

Graphite 49

USB MIDI CONTROLLER



OWNER'S MANUAL

SAMSON[®]

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V2

Samson Technologies
45 Gilpin Avenue
Hauppauge, New York 11788-8816
Phone: 1-800-3-SAMSON (1-800-372-6766)
Fax: 631-784-2201
www.samsontech.com

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Important Safety Information



**ATTENTION
RISQUE D'ÉLECTROCUTION !
NE PAS OUVRIR !**

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD. DO NOT USE THIS PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE. TO PREVENT FIRE OR SHOCK HAZARD. DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. TO PREVENT ELECTRICAL SHOCK, MATCH WIDE BLADE PLUG TO WIDE SLOT AND FULLY INSERT.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES CLASS B. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MUST NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION. SUITABLE FOR HOME OR OFFICE USE.



If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private household in the 25 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For Countries not mentioned above, please contact your local authorities for a correct method of disposal.

By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

CAUTION

Any changes or modifications to the construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment 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 installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been tested and found to comply with the limits for the following standards:

EN55022-2006

EN55024:1998/+A1:2001/+A2:2003

EN55013:2001/+A1:2003/+A3:2006

EN61000-3-2:2006

EN61000-3-3:1995/+A1:2001/+A2:2003

Important Safety Information

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



11. Unplug the apparatus during lightning storms, or when unused for long periods of time.
12. Refer all servicing to qualified personnel. Service is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. This appliance shall not be exposed to dripping or splashing water and that no object filled with liquid such as vases shall be placed on the apparatus.
14. Caution-to prevent electrical shock, match wide blade plug wide slot fully insert.
15. Please keep a good ventilation environment around the entire unit.
16. Always unplug cables by gripping the plug firmly, not by pulling on the cable.

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Introduction

Thank you for purchasing the Samson Graphite 49, 49-key USB keyboard controller! The Graphite 49 gives you all the performance and production control to easily integrate with your Windows or Mac digital production workstation. To capture the dynamics of your performance, the Graphite 49 comes equipped with a 49-note velocity-sensitive keyboard with aftertouch. In addition, the Graphite 49 has four velocity-sensitive trigger pads with aftertouch, that can be used for recording drum beats, triggering samples, or controlling midi parameters.

The Graphite 49 also functions as a full-featured control surface with nine sliders, eight encoders, 16 function buttons, and transport controls. At the center of the keyboard, a large backlit LCD screen displays functions and accessible parameters in real-time, allowing you to make changes quickly without interrupting your performance or session.

The Graphite 49 is the perfect addition to your DAW or controlling virtual instrument software. To get you started making music immediately, we have included Native Instruments Komplete Elements, which contains over 1000 sounds and effects.

In these pages, you'll find a detailed description of the features of the Graphite 49 keyboard controller, as well as a guided tour of its control panel, and instructions for setup and use. You'll also find a warranty card enclosed. Please don't forget to fill it out and mail it in so that you can receive online technical support, and so that we can send you updated information about these and other Samson products in the future.

We recommend you record your serial number in the space provided below, for future reference.

Serial number: _____

Date of purchase: _____

With proper care and maintenance, your Graphite 49 will operate trouble-free for many years. Should your keyboard ever require servicing, a Return Authorization (RA) number must be obtained before shipping your unit to Samson. Without this number, the unit will not be accepted. Please call Samson at 1-800-3SAMSON (1-800-372-6766) for an RA number prior to shipping your unit. Please retain the original packing materials and, if possible, return the unit in its original carton. If your Graphite 49 was purchased outside of the United States, contact your local distributor for warranty details and service information.

Also, be sure to check out our website (www.samsontech.com) for Graphite desktop editing software, firmware updates, and remote control setup documentation.

Graphite 49 Features

The Samson Graphite 49 utilizes state-of-the-art technology and is engineered to the finest detail. Here are some of its main features:

- 49-key semi-weighted keyboard with aftertouch
- Nine programmable faders, eight encoders and 16 buttons for hands-on control over your DAW and virtual instruments
- Four velocity-sensitive trigger pads with aftertouch (two banks each) for drum sounds and samples
- Large backlit LCD display provides real-time feedback
- MIDI Out, USB and sustain pedal connections
- Compact design, perfect for live performance and studio applications
- Dedicated Transpose and Octave buttons, Pitch Bend and Modulation wheels
- Four zones for creating splits and layering sounds
- Adjustable velocity curve for both keys and pads
- USB bus power
- Includes Native Instruments Komplete Elements software

System Components

- Samson Graphite 49 USB Keyboard
- One (1) USB Cable
- Native Instruments Komplete Elements installation DVD
- Graphite 49 Owner's Manual

Minimum System Requirements

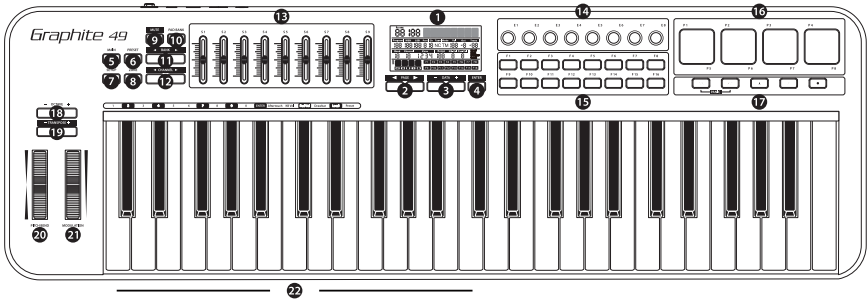
Windows (PC)

- Windows XP/Vista/Win7
- 800MHz or higher, 256MB RAM or larger, USB port

Mac OS

- Mac OS X 10.4.9 or higher
- 733MHz or higher, 512MB RAM or larger, USB port

Front Panel Controls and Functions

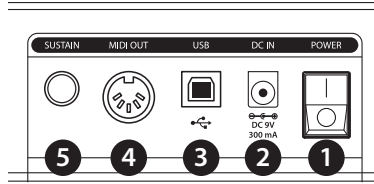


- 1. Display** - The backlit LCD is the command center for the Graphite 49. It displays the current setup information, performance data, adjustable parameters and controller information.
- 2. PAGE ◀ / ▶ Buttons** - Press the PAGE buttons to navigate through the adjustable parameters and functions in all modes.
- 3. DATA +/- Buttons** - Press the DATA buttons to adjust MIDI, controller, and performance data in all modes.
- 4. ENTER Button** - When pressed, this button applies the selected parameter settings.
- 5. MAIN Button** - Press this backlit button to enter Performance Mode. It will also cancel any adjusted parameters that have not been saved.
- 6. PRESET Button** - Press this backlit button to enter Preset Mode, where you can select from 30 different software and user presets.
- 7. SETUP Button** - Press this backlit button to enter Setup Mode to adjust and assign performance and controller parameters within a preset.
- 8. ZONE Button** - Press this backlit button to edit the four zones from which the Graphite can send independent note and controller information.
- 9. MUTE Button** - Press this button to enable the Mute function. When activated, the word MUTE will flash on the display and the keyboard will stop transmitting messages from the encoders and sliders. Pressing the button again will exit the Mute function and transmit all encoder and slider values together.
- 10. PAD BANK Button** - The Trigger Pads are configured into two pad banks, with different settings configured to each pad. Press the PAD BANK button to toggle between the two banks.
- 11. BANK ◀ / ▶ Buttons** - The eight encoders and first eight sliders are configured into two banks, so you can control up to 16 individual parameters. Press the BANK buttons to switch between the two banks of eight controllers.
- 12. CHANNEL ◀ / ▶ Buttons** - Press the CHANNEL buttons to shift all eight encoders and the first eight sliders by one MIDI channel to expand the working range of the controllers.
- 13. Assignable Sliders** - The nine sliders send continuous control data via the USB or MIDI OUT jacks. The S1–S8 sliders are preset from the factory to send volume controls for channels 1–8, and S9 is set to master volume control. The sliders can be assigned to control different parameters in Setup Mode.

Front Panel Controls and Functions

- 14. Assignable Encoders** - The eight endless encoders send continuous control data via the USB or MIDI OUT jacks. The encoders are preset from the factory to send MIDI pan message on channels 1–8. The encoders can be assigned to control different parameters in Setup Mode.
- 15. Function Buttons** - The 16 function buttons can be used to send MIDI note or control information, and can be set as either toggle or momentary style buttons. The current state of each button is shown on the display.
- 16. Trigger Pads** - The four velocity-sensitive trigger pads can be assigned to send MIDI note or control information, and can be set as either toggle or momentary style buttons. For added control, these pads feature four velocity curves as well as aftertouch.
- 17. Transport Buttons** - The five transport buttons control universal Rewind, Fast Forward, Stop, Play and Record functions (respectively) in the factory default setting. They can also be assigned to control different parameters in the Setup Mode, similar to the Function Buttons. If you encounter a stuck (hanging) note, press the Rewind and Fast Forward buttons together to send a Panic command to all ports and channels. The Panic command includes “all notes off,” “reset all controllers,” “reset pitch bend” and “reset GM” system messages.
- 18. OCTAVE +/- Buttons** - Press the OCTAVE buttons to shift the octave of the keyboard up or down a maximum of four octaves, to extend the range of the keyboard. Each time you press the OCTAVE button, the range of the keyboard shifts up or down 12 notes.
- 19. TRANSPOSE +/- Buttons** - Press the TRANSPOSE buttons to shift the range of the keyboard up or down a maximum of 12 semitones (half-steps).
- 20. PITCH BEND Wheel** - Use this wheel to raise or lower the pitch of notes played on the keyboard.
- 21. MODULATION Wheel** - This wheel is usually used to add vibrato or other expressive effects to a sound being played.
- 22. Function Keys** - In Setup Mode, the first 17 keys of the keyboard are assigned to functions, and numerical digits 0–9.

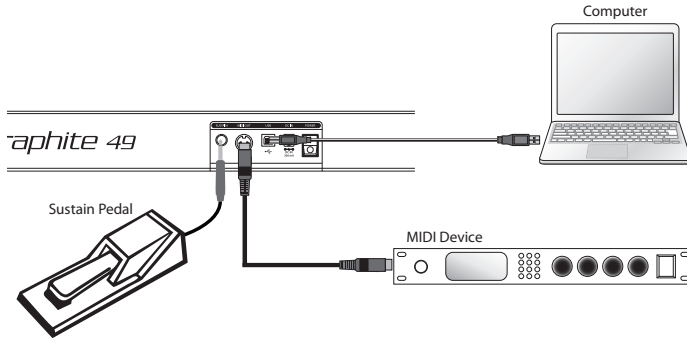
Rear Panel Controls and Functions



- 1. POWER Switch** - Use this switch to turn the keyboard on or off.
- 2. DC IN** - The Graphite 49 can be powered using a 9V 300mA adaptor, connected to the DC IN jack.
- 3. USB Connection** - Connect a standard USB cable from this port to the USB connection on a computer or iPad to provide power to the keyboard, as well as to send and receive MIDI data.
- 4. MIDI OUT** - Use a 5-pin MIDI cable to connect the Graphite 49 to an external MIDI device.
- 5. SUSTAIN Pedal Input** - Connect a 1/4" sustain pedal to this input. This input is preset from the factory to send MIDI sustain (CC #64) messages. The SUSTAIN pedal input can be assigned to send different MIDI parameters in Setup Mode.

Quick Start

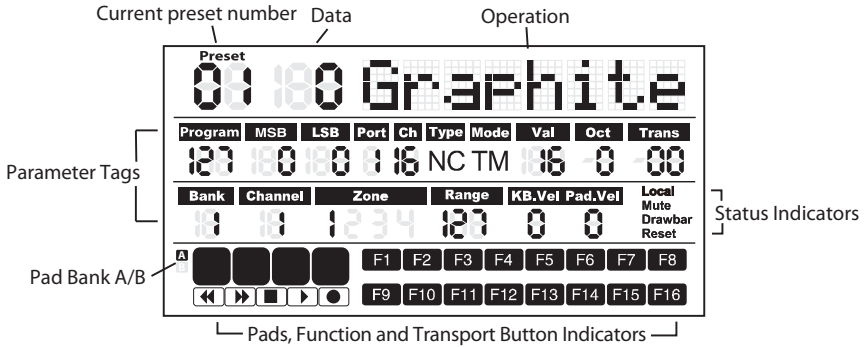
1. Connect the Graphite 49 to your computer using the supplied USB cable. The unit will receive power and transmit MIDI data via the USB connection.
2. Connect a 1/4" TS pedal to the SUSTAIN pedal input.



3. Push the POWER switch to the on position.
4. Launch your DAW or virtual instrument software, and set the Graphite 49 as the MIDI Input and MIDI Output device.
5. To use the Graphite 49 with an external MIDI device (such as a sound module), connect a 5-pin MIDI cable to the MIDI OUT on the rear of the Graphite 49, and to the MIDI IN of the external device. For more information on connecting to an external MIDI device, please see the MIDI Out section on p. 26.

Display Features

The Graphite 49 features a backlit LCD screen that displays performance information, settings for the controllers, and status information.



Preset: The current preset number. The range is 01–30.

Data: The current value of a given controller.

Parameter Tags

Program: MIDI Program number. The range is 0–127.

MSB: Most Significant Bit. The range is 0–127.

LSB: Least Significant Bit. The range is 0–127.

Port: USB virtual out Port. The range is 1–5.

Ch: MIDI Channel. The range is 1–16.

Type: Button type “C” represents Control type. “N” represents the note type.

Mode: Operation mode of the pad or button. “T” represents toggle. “M” represents momentary.

Val: Control code of the controller. When the working button or pad is defined as “note type,” the Val is the note number.

Oct: Octave shift for the keyboard. The range is +/- 4.

Trans: Transpose shift for the keyboard. The range is +/- 12.

Bank: The bank is the collection of all encoders and sliders set when the selected preset is “01” or User preset. The range is 1–2. When remote control preset is selected, it will display “-”.

Channel: The global channel number of encoders and sliders in preset “01” or User preset. When remote control preset is selected, it will display “-”.

Zone: The number of the activated zones. The range is 1–4.

Range: The range of note number keys for the active zone. The number of the left most and right most key in the zone will rotate. The range is 0–127.

KB.Vel: Number of the keyboard velocity (touch response) curve. The range is 0–9.

Pad.Vel: Number of the pad velocity (touch response) curve. The range is 0–9.

Display Features

Status Indicators

Local: This sign will appear when the Local function is engaged.

Mute: This sign will appear when the Mute function is engaged.

Drawbar: This sign will appear when the polarity of the slider is inverted and engaged.

Reset: This sign will appear when the Preset Reset function is executed.

Button Indicators

F1–F16: When a function button is at On status, the corresponding block will appear.

A/B: Indicates the active pad bank

Trigger Pads: When a pad is pressed, the corresponding block will appear.

Transport Controls: When a transport button is on, the corresponding block will appear.

Note: Port, Ch, Mode, Type and Val are settings of a component. When a component is activated, the component name, operation data and setting information will be shown. If more than one component is activated at the same time, the display shows the information of the component that was most recently activated.

Graphite 49 Modes

The Graphite 49 has four main operation modes: **Performance Mode**, **Preset Mode**, **Setup Mode** and **Zone Mode**.

Preset Mode - In this mode, you can access the 30 available presets. A preset stores information on the assignments for the sliders, knobs, and buttons. Using the presets allows you to quickly load the settings for specific applications without having to reprogram the unit every time. This mode is activated by pressing the PRESET button. Refer to the section on Preset Mode (p. 16) for more details.

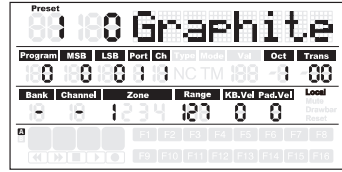
Setup Mode - In this mode, you can access and assign all of the features of the Graphite 49. This allows you to customize the settings to match your needs. In addition to the buttons on the top panel, the first 17 keys on the keyboard are also available to access functions and enter numerical data. This mode is activated by pressing the SETUP button. Refer to the section on Setup Mode (p. 17) for details.

Zone Mode - The keyboard can be divided into several zones, sometimes referred to as layers or splits. Each zone has its own active key range, program number, MSB and LSB, and transmit to different channels and ports. There are four zones available. Refer to the section on Zone Mode (p. 20) for more details.

Performance Mode - In this mode, the 49 velocity-sensitive keys transmit note and velocity information via the USB or MIDI output. The assignable controllers, pitch bend and modulation wheels all transmit continuous controller information. This mode is activated by pressing the MAIN button. Refer to the section on Performance Mode (p. 22) for details.

Preset Mode

To select a preset, press the PRESET button and the keyboard will enter Preset Mode. The Preset indicator will light red, and the Preset number will flash on the display. In Preset Mode, the Graphite 49 will stop transmitting MIDI messages.



Use the DATA +/- buttons or numerical keys to select the desired Preset. The name of the Preset will appear in the first row of the display. Press the ENTER button to confirm your choice, and the keyboard will load the new Preset settings for all sliders, knobs and buttons. Pressing the MAIN button will cancel the selection and return to the previous Preset. There are 3 categories of presets:

GRAPHITE Preset

Preset 1 is configured for the sliders to control channel volumes, and the encoders to control the pan for channels in Zone 1. Using this preset will get you started working with almost any standalone USB/MIDI device or audio software.

You can edit the Preset for each component in Setup Mode, and save your changes. The settings for sliders S1–S9 and encoders E1–E8 can be organized into two banks, which can be accessed by pressing the BANK ◀ or ▶ buttons. The active MIDI channels for all encoders and sliders can be shifted up or down by pressing the CHANNEL ◀ or CHANNEL ▶ buttons.

Remote Control Presets

Presets 2–10 are designed for specific software titles, with the controls set to access the most common functions directly from the Graphite 49. The communication between the computer and the keyboard is bidirectional, and information from the software will appear on the Graphite's display. You can edit the Presets in Setup Mode and save your changes to further customize the parameters to suit your needs.

Sliders S1–S8 are used for channel volume controls; S9 is used for master volume control. Encoders E1–E8 are used for channel pan control. F1–F8 are used for channel Solo; F9–F16 are used for channel Mute for all software (except Logic where F1–F8 are used for REC Arm, and F9–F16 are used for channel Mute). The BANK and CHANNEL buttons are used to change the channels controlled within the software. The remote control message is sent through output Port 5 to the computer, and the message from the computer is received through input Port B of the keyboard.

Note: When you move slider on the computer, its data will be sent to the keyboard in real time, and it will be shown on the display, but it cannot affect the physical position of the slider in the keyboard. When you move the slider on the keyboard, the message will not be transmitted until it reaches the value and position of the slider in the software. This eliminates any unexpected level jumps when the faders are moved.

USER Presets

Presets 11–30 are USER presets that can be fully customized to create your layout. The default settings for each USER preset is the same as in Preset 1.

The USER Preset also includes information about the contents of settings, for all zones, and activity status. Zone edit results are saved to the current activated Preset automatically.

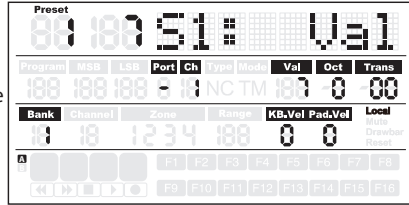
Setup Mode

Setup mode enables you to make adjustments to how the Graphite 49 will operate. Pressing the SETUP button will enter Setup Mode, the keyboard will stop transmitting MIDI data, and the first 17 keys will function as numerical pads.

Controllers

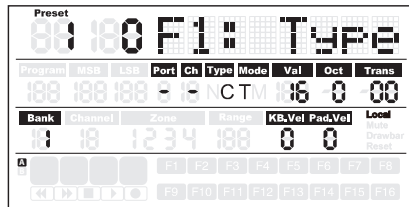
To adjust a controller, press a button, move a slider or encoder, or press the pedal, and its name and parameter values will appear on the display.

Press the PAGE ◀ / ▶ buttons to cycle through the available parameters. The parameter name will be displayed and the value will flash. Use the DATA +/- buttons or numerical keys to set the appropriate value.



Note: When the value Ch is set to “-”, the controller follows the keyboard channel in Zone 1. You can use the DATA button to select “-”, or press the 0 key on the keyboard to select “-”.

Press the ENTER button or the ENTER key on the keyboard to confirm a selection. You can confirm the selection after each parameter, or after you finish editing all parameters for a controller. The new values will be saved and updated on the display.



Note: The slider and encoder settings are saved into the current activated bank. Press the BANK ◀ / ▶ to change the bank where the settings will be saved.

If you select another controller, or press the SETUP or MAIN buttons before saving your changes, your changes will be lost. Simultaneously pressing the DATA + and DATA - buttons will restore the controller to its original setting.

The setting of sliders, encoders and transport buttons cannot be changed in the Remote Control Preset. The components assigned to the function buttons vary according to the software title you are using.

Setup Mode

Editing the Aftertouch Control

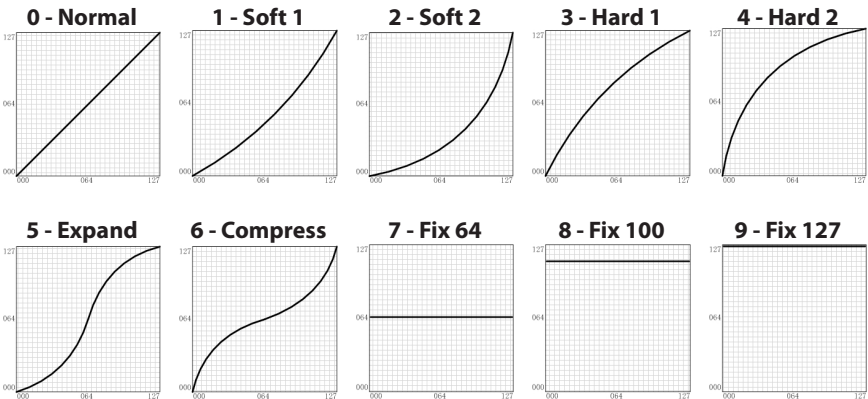
Press the Aftertouch key to assign control code for the keyboard aftertouch feature. "A.Touch" will appear on the display with the value of the current control in the data area. The value is also shown under the Val tag on the second row of the display. Use the DATA +/- buttons to change the value, or enter data by pressing the numerical keys on the keyboard. Press both DATA +/- buttons simultaneously to recover the original value. Press the ENTER key or the ENTER button to confirm your setting and to save. When you save your settings, the value display will stop blinking.

Selecting the Keyboard Velocity Curve

Press the K.Curve key to select a velocity curve for keyboard. "KB.Curve" will appear in the Operation area of the display with its current velocity curve number in the data area. The Operation area will then change to show the current velocity curve. The number will also blink under the KB.Vel tag on the second row of the display. Use the DATA +/- buttons or enter the number by pressing the numerical keys on the keyboard to select a curve. Press the ENTER key or the ENTER button to confirm your setting and to save. When you save your settings, the name of the velocity curve will be updated, and the value display will stop blinking.

Available Velocity Curves

No.	Type	Description
0	Normal	Linear type curve - Default
1	Soft 1	Results in a lower transmitted velocity (and corresponding volume); Graph 1
2	Soft 2	Results in a lower transmitted velocity (and corresponding volume); Graph 2
3	Hard 1	Results in a higher transmitted velocity (and corresponding volume); Graph 1
4	Hard 2	Results in a higher transmitted velocity (and corresponding volume); Graph 2
5	Expand	Emphasizing the louder volume and softening the lower volume
6	Compress	Emphasizing the softer volume and softening the louder volume
7	Fix 64	Note velocity is fixed to 64
8	Fix 100	Note velocity is fixed to 100
9	Fix 127	Note velocity is fixed to 127



Setup Mode

Selecting Velocity Curve for the Trigger Pads

Press the P.Curve key to select a velocity curve for the trigger pads. "P.Curve" will appear in the Operation area of the display with its current velocity curve number in the data area. The Operation area will then change to show the current velocity curve. The number will also blink under the "Pad Vel" tag on the second row of the display. Use the DATA +/- buttons or enter the number by pressing the numerical keys on the keyboard. Press the ENTER key or the ENTER button to confirm your setting and to save it. The name of the velocity curve will be updated, and the value display will stop blinking. Selectable curves are the same as keyboard velocity curves.

Switch the Local Control

The USB out from port 1 or 2 can be transmitted through the MIDI Out jack. This is controlled by the Local setting. Press the Local key to switch the local control on or off. "Local" and its current status will appear in the Operation area of the display and flash. Press the DATA+ button (or numerical key 1) to turn Local Control on. Press the DATA- button (or numerical key 0) to turn Local Control off. Press the ENTER key or the ENTER button to confirm your setting and to save it.

Reverse Slider Direction

Sliders can be reversed to be used as drawbars. Press the Drawbar key to switch the drawbar feature on or off. "Drawb" and its current status will appear in the Operation area of the display and flash. The default setting is Off. Press the DATA+ button (or numerical key 1) to turn Drawbar on. Press the DATA- button (or numerical key 0) to turn Drawbar off. Press the ENTER key or the ENTER button to confirm your setting and save it in the current preset.

Pedal Setup

Press the pedal to assign a control code to the pedal. "Pedal" will appear in the Operation area of the display with the value of the current control in the data area. The value is also shown and blink under the "Val" tag on the second row of the display. Use the DATA +/- buttons to change the value or enter the data by pressing the numerical keys on the keyboard. Press the ENTER key or the ENTER button to confirm your setting and to save it. When you save your setting, the value display will stop blinking.

Preset Reset

Press the P.Reset key to reset the unit to the factory default setting. "Reset No" will appear in the Operation area of the display and "No" will blink. Press the DATA+ button (or numerical key 1) to switch it to "Yes" or DATA- button (or numerical key 0) to switch it to "No." Press the ENTER key or the ENTER button to confirm your selection. When "Yes" is confirmed, "Reset" will appear in the Status Indicator area in the right side of the screen and "Loading..." will appear in the Operation area of the display. After the reset is complete, the display will show "Reset OK".

Zones

The keyboard can be divided into four zones, sometimes referred to as layers or splits. Each zone has its own active key range, program number, MSB, LSB, Channel, Port, Octave, and Transpose settings. The zones can be separated or overlapped. This allows you to layer or split the keyboard between sounds to expand your performance. Zone 1 is always active. Zone 2–4 can be activated or disabled in Zone Mode. The display shows the parameters of the selected zone. The factory default is Zone 1.

Press the ZONE button to enter Zone Mode. The corresponding indicator will light up. Press the PAGE button to select a zone. The On/Off status appear after the zone number. Press the DATA+ button to engage the zone, and DATA– button to disable the zone. When a zone is activated, the zone number will appear under the Zone tag in the third row of the display. For each zone (1–4), the factory default MIDI Out port is 1–4, respectively. Press the MAIN button to return to Performance Mode.

If zones are activated and overlapped, keys played in the overlap section will send messages to multiple outputs and more than one voice can be produced. The PITCH BEND wheel, MODULATION wheel, pedal and keyboard aftertouch are applied to all activated zones.

Note: In Performance Mode, the operation of the OCTAVE +/- and TRANSPOSE +/- buttons only affect Zone 1, even if multiple zones are activated.

Editing Zones

After selecting a zone, press the ENTER button to edit the zone. Press the PAGE ◀ / ▶ buttons to cycle through the available parameters. Use the DATA +/- buttons or numerical keys to change the value of the parameter. Press both DATA +/- buttons simultaneously to return to the original value. When you have completed editing the zones, press the ENTER button or the ENTER key on the keyboard to save your changes.

Zone settings are nonvolatile, and will be saved even when the power is turned off. You can recover the default Zone settings with the P.Reset function. Press the MAIN or ZONE button to exit Zone Mode and return to Performance Mode. To cancel your changes, before pressing Enter, press the MAIN or ZONE button to return to Performance Mode.

Note: Zones are saved to the current active Preset.

Note: In Performance Mode, changing the program number, MSB, LSB, Port and Channel only affect Zone 1. Enter Zone Mode to adjust the parameters of the other active zones.

Zones

Available parameters in Zone Mode:

Parameter	Description	Range
Zn: Prog [1]	Program number for playing on the specific section of the keyboard [2]	0–127
Zn: MSB	Most Significant Bit of the program bank for playing on the specific section of the keyboard	0–127
Zn: LSB	Least Significant Bit of program bank for playing on the specific section of the keyboard	0–127
Zn: Port	Transmitting port	1–5
Zn: Ch.	Transmitting channel	1–16
Zn: Rang<	Note number of the most left key in the specific section of the keyboard [3]	0–127
Zn: Rang>	Note number of the most right key in the specific section of the keyboard. [3]	0–127
Zn: Oct	Octave shift for the specific section of the keyboard. [4]	-4–0–4
Zn: Trans	Transpose for the specific section of the keyboard. [5]	-12–0–12

[1] “n” represents zone number

[2] If you set different programs in different zones with the same port and channel, it will cause a conflict, and the unit will use the program of the last activated zone.

[3] Press a key on the keyboard to set the beginning and end key of the range. If the end key is lower than beginning key, the entry will be rejected.

[4] Use the OCTAVE +/- buttons to change the octave shift.

[5] Use the TRANSPOSE +/- buttons to change the transpose.

Performance Mode Parameters

Octave Buttons

The Octave buttons allow you to shift the octave of the keyboard up or down to extend the range of the keyboard. Press the OCTAVE +/- buttons to shift the octave up or down a maximum of four octaves. Press the OCTAVE +/- buttons together to reset the octave shift to zero. The octave shift value will be shown under the Oct tag on the second row of the screen.

Note: This adjustment is only for Zone 1 in the current Preset. If you engage zones 2–4 or select another Preset, the octave shift value will change according to the setting in the zone. Please refer to the section Zones on p. 20 for more information.

Transpose Buttons

Press the TRANSPOSE +/- buttons to transpose a note up or down by a maximum of 12 semitones. Press the TRANSPOSE +/- buttons together to reset the transpose shift to zero. The transpose value will be shown under the Trans tag on the second row of the screen.

Note: This adjustment is only for Zone 1 in the current Preset. If you engage zones 2–4 or select another Preset, the transpose value will change according to the setting in the zone. Please refer to the section Zones on p. 20 for more information.

Aftertouch

The keyboard features aftertouch. After hitting a key, keep pressure on the key, and the channel aftertouch (value common to all keys) message will be transmitted. You can change the control of the aftertouch in Setup Mode (p. 17). The transmitting port and channel follow the port and channel settings of Zone 1.

Velocity Curve

The keyboard is velocity sensitive. There are ten selectable velocity curves. Refer to Selecting the Keyboard Velocity Curve on p. 18 to understand how to select a curve.

Modulation Wheel

The MODULATION wheel is usually used to add vibrato effects to tones you are playing. The data range of the MODULATION wheel is 0–127. The transmitting port and channel follow the port and channel settings of Zone 1.

PITCH BEND Wheel

The PITCH BEND wheel is used to bend notes played on the keyboard by raising or lowering the pitch. The response and range of the controller is based on the patch or sound source that is being controlled. The pitch bend wheel is spring-mounted and will return to the center position when it is released.

Pedal

The default setting for the pedal input is sustain. You can assign another control to it in the Setup Mode. The transmitting port and channel follow the port and channel settings of Zone 1. Refer to the section Pedal Setup on p. 19 to learn how to assign the pedal.

Note: Do not step on the pedal when powering on the keyboard as the unit will detect the polarity of the pedal automatically.

Performance Mode Parameters

Trigger Pads

The keyboard features four assignable velocity-sensitive trigger pads with aftertouch. The factory setting for the trigger pads is to function as drum pads. When you strike the pad, a corresponding icon will appear and its note MIDI message will be transmitted on channel 10. The pad number and the velocity curve number will be shown in the Operation and Data area of the display and the port, channel, pad type, pad mode and note number information will be shown under relevant tags. When you press a pad, and continue to press it, the pad will send a channel aftertouch message depending on how hard you press the pad.

The pads are configured to two pad banks with different settings for each pad, for a total of eight individual pads. Press the PAD BANK button to switch between the two banks. The active bank will be shown on the display. The factory default settings for pads are listed in the Factory Default Setting table on p. 32. You can select the pad velocity curve, change parameters, or assign other controls to pads in the Setup Mode.

Setting the Channel, Program, MSB, LSB and Port for the Keyboard

Some parameters can be edited from the Performance Mode. Press the PAGE ◀ / ▶ buttons to cycle through the parameters. Use the DATA +/- buttons to edit data. The edited data in the second row of the display will flash. When you have completed making your changes for all items, press the ENTER button to confirm and transmit them together. To cancel your changes, press the MAIN button. All data will be recovered to its original value.

Please see the table below for details on the adjustable parameters:

Tag	Description	Range	Factory default setting
Program	Program number	0-127	0
MSB	Most Significant Bit of program bank for keyboard playing	0-127	0
LSB	Least Significant Bit of program bank for keyboard playing	0-127	0
Port	Transmitting port	1-5	1
Ch.	Transmitting channel	1-16	1

Performance Controls

The Graphite 49 features eight assignable encoders (E1–E8), eight assignable sliders (S1–S8), a Master volume slider (S9), 16 function buttons (F1–F16) and transport controls. Below is a brief description of how they operate.

Encoders

The factory setting for the encoders is pan control, set to channels 1–8. When you rotate the knob of an encoder, the encoder number and the data will be shown in the Operation area of the display, and the port, channel and the control code (cc) information will be shown under their relevant tags. Rotate the knob clockwise to increase the value, and counter-clockwise to decrease the value (ranging 0–127). You can change parameters or assign other controls to encoders in the Setup Mode (p. 17). The factory default settings for encoders are listed in the Factory Default Setting table on p. 31.

Sliders

The factory setting for the sliders is channel volume control. The S1–S8 sliders control the volume for channels 1–8, and S9 controls the master volume. When you move a slider, the slider number and the data will be shown in the Operation area of the display, and the port, channel and control code (cc) information will be shown under their relevant tags. Move the slider up to increase the value, and down to decrease the value (ranging 0–127). You can change parameters or assign other controls to encoders in Setup Mode (p. 17). The factory default settings for the sliders are listed in the Factory Default Setting table on p. 31.

Note: Assign the Channel to “-” for the sliders and encoders to follow the keyboard channel of Zone 1.

MUTE Button

Messages for the operations of the encoders and sliders will be transmitted immediately. You can set the Graphite 49 so that it transmits all encoder and slider movements simultaneously. When you press the MUTE button, “Mute” will blink in the Status Indicator area on the right side of the display. Encoder and slider movements will not be transmitted, but the data will be stored in the buffer. When you press the MUTE button again, all messages will be transmitted together, and the “Mute” icon will disappear.

BANK Buttons

There are two banks of encoders and sliders with individual settings, doubling the amount of controls available. The BANK buttons provide a utility to group the settings of sliders S1–S8 and encoders E1–E8 into a bank, and then recall them quickly. Press the BANK ◀ / ▶ buttons to select between the banks. The default bank is 1.

CHANNEL Buttons

Press the CHANNEL ◀ / ▶ buttons to increase or decrease the channel number for all encoders E1–E8 and sliders S1–S8, to quickly expand the working range globally. The channel range is 1–9.

Note: If a controller is set to channel “-”, the CHANNEL ◀ / ▶ buttons will have no effect on its operation.

Note: When the remote control preset (Preset 2-10) is activated, the BANK and CHANNEL buttons will send specific control messages to the music software.

Function Buttons

There are 16 function buttons (F1–F16) on the control panel. The buttons can be defined as “Note” type (abbreviated to N), which send note messages when pressed, or “Control” type (abbreviated to C), which send control messages when pressed.

The buttons can also be set to “Toggle” (abbreviated to T). Press one of the buttons to send the On message, and press the button again to send the Off message. The buttons can alternatively be set to “Momentary” (abbreviated to M). If the button is a control type, press the button to send the control code. When you release the button, the control code will no longer be sent. If the type






Performance Controls

of the button is a note type, press the button to send note on message and release the button to send a note off message.

The button number and value will be shown in the Operation and Data area of the display, and the port, channel, button type, button mode and note number or control code information will be shown under relevant tags. The function of each button is assignable. You can change parameters or assign other controls to buttons through the setup function. Please refer to Setup Mode (p. 17) for details. The factory default settings for the function buttons are listed in the Factory Default Setting table on p. 31.

Transport Buttons

There are five transport buttons marked     . The factory default settings are to Rewind, Fast Forward, Stop, Play and Record, respectively. Please see detailed information for the default settings in the table below.

Component	Category	Description	Port	Message	Transmitted Data (H)	Type	Mode
	Transport Button	Rewind	-	CC: 116, Ch -	B0 74 7F/00	C	T
		Fast Forward	-	CC: 117, Ch -	B0 75 7F/00	C	T
		Stop	-	CC: 118, Ch -	B0 76 7F/00	C	T
		Play	-	CC: 119, Ch -	B0 77 7F/00	C	T
		Record	-	CC: 114, Ch -	B0 72 7F/00	C	T

The function of each button is assignable. You can change parameters or assign other controls to these buttons through the setup function. Please refer to Setup Mode (p. 17) for details.

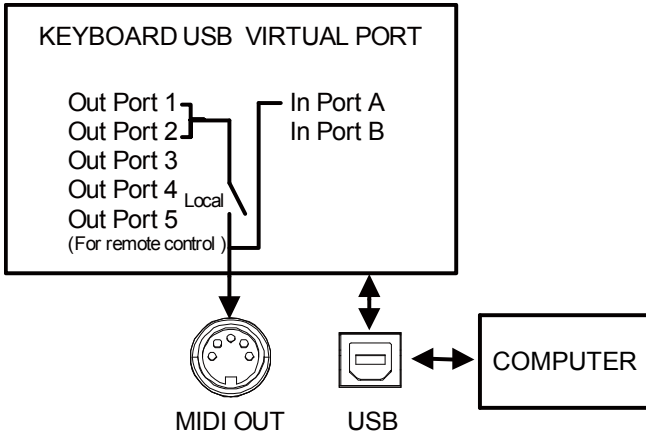
During performance, if a note is stuck on, press the Rewind and Fast Forward buttons simultaneously, and the unit will send Panic command to all ports and channels of external sound, causing the device to terminate the sound. The Panic command includes “all notes off,” “reset all controllers,” “reset pitch bend” and “reset GM” system messages. During the panic processing, “PANIC” will appear in the Operation area of the display.

Note: Not all sound generating devices support this Panic command.

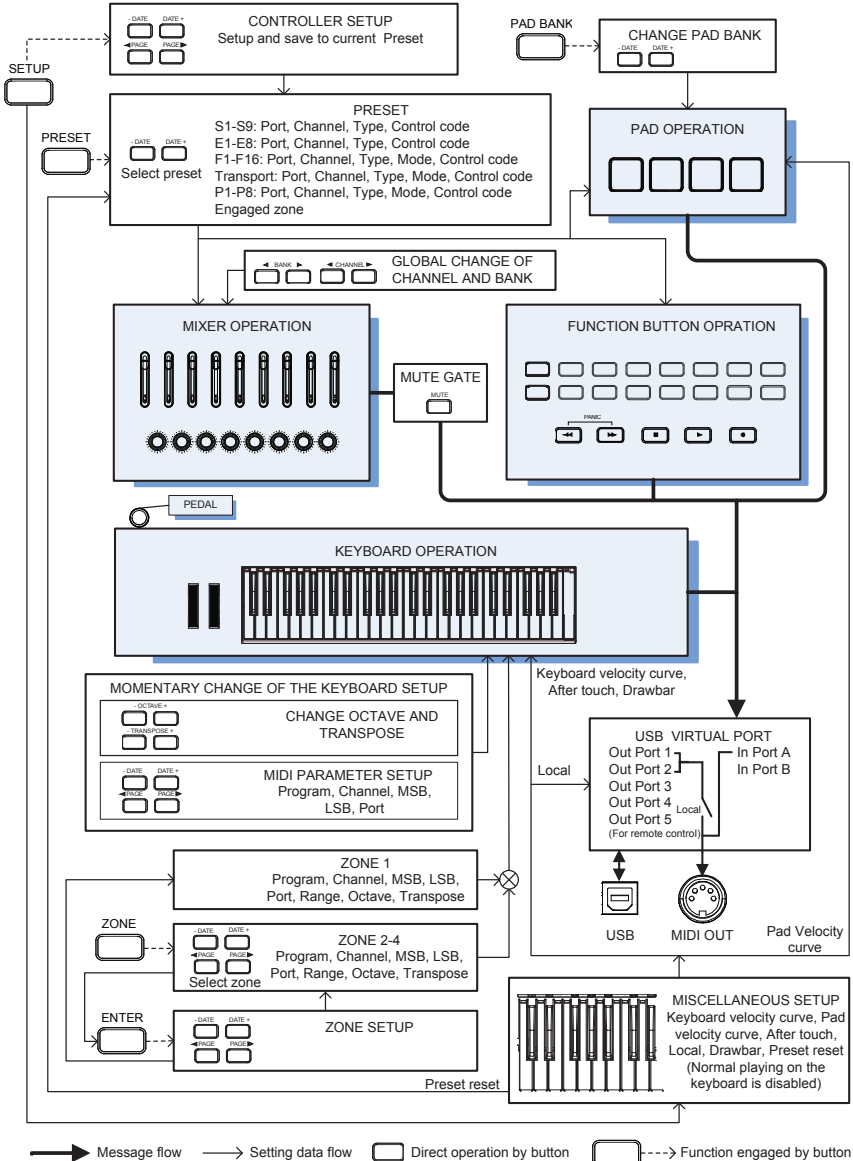
MIDI OUT

In addition to USB, the Graphite 49 features a MIDI OUT jack. The USB communication protocol supports four virtual USB In ports and four virtual USB Out ports. MIDI messages from the keyboard set to Port 1–Port 4 are transmitted via the USB Out. Messages sent to Port 1 and Port 2 are also transmitted through the MIDI Out terminal if the Local switch is set to On. This is the default setting. Messages sent to Port 3 and Port 4 will not be transmitted through the MIDI Out terminal. Messages received from external device or computer software through the USB In Port A will be transferred to the MIDI Out terminal. The USB Out Port 5 is used for the remote control only.

The diagram below shows the configuration of the MIDI Chain.



Operational Flow Chart



MIDI Continuous Controller (CC) List

C C	Description	Type
0	Bank Select	Controller
1	Modulation wheel	Controller
2	Breath control	Controller
3	Undefined	Controller
4	Foot controller	Controller
5	Portamento time	Controller
6	Data Entry	Controller
7	Channel Volume	Controller
8	Balance	Controller
9	Undefined	Controller
10	Pan	Controller
11	Expression	Controller
12	Effect control 1	Controller
13	Effect control 2	Controller
14	Undefined	Controller
15	Undefined	Controller
16	General Purpose #1	Controller
17	General Purpose #2	Controller
18	General Purpose #3	Controller
19	General Purpose #4	Controller
20	Undefined	Controller
21	Undefined	Controller
22	Undefined	Controller
23	Undefined	Controller
24	Undefined	Controller
25	Undefined	Controller
26	Undefined	Controller
27	Undefined	Controller
28	Undefined	Controller
29	Undefined	Controller
30	Undefined	Controller
31	Undefined	Controller
32	Bank Select	Controller
33	Modulation wheel	Controller
34	Breath control	Controller
35	Undefined	Controller
36	Foot controller	Controller
37	Portamento time	Controller
38	Data entry	Controller

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

MIDI Continuous Controller (CC) List

79	Sound Cont.	Controller
80	General Purpose #5	Controller
81	General Purpose #6	Controller
82	General Purpose #7	Controller
83	General Purpose #8	Controller
84	Portamento Control	Controller
85	Undefined	Controller
86	Undefined	Controller
87	Undefined	Controller
88	Undefined	Controller
89	Undefined	Controller
90	Undefined	Controller
91	Reverb Send Level	Controller
92	Tremolo Depth	Controller
93	Chorus Send Level	Controller
94	Celeste/Detune Depth	Controller
95	Phaser Depth	Controller
96	Data entry +1	Controller
97	Data entry -1	Controller
98	NRPN LSB	Controller
99	NRPN MSB	Controller
100	RPN LSB	Controller
101	RPN MSB	Controller
102	Undefined	Controller
103	Undefined	Controller
104	Undefined	Controller
105	Undefined	Controller
106	Undefined	Controller
107	Undefined	Controller
108	Undefined	Controller
109	Undefined	Controller
110	Undefined	Controller
111	Undefined	Controller
112	Undefined	Controller
113	Undefined	Controller
114	Undefined	Controller
115	Undefined	Controller
116	Undefined	Controller
117	Undefined	Controller
118	Undefined	Controller

119	Undefined	Controller
120	All Sound Off	Controller
121	Reset All Controllers	Controller
122	Local control on/off	Controller
123	All notes off	Controller
124	Omni mode off	Controller
125	Omni mode on	Controller
126	Poly mode off	Controller
127	Poly mode on	Controller
128	Pitch Bend Sensitivity	RPN
129	Fine Tuning	RPN
130	Coarse Tuning	RPN
131	Vibrato Rate	NRPN
132	Vibrato Depth	NRPN
133	Vibrato Delay	NRPN
134	Low Pass Filter Cutoff Frequency	NRPN
135	Low Pass Filter Resonance	NRPN
136	High Pass Filter Cutoff Frequency	NRPN
137	EQ Low Gain	NRPN
138	EQ High Gain	NRPN
139	EQ Low Frequency	NRPN
140	EQ High Frequency	NRPN
141	EG Attack Time	NRPN
142	EG Decay Time	NRPN
143	EG Release Time	NRPN
144	Channel Pressure	After Touch
145	Program Change	Others
146	Song Select(Song #)	Others
147	Tune request	Others
148	Start	Others
149	Continue	Others
150	Stop	Others
151	System Reset	Others
152	Master Volume	SysE
153	Master Balance	SysE
154	GM ON	SysE
155	XG ON	SysE
156	GS ON	SysE
157	GM2 ON	SysE
158	Stop	MMC

MIDI Continuous Controller (CC) List

159	PLAY	MMC
160	DEFERRED PLAY	MMC
161	FORWARD	MMC
162	REWIND	MMC
163	RECORD STROBE	MMC
164	RECORD EXIT	MMC
165	RECORD PAUSE	MMC

166	PAUSE	MMC
167	EJECT	MMC
168	CHASE	MMC
169	COMMAND ERROR RESET	MMC
170	MMC RESET	MMC
171	Pitch Bend	Pitch Bend

Factory Default Settings

Controller	Type	Message	Type	Mode
E1	Encoder	CC: 10 Pan, Ch 1	-	-
E2	Encoder	CC: 10 Pan, Ch 2	-	-
E3	Encoder	CC: 10 Pan, Ch 3	-	-
E4	Encoder	CC: 10 Pan, Ch 4	-	-
E5	Encoder	CC: 10 Pan, Ch 5	-	-
E6	Encoder	CC: 10 Pan, Ch 6	-	-
E7	Encoder	CC: 10 Pan, Ch 7	-	-
E8	Encoder	CC: 10 Pan, Ch 8	-	-
S1	Slider	CC: 7 Volume, Ch 1	-	-
S2	Slider	CC: 7 Volume, Ch 2	-	-
S3	Slider	CC: 7 Volume, Ch 3	-	-
S4	Slider	CC: 7 Volume, Ch 4	-	-
S5	Slider	CC: 7 Volume, Ch 5	-	-
S6	Slider	CC: 7 Volume, Ch 6	-	-
S7	Slider	CC: 7 Volume, Ch 7	-	-
S8	Slider	CC: 7 Volume, Ch 8	-	-
S9	Slider	CC: 152	-	-
F1	Button	CC: 16, Ch -	C	T
F2	Button	CC: 17, Ch -	C	T
F3	Button	CC: 18, Ch -	C	T
F4	Button	CC: 19, Ch -	C	T
F5	Button	CC: 20, Ch -	C	T
F6	Button	CC: 21, Ch -	C	T
F7	Button	CC: 22, Ch -	C	T
F8	Button	CC: 23, Ch -	C	T
F9	Button	CC: 24, Ch -	C	T
F10	Button	CC: 25, Ch -	C	T
F11	Button	CC: 26, Ch -	C	T
F12	Button	CC: 27, Ch -	C	T
F13	Button	CC: 28, Ch -	C	T
F14	Button	CC: 29, Ch -	C	T
F15	Button	CC: 30, Ch -	C	T
F16	Button	CC: 31, Ch -	C	T
◀◀	Button	CC: 116, Ch -	C	M
▶▶	Button	CC: 117, Ch -	C	M
■	Button	CC: 118, Ch -	C	M
▶	Button	CC: 119, Ch -	C	M
●	Button	CC: 114, Ch -	C	M

Factory Default Settings

Aftertouch	Aftertouch	Channel Aftertouch	-	-
Pedal	Pedal	CC: 64 Sustain	C	M
P1-BANK A	Pad	NOTE: 36, Ch 10	N	M
P2-BANK A	Pad	NOTE: 37, Ch 10	N	M
P3-BANK A	Pad	NOTE: 38, Ch 10	N	M
P4-BANK A	Pad	NOTE: 39, Ch 10	N	M
P1-BANK B	Pad	NOTE: 40, Ch 10	N	M
P2-BANK B	Pad	NOTE: 41, Ch 10	N	M
P3-BANK B	Pad	NOTE: 42, Ch 10	N	M
P4-BANK B	Pad	NOTE: 43, Ch 10	N	M

Zones

Parameter	Zone 1	Zone 2	Zone 3	Zone 4
Program	0	0	0	0
MSB	0	0	0	0
LSB	0	0	0	0
Port	1	2	3	4
Channel	1	-	-	-
Range<	0	0	0	0
Range>	127	127	127	127
Octave	0	0	0	0
Transpose	0	0	0	0

Other Factory Settings

Parameter	Setting	Options
Bank	1	(1-2)
Channel	1	(1-9)
Mute	Off	On/Off
Local	On	On/Off
Pad Bank	A	A/B
Preset	P01	P01-P30

MIDI Note Numbers

International Organization Standardization system of MIDI note numbers. Middle C is MIDI note number 60 (C4).

Octave	Note Numbers											
	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				

Specifications

Keyboard	49-note, semi-weighted, velocity sensitive, with aftertouch
Display	Large backlit LCD
Controls	
Sliders	9
Encoders	8
Function Buttons	16
Trigger Pads	4
Transport Controls	5 (Rewind, Fast Forward, Stop, Play, Record)
Wheels	Pitch Bend, Modulation
Key Range	Octave +/-, Transpose +/-
Operation Controls	MAIN, SETUP, PRESET, ZONE, MUTE, BANK A/B, BANK ◀ / ▶, CHANNEL ◀ / ▶, PAGE ◀ / ▶, DATA +/-, ENTER
Presets	30 (1 Graphite, 2-10 Remote Control, 11-30 User)
Functions Keys	0-9, Enter, Aftertouch, KB Vel, Pad Vel, Drawbar, Local, Preset
Pedal Input	1/4" TS
MIDI	MIDI over USB, 5-Pin MIDI OUT
Power	USB Bus Power, 9V 300mA (not included)
Accessories	USB Cable Native Instruments Komplete Elements DVD
Dimensions	31.4" x 9.75" x 3.3" 797 mm x 247 mm x 84 mm
Weight	10.2 lbs 4.6 kgs

Samson Technologies
45 Gilpin Avenue
Hauppauge, New York 11788-8816
Phone: 1-800-3-SAMSON (1-800-372-6766)
Fax: 631-784-2201
www.samsontech.com