h → no modif)	GS

Detailed MIDI Implementation (Continued)

MIDI Message	HEX Code	Description	Compatibility
NRPN 0121H	BnH 63H 01H 62H 21H 06H vv	TVF resonance modify (vv = 40h → no modif)	GS
NRPN 0163H	Bnh 63H 01H 62H 63H 06H vv	Env. attack time modify(vv = 40h → no modif)	GS
NRPN 0164H	BnH 63H 01H 62H 64H 06H vv	Env. decay time modify(vv = 40h → no modif)	GS
NRPN 0166H	BnH 63H 01H 62H 66H 06H vv	Env. release time modif(vv = 40h → no modif)	GS
NRPN 18rrH	BnH 63H 18H 62H rr 06H vv	Pitch coarse of drum instrument note rr in semitones (vv = 40h → no modif)	GS
NRPN 1ArrH	BnH 63H 1AH 62H rr 06H vv	Level of drum instrument note rr (vv = 00 to 7Fh)	GS
NRPN 1CrrH	BnH 63H 1CH 62H rr 06H vv	Pan of drum instrument note rr (40h = middle)	GS
NRPN 1DrrH	BnH 63H 1DH 62H rr 06H vv	Reverb send level of drum instrument note rr (vv = 00 to 7Fh)	GS
NRPN 1ErrH	BnH 63H 1EH 62H rr 06H vv	Chorus send level of drum instrument note rr (vv = 00 to 7Fh)	GS
NRPN 37xxH	BnH 63H 37H 62H xx 06H vv	Special synthesis features controls (see §2-2)	DREAM
Standard Sysex	F0H 7EH 7FH 09H 01H F7H	General MIDI reset	GM
Standard Sysex	F0H 7FH 7FH 04H 01H 00H 01H F7H	Master volume (ll = 0 to 127, default 127)	GM
SYSEX	F0H 41H 00H 42H 12H 40H 00H 00H dd dd dd dd xx F7H	Master tune (default dd = 00H 04H 00H 00H) -100.0 to +100.0 cents. Nibblized data should be used (always four bytes). For example, to tune to +100.0 cents, sent data should be 00H 07H 0EH 08H	GS
SYSEX	F0H 41H 00H 42H 12H 40H 00H 04H vv xx F7H	Master volume (default vv = 7Fh)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 00H 05H vv xx F7H	Master key-shift (default vv = 40h, no transpose)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 00H 06H vv xx F7H	Master pan (default vv = 40h, center)	
SYSEX	F0H 41H 00H 42H 12H 40H 00H 7FH 00H xx F7H	GS reset	GS
SYSEX	F0H 41H 00H 42H 12H 40 01H 10H vv1 vv2 vv3 vv4 vv5 vv6 vv7 vv8 vv9 vv10 vv11 vv12 vv13 vv14 vv15 vv16 xx F7h	Voice reserve: vv1 = Part 10 (Default vv = 2) vv2 to vv10 = Part 1 to 9 (Default vv = 2) vv11 to vv16 = Part 11 to 16 (Default vv = 0)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 30H vv xx F7H	Reverb type (vv = 0 to 7), default = 04H 00H: Room1 01H: Room2 02H: Room3 03H: Hall1 04H: Hall2 05H: Plate 06H: Delay 07H: Pan delay	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 31H vv xx F7H	Reverb character, default 04h	GS

Detailed MIDI Implementation (Continued)

MIDI Message	HEX Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 01H 33H vv xx F7H	Reverb master level, default = 64	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 34H vv xx F7H	Reverb time	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 35H vv xx F7H	Reverb delay feedback. Only if reverb number = 6 or 7 (delays)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 38H vv xx F7H	Chorus type (vv = 0 to 7), default = 02H 00H: Chorus1 01H: Chorus2 02H: Chorus3 03H: Chorus4 04H: Feedback 05H: Flanger 06H: Short delay 07H: FB delay	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3AH vv xx F7H	Chorus master level, default = 64	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3BH vv xx F7H	Chorus feedback	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3CH vv xx F7H	Chorus delay	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3DH vv xx F7H	Chorus rate	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3EH vv xx F7H	Chorus depth	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1pH 02H nn xx F7H	MIDI channel to part assign, p is part (0 to 15), nn is MIDI channel (0 to 15, 16 = OFF). This SYSEX allows to assign several parts to a single MIDI channel or to mute a part. Default assignment: Part MIDI channel 0 9 (DRUMS) 1-9 0-8 10-15 10-15	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1pH 15H vv xx F7H	Part to rhythm allocation, p is part (0 to 15), vv is 00 (sound part) or 01 (rhythm part). This SYSEX allows a part to play sound or drumset. There is no limitation to the number of parts playing drumset. Default assignment: part 0 plays drums (default MIDI channel 9), all other parts play sound.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 40H v1 v2 ... v12 xx F7H	Scale tuning, n is MIDI channel (0 to 15), v1 to v12 are 12 semi-tones tuning values (C, C#, D, ... A#, B), in the range -64 (00H) 0 (40H) +63(7FH) cents. This SYSEX allows nonchromatic tuning of the musical scale on a given MIDI channel. Default v1, v2, ... v12 = 40h, 40h,...,40h (chromatic tuning). Scale tuning has no effect if the part is assigned to a rhythm channel or if the sound played is not of chromatic type.	GS

Detailed MIDI Implementation (Continued)

MIDI Message	HEX Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 1AH vv xx F7H	Velocity slope from 00h to 7Fh (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 1BH vv xx F7H	Velocity offset from 00h to 7Fh (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 1FH vv xx F7H	CC1 Controller number (00-5Fh) (default = 10h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 20H vv xx F7H	CC2 Controller number (00-5Fh) (default = 11h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 00H vv xx F7H	Mod pitch control (-24, +24 semitone) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 01H vv xx F7H	Mod tvf cutoff control (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 02H vv xx F7H	Mod Amplitude control (-100%→+100%) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 03H vv xx F7H	Mod lfo1 rate control (default = 40h). "n" is don't care. Rate is common on all channels	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 04H vv xx F7H	Mod lfo1 pitch depth (0-600 cents) (default = 0Ah)	
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 05H vv xx F7H	Mod lfo1 tvf depth (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 06H vv xx F7H	Mod lfo1 tva depth (0-100%) (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 10H vv xx F7H	Bend pitch control (-24, +24 semitone) (default = 42h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 11H vv xx F7H	Bend tvf cutoff control (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 12H vv xx F7H	Bend Amplitude control (-100%→+100%) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 14H vv xx F7H	Bend lfo1 pitch depth (0-600 cents) (default = 0Ah)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 15H vv xx F7H	Bend lfo1 tvf depth (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 16H vv xx F7H	Bend lfo1 tva depth (0-100%) (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 20H vv xx F7H	CAF pitch control (-24, +24 semitone) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 21H vv xx F7H	CAF tvf cutoff control (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 22H vv xx F7H	CAF Amplitude control (-100%→+100%) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 24H vv xx F7H	CAF lfo1 pitch depth (0-600 cents) (default = 0Ah)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 25H vv xx F7H	CAF lfo1 tvf depth (default = 0h)	GS

Detailed MIDI Implementation (Continued)

MIDI Message	HEX Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 26H vv xx F7H	CAF lfo1 tva depth (0–100%) (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 40H vv xx F7H	CC1 pitch control (–24,+24 semitone) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 41H vv xx F7H	CC1 tvf cutoff control (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 42H vv xx F7H	CC1 Amplitude control (–100%–+100%) (default = 40H)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 44H vv xx F7H	CC1 lfo1 pitch depth (0–600 cents) (default = 0Ah)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 45H vv xx F7H	CC1 lfo1 tvf depth (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 46H vv xx F7H	CC1 lfo1 tva depth (0–100%) (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 50H vv xx F7H	CC2 pitch control (–24,+24 semitone) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 51H vv xx F7H	CC2 tvf cutoff control (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 52H vv xx F7H	CC2 amplitude control (–100%–+100%) (default = 40h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 54H vv xx F7H	CC2 lfo1 pitch depth (0–600 cents) (default = 0Ah)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 55H vv xx F7H	CC2 lfo1 tvf depth (default = 0h)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 56H vv xx F7H	CC2 lfo1 tva depth (0–100%) (default = 0h)	GS

Notes: 1. NRPN sending method: CTRL#99 = high byte, CTRL#98 = low byte, CTRL#6 = vv.
 Example: NRPN 0108H = 40H → CTRL#99 = 1, CTRL#98 = 8, CTRL#6 = 64
 2. x or xx means "don't care."

Main Sounds: (all channels except 10)

General MIDI

Main Sounds

PC*	General MIDI	PC	General MIDI	PC	General MIDI	PC	General MIDI
1	(Grand) Piano 1	33	Acoustic Bass	65	Soprano Sax	97	FX 1 (rain)
2	(Bright) Piano 2	34	Finger Bass	66	Alto Sax	98	FX 2 (soundtrack)
3	(El. Grd) Piano 3	35	Picked Bass	67	Tenor Sax	99	FX 3 (crystal)
4	Honky-tonk Piano	36	Fretless Bass	68	Baritone Sax	100	FX4 (atmosphere)
5	El. Piano 1	37	Slap Bass 1	69	Oboe	101	FX 5 (brightness)
6	El. Piano 2	38	Slap Bass 2	70	English Horn	102	FX 6 (goblins)
7	Harpichord	39	Synth Bass 1	71	Bassoon	103	FX 7 (echoes)
8	Clavi	40	Synth Bass 2	72	Clarinet	104	FX 8 (sci-fi)
9	Celesta	41	Violin	73	Piccolo	105	Sitar
10	Glockenspiel	42	Viola	74	Flute	106	Banjo
11	Music Box	43	Cello	75	Recorder	107	Shamisen
12	Vibraphone	44	Contrabass	76	Pan Flute	108	Koto
13	Marimba	45	Tremolo Strings	77	Blown Bottle	109	Kalimba
14	Xylophone	46	Pizzicato Strings	78	Shakuhachi	110	Bagpipe
15	Tubular Bells	47	Orchestral Harp	79	Whistle	111	Fiddle
16	Santur	48	Timpani	80	Ocarina	112	Shanai
17	Drawbar Organ	49	String Ensemble 1	81	Lead 1 (square)	113	Tinkle Bell
18	Percussive Organ	50	String Ensemble 2	82	Lead 2 (sawtooth)	114	Agogo
19	Rock Organ	51	Synth Strings 1	83	Lead 3 (calliope)	115	Steel Drums
20	Church Organ	52	Synth Strings 2	84	Lead 4 (chiff)	116	Woodblock
21	Reed Organ	53	Choir Aahs	85	Lead 5 (charang)	117	Taiko Drum
22	Accordion (French)	54	Voice Oohs	86	Lead 6 (voice)	118	Melodic Tom
23	Harmonica	55	Synth Voice	87	Lead 7 (fifths)	119	Synth Drum
24	Tango Accordion	56	Orchestra Hit	88	Lead 8 (bass+lead)	120	Reverse Cymbal
25	Accoustic Guitar (nylon)	57	Trumpet	89	Pad 1 (fantasia)	121	Guitar Fret Noise
26	Accoustic Guitar (steel)	58	Trombone	90	Pad 2 (warm)	122	Breath Noise
27	El. Guitar (jazz)	59	Tuba	91	Pad 3 (polysynth)	123	Seashore
28	El. Guitar (clean)	60	Muted Trumpet	92	Pad 4 (choir)	124	Bird Tweet
29	El. Guitar (muted)	61	French Horn	93	Pad 5 (bowed)	125	Teleph. Ring
30	Overdriven Guitar	62	Brass Section	94	Pad 6 (metallic)	126	Helicopter
31	Distortion Guitar	63	Synth Brass 1	95	Pad 7 (halo)	127	Applause
32	Guitar Harmonics	64	Synth Brass 2	96	Pad 8 (sweep)	128	Gunshot

Note: * Program Change

**MT-32 Sound
Variation #127**

(all channels except 10)

To select variation: send CTRL 0 = 127, then PC

PC: Program change

C0: controller 0 value (zero for General MIDI capital sounds)

MT-32 Sound Variation #127

PC#	Instrument name	PC#	Instrument name	PC#	Instrument name	PC#	Instrument name
1	Piano 1	2	Piano 2	3	Piano 3	4	Detuned EP1
5	E. Piano 1	6	E. Piano 2	7	Detuned EP2	8	Honky-Tonk
9	Organ 1	10	Organ 2	11	Organ 3	12	Detuned Or. 1
13	Church Org. 2	14	Church Org.	15	Church Org.	16	Accordion Fr.
17	Harpichord	18	Coupled Hps.	19	Coupled Hps.	20	Clav.
21	Clav.	22	Clav.	23	Celesta	24	Celesta
25	Synth Brass 1	26	Synth Brass 2	27	Synth Brass 3	28	Synth Brass 4
29	Synth Bass 1	30	Synth Bass 2	31	Synth Bass 3	32	Synth Bass 4
33	Fantasia	34	Syn Calliope	35	Choir Aahs	36	Bowed Glass
37	Soundtrack	38	Atmosphere	39	Crystal	40	Bagpipe
41	Tinkle Bell	42	Ice Rain	43	Oboe	44	Pan Flute
45	Saw Wave	46	Charang	47	Tubular Bells	48	Square Wave
49	Strings	50	Tremolo Strings	51	Slow Strings	52	Pizzicato Strings
53	Violin	54	Viola	55	Cello	56	Cello
57	Contrabass	58	Harp	59	Harp	60	Nylon-str. Gt
61	Steel-String Guitar	62	Chorus Guitar	63	Funk Gt.	64	Sitar
65	Acoustic Bs.	66	Fingered Bs.	67	Picked Bs.	68	Fretless Bs.
69	Slap Bs. 1	70	Slap Bs. 2	71	Fretless Bs.	72	Fretless Bs.
73	Flute	74	Flute	75	Piccolo	76	Piccolo
77	Recorder	78	Pan Flute	79	Soprano Sax	80	Alto Sax
81	Tenor Sax	82	Baritone Sax	83	Clarinet	84	Clarinet
85	Oboe	86	English Horn	87	Bassoon	88	Harmonica
89	Trumpet	90	Muted Trumpet	91	Trombone	92	Trombone
93	French Horn	94	French Horn	95	Tuba	96	Brass
97	Brass 2	98	Vibraphone	99	Vibraphone	100	Kalimba
101	Tinkle Bell	102	Glockenspiel	103	Tubular Bell	104	Xylophone
105	Marimba	106	Koto	107	Taisho Koto	108	Shakuhachi
109	Whistle	110	Whistle	111	Bottle Blow	112	Pan Flute
113	Timpani	114	Melo Tom	115	Concert BD	116	Synth Drum
117	Melo. Tom	118	Taiko	119	Taiko	120	Reverse Cym.
121	Castanets	122	Tinkle Bell	123	Orchestra Hit	124	Telephone
125	Bird	126	Helicopter	127	Bowed Glass	128	Ice Rain

Drum Set Table (MIDI Channel 10)

	Prog 1: Standard Set	Prog 17: Power Set	Prog 41: Brush	Prog 49: Orchestra	Prog 127: CM-64/32 (Partial)
27 – D#1				Closed Hi-Hat	*
28 – E1				Pedal Hi-Hat	*
29 – F1				Open Hi-Hat	*
30 – F#1				Ride Cymbal	*
31 – G1					*
32 – G#1					*
33 – A1					*
34 – A#1					*
35 – B1	Kick Drum 2		Jazz BD 2		Kick Drum
36 – C2	Kick Drum 1		Jazz BD 1		Kick Drum
37 – C#2	Side Stick				Rim Shot
38 – D2	Snare Drum 1	Gated Snare	Brush Tap	Snare Drum 2	Snare Drum
39 – D#2	Hand Clap		Brush Slap	Castanets	Hand Clap
40 – E2	Snare Drum 2		Brush Swirl	Snare Drum 2	Elec. Snare Drum
41 – F2	Low Floor Tom			Timpani F	Acoustic Low Tom
42 – F#2	Closed Hi Hat [EXC1]			Timpani F#	Closed Hi-Hat [Exc1]
43 – G2	High Floor Tom			Timpani G	Acoustic Low Tom
44 – G#2	Pedal Hi-Hat [EXC1]			Timpani G#	Open Hi-Hat 2
45 – A2	Low Tom			Timpani A	Acoustic Middle Tom
46 – A#2	Open Hi-Hat [EXC1]			Timpani A#	Open Hi-Hat 1 [Exc1]
47 – B2	Low/Mid Tom			Timpani B	Acoustic Middle Tom
48 – C3	Hi/Mid Tom			Timpani C	Acoustic High Tom
49 – C#3	Crash Cymbal 1			Timpani C#	Crash Cymbal
50 – D3	High Tom			Timpani D	Acoustic High Tom
51 – D#3	Ride Cymbal 1			Timpani D#	Ride Cymbal
52 – E3	Chinese Cymbal			Timpani E	*
53 – F3	Ride Bell			Timpani F	*
54 – F#3	Tambourine				Tambourine
55 – G3	Splash Cymbal				*
56 – G#3	Cowbell				Cowbell
57 – A3	Crash Cymbal 2				*
58 – A#3	Vibraslap				*
59 – B3	Ride Cymbal 2				*
60 – C4	Hi Bongo				

Sounds

	Prog 1: Standard Set	Prog 17: Power Set	Prog 41: Brush	Prog 49: Orchestra	Prog 127: CM-64/32 (Partial)
61 – C#4	Low Bongo				
62 – D4	Mute Hi Conga				
63 – D#4	Open Hi Conga				
64 – E4	Low Conga				
65 – F4	High Timbale				
66 – F#4	Low Timbale				
67 – G4	High Agogo				
68 – G#4	Low Agogo				
69 – A4	Cabasa				
70 – A#4	Maracas				
71 – B4	Short Whistle [EXC2]				
72 – C5	Long Whistle [EXC2]				
73 – C#5	Short Guiro [EXC3]				Vibra Slap
74 – D5	Long Guiro [EXC3]				*
75 – D#5	Claves				Claves
76 – E5	Hi Wood Block				*
77 – F5	Low Wood Block				*
78 – F#5	Mute Cuica [EXC4]				*
79 – G5	Open Cuica [EXC4]				*
80 – G#5	Mute Triangle [EXC5]				*
81 – A5	Open Triangle [EXC5]				*
82 – A#5					Applauses
83 – B5					*
84 – C6					*
85 – C#6					*
86 – D6					*
87 – D#6					*
88 – E6				Applauses	*
89 – F6					*
90 – F#6					*
91 – G6					*
92 – G#6					*
93 – A6					*
94 – A#6					Helicopter
95 – B6					*
96 – C7					Gun Shot
97 – C#7					*

Sounds

	Prog 1: Standard Set	Prog 17: Power Set	Prog 41: Brush	Prog 49: Orchestra	Prog 127: CM-64/32 (Partial)
98 – D7					*
99 – D#7					*
100 – E7					*
101 – F7					*
102 – F#7					Birds
103 – G7					*
104 – g#7					*
105 – A7					*
106 – A#7					Seashore

Note: * = no sound
Blank: Same sound as "Standard Set"
[EXC]: Sounds with same EXC number are mutually exclusive

10.10 MIDI Implementation Chart

CME U-Key Mobiltone USB MIDI Master Keyboard
 Model: U-Key
 Version: 1.2

Function		Transmitted	Recognized
Basic Channel	Default	1	1~16
	Changed	1~16	1~16
Mode	Default Messages	X	GM,GS, MT-32
	Altered	*****	
Note Number:	True voice	0~127 *****	0~127
Velocity	Note ON	<input type="radio"/> v=0~127	<input type="radio"/> v=0~127
	Note OFF	<input type="radio"/> v=0~127	X
Aftertouch	Key's	X	X
	Ch's	X	X
Pitch Bend		<input type="radio"/>	<input type="radio"/>
Control Change		0~127	<input type="radio"/>
Prog Change:	True #	<input type="radio"/> *****	<input type="radio"/>
System Exclusive		<input type="radio"/>	<input type="radio"/>
System Real Time	Clock	<input type="radio"/>	X
	Commands	<input type="radio"/>	X
System command	Song position	<input type="radio"/>	<input type="radio"/>
Aux Messages	Active Sense	<input type="radio"/>	X

: Yes X: No

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