MIDI THING V2
QUICK START GUIDE

MIDI THING V2 is a flexible MIDI to CV converter. Allowing polyphonic notes handling, envelope, Ocillator and LFO generation as well as all available MIDI messages to be converted into CV.

This is a huge upgrade from our previous beloved MIDI Thing, which adds a screen for easy configuration,12 assignable ports, TRS, USB Host and Device, MIDI merge OUT, a web configuration tool, and a VCV rack bridge counterpart.

FEATURES

TRS type A MIDI IN and OUT, USB host and device connectivity.
Configuration screen with intuitive menu diving.
Web configuration tool.
12 Configurable ports as:

Note	Velocity	Clock
Gate	Drum Trigger	Start / Stop
ADSR	LFO	Channel Pressure
Oscillator	CC	NRPN

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1. **ENCODER CONTROL**
   Rotary encoder control.

2. **PERFORMANCE SCREEN AND PORT MAPPING**

3. **ASSIGNABLE PORTS OUT**

4. **TRS MIDI IN**
   Type A TRS MIDI connector. Use provided adapter or a trusted Type-A adapter.

5. **MIDI OUT**
   Type A TRS MIDI connector. Use provided adapter or a trusted Type-A adapter.
   This output can merge all module's MIDI ins (TRS, Host and device) making it a MIDI converter/forwarder or act as a MIDI thru for MIDI IN TRS.

6. **USB HOST**
   USB port to connect USB MIDI controllers. This port is powered by you.

7. **USB DEVICE VIA EXPANSION**
   You can access MIDI Device connection using provided expander and USB-Cable.

USB MIDI Device
In order to connect USB device, you will need to acces Teensy usb port in the back of the module. You have two options:
  - **Using expansion panel:** Connect expansion panel micro-usb cable to Teensy USB port on the back of the PCB. Do this with power turned off.
  - **Connecting to Befaco 7U Case:** Use a regular micro USB cable in order to connect Teensy micro USB conector to IO board USB A port. Do this with power turned off.

How it works
Once expansion is connected to the module, you can connect to a computer using a USB-C to USB-B cable*. If you are connecting MIDI Thing V2 to Befaco 7U Case**, use a regular USB-A to USB-B cable in the back of the case.
Upon connection, your computer should detect MIDI Thing V2 as a MIDI Device. From where you can map connections normally in your preferred DAW.

* Mac users, USB-C to USB-C cables will not work.
** Please refer to the Befaco 7U Case user manual for further explanation.
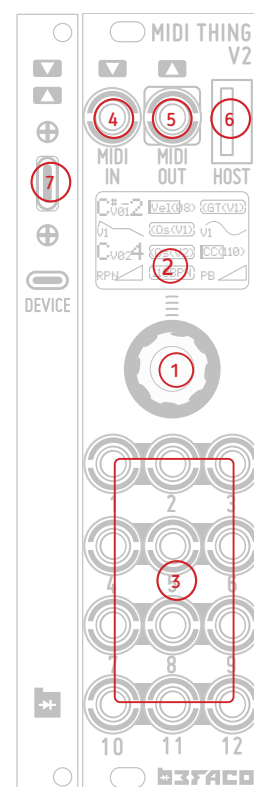
USER INTERFACE

When the module is powered ON you will see the performance screen, where you get feedback about the feature configured in each port and the activity.
Ports are displayed as they are located in the front panel. Use encoder to navigate the screen, each port will be highlighted then you can select it with encoder button.

Turn the encoder counterclockwise to access the Notes MIDI monitor.
This screen will show the notes that the module is currently receiving.

GLOBAL MENU

Keep the encoder pressed to get to Global settings. This menu provides global configuration and several other features.

PANIC!: Sends All Note-OFF in all channels.

MERGE ON: By default MIDI OUT works as a MIDI thru, forwarding all data coming to MIDI IN. If Merge is set to ON, all data from USB device and MIDI host will also be forwarded to MIDI OUT, making the module a USB to MIDI converter.

PRE-DEF: With this option you can select a pre-defined configuration.

SEND SYSEX: This is useful for our web editor, as it will send module configuration via Sysex. Also to store configurations via Sysex librarian.

SAVE MEM: Save current configuration. You will be prompted to select a slot to save your Data. Save is incremental, meaning that the more changes you make from the initial config, the bigger the file!

LOAD MEM: Load a Saved config

WIPE SAVES: Deletes all data saved in the module. If you are interested in backing this information up, you can use our web editor.
WARNING: All data wiped this way will be permanently lost.

PORT CONFIG SCREEN

In performance screen you can enter in port configuration by pressing the encoder.
Use encoder to move between configuration options

1. **P1:** Indicates the port we are configuring.
2. **MIDI CHANNEL:** This port will be listening to.
3. **BACK:** Go back to the previous screen.
4. **RANGE:** Selects CV range: 0/+10, 0/+8, 0/+5 and -5/+5.
5. **FUNCTION:** Shows function mapped to this port. Clicking opens menu to select function.
6. **LEARN:** Click port will listen to any MIDI message arriving. Then it will configure the module depending on relevant function.
7. **EXTRA CONFIGURATIONS:** Lower section of the screen will change depending on the function being configured.

VOICE STRUCTURE

In order to convert MIDI notes into CV we will be using a voices structure. Like this MIDI Thing V2 can work as a polyphonic converter.
This is how classic synths managed multiple notes to act in monophonic or polyphonic modes. Where they used to have dedicated hardware to be able to play each note, allowing them to play as many notes at the same time as the number of voices they had in hardware

In MIDI Thing V2 we can create many voices, only with the limitation of the ports available.
A voice have the following information: CV, Gate, ADSR, Velocity, Drum, LFO and Oscillator. On voice creation, you can assign one or several of these features.
If you create several voices in the same MIDI channel, MIDI notes received will be assigned to the voices based on assignment and "stealing" algorithm selected. This can be configured in the Note screen, we will see this later.
Keep in mind that all items exist in the voice upon creation. But you will only have their output when configured to a port. So if, for example, you select ADSR to affect Oscillator amplitude, it will work although ADSR is not configured to any port. If you want to configure parameters of the ADSR then you need to assign it to a port to access the config.

On the functions menu we have two options for voices: Create a new voice or adding features to an existing voice. Lets see them in detail.
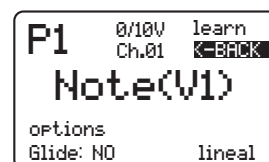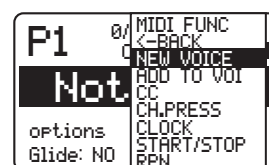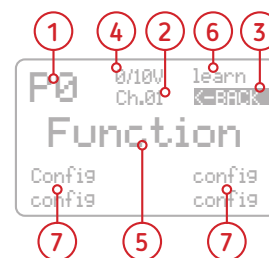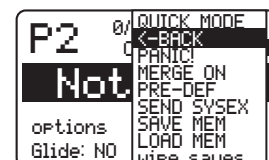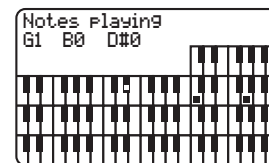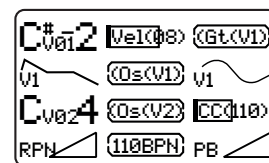
NEW VOICE

This will create a new voice. On click, you are prompted to select which feature you want to map from that voice.

Voices will be named V1, V2, etc. You can create a maximum of 12 voices.
Voices will be automatically named in ascending port order.
So if you create a new voice on a port between two other ports with voices, the voices will be renamed. Same goes if you delete a voice, the rest of the voices from there will be renamed.

Also, in the same menu, you have macros to automatically map more features from the voice. For example, if you want to have.
Note + Vel+ Gate, CV will be mapped to the current port, velocity to the next one, and Gate to the third one.
For this example, if you are configuring this voice in Port 1, Note will be in 1, velocity will be automatically mapped to Port 2, and gate to Port 3 (as it follows port order for assignment).
Be warned that configuration will be overwritten on those ports.

When you have voices configured, when a MIDI note is received in the module, it will be assigned to the voice and the message converted to each function available in that voice.
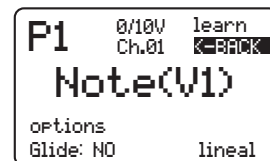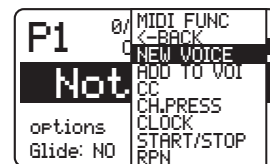
ADD TO VOICE

You can add more features to an existing voice.
On selection, you will be prompted to select the target voice.
Upon selection, you will see the feature selected / target voice.
If you add a feature already present in a voice, that feature will be erased and the current port will take it over.
So, following our previous example, if we add a gate to that voice in port4 you will see Gate(V1) in port 4. Then we will still have one voice, with Port 1 as Note, Port 4 as Gate, and velocity in Port 2, as adding a Gate to port 4 did erase the Gate we already had in Port 3.

Example picture:
V1 by the function name indicates to which voice this feature belongs to.
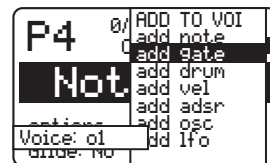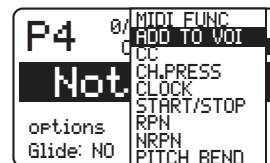
USING WEB CONFIGURATION TOOL

There is a configuration site available to easily configure MIDI Thing V2 from your browser.
Be warned that in Firmware version 1, you can only configure MIDI Thing via its USB Device connector.

Go to https://befaco.org/configmidithing2 (Tested in Chrome in Windows and MAC and Chromium in Ubuntu.)
This tool will configure real time your MIDI Thing V2, make sure to save your changes in the module when finished. Or store your configs locally on your computer!

MIDI DEVICE SELECTOR

This will allow you to select MIDI device. Select MIDI Thing V2 from the list if you are using USB expansion to connect to your computer.

SETTINGS MENU

In this menu you will be able to pull/push configurations from/to Midi Thing V2. You can also save current configuration in the site to a file, in order to load it back in the future!

REQUEST FROM MODULE: this option will query current status of the module and display it in the website. This is useful if you make some changes in the module while using this site. Remember that changes made in the module will only be present in the site if you Request from module.

SEND TO MODULE: all changes made in the site will be automatically sent to the module. If there has been any communication hiccup, you can use this option to force the configuration into the module.