

StikShift by shimoda (Mark Jarzewiak)

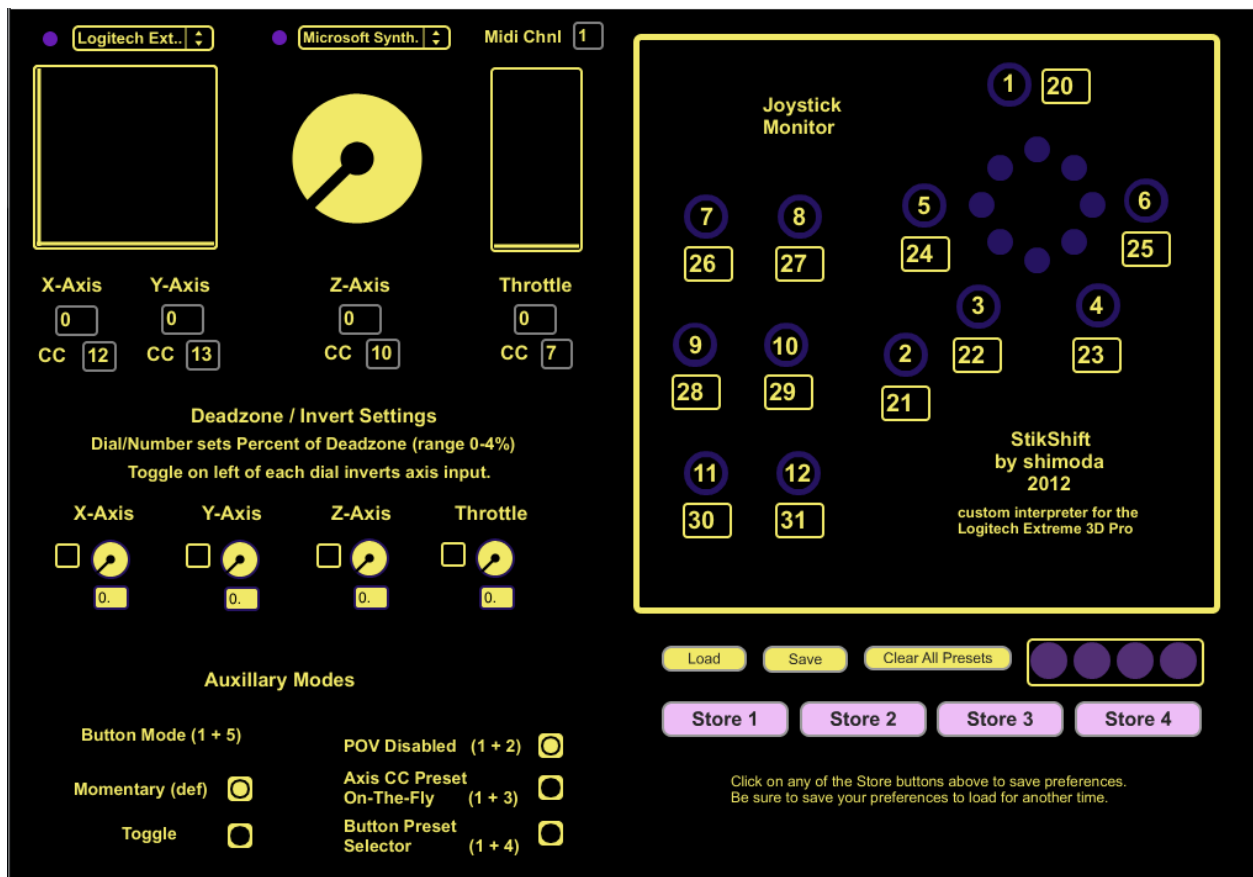
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(will figure out any CC attribution licensing, just trying to get this out for now)

Great thanks to GTZ from the monome forums and the monome community!

StikShift is a custom midi interpreter built in Max 5 for the Logitech Extreme 3D Pro. The joystick has 4 axes of continuous control (x,y,z,throttle), twelve buttons, and a POV hat for a total of seventeen inputs. This patch has been written not only to provide basic conversion of joystick movements/button presses to Midi CC (Continuous Control) messages but also to provide for on-the-fly switching of CC sending channels for modifying several effects or instrument parameters using only one hand.

Compatibility with other joysticks will depend on the channels each element sends data using the HID protocol. While I imagine the Logitech Attack series joysticks should work, I do not have one to test. I have tested an xbox style plug-in controller and will add functionality if desired by users.



Basic function:

Make sure your joystick is plugged in before running the patch. In the top left box, click on the menu and select your joystick from the device. The topmost three indicators show the position of the x,y,z and throttle. Immediately below are number indicators for CC values as well as the CC number for each axis.

Deadzone / Invert Controls

Below the dial/slider indicators is the section for setting deadzone and axis inversion. Most joysticks will be sending some signal that makes it difficult to assign to parameters (i.e. in Ableton Live). You can either enter a number between 0 and 4 (in tenths) or use the dial to set the deadzone. Deadzone calculations set a 'gap' from 0 to 4% of the total play of any axis. Typically this is not necessary on the throttle axis as it is usually separated from the other axes.

Each axis can also have its output inverted by clicking on the toggle button to the left of the deadzone dial for that axis.

Joystick Monitor:

On the top right of the patch is the 'monitor' section where all button action is displayed. The button numbers/leds/CCs have been arranged around the POV hat to reflect the layout of the Extreme 3D Pro. Button numbers are encircled by purple rings while the CC channels are shown in rectangular boxes next to each button. The ring around each number will flash yellow when the button is pressed. When in Toggle Mode (see below) the center of the button will stay lit to show the button has not sent an off CC message (0). The POV hat will light up when each direction is pressed.

NOTE: For any CC channel box, you can enter specific channels and save them as presets.

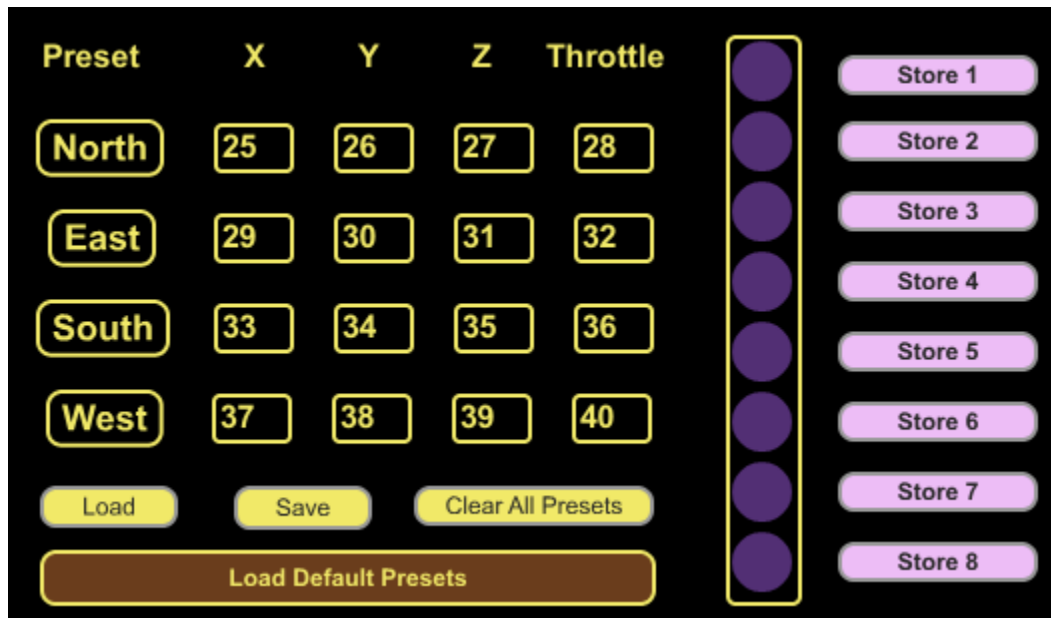
Auxiliary Modes:

Beneath the deadzone/invert settings section is the auxiliary modes section. These provide additional functions using a combination of the main trigger (button 1) and other buttons atop the handle. Holding button 1 while pressing button 5 switches all twelve buttons into **toggle mode**. In toggle mode, all buttons send only a on message (127) until depressed a second time. In momentary mode, all buttons send an on message (127) while held down and an off message (0) when released. Holding button 1 while depressing the 5 button a second time will switch back to momentary mode. When switching back to momentary mode, all buttons currently toggled on are switched off sending off messages (0).

Additional modes use the combination of button 1 and buttons 2,3, and 4 to switch between additional modes utilizing the POV hat. Pressing buttons 1 and 2 will set the POV to default which is currently no direct CC output. The remaining two modes are:

Axis CC Preset On-The-Fly:

Pressing buttons 1 and 3 will enter On-the-fly mode (OTF). When you enter OTF mode, a secondary window will open:



The cardinal directions indicate positions on the POV hat. While in this mode you have instant access to alternate CC channels for only the four main axes. By default the patch loads with the selections shown above. Default settings for the axes are typically: x(12), y(13), z(10), t(7) and these will be reset when you release the trigger (button 1) while in this mode. Holding down the trigger (button 1) and switching to any of the four cardinal POV directions (not the diagonals) will switch the CC transmit channels for all axis output to the settings shown for that direction. Additionally, the direction will light up. These channels will be reflected in both the main patch window as well as this sub window. Users can customize any of these channels and save them as one of 8 presets using the 'Store' buttons on the right. Users who want to store the actual presets should use the Save feature. CC messages will be transmitted for the axes on these alternate channel values until the trigger is released. Quite possibly an esoteric feature, this could come in handy if you have several parameters you want access to with as little movement as possible. (to do: add function to switch presets from lower button presses if requested)

The window for this mode will close when either combination of buttons 1 and 2 or 1 and 4 are pressed.

Button Preset Selector:

Enter this mode by holding the trigger (b1) and pressing button 4. While in this mode you can use the POV hat to set one of four preset alternate CC channel selections for the axes and twelve buttons. Exiting this mode returns the CCs to their defaults or what you set as a preset.

Presets are as follows:

Dir/Axis	X	Y	Z	Thr	1	2	3	4	5	6	7	8	9	10	11	12
North	12	13	10	7	20	21	22	23	24	25	26	27	28	29	30	31
East	12	13	10	7	46	47	48	49	50	51	52	53	54	55	56	57
South	16	17	18	19	58	59	60	61	62	63	84	85	86	87	88	89
West	71	74	18	19	102	103	104	105	106	107	108	109	110	111	112	113

Presets:

Users can store settings of CCs for all axes/buttons as well as deadzone and inversion settings using one of the four Store buttons. You can switch to the preset you saved by clicking on its 'bubble.' You can save, load, or clear presets using the buttons.

To Do:

I have designs on making this more flexible to be used with any HID compatible joystick. Setting up the element numbers and ranges is the biggest issue. Without preset deadzone ranges it can be tricky, but not really difficult, to figure out what 'channels' each element of the joystick is using for communication. Additionally, calculating the range is simple. Ultimately this will require the users to follow some simple directions using a built in 'setup' patch and then entering info into a preset that can be set. Alternatively, I could build in a subpatch that users with max for live or max can edit directly.

Note mode: I'm not sure how it would work, but I'd like to have some sort of note/scale/arpeggio generator mode so the user could switch between effects controls and note/sampling generation.

Monome/Arc interface Mode: I'd like to figure out ways to directly use the joystick in tandem with monome/arc apps.

Now load it up and enjoy! Please leave feedback, questions, complaints, bugs on the monome forums where you grabbed this file!