

midiBeam



midiBeam 4Control

USB-MIDI Interface & MIDI Expression/Footswitch Controller

User Guide Version 1.00

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Product website: www.pandamidi.com

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What's in the Box?

Box Contents:

- One midiBeam 4Control unit;
- One USB-A-to-micro-B cable;
- One Quick-Start Guide.

Items required but not included:

- One USB mains adapter (or a computer with a USB port);
- Two standard MIDI cables;
- One or two expression pedals;
- One or two single or dual footswitches;
- A PC or Mac for use with the 4Control Editor to customize the unit;
- A USB-to-MIDI interface for performing firmware updates.

Introduction

Thank you for purchasing the midiBeam 4Control. This compact and versatile device can be used either as a class-compliant USB-to-MIDI interface or as a means to connect passive TRS expression pedals or 1-/2-button footswitches to a MIDI instrument or to a computer. In its default state, it is designed to work as a plug-and-play device with our [Future Impact](#) synth pedal for all editing- and performance-related operations (though the setup can be customized if desired).

In addition to the controls offered in the default setup, midiBeam 4Control allows you to generate any PC, CC, Note-On/Off, Channel Aftertouch, Pitch Bend and MIDI Start/Stop messages. Messages can be sent using either a pedal or a switch and the maximum and minimum values are fully configurable. Switches can be set to be either momentary or latching. Each message generator (pedal or switch) can be set to its own independent MIDI channel, if so desired. The midiBeam 4Control can be customized to your preference using the accompanying PC/Mac Editor software.

Controls and Connections



Updating the Firmware

Firmware updates can be easily performed using our online updater tool. Please visit <http://pandamidi.com/support> to access it.

Firmware updates can also be performed within the Editor. See the [dedicated section](#) below.

Quick-Start Guide

Operating midiBeam 4Control

At power-on, midiBeam 4Control automatically selects one of its two modes:

- Standalone Mode is selected when powered via the mains (indicated by a steadily-lit LED);
- Interface Mode is selected when powered via a computer's USB port (indicated by a blinking LED).

When powered by a computer's USB port, you can manually toggle these modes by quickly pressing and releasing the button on the top of the device. (When powered by the mains, only Standalone Mode is possible.)

Resetting to the Default Settings

To reset the device to its default state, press and hold the button on the top of the device until the LED blinks rapidly. (Resetting can also be performed using the Editor.)

In the default state, all messages are sent on MIDI channel 1 and the (basic) settings of the two Jacks are as follows:

1. Expression pedal, CC1 (Modulation)
2. Switches:
 - A. CC67 (Program Down on the Future Impact)
 - B. CC64 (Sustain)

An Important Note about Switches

Switches should be connected to the Jacks *before* powering 4Control on. This is because, at power-on, 4Control checks to see whether a normally-open or a normally-closed switch is being used and sets its mode accordingly. If nothing is plugged into the Jack at power-on then 4Control defaults to a normally-closed switch; if you were to then plug in a normally-open switch, its behavior would be reversed.

Using midiBeam 4Control in Standalone Mode

- Connect your MIDI instrument(s) to the midiBeam 4Control via the DIN MIDI IN or OUT port(s) as necessary;
- Connect any desired expression pedal(s) or switch(es) to the 4Control's jack socket(s);
- Using the supplied USB cable, connect the midiBeam 4Control either to the mains (with a compatible mains adapter) or to your computer.

In this mode, messages from any connected pedals or switches will be passed to the DIN MIDI OUT. Likewise, messages from any connected instrument(s) coming in via the DIN MIDI IN will be passed to the DIN MIDI OUT.

This mode can be used to add a MIDI controller to any MIDI instrument, such as a keyboard which lacks its own modulation and pitch bend wheels.

Using midiBeam 4Control in Interface Mode

- Connect your MIDI instrument(s) to the midiBeam 4Control via the DIN MIDI IN or OUT port(s) as necessary;
- Connect any desired expression pedal(s) or switch(es) to the 4Control's Jack socket(s);
- Using the supplied USB cable, connect the midiBeam 4Control to your computer.

In this mode, 4Control functions as a class-compliant USB-to-MIDI interface, while additionally serving the two Jacks.

Messages from the computer's USB MIDI OUT will be passed to the midiBeam 4Control's DIN MIDI OUT. Messages from your instrument(s) connected to the midiBeam 4Control's DIN MIDI IN will be sent to the computer's USB MIDI IN.

Furthermore, messages from any expression pedals and switches connected to midiBeam 4Control's two Jack sockets will also be sent to the computer's USB MIDI IN.

Using midiBeam 4Control with the Future Impact

- Connect the midiBeam 4Control's MIDI OUT port to the FI's MIDI IN port;
- Connect an expression pedal to Jack 1 to control the FI's modulation (CC1) by default;
- Connect a dual footswitch to Jack 2 with a stereo TRS cable to control Program Down (CC67) on Switch A and Sustain/Freeze (CC64) on Switch B by default. (Note that Switch A is connected to the tip and Switch B is connected to the ring.)
Alternatively, connect a single footswitch to Jack 2 with a mono cable to control Program Down (CC67) by default.

Note: By default, these messages are sent on MIDI channel 1.

When using midiBeam 4Control as a performance tool with the FI, use Standalone Mode. The aforementioned connections are sufficient.

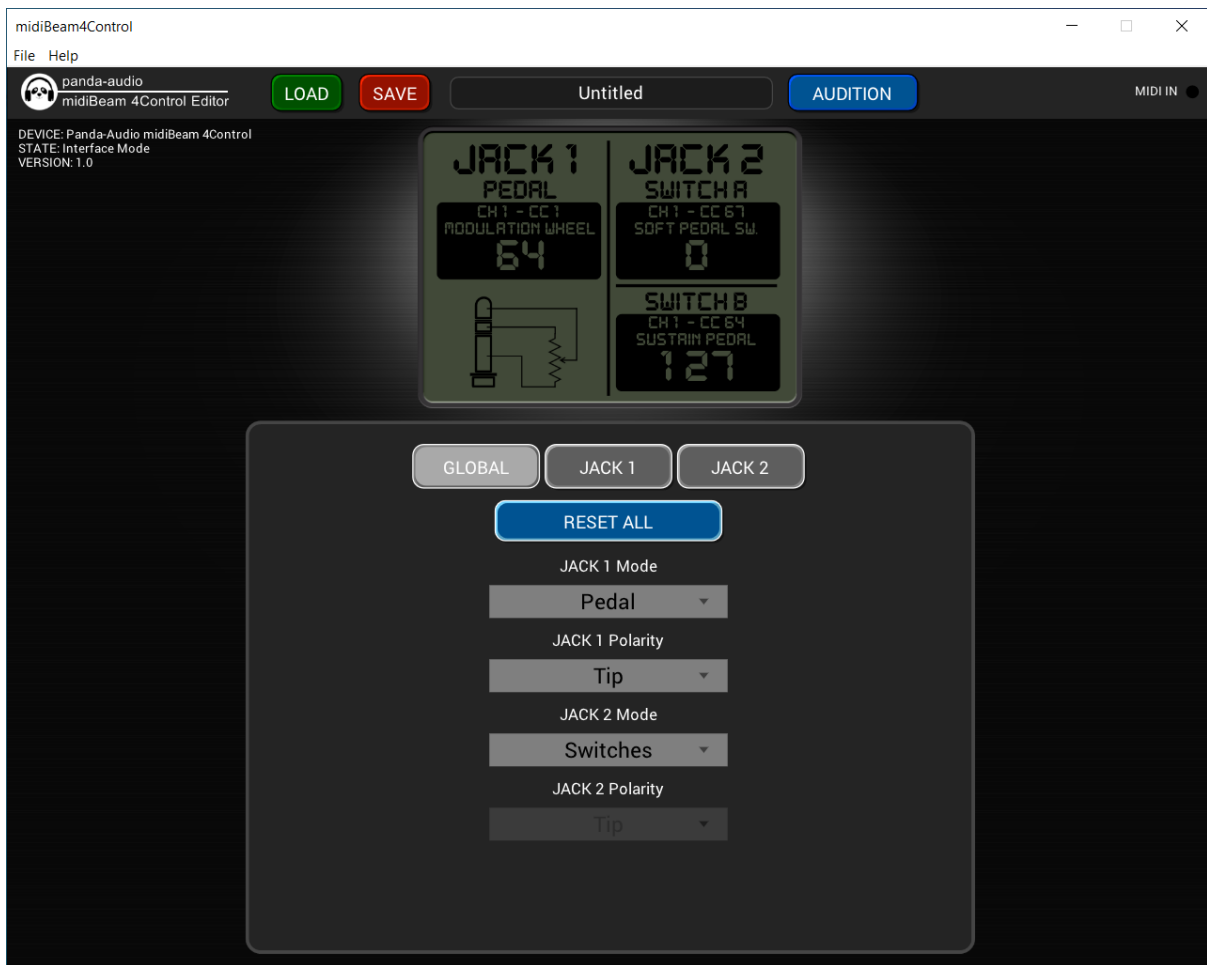
When using midiBeam 4Control to edit/create/manage FI presets within the FI Editor Suite, use Interface Mode. In addition to the aforementioned connections, carry out the following steps:

- Connect the FI's MIDI OUT port to the midiBeam 4Control's MIDI IN port;
- In the FI Editor's MIDI>Preferences menu, select *midiBeam 4Control* as both the **Output Device** and the **FI Input Device**.

Connecting to an FI Editor version *higher than 3.60* will automatically switch on a function in 4Control which sends the data from the Jacks to the DIN MIDI OUT port instead of to the USB port. This allows you to use pedals/switches connected to the Jacks at the same time as being able to carry out editing/managing functions within the Editor.

Note: The function remains active until you either press the mode button or power cycle the device. Therefore, if you later wish to use it as a standard interface, you must remember to switch off this function - simply press the mode button twice.

The midiBeam 4Control Editor



The Editor is used to customize 4Control to your taste and the results can be saved as presets on your computer.

Click [here](#) to download the Editor. Once downloaded, unzip it and move it to the desired location. Connect 4Control to the computer with the USB cable and then launch the Editor.

In the menu bar at the top of the screen, go to **File>Preferences** and select *Panda-Audio midiBeam 4Control* as the **Input Device** and **Output Device**.

The faux-LCD window in the upper-central part of the screen gives a handy overview of the current settings of both Jacks.

There are **LOAD** and **SAVE** buttons for managing [Presets](#); the currently-loaded preset is shown in the narrow window at the top-center of the screen.

At the top-right of the screen there is a MIDI indicator which shows when the Editor is receiving MIDI messages from the device.

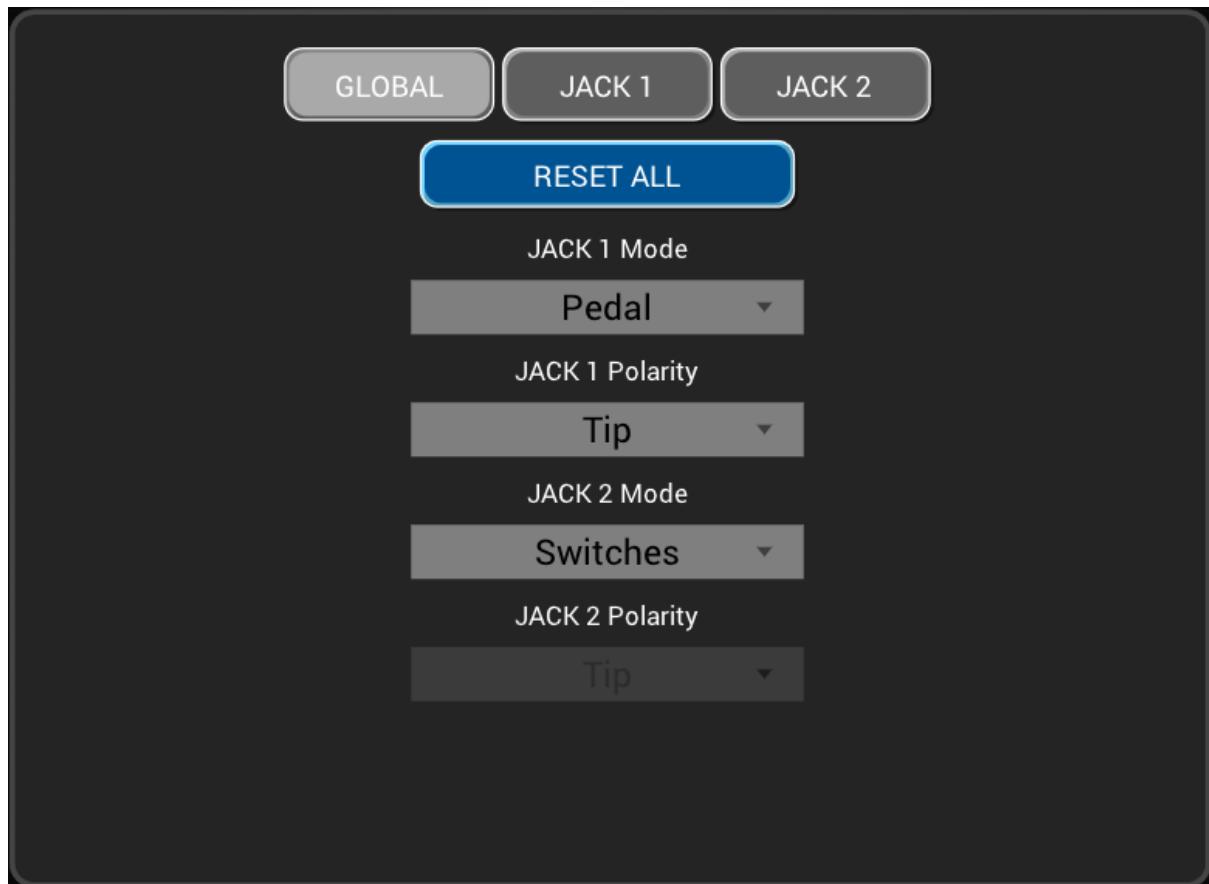
To the left of that is the [AUDITION](#) button; its function is explained later.

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At the top-left of the screen the current status and firmware version of 4Control are shown.

In the central area there are three tabs: **GLOBAL**, **JACK 1** and **JACK 2**. These tabs are discussed below.

GLOBAL Tab Settings



At the top of the tab, there is a button and, below that, four drop-down menus (two for each Jack). The settings are identical for Jack 1 and Jack 2, so they are only shown once to avoid unnecessary duplication.

- **RESET ALL:** Restores 4Control back to the default setup.
- **JACK 1/2 MODE (PEDAL, SWITCHES):** Selects whether the Jack will control an expression pedal or a 1-/2-button switch.
- **JACK 1/2 POLARITY (TIP, RING):** Selects which expression pedal type is being used.

In most expression pedals, the potentiometer wiper is connected to the tip of the jack plug and the top of the potentiometer is connected to the ring (TRS), but some pedals are configured the other way round (RTS). (The bottom of the potentiometer is always connected to ground via the sleeve (S) in both types.) Some pedals have a switch to select between both types.

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For optimum pedal operation, choose the correct setting for your pedal as per the manufacturer's documentation. There is a helpful list of pedal specifications [here](#).

JACK 1/2 Tab - Pedal Settings

The screenshot shows a software interface for configuring a pedal. At the top, there are three tabs: 'GLOBAL', 'JACK 1', and 'JACK 2'. The 'JACK 1' tab is currently selected. Below the tabs, the following settings are visible:

- MIDI Channel:** A dropdown menu showing the value '1'.
- Mode:** A dropdown menu showing the value 'Control'.
- Controller:** A numeric input field showing '0', with '+' and '-' buttons on the right.
- Minimum:** A numeric input field showing '0', with '+' and '-' buttons on the right.
- Maximum:** A numeric input field showing '0', with '+' and '-' buttons on the right.
- Calibration Low End:** A red button labeled '0%'.
- Calibration High End:** A red button labeled '100%'.

These settings are shown when a given Jack is set to *PEDAL* in the GLOBAL tab. The available settings in the JACK 1 and JACK 2 tabs are identical so are only shown once to avoid unnecessary duplication.

Wherever a parameter is adjustable between 0 and 127, you can adjust it in one of three ways:

1. Click the +/- buttons;
 2. Click-and-drag the value up or down;
 3. Double-click the box and type in the value.
- **MIDI CHANNEL (1...16):** Sets the MIDI channel that the expression pedal connected to the Jack transmits on.
 - **MODE (CONTROL, AFTERTOUCH, BEND):** Selects whether the expression pedal connected to the Jack sends out CC, Channel Aftertouch or Pitch Bend messages.

Pitch bend can be made in either direction.

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A CC value of 64 corresponds to no pitch bend, so set MINIMUM to 64.

Set MAXIMUM to 127 to achieve pitch bend fully up or set it to 0 to achieve pitch bend fully down.¹

Reverse the values of MINIMUM and MAXIMUM if you want to flip the pedal direction required to perform the bend.

- **CONTROLLER (0...127):** When MODE is set to *CONTROL*, this sets which CC number will be sent when the expression pedal connected to the Jack is moved.
- **MINIMUM (0...127):** Sets the value of the CC/Aftertouch/Pitch Bend message that will be sent when the expression pedal is in the heel-down position.
- **MAXIMUM (0...127):** Sets the value of the CC/Aftertouch/Pitch Bend message that will be sent when the expression pedal is in the toe-down position.
- **CALIBRATION LOW END (0.0%...100.0%):** This button sets and displays the pedal's lower calibration value. Move your expression pedal to the heel-down position and press this button; the calibration value is now stored.
- **CALIBRATION HIGH END (0.0%...100.0%):** This button sets and displays the pedal's upper calibration value. Move your expression pedal to the toe-down position and press this button; the calibration value is now stored.

Pedal Calibration

Due to component variance, most pedals will not be able to access their full range of voltage adjustment and should therefore be calibrated as shown above so that they can successfully output all 128 MIDI values.

Note that you can also make creative use of calibration. For example, if you use a stereo pedal connected to both Jacks, then you could program Jack 1 to adjust one MIDI controller using only the lower half of the pedal's travel. You can then program Jack 2 to adjust a different MIDI controller using only the upper half of the pedal's travel.

¹ Note that the actual semitone pitch bend range will be set via your MIDI instrument.

JACK 1/2 Tab - Switch Settings

These settings are used when a given Jack is set to *SWITCHES*. The available settings in the JACK 1 and JACK 2 tabs are identical so are only shown once to avoid unnecessary duplication.

Within a single JACK tab, the available settings for Switch A and Switch B are also identical so are likewise only shown once.²

- **SWITCH A/B MIDI CHANNEL (1...16):** Sets the MIDI channel that a given switch connected to that Jack transmits on.
- **SWITCH A/B OPERATION (*MOMENTARY*, *LATCHING*):** In most cases, a switch sends a message at one of two differing values (or performs two different actions), depending on the switch's state; this setting chooses when those two values are sent (or when those two actions are performed).
 - When set to *MOMENTARY*, the switch sends one value (or performs one action) when it is *pressed* and the other when it is *released* (except where indicated otherwise).
 - When set to *LATCHING*, the switch alternates between the two values/actions on subsequent presses (except where indicated otherwise).

² Although Switch A and Switch B have their own independent settings, they do share the values set by SPECIAL CTRL LOWER and SPECIAL CTRL UPPER.

The actual values sent (or actions performed) depend upon the SWITCH A/B FUNCTION setting; these are summarized in the table at the end of this section.

- **SWITCH A/B FUNCTION (*CONTROL*, *NOTE ON/OFF*, *START*, *STOP*, *PROGRAM CHANGE*, *SPECIAL CONTROL*, *PEDAL*):** All but the last one of these functions sets the message type that the switch sends out when it is pressed or released; the last one is a little different (see below).
 - When set to *CONTROL*, the switch sends out a CC message, alternating between values of 0 and 127.
 - When set to *NOTE ON/OFF*, the switch alternates between note-on and note-off messages.³
 - When set to either *START* or *STOP*, the switch sends out a MIDI Real Time message. In *MOMENTARY* mode, the selected message is sent upon every press. In *LATCHING* mode, the two messages alternate on subsequent presses.
 - When set to *PROGRAM CHANGE*, the switch sends out a PC message upon every press.
 - When set to *SPECIAL CONTROL*, the switch sends out a CC message, alternating between two user-defined values.
 - When set to *PEDAL*, the switch allows you to change which CC number is sent out from an expression pedal plugged into the other Jack.

When a *LATCHING* switch is ON or a *MOMENTARY* switch is PRESSED, the original expression pedal settings are disabled; the expression pedal instead sends out messages using the current Jack's SWITCH A/B MIDI CHANNEL and CONTROLLER settings, depending on which switch is being used.

When a *LATCHING* switch is OFF or a *MOMENTARY* switch is RELEASED, the expression pedal reverts back to its original settings.⁴

When switching to controlling a different expression message, the value jumps to that of the pedal's current position as soon as the pedal is moved.

Both Switch A and Switch B can be set to *PEDAL* and so it is possible to have the expression pedal separately control up to three different parameters;

³ Note-on velocity is fixed at 100; note-off velocity is fixed at 0.

⁴ Although it is technically possible to use *MOMENTARY* switch operation with the *PEDAL* function, in practice it is quite tricky as you would need to use both feet: one to hold down the switch and the other to operate the pedal. A better way to make use of *MOMENTARY* switch mode in combination with the *PEDAL* function is to use a pedal which has its own latching feature, such as the Bespeco VM22. The advantage here is that the pedal will give visual feedback via an LED when it is latched on.

these parameters can even be on up to three different devices by using a different MIDI channel for each message.

If both switches are set to *PEDAL*, then pressing one switch will automatically unlatch the other.

The expression pedal parameter swapping is always affected by the most-recent action. This means that, for example, if you latch Switch A on and then latch Switch B on, Switch B's action will be active and Switch A will latch off. If you now latch Switch B off, the expression pedal will revert to its original settings.

- **SWITCH A/B CONTROLLER (0...127):**

Sets which CC number is used when SWITCH A/B FUNCTION is set to *CONTROL*, *SPECIAL CONTROL* or *PEDAL*.

Sets which MIDI note number is used when SWITCH A/B FUNCTION is set to *NOTE ON/OFF*. The actual note and octave values are displayed in the faux-LCD window.

Sets which MIDI PC number is used when SWITCH A/B FUNCTION is set to *PROGRAM CHANGE*.

- **SPECIAL CTRL LOWER (0...127):**

When SWITCH A/B FUNCTION is set to *SPECIAL CONTROL*, this sets the CC value sent when a *MOMENTARY* switch is released or when a *LATCHING* switch is in the OFF position. Both switches share this value.

- **SPECIAL CTRL UPPER (0...127):**

When SWITCH A/B FUNCTION is set to *SPECIAL CONTROL*, this sets the CC value sent when a *MOMENTARY* switch is pressed or when a *LATCHING* switch is in the ON position. Both switches share this value.

Summary of message values sent and actions performed when using switches

		SWITCH OPERATION			
		MOMENTARY		LATCHING	
		PRESS	RELEASE	ON	OFF
SWITCH FUNCTION	CONTROL	127	0	127	0
	NOTE ON/OFF	Note-On	Note-Off	Note-On	Note-Off
	START	Start	-	Start	Stop
	STOP	Stop	-	Start	Stop
	PC	Value set in SWITCH A/B CONTROLLER	-	Acts exactly as <i>MOMENTARY</i>	
	SPECIAL CONTROL	Value set in SPECIAL CTRL UPPER	Value set in SPECIAL CTRL LOWER	Value set in SPECIAL CTRL UPPER	Value set in SPECIAL CTRL LOWER
	PEDAL	Overrides expression pedal settings	Reverts to original expression pedal settings	Overrides expression pedal settings	Reverts to original expression pedal settings

Audition

When this function is enabled, the Editor will pass all messages received via the Jacks and the DIN MIDI IN port back to 4Control via USB so that they are then sent out of the DIN MIDI OUT port. In practice, this means that when you are using the Editor to customize 4Control, you can audition the results immediately without having to switch to Standalone Mode.

Presets

Once you have customized 4Control to your taste, you can save the results as a preset. This allows you to store multiple configurations for easy recall later.

At the top-left of the screen, there are two buttons dedicated to preset management:

- **LOAD:** Loads a saved preset file from your computer into 4Control's memory.
- **SAVE:** Stores all the currently-displayed Editor parameters as a preset file on your computer which can then be later loaded into 4Control's memory.

The currently-loaded preset is shown in the narrow window at the top-center of the screen.

Updating the Firmware via the Editor

This is an alternative to the recommended browser-based firmware update method.

Download the latest firmware file from <http://pandamidi.com/support>, then follow the steps below to install the update:

1. Disconnect 4Control from the power source;
2. Connect a MIDI interface to the computer;
3. Connect the MIDI OUT of the interface to the MIDI IN of 4Control;
4. Go to **File>Preferences** in the menu bar and select the interface as the **Output Device**;
5. Power on 4Control while keeping its button pressed. The LED will remain unlit;
6. Go to **File>Firmware Update** in the menu bar and locate the update file. (The file format is **4Controlxx.bin**, where xx represents the version number.) Either double-click the filename or select it and press OPEN;

The faux-LCD will show a percentage count as the data are being sent to the device.

When the update has been completed successfully, the LED will blink quickly and *"firmware update finished"* will be shown in a pop-up menu;

7. Power 4Control off and on again.

Specifications

Technical specifications:

- Size: 83 x 54 x 31 mm (3.2 x 2.1 x 1.2 inch)
- Weight: 55g
- Power: through USB micro B socket
- Power consumption: ca. 20mA @ 5V

Connections:

- 2 TRS stereo jack sockets (6.35mm)
- 5-pin DIN MIDI IN and MIDI OUT ports
- Class-compliant USB micro-B socket

Controls and indicators:

- Pushbutton switch to select Standalone or MIDI Interface mode
- LED to display current mode

Included accessories:

50cm USB-A-to-micro-B cable

Environmental Information

EU Directives on the Protection of the Environment

RoHS This product is compliant with the EU Directive 2002/95/EG for the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment. No lead (Pb) cadmium (Cd), mercury (Hg), hexavalent chromium (Cr + 6), PBB or PBDE is intentionally added to this device. Any traces of impurities of these substances contained in the parts are below the RoHS specified threshold levels.

REACH This product is compliant with the European Union Directive EC1907/2006 and contains none or less than 0.1% of the chemicals listed as hazardous chemicals in the REACH regulation.

WEEE As with the disposal of all old electrical and electronic equipment, this product is not to be treated as regular household waste. Instead it should be handed over at the applicable collection point for the recycling of electrical and electronic equipment.

CE This product complies with the European Union Council Directives and Standards relating to electromagnetic compatibility EMC Directive (2006/95/EC) and the Low Voltage Directive (2004/108/EC). EMC compliance test report: EMC – 130930/1

Operation is subject to the following two conditions:

- 1) This device may not cause harmful interference, and;
- 2) This device must accept any interference received, including interference that may cause undesired operation.

Warranty and Return Policy

If your midiBeam 4Control breaks or malfunctions as a result of any defective electronic parts or due to a design fault of ours, we will repair or replace it during the warranty period, which is two years from the date of original purchase.

You must never send back a device without consulting us by email first. A device should be returned to us only after consultation and if we have explicitly requested that it be returned.

You must pay for the cost of shipping the device back to us. It is up to you which shipping service you use for the return, but it is your responsibility to ensure that we receive the device.

The cost of repairing the device and sending it back to you will be covered by us during the warranty period.

After the warranty has expired, the cost of repairing and postage (both ways) must be paid by you.

It is our responsibility to ensure that the device is received by you.

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