

# NiftyDrum

---

## Official Documentation

*Ronna Technologies*

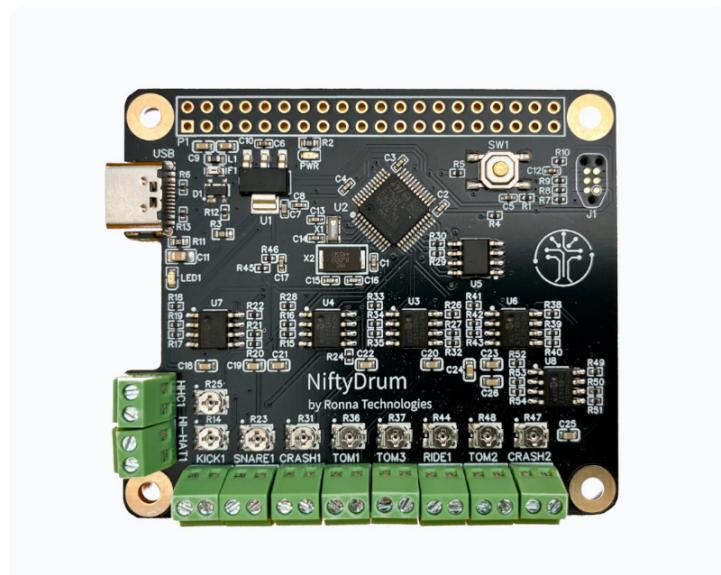
*Copyright © 2025 Ronna Technologies*

# Table of contents

---

1. NiftyDrum Specifications	3
1.1 Description	3
1.2 How It Works	3
1.3 Specifications	4
2. The Board	5
2.1 Description	5
2.2 Connecting Sensors	6
2.3 MIDI Outputs	7
2.4 USB-C Port	7
2.5 Raspberry-Pi hat form factor	7
3. The App	9

# 1. NiftyDrum Specifications



## 1.1 Description

NiftyDrum is a trigger-to-MIDI conversion module that transforms piezo and FSR sensor inputs into MIDI messages. Connect up to 9 piezo sensors and 1 FSR (Force Sensing Resistor) to the dedicated terminal blocks, then receive MIDI data via USB-C connection.

## 1.2 How It Works

NiftyDrum delivers high-level MIDI performance in 4 easy steps:

- **Connect sensors:** Attach up to 9 piezo sensors and 1 FSR to the terminal blocks
- **Plug in:** Connect to your DAW, Raspberry Pi, or drum module via USB
- **Configure:** Use the web-based GUI to adjust trigger parameters, MIDI mapping, and velocity curves
- **Play:** Notes are transmitted instantly with imperceptible latency

# 1.3 Specifications

---

## 1.3.1 Hardware

- **Piezo inputs:** 9 channels
- **FSR input:** 1 channel (hi-hat controller)
- **Connector type:** Terminal blocks
- **USB interface:** Type-C
- **Dimensions:** 65 × 56.5 mm

## 1.3.2 Performance

- **Latency:** <2.5 ms
- **Sample rate:** >10 kHz
- **Velocity resolution:** 127 levels (full MIDI range)

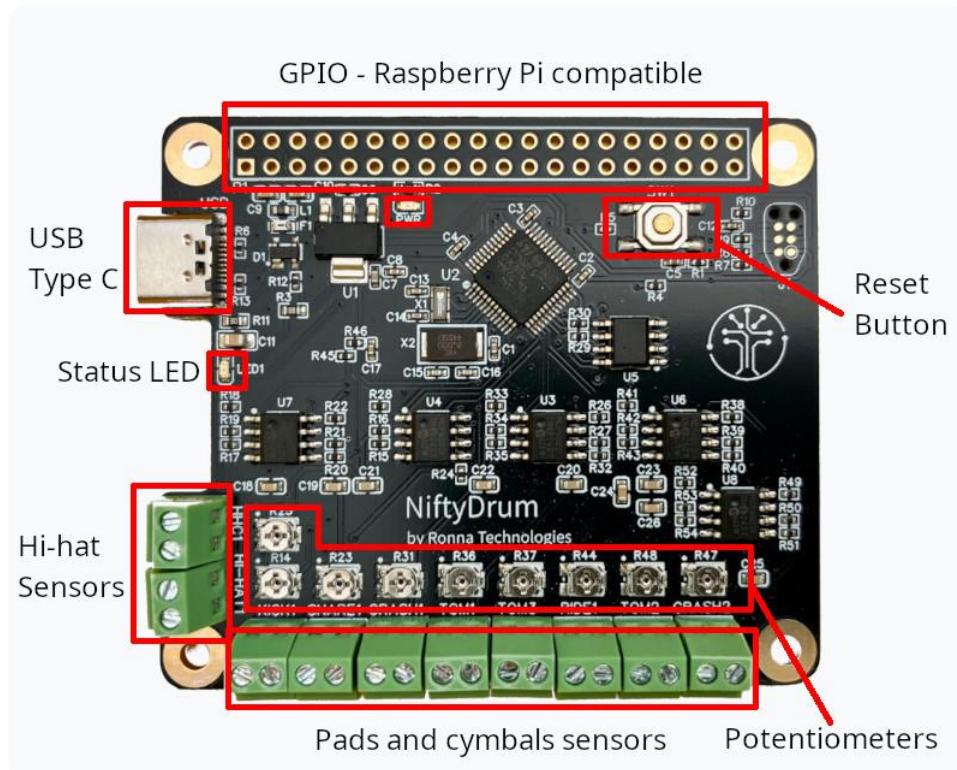
## 1.3.3 Software

- **Platform support:** Windows, macOS, Linux
- **User interface:** Web-based application
- **Firmware updates:** Via USB
- **MIDI output:** Note messages and Control Changes (CC)

# 2. The Board

## 2.1 Description

The NiftyDrum board is shown in the following image.



This board features the following interfaces:

- Terminal blocks for sensor inputs
- USB Type-C port for laptop or PC connectivity
- 9 potentiometers for sensitivity adjustment
- 2 LEDs
- Reset button
- Raspberry Pi-compatible GPIO header
- 4 mounting holes

## 2.2 Connecting Sensors

---

The board provides 9 piezo inputs, supporting up to 9 single-zone pads, as well as 1 FSR input.

### 2.2.1 Hi-Hat Sensors

---

On the left side of the board, two dedicated terminal blocks are reserved for hi-hat sensors:

- **Top terminal block:** Connects to an FSR (Force Sensing Resistor) sensor for hi-hat controller input
- **Bottom terminal block:** Connects to a piezo sensor for hi-hat cymbal trigger

### 2.2.2 Standard Pads and Cymbals

---

The remaining eight terminal blocks, located at the bottom of the board, accommodate regular pads and cymbals.

### 2.2.3 Important Notes

---

- For all terminal blocks, the ground pin is positioned on the **left-hand side**
- Nine onboard potentiometers enable hardware-level sensitivity adjustments for maximum flexibility
- If unsure about sensitivity settings, leave potentiometers at their midpoint for balanced performance

## 2.3 MIDI Outputs

---

The board offers two methods for transmitting MIDI notes and Control Changes:

- **USB-C port:** Outputs USB MIDI messages
- **GPIO UART pins:** Raspberry Pi GPIO-compatible interface

## 2.4 USB-C Port

---

Using NiftyDrum as a USB device is the recommended method for receiving MIDI messages.

This configuration enables:

- Integration with DAW software for high-quality sound output from your laptop
- Control and configuration via the [official app](#)

## 2.5 Raspberry-Pi hat form factor

---

The board is designed with a Raspberry Pi 4 HAT form factor, ensuring seamless integration.

### 2.5.1 App Features

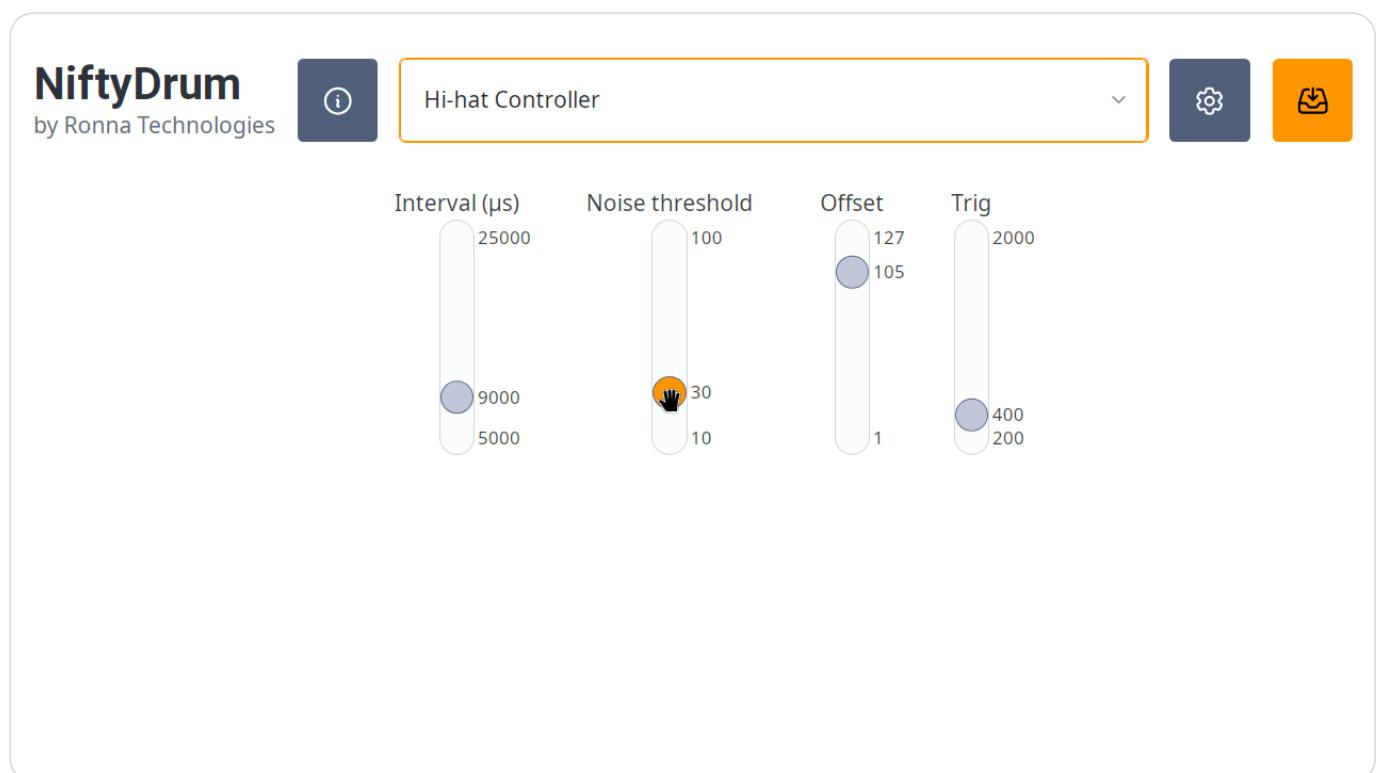
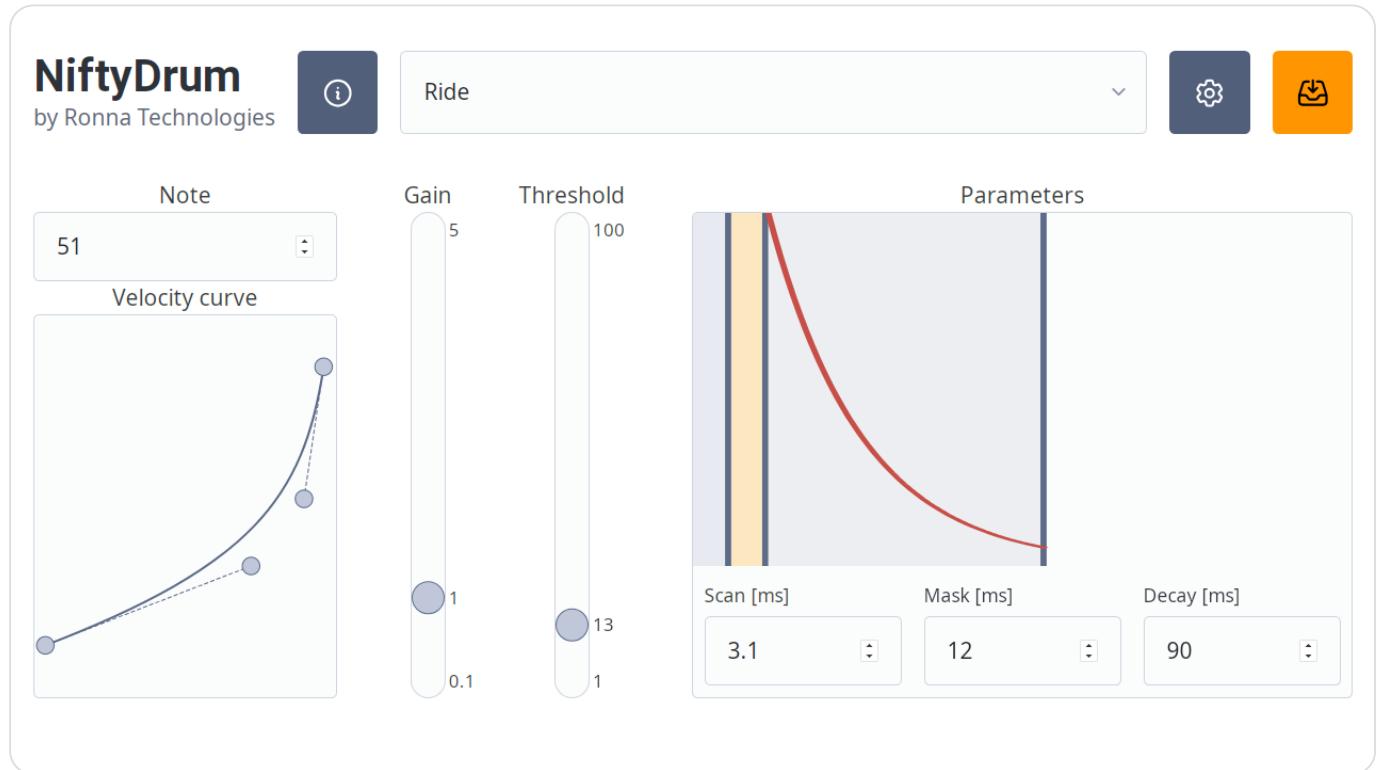
---

The official app provides comprehensive control over your NiftyDrum board:

- Customize MIDI note assignments for each trigger
- Design custom velocity curves per trigger
- Adjust advanced parameters including gain, threshold, scan time, mask time, and decay
- Update board firmware to the latest version



# 3. The App



The screenshot shows the 'Advanced settings' screen of the NiftyDrum app. At the top left is the NiftyDrum logo with 'by Ronna Technologies'. A blue info icon is next to it. On the right is a back arrow icon. The main title 'Advanced settings' is centered at the top. Below the title, there is a section labeled 'Firmware' with a 'Choose File' button, which has 'NiftyDrum.bin' selected. To the right of the file name is an 'upload' button with a small hand cursor icon pointing at it. The background is white with rounded corners.