M-AUDIO®

OXYGEN49

User Guide
English (3 – 16)

Appendix
English (17 – 19)

User Guide (English)

Box Contents

Oxygen 49

USB Cable

Ableton Live Lite

Software Download Card

Quickstart Guide
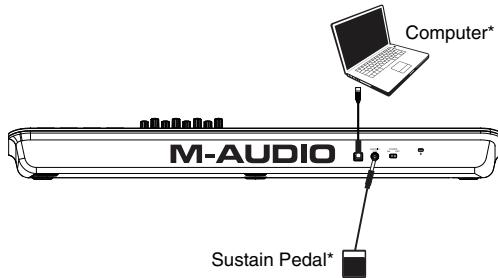
Safety & Warranty Manual

Support

For the latest information about this product (system requirements, compatibility information, etc.) and product registration, visit **m-audio.com/oxygen49**.

For additional product support, visit **m-audio.com/support**.

Setup

Connecting Your Keyboard

Computer*

Sustain Pedal*   *not included

1. Plug the USB cable provided with your Oxygen 49 to a free USB port on your computer.
2. Plug the other end of the USB cable into the USB input on the Oxygen 49.

The single USB cable not only powers the keyboard but also sends MIDI data to and from your computer system. If you intend to use your Oxygen 49 with a USB hub, make sure the USB hub uses an external power supply. Using a passive USB hub which does not use a power supply may not provide enough power if other devices are connected to the hub. We do not recommend connecting an audio interface to the same USB hub as the Oxygen 49.

You can also use Oxygen 49 with your iPad Camera Connection Kit to control supported music creation apps. The iPad Camera Connection Kit is available from the Apple Store.

DirectLink Installations

Rather than assigning parameters one by one, DirectLink automatically maps Oxygen 49's controls to many of the most frequently used digital audio workstation (DAW) features and settings. When used with a supported DAW, you can control the transport, mixing controls (faders and panning) and virtual instrument or signal processing plug-in parameters. You can also switch between DirectLink and custom MIDI operation on the fly to match your particular needs.
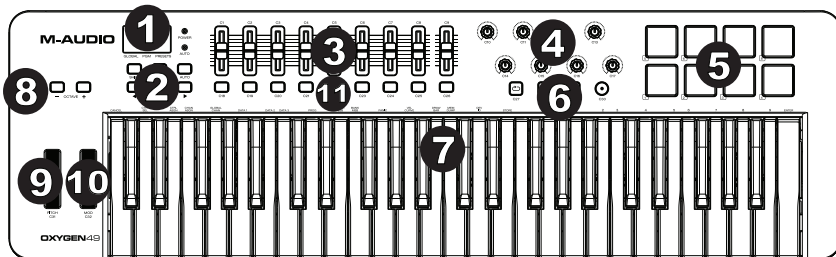
To enable DirectLink with your Oxygen 49, you may need to install some additional software, including the DirectLink "personality" for your specific DAW. Visit **m-audio.com/directlink** for a current list of DAWs that support DirectLink and to download any necessary profiles.

Getting Started

Connect the Oxygen 49 to your computer and then open your software. In your software's **Preferences**, **Options**, or **Device Set-Up** menu, select **Oxygen 49**.

For further information about configuring your software to receive MIDI data from your Oxygen 49, and using software instruments with the application, refer to the documentation provided with that product.

M-AUDIO®

Features

Front Panel

1. **LED Screen:** The Oxygen 49 features a 3-digit LED display providing visual information regarding current operation, programing and controller status.

2. **Function Buttons:** The Oxygen 49 features function buttons for programming, access to settings and advanced features.

    DirectLink Operation: In Auto mode, < and > will scroll through the tracks. See your specific DAW's DirectLink documentation which can be downloaded at **m-audio.com/directlink**.

    Standard Operation: The < and > buttons do not send MIDI. In performance mode they will cycle the currently selected LCD parameter (Global Channel, Program, or Preset). In Edit Mode, they will cycle through the currently selected editable control.

3. **Faders:** These send different types of standard MIDI CC messages or advanced MIDI messages based on the parameter they are assigned to or the active preset. The fader can be individually assigned to a different MIDI parameter. For DirectLink operation, please see the DirectLink User Guide available at **m-audio.com/directlink**.

4. **Knobs:** These knobs send different types of standard MIDI CC messages or advanced MIDI messages based on the parameter they are assigned to or the active preset. Sends different types of standard MIDI CC messages or advanced MIDI messages based on the assigned parameter or the active preset. Each knob can be individually assigned to a different MIDI parameter. For DirectLink operation, please see the DirectLink User Guide available at **m-audio.com/directlink**.

5. **Pads:** Press these velocity-sensitive pads to send Note On/Off and velocity data when performing. To change the pad octave assignment, hold down the Shift and the + or - octave button. These changes affect all eight pads globally. To transpose from the default pad assignments, hold down the Shift and Select button and press the + or - octave buttons. To reset the pads to the default factory assignments, hold down the Shift and both octave buttons. The pads will only send on MIDI channel 10.

6. **Transport Buttons:** Sends standard MIDI CC, MIDI note, MMC (MIDI Machine Control) or other advanced MIDI messages based on the parameter they are assigned to or the active preset. Each Transport Button can be individually assigned to a different MIDI parameter.

    DirectLink Operation: These buttons map to the Transport Buttons in supported DAW applications to control playback, record, start/stop, as well as enabling (or disabling) of the loop function.
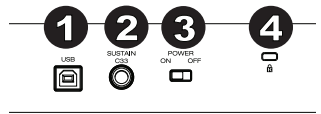
    Standard Operation: These buttons send standard MIDI CC, MIDI note, MMC (MIDI Machine Control) or other advanced MIDI messages based on the parameter they are assigned to, or the active preset. Each button can be reassigned to control various parameters in your DAW, including the transport controls, by using your recording application's MIDI Learn function.

7. **Velocity-Sensitive Keyboard:** The velocity-sensitive keyboard is not only the primary method of sending Note On/Off and velocity data when performing, it is also used to access extended programing functions listed along its upper edge.

8. **Octave Buttons:** The Octave buttons are used to shift the keyboard's octave range up or down in one octave increments, extending the octave range of the pads or keys.

9. **Pitch Bend Wheel:** This wheel creates expressive changes in performances by raising and lowering pitch. Rolling the Pitch Bend wheel upward will raise an instrument's pitch whereas rolling it downward will lower the pitch. The upper and lower pitch bend limit is determined by settings on your hardware or software synthesizer, not by the Pitch Bend wheel on the Oxygen 49 keyboard itself. Typically, this can be either a half note or an octave up/down. This wheel is spring mounted and will return to the center detent position when released. The Pitch Bend wheel is an assignable controller capable of sending a variety of MIDI messages other than pitch bend data.

10. **Modulation Wheel:** This wheel is used to add expression to performances by changing the intensity of certain effects. By default, most synthesizers assign this wheel to control vibrato (change in intonation) or tremolo (change in volume) although it is usually possible to reassign the function of this wheel through the instrument's control panel. Rolling the Modulation Wheel upward will increase the modulation effect, while rolling downward will reduce the effect. The Modulation Wheel is an assignable controller capable of sending a variety of MIDI messages other than Modulation data.

11. **Control Buttons:** These mapable buttons can be assigned to send Note, CC, and other MIDI messages. For DirectLink operation, please see the DirectLink User Guide Available at **m-audio.com/directlink**.

Rear Panel

1. **USB Port:** The USB 2.0 port (backward-compatible with USB 1.1) delivers power to the keyboard and transmits MIDI data when connected to a computer.

2. **Sustain Pedal Input:** This input accepts a momentary-contact foot pedal (not included). When pressed, this pedal will sustain the sound you are playing without having to keep your fingers pressing down on the keys. The sustain pedal input can be assigned to send Note, CC, and other MIDI messages.
NOTE: The polarity of the sustain pedal is determined by the keyboard upon startup. When an Oxygen 49 keyboard is powering up, the sustain pedal is assumed to be in the "up" (Off) position. It is important that the sustain pedal is not pressed during startup, otherwise the pedal will reverse its operation, and notes will sustain when the pedal is not pressed.

3. **On/Off Switch:** Use this switch to power the device on or off. When this switch is set to the "on" position, Oxygen 49 is powered through the USB connection to your computer.

4. **Kensington Lock Connector:** This connector is compatible with standard laptop-style Kensington security cables for theft protection.

Advanced Keyboard Functions

Edit Button: The Edit button is used to access the advanced Oxygen 49 functions located on the keybed. Pressing the Edit button switches your keyboard into Edit Mode. You can use the keys to select various advanced functions and enter data.

To change the functionality of a fader, button, knob, etc.:
1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Move or press the control corresponding to the control you would like to change or using the keys, enter the numerical value of the control number.
4. Press the corresponding key of the parameter you would like to change (Ctrl Asgn, Data 1, Data 2, etc.)
5. Use the numeric keys to enter the value of the parameter.

Snapshot: Press the Shift button and the Auto button simultaneously to engage the Snapshot function. The Snapshot function sends out the assigned MIDI Message and current value of all controls on the MIDI channel that a control is set to. This feature lets you record current settings of the controls into your sequencer.

DirectLink Mode: Press the Auto button to go into **DirectLink** Mode. Knobs, buttons, "<" and ">", and faders will send pre-programmed automapped messages. None of these parameters can be edited while in **DirectLink** Mode.
For some DAWs and programs, you may need to download DirectLink profiles from **m-audio.com/directlink.**

Control Assign, Data 1, Data 2, Data 3: The Control Assign function (Ctrl Asgn) assigns a MIDI continuous control number (MIDI CC) or other MIDI parameter to the selected knob, button, fader, wheel, or to the sustain pedal. The Data 1, Data 2, and Data 3 keys define various related aspects of the parameter or function assigned to a control.

Channel Assign: The Channel Assign function (Chan Asgn) assigns a knob, fader, button, wheel, or the sustain pedal to a specific MIDI channel.

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a control as described earlier in this guide.
4. Press the Channel Assign key. The LED display will show the currently assigned MIDI channel for the active control (for example, "c.0.2.").
5. Enter the new MIDI channel number using the number keys.
6. Press the Enter key.

When assigned to channel "0", the control (knob, fader, button, wheel, or sustain pedal) will transmit on the Global MIDI Channel. See the next section, "Global Channel" for more information.

NOTE: When a control is assigned to send SysEx messages, the displayed number represents the SysEx Device ID instead of the MIDI transmit channel number.

Global Channel: The Global Channel function (Global Chan) sets the default MIDI channel for the keyboard and all MIDI controls, except for those that have a specific MIDI channel assigned to them.

1. Press the Edit button.
2. Press the Global Channel key. The LED display will show the current Global channel. For example, if channel 1 is the current Global channel, it will appear as "c.0.1".
3. Enter the new channel number using the number keys.
4. Press the Enter key.

The Global Channel can also be changed by using the following method:

1. Press the Select button until the lower edge of the LED displays a red dot above "Global".
2. Scroll through the MIDI channels using the "<" or ">" buttons to select the new channel number.

Program: This function sends Program Change MIDI messages on the Global Channel and can be used to select different sound presets contained within your virtual instrument or sound module.

1. Press the Edit button.
2. Press the Program key. The LED display will show the last sent program number (for example, ".0.1.").
3. Enter the Program number.
4. Press the Enter key to send the program change message.

Program Change messages can also be sent using the following method:

1. Press the Select button until the lower edge of the LED shows a red dot above "PGM".
2. Scroll through the Program numbers using the "<" or ">" buttons.

Bank LSB: The Bank LSB function sends bank change messages on the Global MIDI channel. These messages are used to access additional banks of sound presets on virtual instruments or sound modules (if additional banks are available). Refer to the documentation for the virtual instrument or synthesizer to confirm it will respond to these messages.

1. Press the Edit button.
2. Press the Bank LSB key. The LED display will show the last sent Bank LSB number (for example, ".0.1.").
3. Enter the new Bank LSB number using the number keys.
4. Press the Enter key.

NOTE: Bank LSB messages will not have any effect until they are followed by a Program Change message.

Bank MSB: The Bank MSB function sends bank change messages on the Global MIDI channel. These messages are used to access additional banks of sound presets on virtual instruments or sound modules (if additional banks are available). Refer to the documentation for the virtual instrument or synthesizer to confirm it will respond to these messages.

1. Press the Edit button.
2. Press the Bank MSB key. The LED display will show the last sent Bank MSB number (for example, ".0.1.").
3. Enter the new Bank MSB number using the number keys.
4. Press the Enter key.

NOTE: Bank MSB messages will not have any effect until they are followed by a Program Change message.

Panic: Press the Edit button followed by the Panic key to send an "All Notes Off" message on all 16 MIDI channels. This stops any stuck notes that continue to play even after their keys have been released.

Velocity Curve: The Velocity Curve Select key (Vel Curve) is used to change the touch sensitivity of the keyboard or pads. This setting lets you decide how the force with which you hit a key affects the volume at which a note plays.

Oxygen 49 keyboards provide 7 different sensitivity options:

1: C1 generates lower velocity values for the same force. This setting is useful for playing more quietly, even if you tend to strike the keys harder.
2: C2 is the default setting, and is designed to be useful for most players with an "average" touch (people who play with an average amount of force).
3: C3 generates higher velocity values for the same force. This setting is useful for playing more loudly, even if you tend to strike the keys with less force.
4: C4 generates an equal velocity value for a given amount of force, resulting in a linear (or neutral) keyboard response.
5: F1 is a setting that effectively disables sensitivity, meaning the keyboard will generate a fixed velocity value of 64 (on a scale of 0-127) regardless of how hard or soft the keys are struck.
6: F2 is a setting that effectively disables sensitivity, meaning the keyboard will generate a fixed velocity value of 100 (on a scale of 0-127) regardless of how hard or soft the keys are struck.
7: F3 is a setting that effectively disables sensitivity, meaning the keyboard will generate a fixed velocity value of 127 (on a scale of 0-127) regardless of how hard or soft the keys are struck.

1. Press the Edit button.
2. Press the Velocity Curve (Vel Curve) key (press Velocity Curve key twice to edit pad velocity settings). The LED display will show the current velocity curve (for example, ".C.0.2").
3. Type the Velocity Curve number (1 through 7) using the number keys.
4. Press the Enter key.

- or –

1. Press the Edit button.
2. Press the Velocity Curve key (press Velocity Curve key twice to edit pad velocity settings). The LED display will show the current velocity curve (for example, ".C.0.2").
3. Use the "<" or ">" buttons to scroll through the Velocity Curves (C1 through F3).
4. Press the Enter key.

Drawbar Mode: This parameter switches all 9 faders to Drawbar Mode. In this mode, the operation of the faders is reversed, so that the maximum value (127) is at the bottom and the minimum value (0) is at the top. This feature is intended for use with Organ presets that utilize drawbars.

1. Press the Edit button.
2. Press the Drawbar key. The LED screen will momentarily display "On". Drawbar Mode becomes active immediately and Edit mode exits automatically. Repeat steps 1 and 2 to disable Drawbar Mode. The LED screen will momentarily display "OFF".

Memory Dump: The SysEx Memory Dump function (Mem Dump) will send the contents of all 10 Preset memory locations for storage in a DAW application. Please refer to the documentation provided with your DAW software for information on how to record SysEx MIDI data.

1. Prepare a MIDI track within your DAW software to record from your Oxygen 49 keyboard.
2. Press the Edit button on your Oxygen 49 keyboard.
3. Start the MIDI recording in your DAW software.
4. Press the Memory Dump key on your Oxygen 49 keyboard. The SysEx memory dump will begin immediately and the LED screen will display "SYS" to indicate that data is being sent. The SysEx file will appear as a new MIDI recording in your DAW software.

Restoring a Memory Dump:

IMPORTANT: Restoring a saved Memory Dump will permanently overwrite all current presets on your Oxygen 49 keyboard. Restored settings will not become active until a new preset is loaded on your Oxygen 49 keyboard, or the device has been powered off and on.

Play back a MIDI track that contains a previously recorded Oxygen 49 SysEx Memory Dump. The SysEx data is sent back to the Oxygen 49 keyboard. The Oxygen 49 LED screen will display "SYS" while receiving the SysEx data.

Device ID: The Device ID function (DEV ID) allows the assignment of a unique SysEx Device ID to differentiate between multiple MIDI devices of the same model, when sending or receiving SysEx data.

The default setting of 127 lets the keyboard respond to all incoming SysEx messages compatible with the same type of Oxygen 49 keyboard controllers. However, if the Device ID is changed to any other value, the keyboard will only respond to SysEx messages that contain the same Device ID number. This is useful in situations where multiple Oxygen 49 controller keyboards are connected to the same DAW software and SysEx information needs to be sent to a specific keyboard controller with a unique Device ID number.

1. Press Edit.
2. Press the Device ID key. The LED screen will show the current Device ID (for example, "1.2.7.").
3. Enter the new Device ID number using the number keys.
4. Press the Enter key.

NOTE: If the Device ID number of an Oxygen 49 keyboard is changed after a Memory Dump was recorded into a DAW application, any attempts to restore it will be ignored because the numbers do not match. If you do not remember the Device ID number used when the Memory Dump was recorded, set your Oxygen 49 keyboard to Device ID 127 to ensure all Memory Dumps will be recognized.

Store: The Store function saves control assignment settings to one of 10 memory locations.

IMPORTANT: Storing new assignment settings will overwrite the contents of the selected memory location.

1. Press the Edit button.
2. Press the Store key. The LED screen will show the number of the last selected memory location (for example, P.0.1).
3. Enter the number of the memory location you want to store the new settings to by using the number keys or the "<" or ">" buttons.
4. Press the Enter key to save the changes and overwrite the previous settings of the memory location.

NOTE: The Oxygen 49 factory presets can be restored by holding down the "**-**" and "**+**" buttons during power up. This will permanently erase all customized user settings.

Number Keys: This section of the keyboard is used to type in numerical parameter values while in Edit mode.

Enter Key: The Enter key confirms changes made and exits Edit mode.

NOTE: The Panic, Drawbar and Memory Dump functions take immediate effect when the corresponding key is pressed. Edit mode will exit automatically.

Advanced Programming Functions

The MIDI CC (continuous controller) numbers from 0 to 127 are part of the General MIDI specification, and are typically used for real-time control of parameters in MIDI compatible music equipment. For example, an Oxygen 49 knob may be assigned to MIDI CC number 10, which controls the Pan setting of a connected synthesizer or DAW software track. Many of the controls on Oxygen 49 keyboards are fully programmable, and can be assigned to any of these standard MIDI CCs. However, to simplify assignment of other, more complex MIDI message types (for example, SysEx or RPN/NRPN), M-Audio has appended such additional MIDI message types to the end of the MIDI CC number list, extending its range beyond 127.

These additional messages can be assigned to Oxygen 49 controls, just as if they were standard MIDI CCs, but using numbers in the range from 128 to 255. Generally, this is achieved by selecting the control for editing and assigning a 3-digit number.

This section provides examples of the typical control assignment procedure for knobs, faders, buttons, wheels, and the sustain pedal. Assigning MIDI messages that are not explicitly mentioned in this section is done by using the same basic principle as given in the examples.

NOTE: Your Oxygen 49 keyboard never transmits values outside the range specified by the MIDI protocol (0-127). The controller numbers from 128-255 are only used internally by your Oxygen 49 keyboard. This simplifies configuration of the knobs, buttons and faders when assigning advanced MIDI messages, and allows additional configuration options for the controls (for example, setting the Trigger or Toggle operation of a button).

Setting Trigger Values for the Buttons or the Sustain Pedal

When standard MIDI CC numbers are assigned to buttons or the Sustain pedal, they will trigger between two values. The sustain pedal is already configured to send trigger values by default, ensuring it activates the sustain effect when pressed and deactivates it when the pedal is released. Buttons can also be configured to operate this way, which requires three values to be specified.

Key	Parameter	Value
Control Assign (example)	MIDI CC number	10 (Pan)
Data 2 (example)	Release	0 (minimum)
Data 3 (example)	Press	127 (maximum)

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a button as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Type 10 using the number keys. This assigns MIDI CC number 10 (Pan) to the button.
6. Press the Data 2 key.
7. Type 0 using the number keys to assign the "release" (minimum) value.
8. Press the Data 3 key.
9. Type 127 using the number keys to assign the "pressed" (maximum) value.
10. Press the Enter key.

TIP: It can be useful to transmit two other specific values instead of sending minimum (zero) and maximum (127) values as in the above example. When assigning a button to control Pan (MIDI CC 10), you can, for example, configure Data 2 to send Value 38, and Data 3 to send Value 93, effectively causing pan to switch between the approximate "ten o'clock" and "two o'clock" positions when pressing the button, and releasing the button.

M-AUDIO®

Setting Toggle Values (Min/Max) for Buttons or the Sustain Pedal

It is possible to set a Toggle Value for a button or the sustain pedal, causing it to send one value when first pressed and another value when pressed again. This means that one value is sent the first time it is pressed, and another value is sent the next time it is pressed. When configuring a button or the sustain pedal to operate in Toggle Mode, the following four values need to be specified:

Key	Parameter	Value
Control Assign	Toggle On/Off operation	146
Data 1 (example)	MIDI CC number	10 (Pan)
Data 2 (example)	Second press	0 (minimum)
Data 3 (example)	First press	127 (maximum)

Note: When working with proprietary M-Audio parameters from the 128-255 range, the Control Assign setting is used to configure a button or the sustain pedal for this special mode of operation. This means that certain values that are usually specified through the Control Assign setting must instead be specified via the "Data 1" parameter (such as the standard MIDI CC parameter in the example below).

The following example will configure a button to "hard pan" the sound to the right speaker when it is pressed for the first time, and "hard pan" to the left speaker when it is pressed for the second time. This involves configuring the button to operate as a toggle, while controlling the Pan parameter (MIDI CC 10):

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a button as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Type 146 using the number keys. This configures the button to operate as a toggle.
6. Press the Data 1 key.
7. Type 10 using the number keys. This specifies which parameter the button will toggle "on and off". In this example, MIDI CC 10 (Pan).
8. Press the Data 2 key.
9. Type 0 using the number keys. This sets the second button press value to zero. In other words, sound will be panned "hard left" when the button is pressed a second time.
10. Press the Data 3 key.
11. Type 127 using the number keys. This sets the first button press value to the maximum value, so that the sound is panned "hard right" when the button is pressed the first time.
12. Press the Enter key.

TIP: It can be useful to transmit two other specific values instead of sending minimum (zero) and maximum (127) values as in the above example. When assigning a button to control Pan (MIDI CC 10), you can, for example, configure Data 2 to send value 38, and Data 3 to send value 93, effectively causing pan to switch between the approximate "ten o'clock" and "two o'clock" positions when pressing the button the first time, and pressing the button the second time.

Assigning MMC Control to Buttons

The transport functions of some hardware recording devices and DAW applications can be remotely operated via MMC (MIDI Machine Control) commands. MMC is a specialized transport control protocol and requires a somewhat different configuration method. The following values need to be specified:

Key	Parameter	Value
Control Assign	MMC control	149
Channel Assign (example)	Device ID	127
Data 2 (example)	MMC function	2 (Play)

The following example will configure a button to send the MMC command "Play". Select an assignable button as described earlier in this guide.

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a button as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Type 149 using the number keys. This sets the button to send MMC (MIDI Machine Control).
6. Press the Channel Assign (Chan Asgn) key.
7. Enter 127 (Poly On) using the number keys. This ensures all receiving devices will respond to the MMC messages.
8. Press the Data 2 key.
9. Enter a number from the chart on the side to select the MMC command for the button. This determines which transport function will be controlled by this button. For example, enter 2 for the Play command.
10. Press the Enter key.

Number	MMC Command
01	Stop
02	Play
03	Deferred Play
04	Fast Forward
05	Rewind
06	Record Strobe
07	Record Exit
08	Record Pause
09	Pause
09	Eject
10	Chase
11	Command Error Reset
12	MMC Reset

Assigning a Note to a Button

It is possible to configure a Button to send a Note On message when it is held down, and a Note Off message when it is released. This requires four values to be specified (values given are examples):

The following example configures a button to play MIDI note E4 while it is being held down and stop the note when the button is released.

Key	Parameter	Value
Control Assign	Trigger Note On/Off	147
Data 1 (example)	Note pitch	64
Data 2 (example)	Note-Off velocity	0
Data 3 (example)	Note-On velocity	100

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a button as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Enter 147 using the number keys. This sets the button to trigger MIDI Notes.
6. Press the Data 1 key (Pitch/Note parameter).
7. Enter 64 using the number keys. This sets the button to play MIDI note 64.
8. Press the Data 2 key (Velocity Off).
9. Enter 0 using the number keys. This sets the button to transmit a Note Off message with a release velocity value of 0.
10. Press the Data 3 key (Velocity On).
11. Enter 100 using the number keys. This sets the button to transmit a Note On message with a velocity of 100 when pressed.
12. Press the Enter key.

NOTE: It is also possible to configure a button to send a Note On message when it is pressed and a Note Off message when it is pressed a second time. To do this, follow the above configuration steps, but enter 148 for the "Control Assign" parameter.

Setting Buttons and Sustain Pedal to Send Combined Program Change, Bank LSB and Bank MSB Messages

The assignable buttons and the sustain pedal can be configured to send a multi-part message, consisting of a Program Change, Bank LSB and Bank MSB message when pressed. This is useful for specific preset/sound selection from a specific bank of a connected synthesizer or virtual instrument. This requires four values to be specified (values given are examples):

The following example configures a button to send a total of 3 MIDI messages each time the button is pressed (Bank LSB, Bank MSB and Program Change), allowing you to recall any sound in any bank of a connected software or hardware synthesizer that supports this:

Key	Parameter	Value
Control Assign	Program/Bank Preset select	145
Data 1 (example)	Program Change Number	42
Data 2 (example)	Bank LSB number	8
Data 3 (example)	Bank MSB number	32

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select the Control as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Enter 145 using the number keys. This sets the button or the pedal to send a combined Bank Select/Program Change message.
6. Press the Data 1 key.
7. Enter the Program Change number, for example, 42.
8. Press the Data 2 key.
9. Enter the Bank LSB number, for example, 8.
10. Press the Data 3 key.
11. Enter the Bank MSB number, for example, 32.
12. Press the Enter key.

Programming a Button or Sustain Pedal to Increment/Decrement a MIDI CC Value

It is possible to configure a button to increase or decrease a value each time it is pressed. This is useful if you want to step through values one by one each time a button is pressed. To configure a button to increment a MIDI CC between a minimum and maximum value, assign the button to number 154. The minimum and maximum values are set using the Data 2 and Data 3 parameters respectively. This requires four values to be specified (values given are examples):

Key	Parameter	Value
Control Assign	Increment MIDI CC	154
Data 1 (example)	MIDI CC number	72 (Release Time)
Data 2 (example)	Low limit	0
Data 3 (example)	High limit	127

The following example configures a button to increment the release time of the currently active MIDI instrument sound preset every time the button is pressed (you may have to push the button several times while playing notes to hear a difference).

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select the Control as described earlier in this guide (button or pedal).
4. Press the Control Assign (Control Asgn) key.
5. Enter 154 using the number keys. This sets the button or the pedal to increment the MIDI CC value.
6. Press the Data 1 key.
7. Enter 72 using the number keys. This specifies the MIDI CC for which values will be incremented.
8. Press the Data 2 key.
9. Enter 0 using the number keys. This specifies the minimum value.
10. Press the Data 3 key.
11. Enter 127 using the number keys. This specifies the maximum value.
12. Press the Enter key.

To configure a button to decrement (decrease) a MIDI CC value, assign the button to number 153. The minimum and maximum value (range) for each button is set using the Data 2 and Data 3 parameters respectively.

NOTE: Each button will only increment or decrement its own parameter value and this value is independent of any other button. In other words, assigning one button to increment a parameter and another button to decrement the same parameter will cause the first button to send values such as 1, 2, 3, etc., each time the button is pressed. Pressing the second button will send values such as 127, 126, 125 (as opposed to starting to decrement where the first button left off; for example, 2, 1, 0).

M-AUDIO

Programming a Button or Sustain Pedal to Increment/Decrement a Program Change

It is possible to configure a button or the sustain pedal to send an Increment (increase) or Decrement (decrease) Program Change message each time it is pressed. To configure a button to increment a Program Change between a minimum and maximum value, assign the button to number 156. The minimum and maximum values are set using the Data 2 and Data 3 parameters respectively. This requires three values to be specified (values given are examples):

The following example configures a button to increment through the sound presets on a connected software or hardware synthesizer:

Key	Parameter	Value
Control Assign	Program Increment	156
Data 2 (example)	Program Number (minimum)	0
Data 3 (example)	Program Number (maximum)	127

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select the Control as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Enter 156 using the number keys. This configures the button or sustain pedal to increment the Program number.
6. Press the Data 2 key.
7. Enter 0 using the number keys. This specifies the lowest Program number.
8. Press the Data 3 key.
9. Enter 127 using the number keys. This specifies the highest Program number.
10. Press the Enter key.

To configure a button or the sustain pedal to decrement a Program Change between a maximum and minimum value, assign the button to number 155. The minimum and maximum values are set using the Data 2 and Data 3 parameters respectively.

NOTE: Each button or the sustain pedal will only increment or decrement its own parameter value and this value is independent of any other button. In other words, assigning one button to increment through sound presets and another button to decrement through sound presets will cause the first button to recall programs 1, 2, 3, etc., each time the button is pressed. Pressing the second button will recall programs such as 127, 126, 125 (as opposed to starting to decrement where the first button left off for example, 2, 1, 0).

Reversing the Operation of Knobs, Wheels, or Faders

Most MIDI parameters assignable to knobs, wheels, or faders can be configured so that the control's operation is reversed. Once a control is assigned to a MIDI parameter, by default the Data 2 parameter defines the minimum value (for example, 0) while the Data 3 parameter defines the maximum value to be transmitted (for example, 127).

Reversing the operation of knobs, wheels, or faders is achieved by entering a higher value for the Data 2 parameter (usually minimum) and a lower value for the Data 3 parameter (usually maximum). This is useful when a single Fader needs to be configured to work as a drawbar when controlling with an organ-based virtual instrument, or if a knob needs to be configured in reverse when controlling a particular parameter. This requires two values to be specified (values given are examples):

Key	Parameter	Value
Data 2 (example)	Minimum value	127
Data 3 (example)	Maximum value	0

The following example configures a Knob, Wheel, or Fader to reverse its operation:

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a knob, wheel, or fader as detailed earlier in this guide.
4. Press the Data 2 key.
5. Enter 127 using the number keys. This configures the control to reach its maximum value when it is all the way down.
6. Press the Data 3 key.
7. Enter 0 using the number keys. This configures the control to reach its minimum value when it is all the way up.
8. Press the Enter Key.

The knob, wheel, or fader now operates reversed. What was originally the maximum position, is now the minimum position, and vice versa.

Limiting the Range of a Knob, Wheel, or Fader

The MIDI protocol allows for a maximum range of transmitted values between 0 and 127. The effective range of values transmitted by knobs, wheels, and faders can be limited by entering values other than 0 and 127 (default) for the Data 2 and Data 3 parameters. For example, with the Data 2 parameter set to 38 and Data 3 set to 93, if a knob is set fully counter-clockwise, the lowest value it transmits is 38. If the knob is turned fully clockwise, the highest value it transmits is 93. This can be useful in a variety of scenarios, for example, to keep a knob within the "sweet spot" of a synthesizer parameter (for example, filter cutoff), or to quickly recall a specific minimum or maximum volume setting for a track.

The following example configures a knob, wheel, or fader to operate within a limited range (38 to 93):

Key	Parameter	Value
Control Assign (example)	MIDI CC number	07 (Volume)
Data 2 (example)	Minimum value	38
Data 3 (example)	Maximum value	93

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a control as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Type 7 using the number keys. This assigns MIDI CC number 7 (Volume) to the wheel, knob or fader.
6. Press the Data 2 key.
7. Type 38 using the number keys.
8. Press the Data 3 key.
9. Type 93 using the number keys.
10. Press the Enter key.

NOTE: The operation of knobs, wheels, and faders can be reversed, even if the range of operation is limited. This is achieved by entering a higher value for the Data 2 parameter and a lower value for the Data 3 parameter.

Assigning RPN/NRPN Messages to a Knob, Fader, Button, Wheel, or Pedal

Oxygen 49 allows transmission of all three necessary MIDI CC messages for RPNs and NRPNs by simply moving a knob or fader or wheel or by pressing a button or the sustain pedal.

- The Control Assign setting allows assignment for control of the RPN Coarse (132) and RPN Fine (133), as well as NRPN Coarse (134) and NRPN Fine (135) parameters.
- The Data 1 setting lets you specify which MIDI CC number is sent to alter values (usually: Coarse=CC 6; Fine=CC 38).
- The Data 2 setting defines what value is sent for LSB (RPN: CC 100, NRPN: CC 98) while the Data 3 setting defines which value is sent for MSB (RPN: CC 101, NRPN: CC 99). Together, the LSB and MSB values specify the RPN/NRPN parameter to be edited.
- Assigning a knob, wheel, or fader to control an RPN/NRPN on a connected hardware or software device requires four values to be specified.
- Assigning a button or the sustain pedal to control an RPN/NRPN on a connected hardware or software device requires three values to be specified.

The following example assigns a manufacturer specific NRPN coarse (134) message to a control on your Oxygen 49 keyboard:

Key	Parameter	Value
Control Assign	NRPN Coarse	134
Data 1 (example)	CC for Value Change	6
Data 2 (example)	CC 98 / LSB	51
Data 3 (example)	CC 99 / MSB	3

1. Press the Edit button.
2. Press the Select button or Control Select (Ctrl Sel) key.
3. Select a knob, fader, wheel, button or the sustain pedal as described earlier in this guide.
4. Press the Control Assign (Ctrl Asgn) key.
5. Enter 134 (NRPN Coarse) using the number keys.
6. Press the Data 1 key.
7. Enter 6 using the number keys (or the MIDI CC).
8. Press the Data 2 key.
9. Enter the value to be transmitted via MIDI CC 98 (LSB) using the number keys.
10. Press the Data 3 key.
11. Enter the value to be transmitted via MIDI CC 99 (MSB) using the number keys.
12. Press the Enter key.

Non-Volatile Memory

The Oxygen 49 keyboard features non-volatile memory, which allows for automatic saving of presets when the device is powered off. The current controller and channel assignments are stored even if the Store function has not been used. The Program, Bank LSB and Bank MSB data, Global Channel setting, and last used memory preset are also stored.

Restoring the Factory Settings

Factory default settings can be restored by holding down the **-** and **+** buttons during power-up. At this point all previously saved data will be erased.

Appendix (English)

Preset List

1. Twist	6. Transfuser
2. Xpand 2	7. General MIDI
3. Velvet	8. General MIDI
4. Loom	9. General MIDI
5. Vacuum	10. General MIDI

Wheel, Fader, and Knob User Assignments

00 Bank Select	43 Expression LSB	117 Controller 117
01 Modulation	44 Controller 44	118 Controller 118
02 Breath Control	45 Controller 45	119 Controller 119
03 Controller 3	46 Controller 46	**Channel Mode Messages:**
04 Foot Control	47 Controller 47	120 All Sound off
05 Porta Time	48 Gen Purpose 1 LSB	121 Reset all Controllers
06 Data Entry	49 Gen Purpose 2 LSB	122 Local Control
07 Channel Volume	50 Gen Purpose 3 LSB	123 All Notes Off
08 Balance	51 Gen Purpose 4 LSB	124 Omni Off
09 Controller 9	52 Controller 52	125 Omni On
10 Pan	53 Controller 53	126 Mono On (Poly Off)
11 Expression	54 Controller 54	127 Poly On (Mono Off)
12 Effects Controller 1	55 Controller 55	**Extra RPN Messages:**
13 Effects Controller 2	56 Controller 56	128 Pitch Bend Sensitivity
14 Controller 14	57 Controller 57	129 Fine Tune
15 Controller 15	58 Controller 58	130 Coarse Tune
16 Gen Purpose 1	59 Controller 59	131 Channel Pressure
17 Gen Purpose 2	60 Controller 60	132 RPN Coarse
18 Gen Purpose 3	61 Controller 61	133 RPN Fine
19 Gen Purpose 4	62 Controller 62	134 NRPN Cause
20 Controller 20	63 Controller 63	135 NRPN Fine
21 Controller 21	64 Sustain Pedal	136 Master Volume
22 Controller 22	65 Portamento	137 Master Pan
23 Controller 23	66 Sostenuto	138 Coarse Tune
24 Controller 24	67 Soft Pedal	139 Fine Tune
25 Controller 25	68 Legato Pedal	140 Chorus Mod Rate
26 Controller 26	69 Hold 2	141 Chorus Mod Depth
27 Controller 27	70 Sound Variation	142 Feedback
28 Controller 28	71 Resonance	143 Send to Reverb
29 Controller 29	72 Release Time	144 Pitch Bend
30 Controller 30	73 Attack Time	255 Off
31 Controller 31	74 Cut-off Frequency	117 Controller 117
32 Bank Select LSB	75 Controller 75	118 Controller 118
33 Modulation LSB	76 Controller 76	119 Controller 119
34 Breath Control LSB	77 Controller 77	**Channel Mode Messages:**
35 Controller 35	78 Controller 78	120 All Sound off
36 Foot Control LSB	79 Controller 79	121 Reset all Controllers
37 Porta Time LSB	80 Gen Purpose 5	122 Local Control
38 Data Entry LSB	112 Controller 112	123 All Notes Off
39 Channel Volume LSB	113 Controller 113	124 Omni Off
40 Balance LSB	114 Controller 114	
41 Controller 41	115 Controller 115	
42 Pan LSB	116 Controller 116	

Buttons and Footswitch User Assignments

00 Bank Select	48 Gen Purpose 1 LSB	**Channel Mode Messages:**
01 Modulation	49 Gen Purpose 2 LSB	120 All Sound Off
02 Breath Control	50 Gen Purpose 3 LSB	121 Reset all Controllers
03 Controller 3	51 Gen Purpose 4 LSB	122 Local Control
04 Foot Control	52 Controller 52	123 All Notes Off
05 Porta Time	53 Controller 53	124 Omni Off
06 Data Entry	54 Controller 54	125 Omni On
07 Channel Volume	55 Controller 55	126 Mono On (Poly Off)
08 Balance	56 Controller 56	127 Poly On (Mono Off)
09 Controller 9	57 Controller 57	**Extra RPN Messages:**
10 Pan	58 Controller 58	128 Pitch Bend Sensitivity
11 Expression	59 Controller 59	129 Fine Tune
12 Effects Controller 1	60 Controller 60	130 Coarse Tune
13 Effects Controller 2	61 Controller 61	131 Channel Pressure
14 Controller 14	62 Controller 62	132 RPN Coarse
15 Controller 15	63 Controller 63	133 RPN Fine
16 Gen Purpose 1	64 Sustain Pedal	134 NRPN Coarse
17 Gen Purpose 2	65 Portamento	135 NRPN Fine
18 Gen Purpose 3	66 Sostenuto	136 Master Volume
19 Gen Purpose 4	67 Soft Pedal	137 Master Pan
20 Controller 20	68 Legato Pedal	138 Coarse Tune
21 Controller 21	69 Hold 2	139 Fine Tune
22 Controller 22	70 Sound Variation	140 Chorus Mod Rate
23 Controller 23	71 Resonance	141 Chorus Mod Depth
24 Controller 24	72 Release Time	142 Feedback
25 Controller 25	73 Attack Time	143 Send to Reverb
26 Controller 26	74 Cut-off Frequency	144 Pitch Bend
27 Controller 27	75 Controller 75	145 Voice Recall
28 Controller 28	76 Controller 76	146 Toggle MIDI CC
29 Controller 29	77 Controller 77	147 MIDI Note
30 Controller 30	78 Controller 78	148 Note On/Off Toggle
31 Controller 31	79 Controller 79	149 MMC Command
32 Bank Select LSB	80 Gen Purpose 5	150 Reverb Type GM2
33 Modulation LSB	112 Controller 112	151 Reverb Time GM2
34 Breath Control LSB	113 Controller 113	152 Chorus Type GM2
35 Controller 35	114 Controller 114	153 MIDI CC Value -
36 Foot Control LSB	115 Controller 115	154 MIDI CC Value +
37 Porta Time LSB	116 Controller 116	155 Program -
38 Data Entry LSB	117 Controller 117	156 Program +
39 Channel Volume LSB	118 Controller 118	255 Off
40 Balance LSB	119 Controller 119	
41 Controller 41		
42 Pan LSB		
43 Expression LSB		
44 Controller 44		
45 Controller 45		
46 Controller 46		
47 Controller 47		

Technical Specifications

Power	USB bus-powered
Dimensions (Length x Width x Height)	3.7" x 9.6" x 32"; 94 mm x 243 mm x 814 mm
Weight	6.4 lbs.; 2.9 kg

Specifications are subject to change without notice.

Trademarks and Licenses

M-Audio, SONiVOX and AIR Music Technology are trademarks of inMusic Brands, Inc., registered in the U.S. and other countries.

Apple Store and iPad are trademarks of Apple Inc., registered in the U.S. and other countries.

Kensington is a registered trademark of ACCO Brands.

All other product or company names are trademarks or registered trademarks of their respective owners.

m-audio.com