



CANVAS

EXPRESSION

INSTRUCTION MANUAL v.1

CONTROLS



CONTROLS

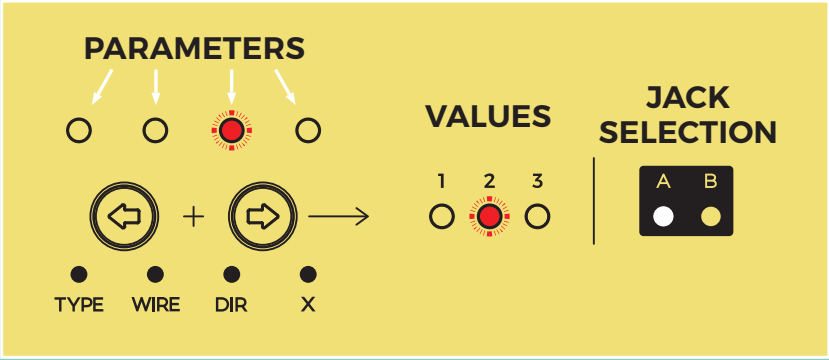
The user interface is tucked into the lower portion of the pedal underneath the treadle. There are two buttons (arrow denotes direction) with four parameter LEDs above them. These four LEDs indicate which parameter is currently selected and can be edited. The four editable parameters are TYPE, WIRE, DIR, and X.

To the right of the two buttons are three value LEDs labeled 1, 2, and 3, which indicate the value of the currently selected parameter.

At the right-most edge of the UI is the Jack edit selection, which indicates whether you are currently editing parameters for Jack A or Jack B.

TO EDIT A PARAMETER:

1. Select which Jack you will be editing by pressing both buttons simultaneously. The Jack Edit Selection LEDs will toggle between Jack A and Jack B.
2. Press the right or left buttons to select the desired parameter. As you move through the parameters, the current value for each is displayed with the value LEDs.
3. To increase the value of the selected parameter, press and hold the left button while clicking the right button.
4. To decrease the value, press and hold the right button while clicking the left button.





CONTROLLING EXTERNAL GEAR

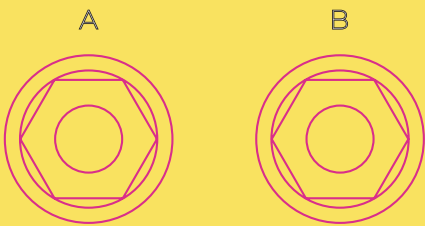
Canvas Expression allows you to control different types of external gear throughout your pedalboard or computer-based rigs using various signals such as expression, switching, CV, and MIDI.

Jack A and Jack B can each be configured to send Expression Out, Switch Out, or CV Out.

MIDI can be sent or received from the dedicated 1/8" MIDI TRS Type A connectors on the right side of the device, and can also be sent over USB when connected to a computer. The 1/8" MIDI and USB MIDI outputs are fully independent and are configured individually.

All MIDI setup is handled through the Canvas Expression web app at canvasexp.walrusaudio.io.

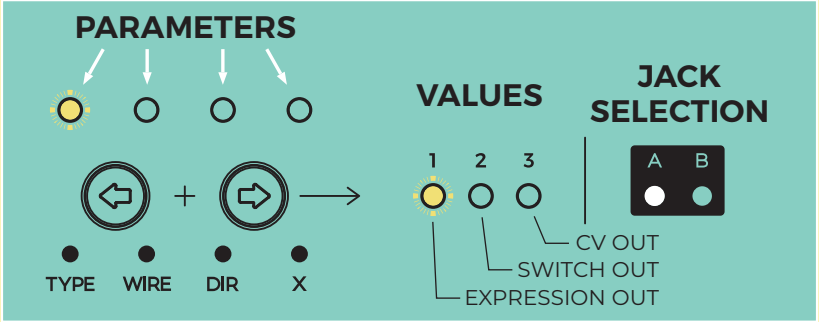
EXPRESSION JACK OUTPUT TYPES



The TYPE parameter defines the function assigned to Jack A or Jack B.

You can select between three TYPE values:

- 1: Expression Out
- 2: Switch Out
- 3: CV Out



This setting determines what role each Jack plays in your setup, whether that means sending expression control directly to a pedal, controlling switch functions on compatible devices, or sending CV to external gear.

1. EXPRESSION OUT

Canvas Expression can send expression control to modify parameters on compatible pedals and other devices that accept an expression input. This allows the selected Jack to behave exactly like a passive expression pedal for the connected device.

Expression control works by receiving a reference voltage from the host device and varying that signal so the host can read the current pedal position. As the treadle moves, Canvas Expression changes the level of that control signal, allowing control of parameters on the connected device.

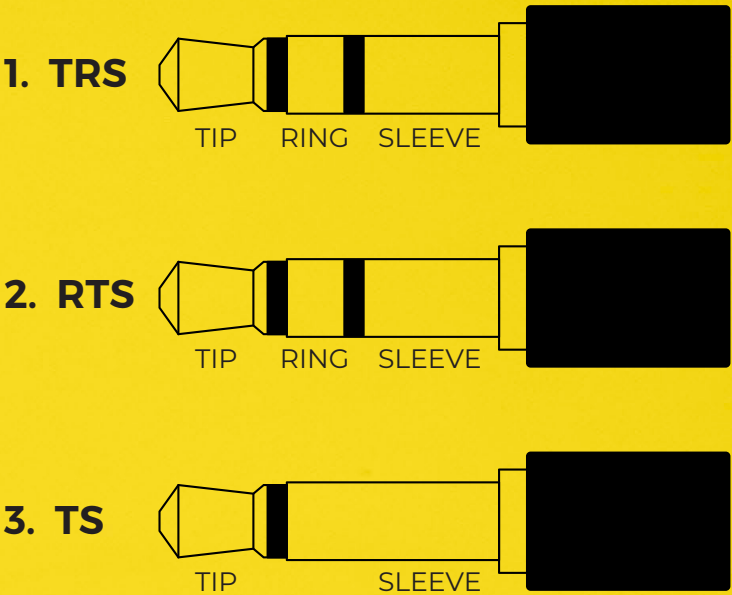
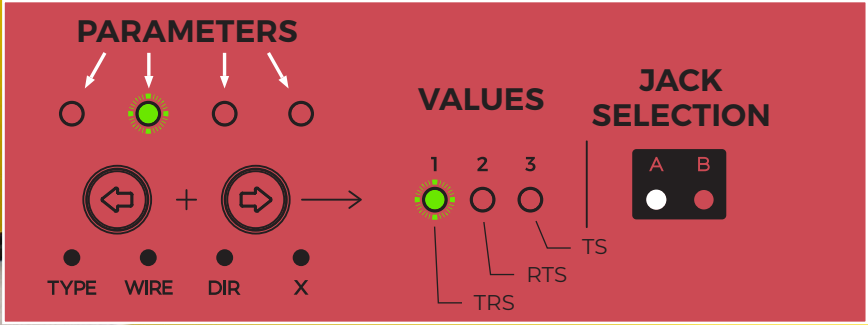
Because expression implementations are not standardized across all devices, Canvas Expression allows you to change the wiring of Jack A or Jack B to match the device you are controlling.



EXPRESSION OUT WIRING

For Expression Out, there are three available wiring options to define how tip, ring, and sleeve are used on the selected Jack:

- 1: TRS** - Sends the control signal on the ring. (Yamaha, Korg)
- 2: RTS** - Sends the control signal on the tip. (Walrus, Boss, Neural, Chase Bliss, Strymon)
- 3: TS** - Uses a variable resistance-to-ground between Tip and Sleeve. (Line 6 M Series, HX Series)



Wiring selections 1 (TRS) and 2 (RTS) need a ¼” TRS cable with three conductors to be able to function with external gear that use these schemes.

Wiring selection 3 (TS) needs a ¼” TS cable with two conductors (a standard guitar patch cable) to function properly.

Different pedals expect expression control on different conductors, which is why these wiring options are necessary. Consult the manual of the pedal you wish to connect to in order to determine the expression wiring type required by that device.

The TS option is intended for devices that do not use the typical TRS voltage-divider method and instead expect a variable resistance to ground. In this mode, the host device sends voltage on the tip, and Canvas Expression varies the resistance to ground in response to pedal position.



EXPRESSION OUT AUTO DETECT

Canvas Expression can automatically detect which wiring type is needed for the connected device:

1. Connect the pedal you wish to use with a standard TRS cable.
2. Ensure the correct expression Jack (A or B) is selected that corresponds to the connected pedal. Switch Jacks by simultaneously pressing both Parameter Buttons.
3. Select Type (Yellow LED), Number 1. This will tell the selected Jack to use Expression Out.
4. Select Wire (Green LED).
5. Press and hold the left and right buttons and release when the three value LEDs begin flashing red. Canvas Expression will then determine what wiring type is needed for the connected pedal, make that selection, and return to normal operation.

EXPRESSION OUT DIRECTION

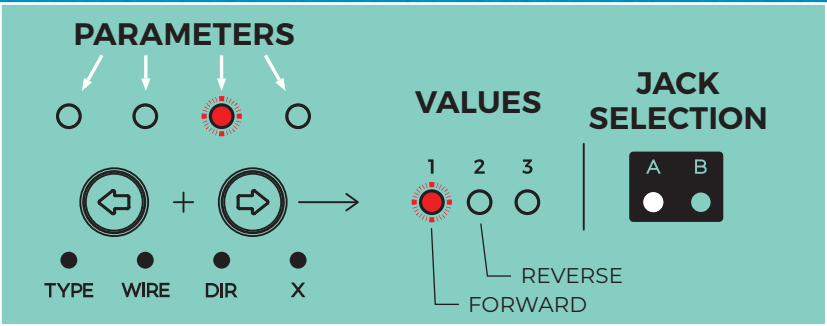
When Type: Expression Out is selected, the DIR parameter defines whether heel down corresponds to the minimum or maximum output value:

1: FORWARD

2: REVERSE

When direction is set to Forward, heel down corresponds to the minimum output value and toe down corresponds to the maximum output value.

When direction is set to Reverse, heel down corresponds to the maximum output value and toe down corresponds to the minimum output value.



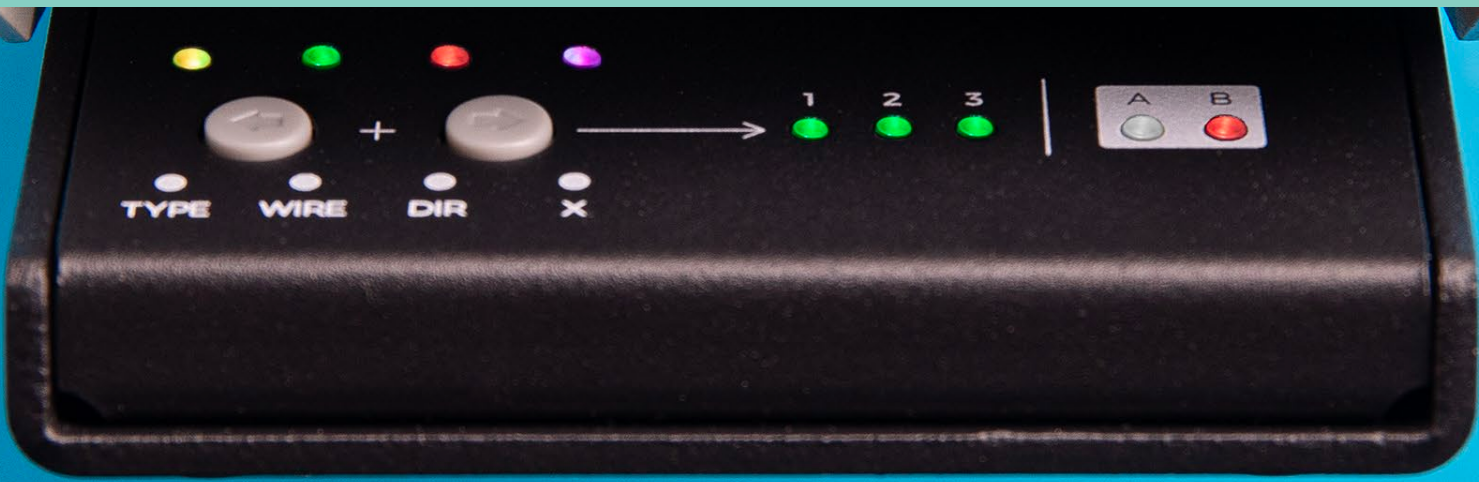
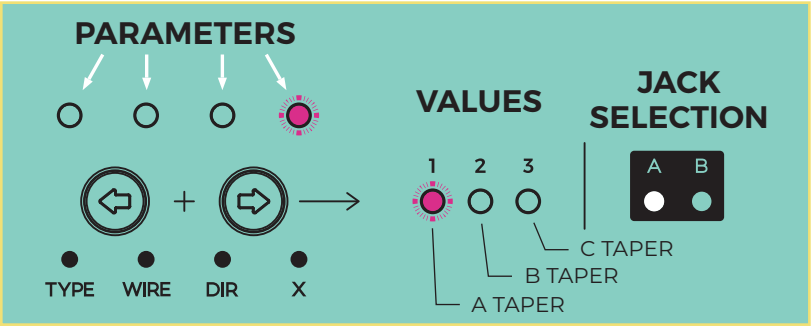
EXPRESSION OUT X

When Type: Expression Out is selected, the X Parameter (Purple LED) chooses the taper used by the selected Jack.

1. A Taper - Provides a more natural audio-style taper.
2. B Taper - Provides a linear response across the pedal travel.
3. C Taper - Provides an accelerated response, reaching higher values earlier in the pedal travel.

Different tapers can make control feel more natural depending on the parameter you are modifying and how you want the sweep to respond underfoot.

B Taper is the most common taper found in expression pedals. We recommend starting with the B taper and experimenting with the others to find which one feels best.

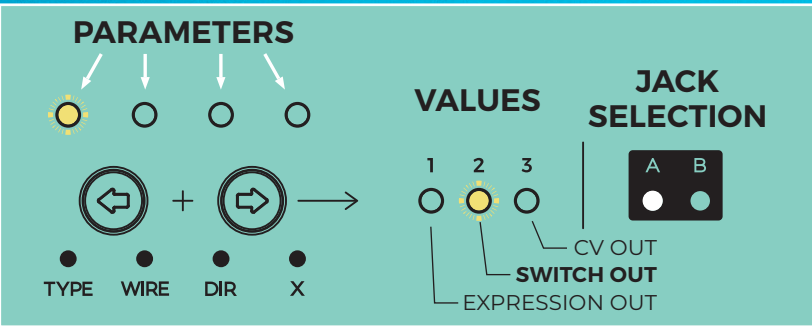


2. SWITCH OUT

Canvas Expression can also configure Jack A or Jack B to operate as a switch output. This can be used with pedals, amps, and other external devices that accept a switch input for additional control.

In Switch Out mode, Canvas Expression emulates switch behavior by grounding the voltage present on the connected cable to signal the host device.

The switch signal is triggered when the pedal crosses a position threshold defined by the X parameter.



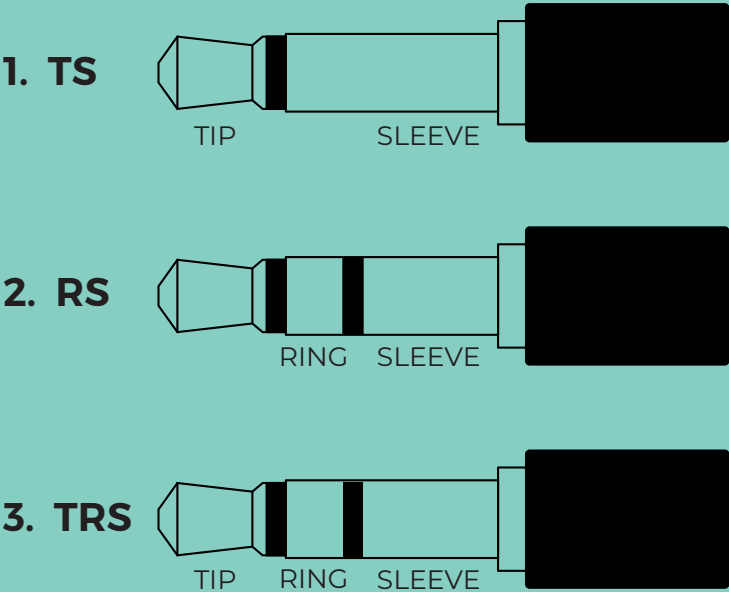
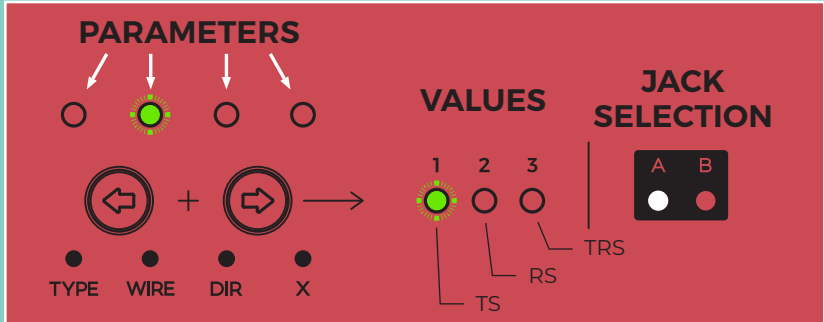
SWITCH OUT WIRING

For Type: Switch Out, the available Wire options are:

- 1: TS** - The tip is shorted to the sleeve. The ring is disconnected.
- 2: RS** - The ring is shorted to the sleeve. The tip is disconnected.
- 3: TRS** - Both tip and ring are shorted to the sleeve.

These options allow Canvas Expression to work with devices that expect switching on different conductors or on both conductors at once.

There is no auto-detect setup for Switch Out.

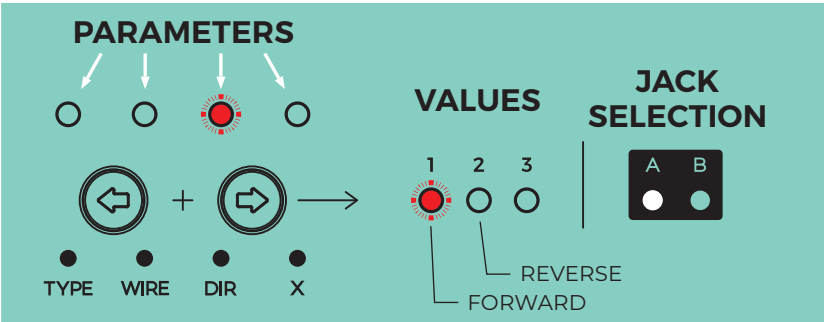


SWITCH OUT DIRECTION

When Type: Switch Out is selected, the DIR Parameter (Red LED) affects which way you cross the threshold before the switch action is triggered.

- 1. FORWARD**
- 2. REVERSE**

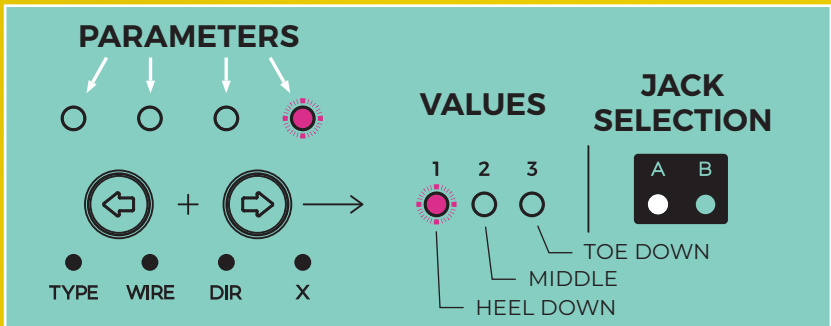
When direction is set to Forward, the switch action is triggered when you cross the selected threshold moving from the lower region of the pedal travel toward the upper region (towards toe down).



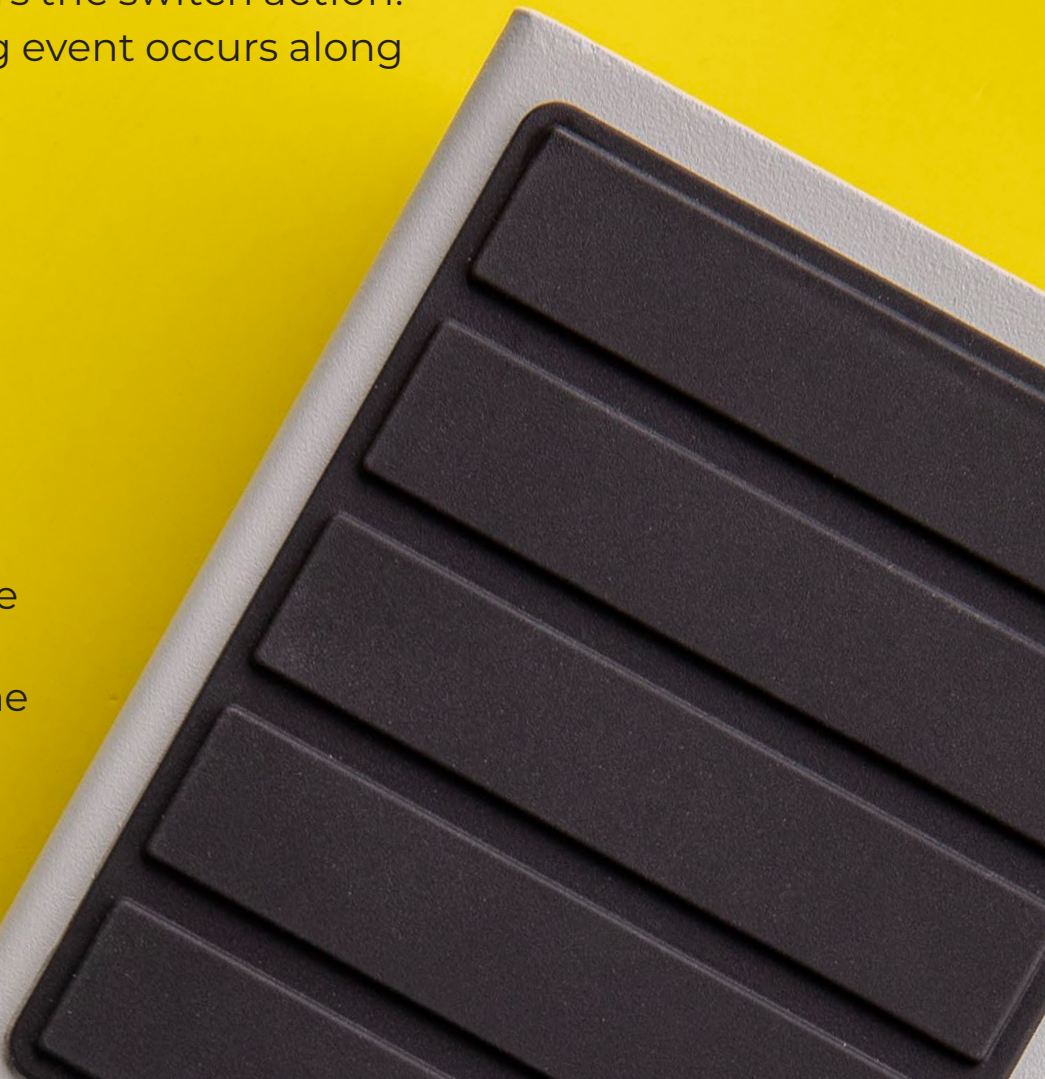
When direction is set to Reverse, the switch action is triggered when you cross the selected threshold moving from the upper region of the pedal travel toward the lower region (towards heel down).

SWITCH OUT X

When Type: Switch Out is selected, the X Parameter (Purple LED) defines the pedal-position threshold that triggers the switch action. These values correspond to where the switching event occurs along the pedal travel.



- 1: HEEL DOWN** - The switching event occurs at the lowest pedal position.
- 2: MIDDLE** - The switching event occurs around the 50% point of the pedal travel.
- 3: TOE DOWN** - The switching event occurs at the upper end of the pedal travel.

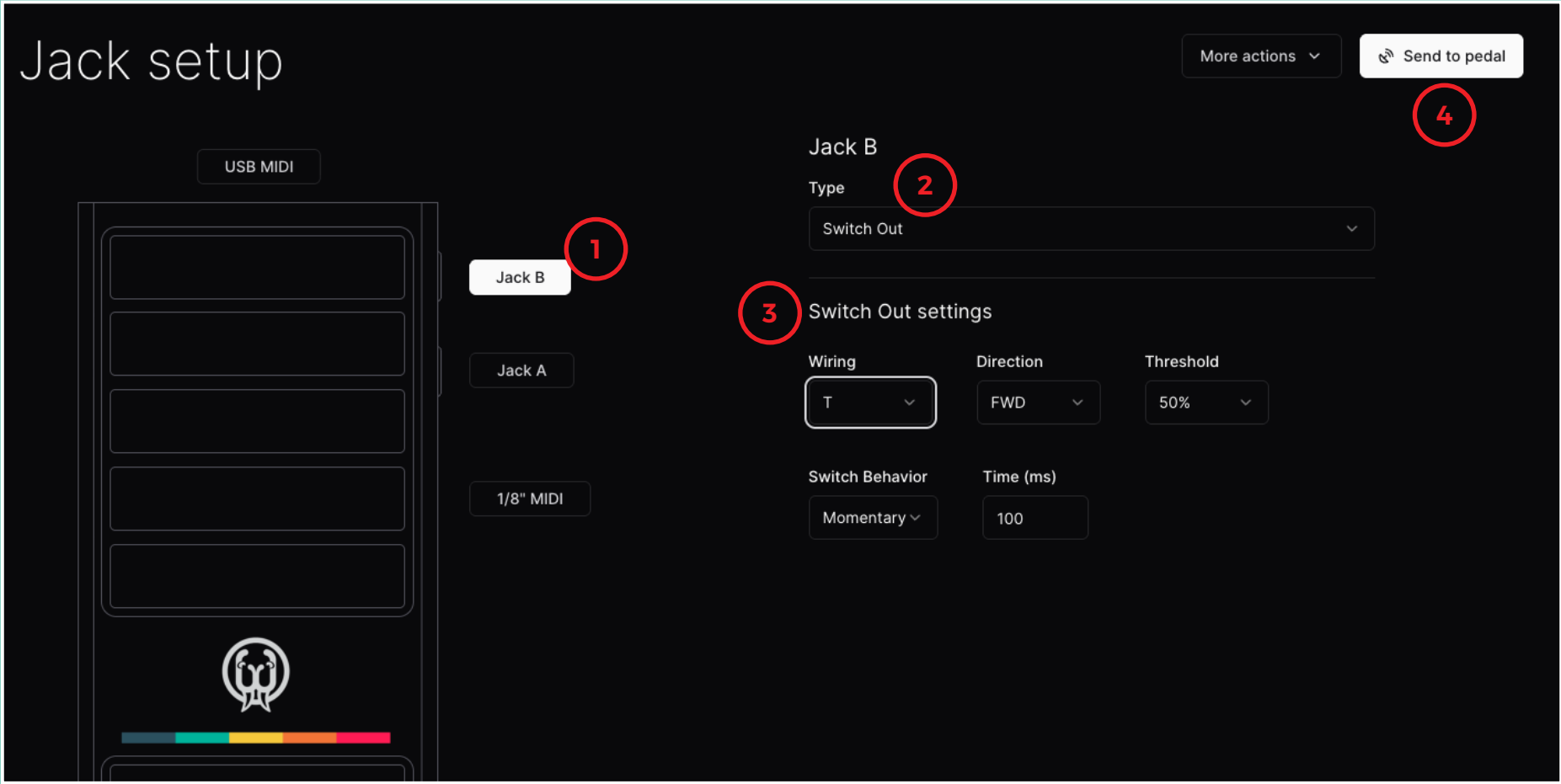


SWITCH OUT BEHAVIOR

By default, Switch Out behaves as a momentary switch. When the threshold is crossed, Canvas Expression sends a switch signal to the host device only while the pedal is above the threshold.

Switch Out can also be configured for latching behavior. In this mode, the switch state remains engaged after the threshold is crossed and stays engaged until the threshold is crossed again and the switch is triggered again.

Switching between momentary and latching behavior can only be configured through the web app:



1. Choose the Jack you wish to assign Switch Out to.
2. Select Switch Out from the Type drop-down menu.
3. Select your Switch Out settings from the drop-down menu. Here you can change Wiring, Direction, Threshold, Switch Behavior, and Time.
4. Click the “Send To Pedal” button to confirm all changes.

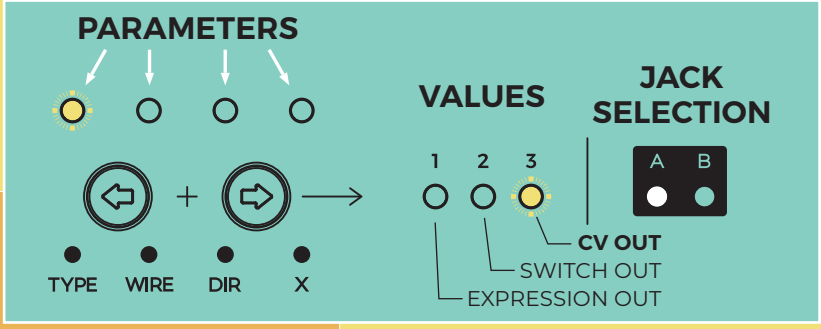
3. CV OUT

Selecting Jack Type 3 sets the selected Jack to a Control Voltage (CV) Output.

Control voltage (CV) is a control method used by some pedals, Eurorack gear, synths, and other external devices to control parameters from an outside source.

CV Out is similar in purpose to Expression Out in that both can be used to control parameters on another device. The difference is in how the control signal is created. In CV Out mode, Canvas Expression generates a voltage and sends it to the target device.

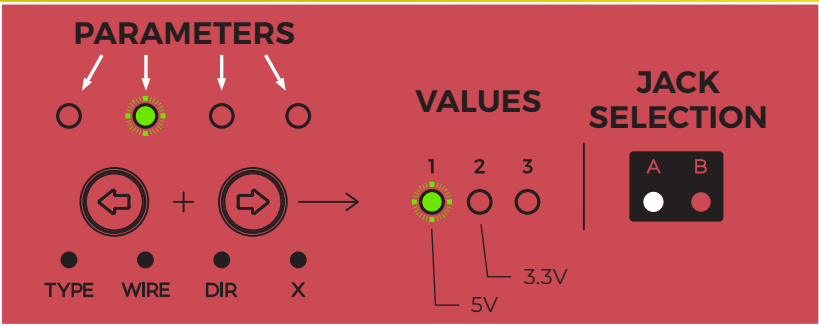
CV Out makes Canvas Expression more versatile by allowing it to control external gear beyond standard expression-pedal destinations, including pedals and compatible synth or modular devices.



CV OUT WIRING

For Type: CV Out, the available wiring options are:

- 1: **5V** - Sends a unipolar control voltage from 0V to 5V.
- 2: **3.3V** - Sends a unipolar control voltage from 0V to 3.3V.



These settings define the maximum control voltage generated by the selected Jack, with the default being 5V since that is standard for modular and desktop synthesizer control.

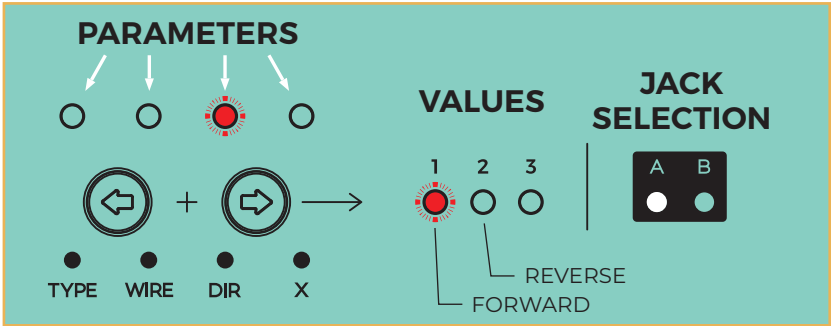
The 3.3V mode is intended for devices that expect a lower control-voltage range.

CV Out does not provide bipolar control voltage. The output range always starts at 0V and rises to the selected maximum voltage.

CV OUT DIRECTION

When Type: CV Out is selected, the DIR parameter defines whether heel down corresponds to the minimum or maximum output voltage.

- 1: **FORWARD**
- 2: **REVERSE**



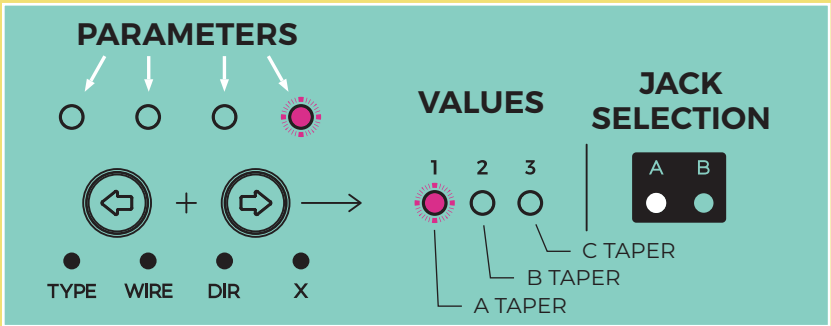
When direction is set to Forward, heel down corresponds to the minimum output voltage, and toe down corresponds to the maximum output voltage.

When direction is set to Reverse, heel down corresponds to the maximum output voltage, and toe down corresponds to the minimum output voltage.

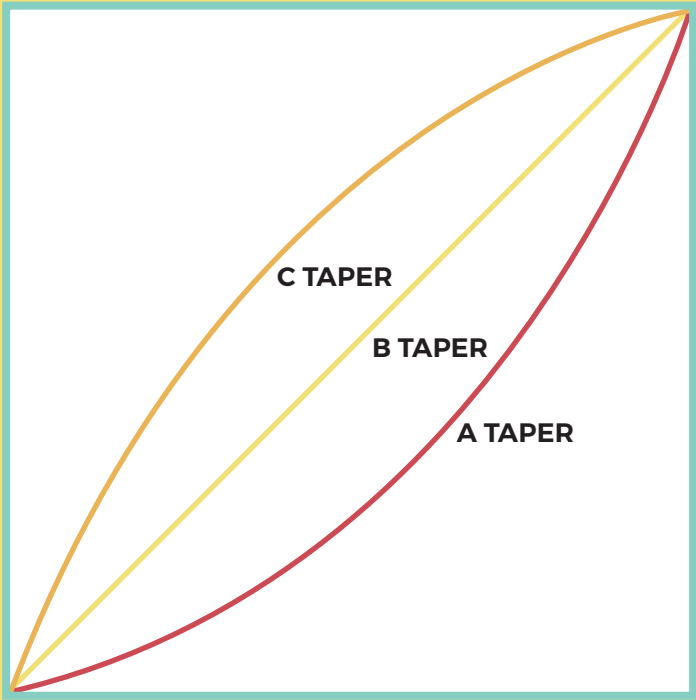
CV OUT X PARAMETER

When Type: CV Out is selected, the X parameter chooses the taper used by the selected Jack.

- 1: **A Taper** - Provides a more natural audio-style taper.
- 2: **B Taper** - Provides a linear response across the pedal travel.
- 3: **C Taper** - Provides an accelerated response, reaching higher values earlier in the pedal travel.



In CV Out mode, the taper options shape how pedal position is distributed across the available output-voltage range. Different tapers will change the “feel” of the control over the interfaced parameter.



TAPER CURVES

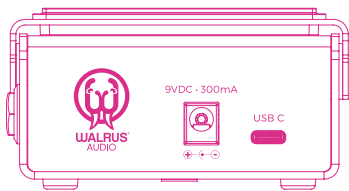


MIDI

Canvas Expression can send MIDI messages based on pedal position, allowing you to control parameters on MIDI-compatible devices, software, and computer-based rigs. This is one of the most flexible features of Canvas Expression, making it possible to control MIDI-enabled pedals, processors, DAWs, and plug-ins by sweeping the pedal.

Canvas Expression provides two MIDI output paths:

- 1. **MIDI TRS Type A** output on the right side of the device.
- 2. **MIDI over USB-C** when connected to a computer.



The TRS MIDI and USB MIDI paths operate independently. MIDI received through the TRS input is not passed to USB, and MIDI received through USB is not passed to the TRS MIDI output.

MIDI SETUP

MIDI message assignments and related MIDI operations can *only* be configured through the Canvas Expression web app at canvasexp.walrusaudio.io



MIDI JACK SETUP

You can configure up to 16 MIDI message slots independently for the 1/8" MIDI out as well as the USB MIDI out. These can be assigned as Program Change (PC) or Control Change (CC) messages.

1. Choose the MIDI Jack you wish to assign behavior to, USB-C or 1/8".
2. Choose which MIDI slot you wish to assign a new function to.
3. Select PC or CC under the Type drop-down menu to assign a PC message or CC message. CC messages will behave like continuous controls, while PC messages behave like switch controls, similar to the Switch Out operation, sending a PC message when a defined threshold is crossed.
4. Use the rest of the menus to set any other necessary values like CC Number, Channel, create a description, Min/Max Value, Taper Options, and Direction.
5. Click the "Send to Pedal" button to confirm all changes.

HIGH-RESOLUTION MIDI

High-resolution MIDI CC is available over USB on a per message slot basis, offering 14-bit resolution with a range from 0-16383. Enabling high-resolution MIDI is useful when manipulating parameters on desktop plug-ins like pitch and filter cutoffs for smoother transitions across the range of the parameter.



MIDI INPUT COMMANDS

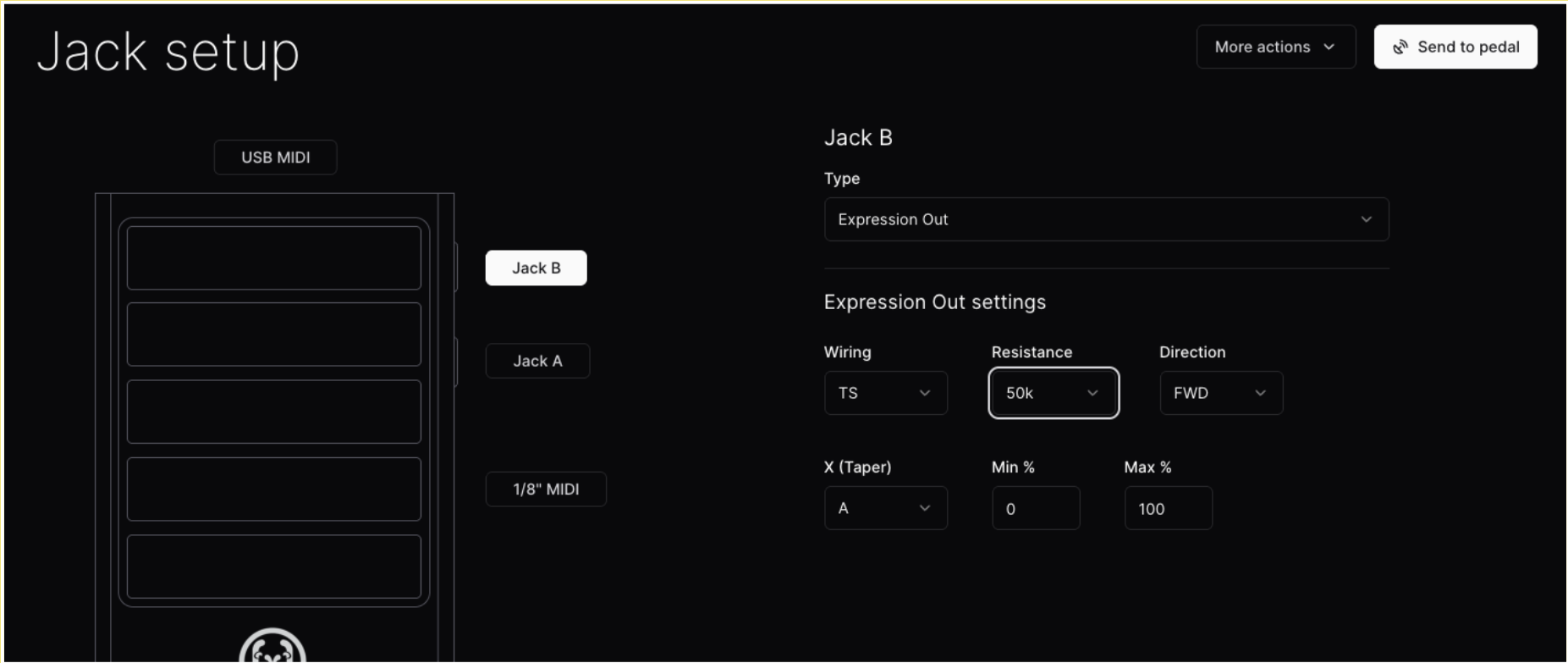
Canvas Expression can also receive certain MIDI input commands via the 1⁄8" MIDI Type A input jack to control its own expression output-selection behavior.

This is useful in MIDI-heavy rigs where you may want only certain expression jacks active during specific songs, presets, or system states.

When an output is disabled via MIDI, it holds its current state until it is reactivated.

The MIDI channel for Canvas Expression is assigned in the global menu of the web app.

MIDI CC	FUNCTION	EXPECTED VALUE	RESULT
21	SELECT OUTPUT A	127	Output A is enabled and Output B is disabled
22	SELECT OUTPUT B	127	Output B is enabled and Output A is disabled
23	SELECT BOTH OUTPUTS	127	Output A and Output B are both enabled



WEB APP ONLY PARAMETERS

Some additional expression jack parameters are only available through the web app.

TS Mode Resistance

When Expression Out is set to TS, the output operates as a variable resistance to ground instead of a standard TRS-style expression output.

The web app allows you to adjust the TS resistance range to better match the connected device.

Max: 50k
Default: 25k
Min: 10k



UTILITY MENU

To enter the Utility Menu, press and hold both buttons while powering up the unit and release when all 5 right side LEDs light up a single color. The parameter LEDs indicate the available utility functions. Press the left and right buttons to scroll and select the utility function you would like to perform.

FACTORY RESET - PURPLE

To perform a factory reset, enter the Utility Menu, scroll to the purple LED, and press and hold the left button until the purple LEDs start to blink, then release. The unit will reboot with all settings returned to their factory defaults. **Note: Anytime a factory reset is performed, the pedal will need to be recalibrated.**

PEDAL CALIBRATION - RED

To calibrate the pedal position sensor, enter the Utility Menu, scroll to the red LED, and press and hold the left button until the red LEDs begin to blink, then release. On a stable surface, gently sweep the pedal between full heel down and full toe down position two to three times. Then long-press the left button until the LEDs begin to flash. The pedal will then reboot and use the newly saved calibration.

DFU - BLUE

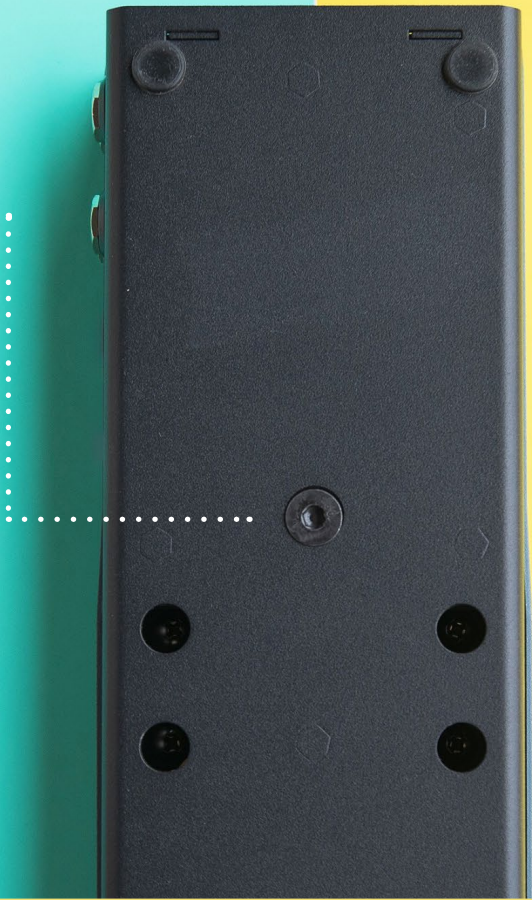
To enter DFU mode, enter the Utility Menu, scroll to the blue LED, and press and hold the left button until the blue LEDs start to blink, then release. The pedal is now booted into DFU mode.

Note: **Entering DFU mode should only be done if instructed by Walrus Audio customer support.** If this is done by accident, simply disconnect and reapply power to the pedal, and it will boot up for normal operation.



DRAG ADJUSTMENT

Canvas Expression allows you to adjust the tension, or drag, of the treadle to increase or decrease the friction you feel when moving the pedal. To adjust the drag, locate the 4 mm hex screw on the bottom of the pedal. Using a 4 mm Allen wrench, turn the screw clockwise to increase drag and counterclockwise to decrease drag. When making these adjustments, only turn the drag adjustment screw in half-turn increments.



SPECS

Connectivity: Variable operation TRS Output A and Output B for expression, switch, and control voltage output

TRS Output: Voltage divider using a 50 k Ω potentiometer

TS Output: Variable resistor with selectable total resistances - 10 k Ω , 25 k Ω and 50 k Ω

Switch Output: Grounds tip to sleeve, ring to sleeve or tip and ring to sleeve

Control Voltage Output: Selectable CV voltage ranges 0-3.3 V and 0-5 V

MIDI: 1/8" TRS Type A MIDI In and MIDI Out

USB-C: MIDI In and MIDI Out and firmware updates via walrusaudio.io

Power Requirement: Isolated 9 VDC, center-negative, 300 mA minimum

Size:
Height: 1.9" / 48 mm
Width: 3.6" / 91 mm
Depth: 8.9" / 225 mm

Weight: 2.2 lbs

WALRUSAUDIO.IO

Walrusaudio.io is a simple interface to update your pedal's firmware.

Connecting a USB-C cable to your Canvas Expression allows you to access firmware updates using your computer with a Chrome-based web browser.

Click the Canvas logo to display the firmware version currently installed on your pedal. Follow the on-screen instructions to begin the update process.



Got questions or need a repair? Email help@walrusaudio.com to talk with a real live human about your Walrus gear!

This product comes with a limited lifetime warranty. [Click Here](#) for more info.