

Expandable Controller Keyboard

K.O.N

User's Guide



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www.esi-audio.com

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1. Introduction

Thank you for purchasing K.ON.

K.ON is an expandable USB controller keyboard. Equipped with a stable aluminium cabinet, K.ON is not only stylish, but perfectly optimized for professional usage live on stage or in any studio environment. Various faders and dials as controllers are provided, allowing remote control of software and hardware synthesizers. K.ON has a total of 4 expansion slots, compatible with existing synthesizer modules from other vendors.

Please note that this document covers the basics of the K.ON installation as well as the usage of the various built-in functions. However, this manual is not intended to explain the basics about MIDI, MIDI controller messages, MIDI programs, MIDI channels or anything about typical audio-/MIDI sequencing software. If you need to get more information about MIDI (i.e. you don't know what a MIDI controller actually is for example), a good start is usually the manual of your notation or sequencing software (i.e. the included Cubase LE 4.0). In addition there are a lot of details about MIDI on the Internet. A good technical resource and great starting point is www.midi.org, some details are typically also provided in various forums about audio / MIDI and home recording.

1.1 Main Features

- 88 keys professional hammer action keyboard, with channel after touch function
- 8 assignable controller knobs, with presets for Cutoff, Resonance, Attack, Release, Pan, Reverb, Chorus, and Tempo
- 9 assignable controller faders, with presets including control of volume of channel 1-16 and the master volume
- 6 remote control buttons for audio and sequencer software, providing real-time remote control of Record, Play, Stop, Fast Forward, Skip Backward and Return
- Pitch and Modulation wheels
- possibility to able to save/load 10 user parameter groups
- various function buttons
- LED data display, displaying the current state
- one MIDI output
- USB port, support USB 1.1, directly powered via USB bus
- 3 available expansion slots
- bundled with Cubase LE 4.0 DVD-ROM
- compatible with various Windows versions and Mac OS X

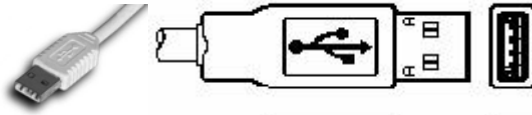
2. Hardware Installation

Before driver installation, please locate your original Windows CD (if you are using Windows), as you may need it during installation. Please also make sure to install the chipset drivers for your motherboard if you have not done so already.

Find the USB port on your computer. A sample USB port is pictured below. It is typically located next to the PS/2 or serial ports on the back of your computer.



Plug the K.ON USB cable (Series A plug type) into the USB port of your computer. The other end of the cable will be connected with K.ON.



K.ON gets the power from the computer via USB cable by default when connected to a computer and after you have switched it on. The LEDs of K.ON will be turned on once the unit is powered and connected to your PC.

MIDI connection

If you are not using the USB connection to your computer, you can also use the MIDI out port with a standard MIDI cable. This will be connected to the MIDI input of your MIDI interface or soundcard for example.

3. Software Installation

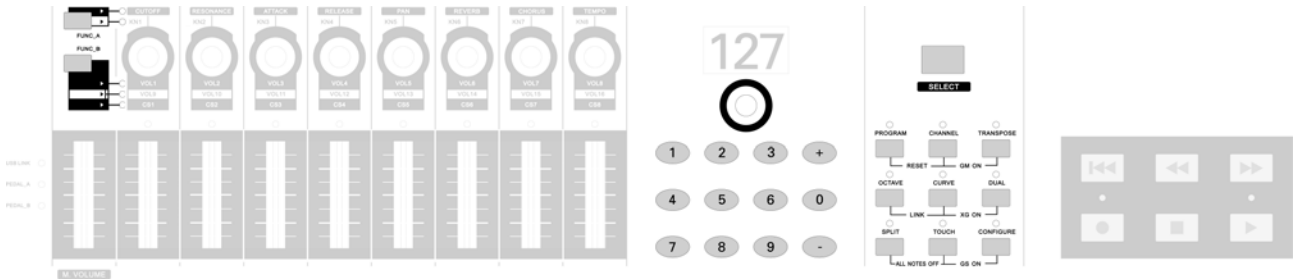
After K.ON has been connected to your computer, you can immediately start using it. Under Windows, a new MIDI input device called **USB Audio Device** will be available in all your MIDI compatible applications. Under Mac OS X, a new device called **K.ON** will be available.

This device can be selected as MIDI input source in all MIDI compatible applications. How this is done, varies from application to application, so please consult the manual for your audio/MIDI or notation software for more details.

4. Features & Functions

4.1 Function Buttons

K.ON has various function buttons on the control surface. This section explains each of them.



PROGRAM

You can change the MIDI program (instrument) with the **PROGRAM** button. After pressing it, the LED above the button is on and the numeric display shows the currently selected program. You can change it with the selection master knob under the numeric display, by entering numbers via the numeric keypad or with the + / - buttons. All 128 standard MIDI voices are available in the range from 0 - 127.

CHANNEL

Via the **CHANNEL** button the MIDI channel (1 - 16) can be selected. After pressing it, the LED above the button is on and the numeric display shows the currently selected channel. You can change it with the selection master knob under the numeric display, by entering numbers via the numeric keypad or with the +/- buttons.

TRANSPOSE

The **TRANSPOSE** button allows you to transpose the key range of K.ON in the +/- 12 semitone (+/- 1 octave) range. After pressing it, the LED above the button is on and the numeric display shows the current value. The default value is 00. You can change it with the selection master knob under the numeric display or via the +/- buttons.

OCTAVE

The **OCTAVE** adjusting button allows you to change the main octave pitch of K.ON over a range of +/-3 semitones. After pressing it, the LED above the button is on and the numeric display shows the current value. You can change it with the selection master knob under the numeric display or via the +/- buttons.

CURVE

The **CURVE** button allows you to adjust the velocity curve. K.ON provides 5 different velocity curves (0 - 4). After pressing it, the LED above the button is on and the numeric display shows the current value. You can change it with the selection master knob under the numeric display or via the +/- buttons.

DUAL

K.ON provides a special function to allow you to play two simultaneous instruments / MIDI programs.

Before you press the DUAL button, select the first MIDI program via PROGRAM as described above. Now press DUAL and select the second voice. After pressing it, the LED above the button is on. You can change the value on the numeric display it with the selection master knob, by entering numbers via the numeric keypad or via the +/- buttons. K.ON will then transmit the MIDI information on two channels simultaneously.

By default, the two voice or DUAL mode plays the second instrument on the next MIDI channel (i.e. if the current MIDI channel is 1, the second instrument will be played on channel 2). As long as DUAL mode is enabled (as indicated by the LED above the button), the CHANNEL button will change the MIDI channel for the second instrument. Please note that the DUAL mode and SPLIT mode cannot be used simultaneously.

To disable DUAL mode, press the DUAL button again. The LED above the button will be off.

SPLIT

K.ON also provides a keyboard split function that allows you to divide K.ON into two different split zones with different MIDI instruments - the SPLIT mode.

First make sure to setup all parameters for the low tone. Then press SPLIT to start the split function - the indicator LED will be turned on. Now you can start and edit the parameters for the high tone. The default split point is central C (MIDI value 3C).

If you want to change the split point, you need to do this before enabling SPLIT mode (i.e. the LED above the button is off). Press and hold the SPLIT button and then touch the key you want to assign as split point. Release the SPLIT button and press it again to enable SPLIT mode (the LED will be turned on) with the new split point.

If you want to modify the split point, can press SPLIT constantly, then press a key to select the split point. After that, release the SPLIT.

By default, the SPLIT mode plays the second instrument on the next MIDI channel (i.e. if the current MIDI channel is 1, the higher instrument will be played on channel 2). As long as SPLIT mode is enabled (as indicated by the LED above the button), the CHANNEL button will change the MIDI channel for the higher instrument. Please note that the SPLIT mode and DUAL mode cannot be used simultaneously.

TOUCH

The TOUCH button allows you to turn on/ off channel after touch.

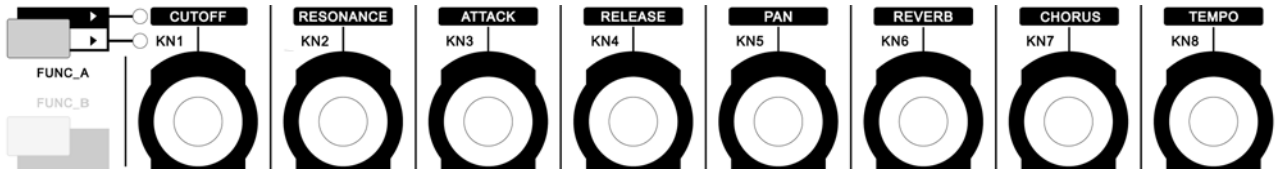
CONFIGURE

With the CONFIGURE button, you can assign different MIDI controller functions to the various faders & control knobs of K.ON. How this is done is explained in section 4.7.

SELECT

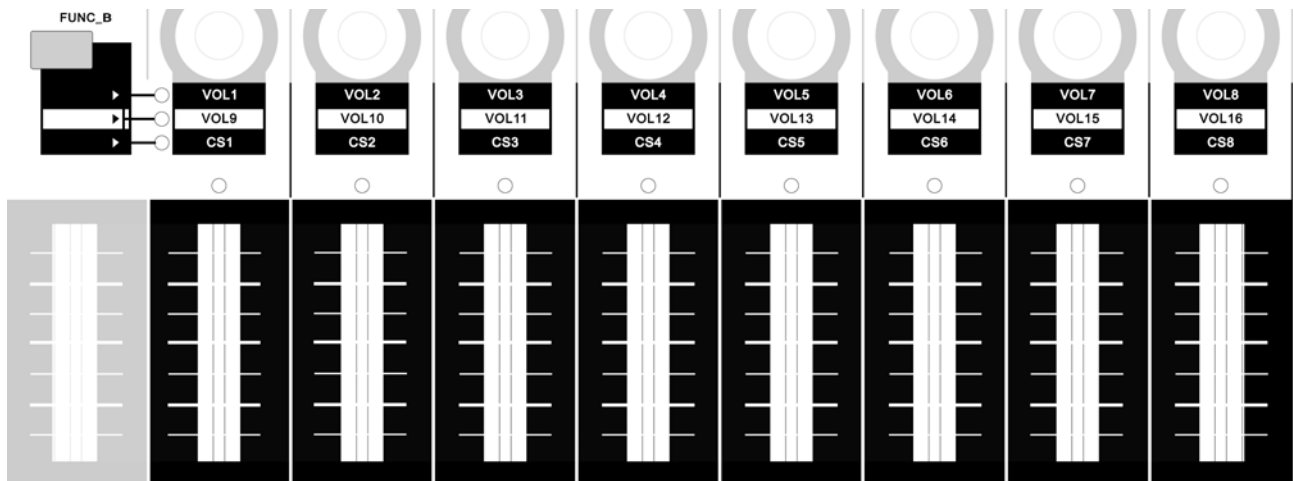
With the **SELECT** button, you can select the controller knob and fader and then control its value via the master knob under the numeric display. The usage is further explained in section 4.7.

FUNC_A



The **FUNC_A** button allows you to select between the predefined and user controlled MIDI controller values for the controller knobs. The LED next to the button shows the current selection. The top LED indicates usage of Cutoff, Resonance, Attack, Release, Pan, Reverb, Chorus and Tempo while the lower LED indicates the usage of the user defined values (KNx). Check the table in section 5.1 for more information.

FUNC_B



The **FUNC_B** button allows you to select between the predefined and user controlled MIDI controller values for the controller knobs. The LED next to the button shows the current selection. The top LED indicates usage of Volume for channel 1 - 8, the mid LED indicates volume for channel 9 - 16 and the lower LED indicates the usage of the user defined values (CSx). Check the table in section 5.2 for more information.

+, - button

The **+** and **-** buttons of K.ON are used to enter values by increasing or decreasing values when changing or entering them.

Master Knob

The master knob is positioned under the main numeric display. It is used to adjust values when changing or entering them.

Numeric Keypad

You can also enter values with the numeric keypad. To fill out empty spaces, use 0.

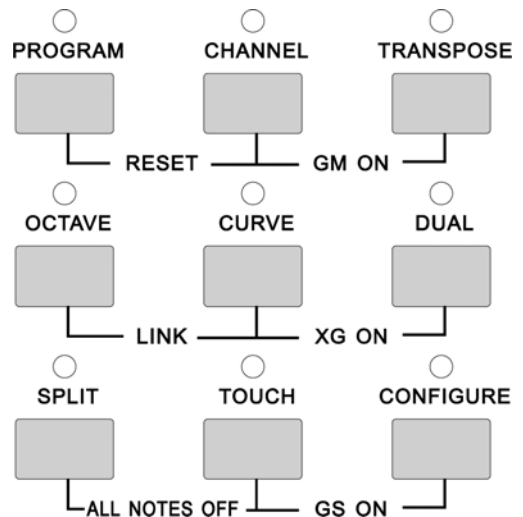
4.2 Additional Functions

K.ON has more functions that are typically accessed by pressing two buttons at the same time. This section explains these.

RESET

Pressing PROGRAM and CHANNEL buttons at the same time sends out a system reset command. K.ON returns to its initial settings and sends the system reset information at the same time. The numeric display will blink to indicate the reset process.

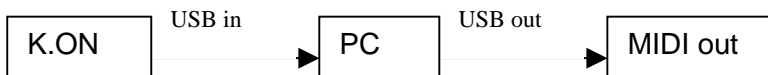
Note that the device connected must support the reset command - or it may not respond accordingly.



LINK

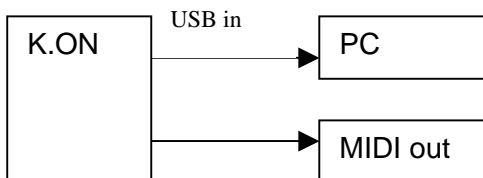
Via the link function (pressing OCTAVE and CURVE simultaneously), the MIDI I/O routing of K.ON can be changed. The modes are 0, 1 and 2. Check the following diagrams for a description of each of them:

Mode 0

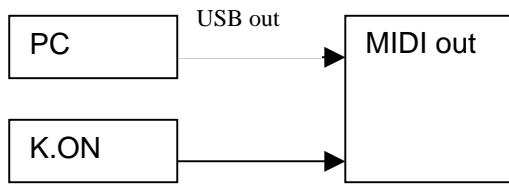


In this mode, the K.ON port needs to be selected as MIDI output device in the corresponding audio sequencer software, so that the MIDI port can send out data from the computer. This allows you to use K.ON as a USB MIDI interface and you can control other devices from your computer via the MIDI output port of K.ON.

Mode 1



In this mode, no MIDI signals can sent out from the computer via USB, however the computer is still receiving all signals from K.ON. Use this mode to control other devices that are connected to the MIDI output of K.ON directly from K.ON, independently from the computer.

Mode 2

In this mode, the computer receives no signals from K.ON via USB. The signals are sent directly to the MIDI output port instead. Also signals sent by the PC are sent directly out to the MIDI output port. This allows you to use K.ON and the computer simultaneously to control an external device connected to the MIDI output port of K.ON.

ALL NOTE OFF

When pressing the buttons **SPLIT** and **TOUCH** simultaneously, K.ON will send out the all notes off MIDI command (controller #123). Use this function when you have problems with hanging notes on your system or sound module.

Please note that not all devices support this MIDI command, so in some cases it might simply not work.

GM ON

Pressing **CHANNEL** and **TRANSPOSE** at the same time will send GM initialization information (MIDI values **F0 7E 7F 09 01 F7**).

XG ON

Pressing **CURVE** and **DUAL** buttons at the same time will send XG initialization information (MIDI values **F0 43 10 4C 00 00 7E 00 F7**)

GS ON

Pressing **TOUCH** and **CONFIGURE** buttons at the same time will send XG initialization information (MIDI values **F0 41 10 42 12 40 00 7F 00 41 F7**)

Please note that the GM/GS/XG initialization functions only have an effect if the connected device supports these commands.

4.3 Pitch and Modulation Wheels

Rotating the **PITCH** wheel during performance can change the pitch of the current performance (typically one tone above or below). However, the **PITCH** wheel can be reconfigured to send out another MIDI controller. Rotating the **MODULATION** wheel during performance typically adds a tremolo effect to the sound. The **MODULATION** wheel can also be reconfigured to send out another MIDI controller. This is described in section 4.7.

4.4 Pedal Connectors

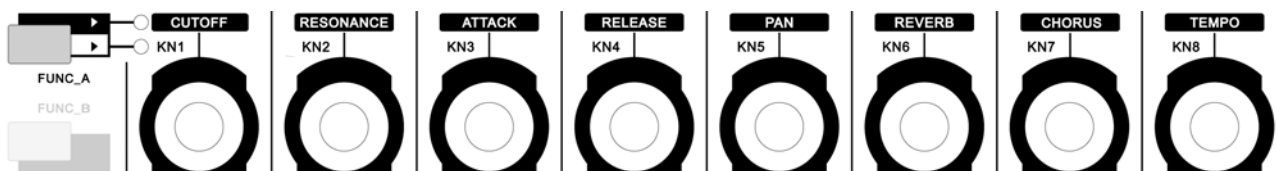
The two pedals are by default defined as sustain (PEDAL_A LED on top and PEDAL_A SUSTAIN connector on backside) and soft / damper (PEDAL_B LED on top and PEDAL_B DAMPER connector on the backside) pedal. They can be reconfigured for other functions however. This is described in section 4.7.

Pedal Polarity

K.ON can recognize / change the pedal polarity by default. If you want to send ‘Pedal On’ while stamping on the pedal and ‘Pedal Off’ while releasing the pedal, no operation needs to be done; If you want to send ‘Pedal Off’ while stamping on the pedal and ‘Pedal On’ while releasing, you need to stamp on the pedal before the keyboard is switched on, and release the pedal until you can see the keyboard is powered on and displays something on the LED display.

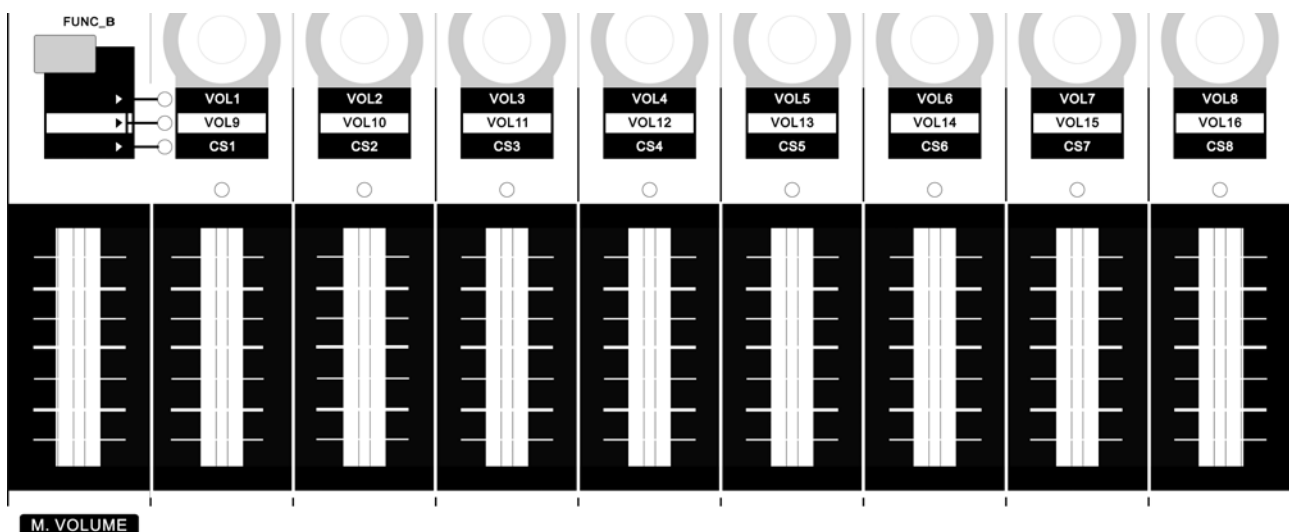
4.5 Controller Knobs & Faders

Controller Knobs



8 controller knobs can send out MIDI controller values. The controllers are divided into 2 groups. When the first indicator LED next to the FUNC_A button is on, it means that the first group with preset MIDI controllers will be used. When the second indicator is on, it means that the user defined KNx MIDI controllers will be sent out instead. You can switch between the two groups with the FUNC_A button. When adjusting different controller knobs, the LED displays current adjusting values, the corresponding indicator is on, also, the value can be adjusted by knobs or +, - buttons. Besides, the desired controller knobs can be selected by the SELECT button, and the values can be adjusted by knobs, number buttons, or +, - buttons.

Faders



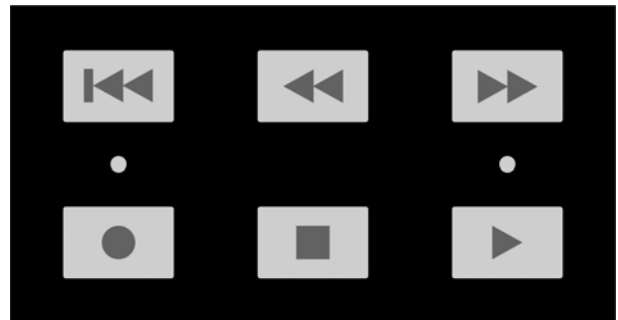
9 faders can send out MIDI controller values. They are divided into 3 groups. When the first indicator LED next to the **FUNC_B** button is on, the faders are adjusting volume of channel 1 - 8; when the second indicator is on, they adjust volume of channel 9 - 16. When the third indicator is on, the user defined **CSx** MIDI controllers will be sent out instead. These 3 modes can be switched by **FUNC_B**. Like the 8 controller knobs, the faders can be used together with knobs, number buttons or +, - buttons after selecting them with the **SELECT** button. **M.VOLUME** on the lower left adjusts the main volume.

4.6 Transport Controls

The transport control buttons can be used to remote control your sequencing software.

Please consult the manual of your audio / MIDI sequencing or notation software on how to control the transport functions remotely via MIDI.

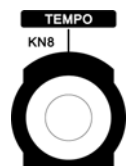
The table in section 5.3 shows the MIDI controller values K.ON is sending out. Depending on your software, there might be a preset that matches these values or there might be a learn function that detects the signals from K.ON and allows you to assign them to functions of the software.



To start playback, you push the **PLAY** button. The LED above the button indicates the **PLAY** mode. To start recording, you push the **RECORD** button. A red LED indicates the **RECORD** mode. Please note that the **PLAY** and **RECORD** buttons can only be used after pushing **STOP** first as **PLAY** and **RECORD** modes are exclusive, i.e. they cannot be used simultaneously.

Tempo

When in **PLAY** or **RECORD** mode, K.ON sends out MIDI sync clock information. The tempo can be changed with the **TEMPO** controller knob (make sure to select the top row of controllers via **FUNC_A** button first as described in section 4.5. The tempo can be changed during playback and software or devices supporting MIDI clock information will then automatically synchronize to K.ON. If the tempo value is changed when not in **PLAY** or **RECORD** mode, it will be used the next time you push **PLAY** or **RECORD**.



4.7 Controller Assignment

The 8 controller knobs, 8 faders (the first, **M.VOLUME**, has a fixed function and cannot be reassigned), Pitch & Modulation and the 2 pedal connectors can be used to send out different MIDI controllers by reassigning different controller values to them. Typically you need to select the fader / knob, etc. for which you want to change the assignment first and then enter into the edit mode. You can select the fader / knob via the **SELECT** button.

Assigning to Controller Knobs

Select the controller you want to assign via the **SELECT** button by pushing it several times and browsing through the knobs. Press the **CONFIGURE** button and the system enters into edit mode for the selected controller. The numeric display now displays the currently assigned MIDI controller

number. Now you can adjust the MIDI controller value by entering the desired controller number via the numeric keypad or with the + / - buttons.

Assigning to Faders

Select the fader you want to assign via the **SELECT** button by pushing it several times and browsing through the knobs. Press the **CONFIGURE** button and the system enters into edit mode for the selected controller. The numeric display now displays the currently assigned MIDI controller number. Now you can adjust the MIDI controller value by entering the desired controller number via the numeric keypad or with the + / - buttons.

Assigning to Pedals

Enter into edit mode (start via **CONFIGURE**) first. Then stamp on (or release) the pedal to select the pedal. The numeric display now displays the currently assigned MIDI controller number. Now you can adjust the MIDI controller value by entering the desired controller number via the numeric keypad or with the + / - buttons.

Assigning to Pitch & Modulation wheels

Enter into edit mode (start via **CONFIGURE**) first. Then turn the Pitch or Modulation wheel. The numeric display now displays the currently assigned MIDI controller number. Now you can adjust the MIDI controller value by entering the desired controller number via the numeric keypad or with the + / - buttons.

Note: As Pitch is not defined to be any standard MIDI controller in the 0 - 127 range, K.ON defines Pitch as 128. This means that you can always enter numbers from 0 - 128 for the Pitch wheel where 128 means Pitch.

Finishing the Reassignment

When the controller reassignment is done (i.e. you have entered the number of the required MIDI controller), press any function button to confirm the configuration and exit the edit mode.

Please note that the controller knob and the fader controller should be assigned with MIDI controllers with successive variation while the pedals should be assigned with MIDI controllers with on / off variation.

4.8 Save & Load Functions

K.ON can store up to 10 groups with user parameters. This allows you to make different configurations and load depending on the situation.

Save

Press the **⏪** and **⏩** buttons at the same time to enter into save mode. The 10 groups of user parameters are saved under number 0 - 9. The numeric display shows "S-", the number can be selected by entering it via the numeric keypad. For instance, if you enter 0, the LEDs display "S0". The user parameters will be saved in group 0 then. If you are not entering a number within 2 seconds, the system returns to the state prior to the saving.

Load

Press ◀◀ and ▶▶ at the same time to enter into load mode. The 10 groups of user parameters can be loaded via their number (0 - 9). The numeric display shows “L-”, the corresponding user parameter group that is saved can be loaded by inputting number 0-9. For instance, if you enter, the LEDs display “L0”, which means that the parameters of group 0 will be loaded. If you are not entering a number within 2 seconds, the system returns to the state prior to the loading.

5. Tables with Default Values







5.1 Controller Knob Defaults (KNx - FUNC_A)

Grp #1	Name	CUTOFF	RESONANCE	ATTACK	RELEASE	PAN	REVERB	CHORUS	TEMPO
	Settings	Cutoff	Resonance	Attack	Release	Pan	Reverb	Chorus	Tempo
	Controller	74	71	73	72	10	91	93	
	Defaultvalue	64	64	64	64	64	40	0	
Grp #2	Name	KN1	KN2	KN3	KN4	KN5	KN6	KN7	KN8
	Setting								
	Controller	14	15	16	17	18	19	20	21
	Defaultvalue	0	0	0	0	0	0	0	0

5.2 Faders Default (CSx - FUNC_B)

Group #1	Name	M.VOLUME	VOL1	VOL2	VOL3	VOL4	VOL5	VOL6	VOL7	VOL8
	Channel	ALL(1)	1	2	3	4	5	6	7	8
	Controller	113	7	7	7	7	7	7	7	7
	Defaultvalue	100	100	100	100	100	100	100	100	100
Group #2	Name	M.VOLUME	VOL9	VOL10	VOL11	VOL12	VOL13	VOL14	VOL15	VOL16
	Setting		9	10	11	12	13	14	15	16
	Controller	113	7	7	7	7	7	7	7	7
	Defaultvalue	100	100	100	100	100	100	100	100	100
Group #3	Name	M.VOLUME	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
	Setting									
	Controller	113	22	23	24	25	26	27	28	29
	Defaultvalue	100	0	0	0	0	0	0	0	0

5.3 Transport Controls MIDI Parameter

Name						
Controller	114, 118	115	116	117	118	119
Channel	1	1	1	1	1	1
Trigger	127	127	127	127	127	127

5.4 MIDI Controller List

Controller	Parameter Function	Defaultvalue	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 Cntrl MSB	127	0-127
5	Portam. time MSB	0	0-127
6	Data Entry MSB	2	0-127
7	Channel Vol. MSB	100	0-127

Controller	Parameter Function	Defaultvalue	Range
8	Balance MSB	64	0-127
9	Controller	0	0-127
10	Pan MSB	64	0-127
11	Expression MSB	127	0-127
12	Effect Control MSB	0	0-127
13	Effect Control MSB	0	0-127
14-31	Controller	0	0-127
32	Bank Select LSB	0	0-127

Controller	Parameter Function	Defaultvalue	Range
33	Modulation LSB	0	0-127
34	Breath LSB	127	0-127
35	Controller	0	0-127
36	Foot Cntrl LSB	127	0-127
37	Portam. time LSB	0	0-127
38	Data Entry LSB	0	0-127
39	Chnnl 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

Controller	Parameter Function	Defaultvalue	Range
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 Contrll	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

6. General Information

Trademarks

ESI and K.ON are trademarks of Ego Systems Inc. and ESI Audiotechnik GmbH. Windows is a trademark of Microsoft Corporation. Other product and brand names are trademarks or registered trademarks of their respective companies.

The FCC and CE Regulation Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Caution : Any changes or modifications in construction of this device with are not expressly approved by the party responsible for compliance, could void the user's authority to operate equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. If necessary, consult an experienced radio/television technician for additional suggestions.

Correspondence

For technical support inquiries, contact ESI support online at www.esi-audio.com.

Disclaimer

All features and specifications subject to change without notice.

Parts of this manual are continually being updated. Please check our web site www.esi-audio.com occasionally for the most recent update information.