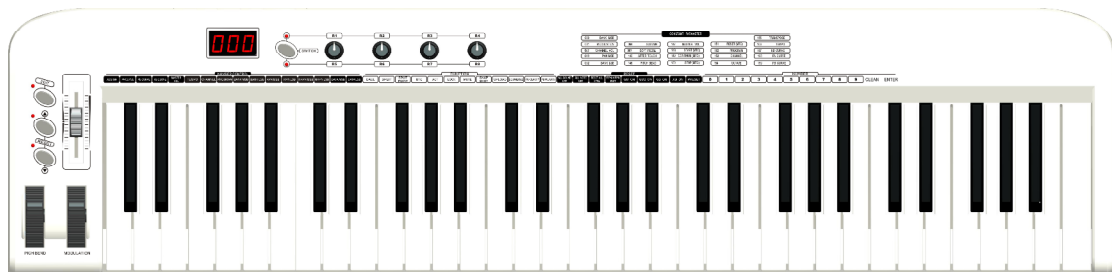
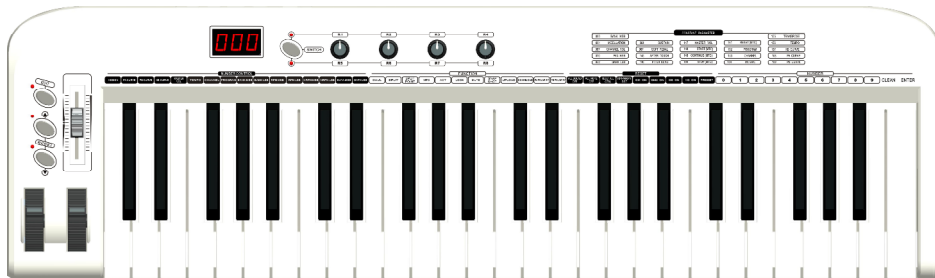
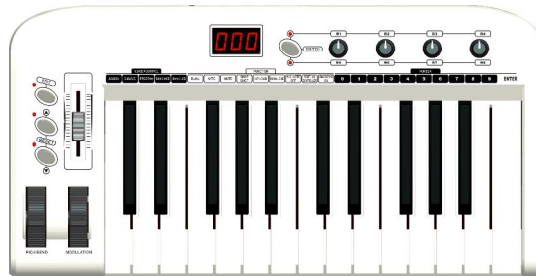


WORLDDE KSA Series MIDI Controller User's Manual

Model: KS25A/49A/61A



Product List

Please check all the items in your KS25A/49A/61A package:

- The KS25A/49A/61A product 1 pcs
- USB cable 1 pcs
- User's manual CD 1 pc

NOTICE

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

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, turpentine 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 sink in the kitchen or similar places.
5. Do not place the instrument on an unstable place 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 insert anything in the instrument, which may cause fire or electrical shock. Do not splash any kind of liquid to the instrument.
9. Do not disassemble the instrument in case of accidental electrical shock.
10. Always take the instrument to a qualified service center in need of repair. You will endanger yourself if you open or remove the cover, and improper assembly may cause electrical shock in future use.
11. Unplug all the connectors and take the instrument to a qualified service center if anything in the below listed happens:
 - (1) The power cord or connector gets damaged or worn out.
 - (2) Any liquid gets into the instrument.
 - (3) The instrument gets rain or water splash.
 - (4) The instrument does not work properly after following all the instructions.
 - (5) The instrument falls down or gets broken.
 - (6) The instrument functions poorly.
12. Do not use the instrument in thunder; otherwise the thunder may cause long-distance electrical shock.
13. When the power cord is connected to the AC outlet, do not touch the naked part of the cord or the connector.
14. Keep the instrument away from dust, heat and vibration.
15. WORLDE is not responsible for any damage or data loss caused by improper operation to the instrument.
16. All the pictures and the LED displays in the manual are used for demonstration; they may be different from the real instrument.

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1. INTRODUCTION

KS25A/49A/61A is 25/49/61-key USB-MIDI Controller, which supplies with professional keyboard of initial touch and profuse assignable controllers. It satisfies the needs of portability, play, control and etc.

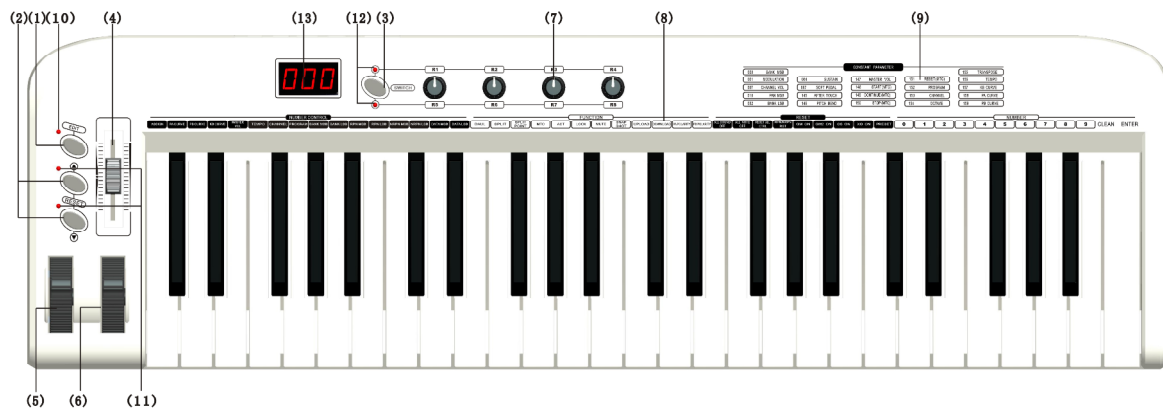
2. FEATURES

- 25/49/61 keys with initial touch.
- 1xAssignable pedal interface (Pedal B), compatible with switch pedal and continuous pedal. It can be assigned as 152 controllers. **(KS25A)**.
- 2xAssignable pedal interfaces (Pedal A, Pedal B), compatible with switch pedal and continuous pedal. It can be assigned as 152 controllers. **(KS49A/61A)**
- 1xAssignable slider (Slider), which can be assigned as 148 controllers.
- Pitch Bend Wheel and Modulation Wheel (Wheel P and Wheel M), which can be assigned as 148 controllers.
- 2xAssignable data buttons (Data +/-), which can be assigned as 160 controllers.
- 1xEdit button (Edit), switch play and edit status.
- 1xDial function group switching button (Switch).
- 4xAssignable dials, which can accomplish two groups of functions (R1~R4 and R5~R8) with each dial distributed to an independent channel. These dials can be assigned as 160 controllers.
- 5xKeyboard velocity curve
- PC upload and download, useful for user setting save and transfer.
- Multi-functional keyboard, which can provide functions such as voice adjustment, dual, touch sensitivity adjustment, split, tempo, mute, snap shot, etc.
- 1xMIDI OUT.
- USB interface, adaptable to USB 1.1. Power supply by USB and DC 9V.
- Compatible with Win XP/Vista and Mac OSX, drive free and hot plug supporting.
- Compatible with major audio and sequencer software, such as Cubase and Cakewalk.

3. OPERATION

3.1. PARTS ILLUSTRATION

3.1.1. FRONT PANEL



(1) EDIT Button

It is to open/close keyboard multi-function.

(2) DATA +/- Buttons

They are assignable buttons, which could be assigned as 160 controllers. The initial setting is 154th controller: octave adjustment.

(3) SWITCH Button

It is to switch function groups of dials R1~R4 and R5~R8.

(4) SLIDER

It is an assignable fader that can be assigned as 148 controllers. The initial setting is 147th controller: master volume.

(5) PITCH BEND Wheel

It is an assignable wheel that can be assigned as 148 controllers. The initial setting is 146th controller: pitch bend wheel.

(6) MODULATION Wheel

It is an assignable wheel that can be assigned as 148 controllers. The initial setting is 1st controller: modulation wheel.

(7) R1~R8 Dials

These are assignable dials with an independent channel distributed to each dial, and each dial can be assigned as 160 controllers. The initial channel of R1~R4 is 0, initial controller numbers are 152, 153, 156, 157, which controls program, channel, tempo and keyboard velocity curve respectively. The initial channels of R5~R8 are 0~3, initial controller number is 7, which controls the volume of channels 0~3 respectively. The

function group of R1~R4 and R5~R8 is switched by SWITCH button.

(8) Multi-functional Keyboard

This function is turned on/off by EDIT button. When it is on, the keyboard provides functions shown printed above the keyboard, including program adjustment, dual, touch sensitivity adjustment, numeric pads, and etc.

(9) Constant Controller Parameter

(10) EDIT Indicator

When EDIT indicator is on, keyboard multi-function is on, vice versa.

(11) OCTAVE/TRANSCOPE Indicator

When the indicator is on, it indicates that there's upper/lower octave adjustment; when the indicator flickers slowly, it indicates that there's upper/lower transpose adjustment; when the indicator flickers quickly, it indicates that there's upper/lower octave and transpose adjustment at the same time; when the indicator is off, it indicates that there's no upper/lower octave nor transpose adjustment.

(12) Dial Function Group Indicator

When the corresponding indicator of R1~R4 is on, the current dial function group is R1~R4; if the indicator of R5~R8 is on, the current dial function group is R5~R8.

(13) LED

It is to display the current number/status information.

3.1.2. REAR PANEL



(1) MIDI OUT

MIDI output interface.

(2) PEDAL A

Pedal A input interface, which can connect to pedals of both switching type and continuous type. It can be assigned as 152 controllers; the initial setting is soft pedal.

(3) PEDAL B

Pedal B input interface, which can connect to pedals of both switching type and continuous type. It can be assigned as 152 controllers; the initial setting is sustain pedal.

(4) USB

USB interface

(5) DC9V

9V power input interface.

(6) OFF/ON

Power Off/On

3.2. CONNECTION/POWER/CONTROL

- ✓ KS25A/49A/61A gets connected to PC via the USB cable. This connection powers the keyboard and is used to transfer the MIDI data to PC. In addition, you can connect to other devices such as a sound module to send out MIDI data via MIDI output port.
- ✓ KS25A can also be used when connected to an optional 9V DC power supply. In this case the MIDI data will only be sent out via the MIDI output port.

3.3. ASSIGN CONTROLLERS

- ✓ Press EDIT button to enter keyboard multi-function mode, the indicator of EDIT is on. Press ASSIGN button to enter controller assignment mode, LED shows CHO, reminding the user to choose the controller that needs to be assigned. Operate the very controller to select it (For example, if you want to assign SLIDER, slide the Slider to select), the LED shows the controller number of the selected controller, input the desired assignable parameter value with numeric pad, and press ENTER to confirm (for example, if Slider is selected, input 147 and the Slider is assigned as Master Volume Controller).
- ✓ Assignable controllers reference: Appendix 1- Assignable controller List
- ✓ Assignable controller parameters reference: Appendix 2-Assignable Controller Parameter List.

3.4. PEDAL RESISTANCE CURVE

- ✓ You can adjust the pedal resistance curve to better work with pedals of different specifications and resistance values.
- ✓ Estimate resistance curve value: Value of PA Curve or PB Curve= $(128 \times \text{pedal resistance value}) / (10K + \text{pedal resistance value})$. For instance, if the pedal resistance value is 10K, the value of PA Curve or PB Curve is: $128 \times 10K / (10K + 10K) = 64$.
- ✓ For pedal resistance value, please refer to the technical specifications provided by pedal manufacturer.
- ✓ The resistance curve estimation does not need to be very accurate, or you could simply adjust it without calculation, as long as the travel and succession of the pedal satisfy your needs.
- ✓ The initial value of resistance curve is 64, adaptable to most pedals in the market.
- ✓ When you use switching type pedal, the recommended resistance curve value is 64.
- ✓ When DATA +/- is assigned as PA CURVE or PB CURVE, DATA +/- can be used to adjust resistance curve values. Press two buttons of DATA +/- at the same time to set

the resistance curve value to initial 64.

- ✓ When the dials (R1~R4 or R5~R8) are assigned as PA CURVE or PB CURVE, they can be used to adjust pedal resistance value.
- ✓ Press EDIT button to enter keyboard multi-function mode, press PA CURVE or PB CURVE multi-functional keys to enter pedal resistance curve adjustment mode, input the pedal resistance value with numeric pad, then press ENTER to confirm.
(KS49A/61A)

3.5. TEMPO

- ✓ When DATA +/- is assigned as TEMPO, it can be used to adjust tempo. Press DATA +/- at the same time to set the tempo to initial 100.
- ✓ When the dials (R1~R4 or R5~R8) are assigned as TEMPO, they (R1~R4 or R5~R8) can be used to adjust tempo.
- ✓ Press EDIT button to enter keyboard multi-function mode, press TEMPO to enter tempo adjustment mode, then input the tempo value with numeric pad, and press ENTER to confirm. **(KS49A/61A)**

3.6. PROGRAM

- ✓ When DATA +/- is assigned as PROGRAM, DATA +/- can be used to adjust program. Press DATA +/- at the same time to set the program number to initial 0.
- ✓ When the dials (R1~R4 or R5~R8) are assigned as PROGRAM, they (R1~R4 or R5~R8) can be used to adjust program.
- ✓ Press EDIT button to enter keyboard multi-function mode, press PROGRAM button to enter program adjustment mode, then input the program number with numeric pad and press ENTER to confirm.

3.7. MIDI CHANNEL

- ✓ When DATA +/- is assigned as CHANNEL, use DATA +/- to adjust general MIDI channel. Press DATA +/- buttons at the same time to set general MIDI channel to initial 0.
- ✓ When dial R1~R4 or R5~R8 are assigned as CHANNEL, use dial R1~R4 or R5~R8 to adjust general MIDI channel.
- ✓ Press EDIT button to enter keyboard multi-function mode, and then press CHANNEL to enter channel adjustment mode, and then use numeric pad to enter general MIDI channel number and press ENTER to confirm.
- ✓ Press EDIT button to enter keyboard multi-function mode, and then press CHANNEL to enter channel adjustment mode. Operate the desired dial from R1~R4 or R5~R8 to select that dial, and then use numeric pad to enter the channel number of that dial in current group, and press ENTER to confirm.

3.8. TRANSPOSE

- ✓ When DATA +/- is assigned as TRANSPOSE, use DATA +/- to adjust transpose. Adjustment range is +/- 12 semitones. Press DATA +/- buttons at the same time to set transpose to initial 0.
- ✓ Hold EDIT and use DATA +/- to adjust transpose. Adjustment range is +/- 12 semitones. Hold EDIT and DATA +/- at the same time to set transpose to initial 0.
- ✓ When dial R1~R4 or R5~R8 are assigned as TRANSPOSE, use dial R1~R4 or R5~R8 to adjust transpose. Adjustment range is +/- 12 semitones.

3.9. OCTAVE

- ✓ When DATA +/- is assigned as OCTAVE, use DATA +/- to adjust octave. Adjustment range is +/- 3 octaves. Press DATA +/- buttons at the same time to set octave to initial 0.
- ✓ When dial R1~R4 or R5~R8 are assigned as OCTAVE, use dial R1~R4 or R5~R8 to adjust octave. Adjustment range is +/- 3 octaves.

3.10. DUAL

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press DUAL to open/close dual function.
- ✓ Dual and keyboard split functions cannot be used simultaneously. Open dual will turn off keyboard split function.

3.11. KEYBOARD SPLIT

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press SPLIT to open /close keyboard split function.
- ✓ Dual and keyboard split functions cannot be used simultaneously. Open keyboard split will turn off dual function. **(KS49A/61A)**

3.12. SPLIT POINT

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press SPLIT POINT to select split point. LED displays CHO to remind users to select the split point, and then press the desired split point note and then that note will be the new split point. **(KS49A/61A)**

3.13. MTC

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press MTC to open/close sending MTC message (F8).

3.14. ACTIVE SENSING

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press ACTIVE SENSING to open/close active sensing message (FE). **(KS49A/61A)**

3.15. LOCK

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press LOCK to open/close lock function. No other controllers except keyboard can be operated under Lock mode. **(KS49A/61A)**

3.16. MUTE

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press MUTE to open/close mute function. No message will be transmitted under Mute mode.

3.17. SNAP SHOT

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press SNAP SHORT, DATA +/-, SLIDER, WHEEL, PEDAL, R1~R4 and R5~R8 and etc all together to transmit those data at one time.

3.18. UPLOAD/DOWNLOAD

- ✓ Use USB port to connect with computer can upload or download user parameters: to upload KS25A/49A/61A panel parameters to computer, or, to download the parameters from computer to KS25A/49A/61A.
- ✓ The transmit messages are system exclusive messages in form of F0.....F7. According to different sequencer software, there are different ways to receive/send system message: mainly record/playback style and system message window style. Details are as follows.
 - Record Style. E.g. Cubase
 - ◇ From KS25A/49A/61A to computer (UPLOAD)
 1. Use USB cable to connect computer and KS25A/49A/61A;

2. Set KS25A/49A/61A parameters;
 3. Open a new MIDI project in Cubase;
 4. Select KS25A/49A/61A as MIDI input and neglect output;
 5. Uncheck the box – SYSEX in RECORD to validate system message. (FILE-> PREFERENCES-> MIDI-> MIDI FILTER);
 6. Cubase starts to record;
 7. Press EDIT button to enter keyboard multi-function mode, and then press UPLOAD, KS25A/49A/61A enters into system message upload mode. LED displays SEu. After upload completes, LED displays don.
 8. Cubase stops recording.
 9. In Cubase, select MIDI->OPEN LIST EDITOR to find received system message; press COMMENT to open system message window and use EXPORT to save the message in *.SYS format.
- ✧ From computer to KS25A/49A/61A (DOWNLOAD)
1. Use USB cable to connect computer and KS25A/49A/61A;
 2. Open a new MIDI project in Cubase;
 3. Select KS25A/49A/61A as MIDI output;
 4. Export saved system message file (*.SYS) into Cubase.
 5. Press EDIT button to enter keyboard multi-function mode, and then press DOWNLOAD, KS25A/49A/61A enters into system message download mode. LED displays SEd.
 6. Cubase starts to playback and transmit system message to KS25A/49A/61A;
 7. LED displays don after KS25A/49A/61A finishes receiving correct system message.
8. Use SNAP SHOT function together to transmit download setting message to sequent device.
- System Message Window Style. E.g. Cakewalk
Operate KS25A/49A/61A in the same way as under Record Style, only different operation in sequencer software.
- ✧ From KS25A/49A/61A to computer (UPLOAD)
1. Use USB cable to connect computer and KS25A/49A/61A;
 2. Set KS25A/49A/61A parameters;
 3. Open a new MIDI project in Cakewalk;
 4. Select KS25A/49A/61A as MIDI input and neglect output;
 5. Open system message window: VIEW->SYSX; select a BANK and↓; select YOU START DUMP ON INSTRUMENT and then Cakewalk enters into system message receive mode.
 6. Press EDIT button to enter keyboard multi-function mode, and then press UPLOAD, KS25A/49A/61A enters into system message upload mode. LED displays SEu. After upload completes, LED displays don.
 7. Use SAVE in Cakewalk to save received message in *.SYS format.
- ✧ From computer to KS25A/49A/61A (DOWNLOAD)
1. Use USB cable to connect computer and KS25A/49A/61A;
 2. Open a new MIDI project in Cakewalk;

3. Select KS25A/49A/61A as MIDI output;
4. Open system message window: VIEW->SYSX; select a BANK and import saved system message file.
5. Press EDIT button to enter keyboard multi-function mode, and then press DOWNLOAD, KS25A/49A/61A enters into system message download mode. LED displays SEd.
6. Use Cakewalk system message send function to send system message to KS25A/49A/61A;
7. LED displays don after KS25A/49A/61A finishes receiving correct system message.
8. Use SNAP SHOT function together to transmit download setting message to sequent device.

3.19. PEDAL POLARITY

- ✓ System can recognize or change pedal polarity. If you want pedal to transmit PEDAL ON message while pressing the pedal and PEDAL OFF message while releasing the pedal, you do not need to do any adjustment. Otherwise, you can press down the pedal while switching on this unit and release the pedal after the unit is turned on.
- ✓ Press EDIT button to enter keyboard multi-function mode, and press PEDAL A POLARITY or PEDAL B POLARITY to adjust pedal polarity. **(KS49A/61A)**

3.20. SWITCH DIAL FUNCTION GROUPS

- ✓ Press SWITCH to shift dial function group between R1~R4 or R5~R8.

3.21. ALL NOTE OFF

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press ALL NOTE OFF to transmit all notes off message (Controller #123), in case of abnormal constant sound from system or external sound module.

3.22. ALL SOUND OFF

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press ALL SOUND OFF to transmit all sound off MIDI message (Controller #120), in case of abnormal constant sound from system or external sound module. **(KS49A/61A)**

3.23. RESET ALL CONTROLLERS

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press RESET ALL CONTROLLER to transmit all reset all controllers message (Controller #121).

3.24. GM/GS/XG ON

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press GM/GS/XG ON to transmit GM initialization message (F0 7E 7F 09 01 F7), GS initialization message (F0 41 10 42 12 40 00 7F 00 41 F7), and XG initialization message (F0 43 10 4C 00 00 7E 00 F7). **(KS25A)**

3.25. GM ON

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press GM ON to transmit GM initialization message (F0 7E 7F 09 01 F7). **(KS49A/61A)**

3.26. GM2 ON

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press GM2 ON to transmit GM2 initialization message (F0 7E 7F 09 03 F7). **(KS49A/61A)**

3.27. GS ON

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press GS ON to transmit GS initialization message (F0 41 10 42 12 40 00 7F 00 41 F7). **(KS49A/61A)**

3.28. XG ON

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press XG ON to transmit XG initialization message (F0 43 10 4C 00 00 7E 00 F7). **(KS49A/61A)**

3.29. PRESET

- ✓ Press EDIT button to enter keyboard multi-function mode, and then press PRESET to return to factory preset.

-
- ✓ If using together with SNAP SHOT function it can transmit preset to sequent device.
(KS49A/61A)

3.30. CLEAN

- ✓ While using numeric pad to enter numbers, press CLEAN button to set the number to 0. (KS49A/61A).

3.31. RESET

- ✓ If not especially mentioned, press DATA +/- buttons at the same time to set controlled parameter to 0.

Note: please refer to above explanation for other unmentioned operation.

4. APPENDIX

4.1. APPENDIX 1 ASSIGNABLE CONTROLLER LIST

NO.	ITEM	INITIAL CHANNEL	PARAMTER RANGE	INITIAL PARAMETER	INITIAL VALUE	PARAMETER
1	Data +/-	0	0~159	154	0	
2	Slider	0	0~147	147	0	
3	Wheel P	0	0~147	146	64	
4	Wheel M	0	0~147	1	0	
5	Pedal A	0	0~151	64	0	
6	Pedal B	0	0~151	67	0	
7	R1	0	0~159	152	0	
8	R2	0	0~159	153	0	
9	R3	0	0~159	156	100	
10	R4	0	0~159	157	0	
11	R5	0	0~159	7	100	
12	R6	1	0~159	7	100	
13	R7	2	0~159	7	100	
14	R8	3	0~159	7	100	

4.2. APPENDIX 2 ASSIGNABLE CONTROLLER PARAMETER LIST

CONTROLLER NO.	DEFINITION	INITIAL VALUE	VALUE RANGE
0	Bank Select MSB	0	0-127
1	Modulation MSB	0	0-127
2	Breath MSB	127	0-127
3	Controller	0	0-127
4	Foot Controller MSB	127	0-127
5	Portamento time MSB	0	0-127
6	Data Entry MSB	2	0-127
7	Channel Volume MSB	100	0-127
8	Balance MSB	64	0-127
9	Controller	0	0-127
10	Panpot MSB	64	0-127
11	Expression MSB	127	0-127

12	Effect Control 1 MSB	0	0-127
13	Effect Control 2 MSB	0	0-127
14-31	Controller	0	0-127
32	Bank Select LSB	0	0-127
33	Modulation LSB	0	0-127
34	Breath LSB	127	0-127
35	Controller	0	0-127
36	Foot Controller LSB	127	0-127
37	Portamento time LSB	0	0-127
38	Data Entry LSB	0	0-127
39	Channel Volume LSB	127	0-127
40	Balance LSB	64	0-127
41	Controller	0	0-127
42	Panpot LSB	64	0-127
43	Expression LSB	127	0-127
44-63	Controller	0	0-127
64	Sustain	0	0-127
65	Portamento	0	0-127
66	Sostenuto	0	0-127
67	Soft Pedal	0	0-127
68	Legato FootSwitch	0	0-127
69	Hold 2	0	0-127
70	Sound Controller	64	0-127
71	Resonance	64	0-127
72	Release Time	64	0-127
73	Attack Time	64	0-127
74	Cutoff	64	0-127
75	Decay Time	0	0-127
76	Vibrato Depth	64	0-127
77	Vibrato Depth	64	0-127
78	Vibrato Depth	64	0-127
79	Sound Controller	64	0-127
80-83	Controller	0	0-127
84	Portamento Control	0	0-127
85-90	Controller	0	0-127
91	Reverb	40	0-127
92	Effects	0	0-127
93	Chorus	0	0-127
94	Effects	0	0-127

95	Effects	0	0-127
96	RPN Increment	0	0-127
97	RPN Decrement	0	0-127
98	NRPN LSB	0	0-127
99	NRPN MSB	0	0-127
100	RPN LSB	0	0-127
101	RPN MSB	0	0-127
102-119	Controller	0	0-127
120	All Sound Off	0	0-127
121	Reset All Controllers	0	0-127
122	Local Control	0	0-127
123	All Notes Off	0	0-127
124	OMNI Off	0	0-127
125	OMNI On	0	0-127
126	Mono	0	0-127
127	Poly	0	0-127
128	Pitch Bend Sensitivity (RPN)	2	0-127
129	Channel Fine Tuning (RPN)	64	0-127
130	Channel Coarse Tuning (RPN)	64	0-127
131	Modulation Depth Range (RPN)	64	0-127
132	Vibrato Rate (NRPN)	64	0-127
133	Vibrato Depth (NRPN)	64	0-127
134	Vibrato Delay (NRPN)	64	0-127
135	Filter Cutoff Frequency (NRPN)	64	0-127
136	Filter Resonance (NRPN)	64	0-127
137	EQ Low Gain (NRPN)	64	0-127
138	EQ High Gain (NRPN)	64	0-127
139	EQ Low Frequency (NRPN)	64	0-127
140	EQ High Frequency (NRPN)	64	0-127
141	EG Attack Time (NRPN)	64	0-127
142	EG Decay Time (NRPN)	64	0-127
143	EG Release Time (NRPN)	64	0-127
144	Polyphonic key pressure	100	0-127
145	After touch	100	0-127
146	Pitch Bend	64	0-127
147	Master Volume	100	0-127
148	Start (MTC)	-	-
149	Continue (MTC)	-	-
150	Stop (MTC)	-	-

151	Reset (MTC)	-	-
152	Program	0	0-127
153	Global Channel	0	0-15
154	Octave	0	-3~3
155	Transpose	0	-12~12
156	Tempo	100	20-250
157	Keyboard Curve	0	0-4
158	Pedal A Curve	64	1-127
159	Pedal B Curve	64	1-127

4.3. Appendix 3 LED Status List

NO.	STATUS	DEFINITION
1	xxx	3 Digit Display
2	xx	Upper Transpose Value
3	-xx	Lower Transpose Value
4	x	Upper Octave Value
5	-x	Lower Octave Value
6	CHO	(1) Under Assign Mode: indicate the controller to be assign. (2) Under Split Point Mode: indicate keyboard Split point.
7	ON/OFF	Certain function On/Off, or pedal polarity positive/negative.
8	don	Certain function done.
9	Err	Operation error.
10	SEu	Parameters upload.
11	SEd	Parameters download.

4.4. APPENDIX 4 TECHNICAL SPECIFICATIONS

NO.	ITEM	SPECIFICATIONS
1	Keyboard	<ul style="list-style-type: none"> ◆ KS25A: 25 Keys, C2-C4, Initial Touch. ◆ KS49A: 49 Keys, C1-C5, Initial Touch. ◆ KS61A: 61 Keys, C1-C6, Initial Touch.
2	Function	<ul style="list-style-type: none"> ◆ MIDI Data: Program Select, Bank Select, Sequencer Control, MTC, Controller Change, GM, GS, XG System Reset and etc. ◆ Controllable Parameters: Transpose, Octave, MIDI Transmit Channel, Velocity Curve Adjust, Keyboard Split Point and etc.
3	Panel & Indicator	<ul style="list-style-type: none"> ◆ 4xAssignable Dials. ◆ 1xDial Group Function Shift Button (incl. 2 Indicators.) ◆ 2xAssignable Data +/- Buttons (incl. 2 Indicators.) ◆ 1xEdit Button (incl. 1 Indicator.)
4	Display	<ul style="list-style-type: none"> ◆ 8 Segments, 3 Digits LED.
5	Input & Output	<ul style="list-style-type: none"> ◆ 1xMIDI Out. ◆ 1xUSB Port. ◆ 1xPedal Input. (KS25A) ◆ 2xPedal Inputs. (KS49A/61A) ◆ 1xDC Input. ◆ 1xPower Switch.
6	Power Supply	<ul style="list-style-type: none"> ◆ 9V DC. ◆ USB Power.