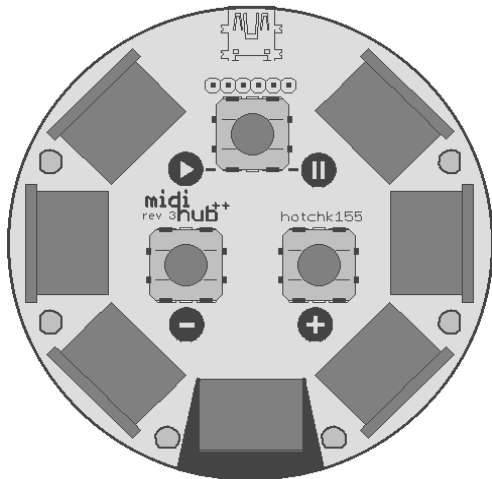


midihub++



overview

midihub++ is a compact and versatile **6-way MIDI splitter** and **MIDI beat clock generator**.

It was designed to be "hands on" and was developed with MIDI jam sessions in mind, but is a versatile tool in any MIDI setup.

midihub++ is open hardware, with open source firmware code (for PIC16F1825). For more information please visit <https://github.com/hotchk155/MIDI-Hub>

hardware

Power: The hub is powered via the mini USB connector. You can connect it to a computer, a powered USB hub, or to a standard 5 volt USB charger/power supply.

USB is for power only, no drivers are required and the device will not show up to your operating system.

MIDI: The hub features a single MIDI input (opposite the USB connector) and six identical MIDI outputs (three on each side of the input). All outputs are equivalent (The same MIDI data is present on all)

LEDs: There are six LEDs arranged between the MIDI sockets. In this instruction sheet the LEDs are referred to by position 1 through 6, numbered anti-clockwise starting from the USB socket. The function of each LED depends on the selected mode and is described below.

Buttons: The top button (PLAY) is generally used to start and stop the MIDI clock function. The lower buttons (MINUS and PLUS) are generally used to change the clock rate. The buttons have additional functions depending on the selected mode. See overleaf for more information

Programming Port: The row of holes between the PLAY button and the USB connector to allow in-circuit reprogramming of the hub. You will need a PICKit2 (or equivalent) programmer and a header strip. Pin 1 is marked on the board.

Firmware updates (HEX files and source code) can be freely downloaded from the midihub github repo. The microcontroller used in the hub is a PIC16F1825

operation modes

BPM Mode: The hub powers up in this mode, starting in the paused state (LEDs 1,2,5 and 6 blink for each beat). The initial BPM is 120.

Press PLAY to start the hub running. When running, all six LEDs illuminate in cycling pattern at the current BPM. Press PLAY again to pause the hub.

When running, the hub sends MIDI TICK messages to all six outputs at the selected BPM. Appropriately connected and configured MIDI devices will synchronise their playback to these messages.

At any time when in this mode, the MINUS and PLUS buttons can be used to change the BPM in 1 BPM steps. Holding one of these buttons for more than 1 second causes it to auto-repeat.

Pressing MINUS and PLUS together reset the BPM to 120.

Note - The BPM is approximate

Tap Tempo Mode: To enter Tap Tempo mode, hold down MINUS and immediately press and release the PLAY button.

Now tap the MINUS button at the desired tempo, tapping between 2 and 6 times (more taps will increase the accuracy of the input). The LEDs will count up each tap and the tempo will be adjusted.

Tap tempo mode is effective until you press the PLUS button. You can make multiple tap tempo input without having to repeat the MINUS>PLAY combination.

Split Only Mode: To enter Split Only mode, hold down PLUS and immediately press and release the PLAY button.

In this mode, the hub does not generate a midi clock, but continues to split the MIDI input to the outputs. The LEDs show a "visualisation" of the MIDI data rather than blinking at the BPM.

To exit Split-only mode and re-enable the clock, press the PLUS button.

Options Menu - To enter Options Menu, hold down START for over 1 second.

Press MINUS to select one of the following settings (indicated by the flashing of the corresponding LED).

Press PLUS to toggle the option on and off.

- 1) Pass through MIDI channel messages from input
- 2) Pass through MIDI clock from input
- 3) Enable visualisation in Split-only mode
- 4) Blink LEDs 3,4 to indicate MIDI input activity

Press PLAY to exit from the menu. Options are saved while the power is off.

MIDI Thru: MIDI thru (from input to outputs) is active at all times, except when specifically disabled via the options menu.

midihub++ hardware design and firmware programming by Jason Hotchkiss. For additional information and support please see: <https://github.com/hotchk155/MIDI-Hub/wiki>

