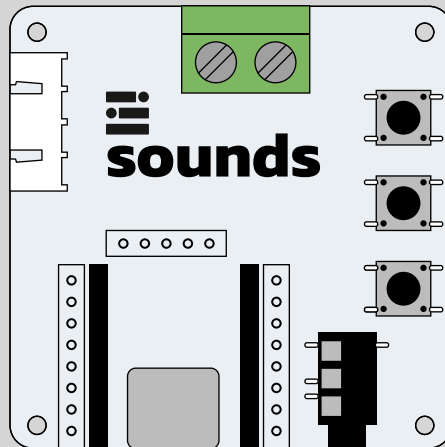


amomii Sounds

DATASHEET



Description

The amonii Sounds module is a versatile and compact MP3 player. Designed around the DFPlayer Mini, it offers a simple solution for integrating sound effects and music into a variety of projects. With a USB-C port for easy file transfer and the ability to operate in standalone mode, this module is perfect for adding an auditory dimension to your creations.

Key Features

- **Integrated MP3 Player:** The module is built around a DFPlayer Mini, which can play MP3 files stored on a microSD card.
- **Plug-and-Play:** When connected to a computer via the USB-C port, the module acts as a data device, allowing for easy drag-and-drop file management of MP3s without the need for an external adapter.
- **Dual Power:** The module can power a project when connected to a Bolt Board power port, or be powered by a project's power supply, providing flexible power options.
- **Standalone Mode:** The module can be operated without a microcontroller. The three built-in buttons offer dual functionality to play, pause, skip songs, as well as adjusting the volume.

Example Applications

● BAMbox

The amomii Sounds module is a core component of the BAMbox project, where it functions as a customizable music player and sound effects board. It allows users to trigger specific sounds based on tilting or other sensor inputs, adding an interactive and auditory layer to their projects. This is particularly effective for creating sound effects for games, musical instruments, or interactive storytelling.

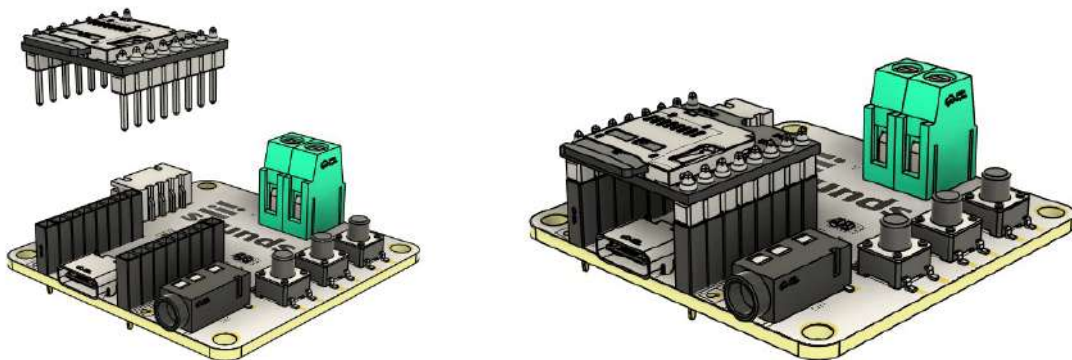


Connections (basic)

The following connection information is sufficient for most uses (with the Bolt Board for example), but advanced features are covered at the end of this datasheet.

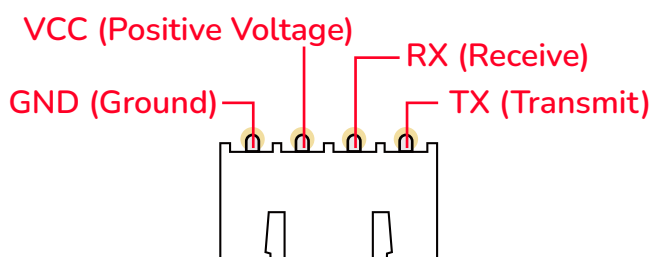
● DFPlayer Mini

The Sounds module utilizes a DFPlayer Mini as its core component. This small, powerful MP3 player reads files from a microSD card and handles all the audio processing. The DFPlayer Mini comes as a separate piece and needs to be attached to the Sounds module. To ensure proper connection, align the pins on the DFPlayer Mini with the pin headers on the Sounds module, making sure that the microSD card slot is on the same side as the USB-C port. Once attached correctly, the DFPlayer Mini should remain connected to the Sounds module.



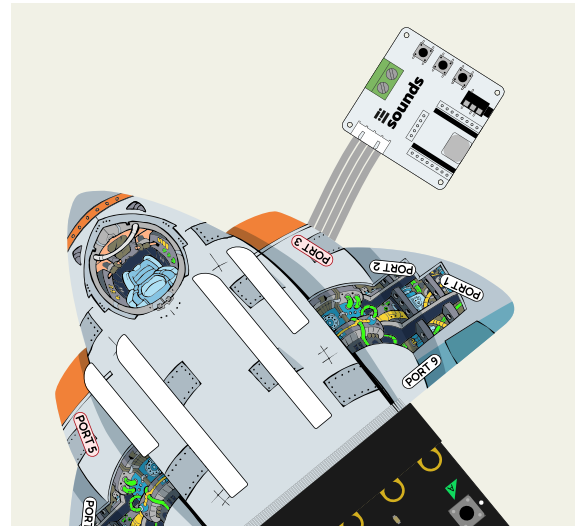
● XH Connector

The Sounds module features a 4-pin XH connector with the following pinout:



● Connecting to the Bolt Board

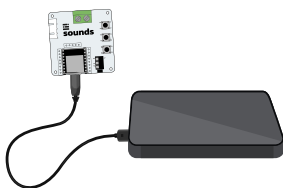
The Sounds module must be connected to one of the two power ports on the Bolt Board (**Port 3 or Port 5**). These ports provide the necessary power to run the module and any connected speakers, ensuring it functions correctly. Connecting the module to a non-power port on the Bolt Board can damage the micro:bit due to the high current draw of the Sounds module.



● USB-C Port

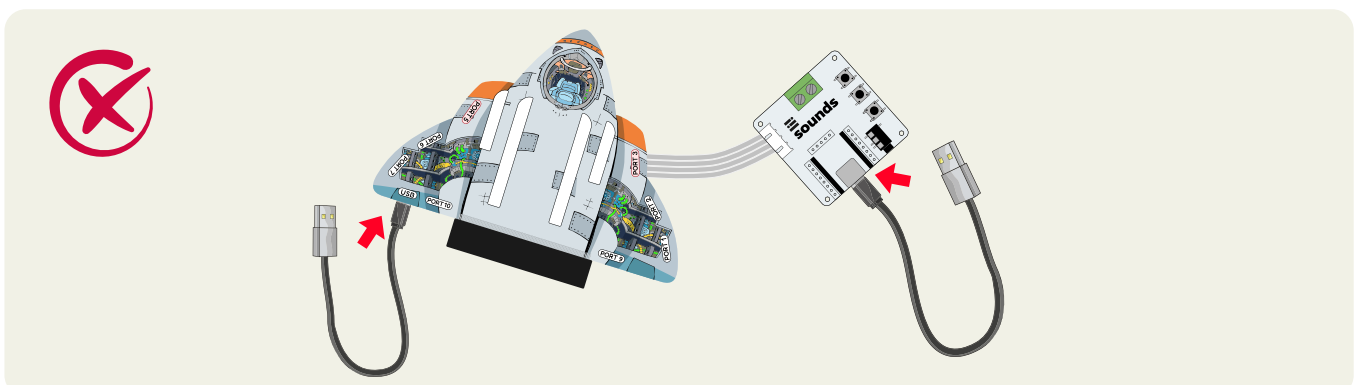
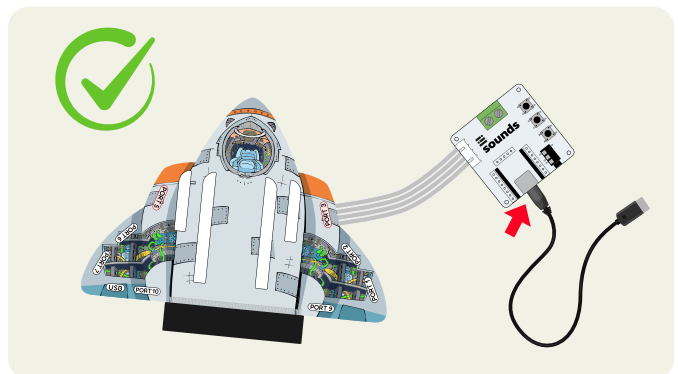
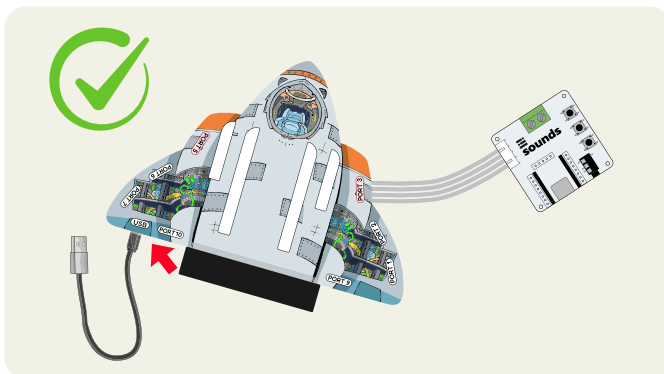
The USB-C port on the Sounds module has two main functions:

- **Data Mode:** When connected to a computer, the module will enter data mode, allowing you to access the microSD card to easily add or remove MP3 files.



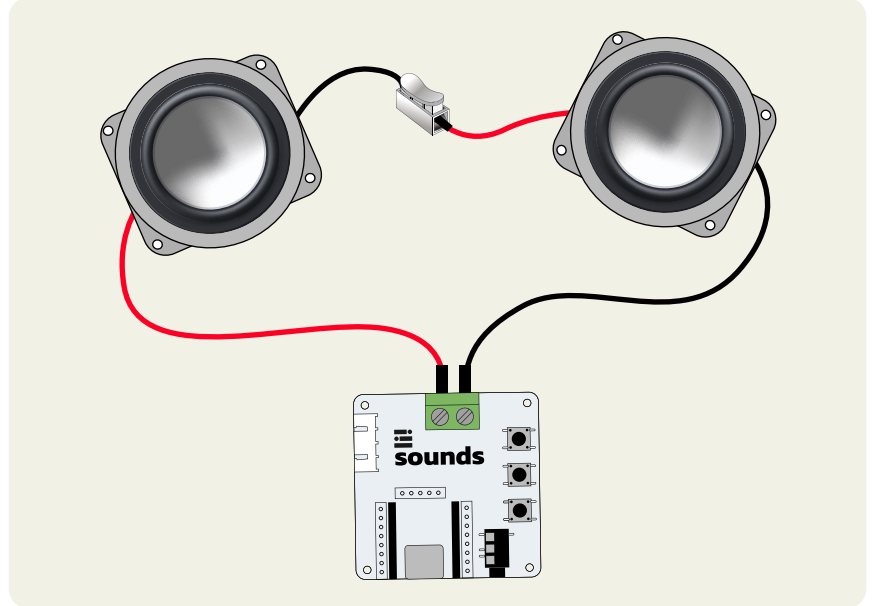
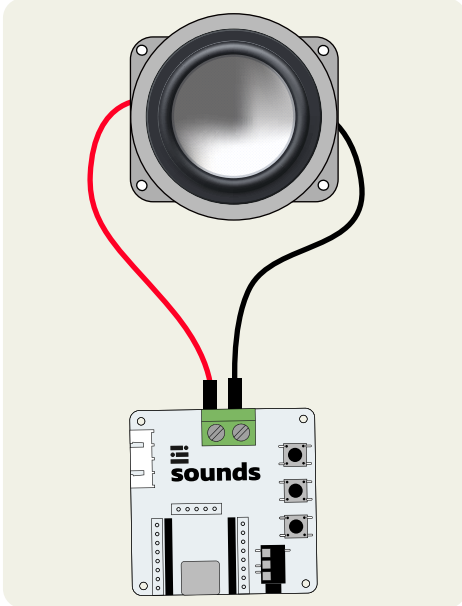
- **Power Mode:** When connected to a USB power supply, the module can be used to power a project.

WARNING: Never use two power sources at the same time. Only power a project by either the Sounds module's USB-C port or the Bolt Board's USB-C port, not both. Using two power sources can cause damage to the board and other components.



● Screw Terminal

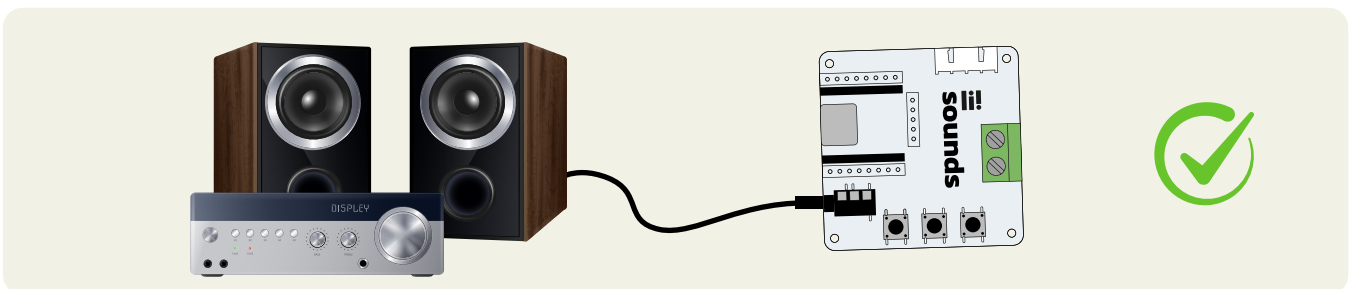
The Sounds module features a 2-pin screw terminal for connecting external speakers. For best results, use a 3W, 4Ω speaker. You can connect a single speaker or, for projects like the BAMbox, connect two speakers in series for a richer sound experience. If connecting in series, ensure a red wire connects to a black wire to maintain proper polarity.



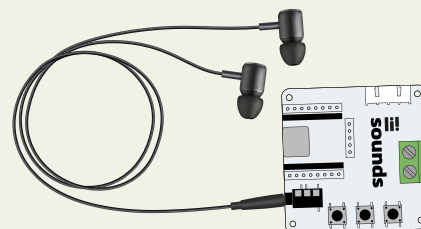
● Audio Jack

The module also includes a standard 3.5mm audio jack. You can connect amplified speakers or headphones with their own power source to this jack.

WARNING: To ensure your safety, always begin with the volume at a low level and slowly increase it to your desired volume. If you are using headphones, plug them into the jack before placing them over your ears.



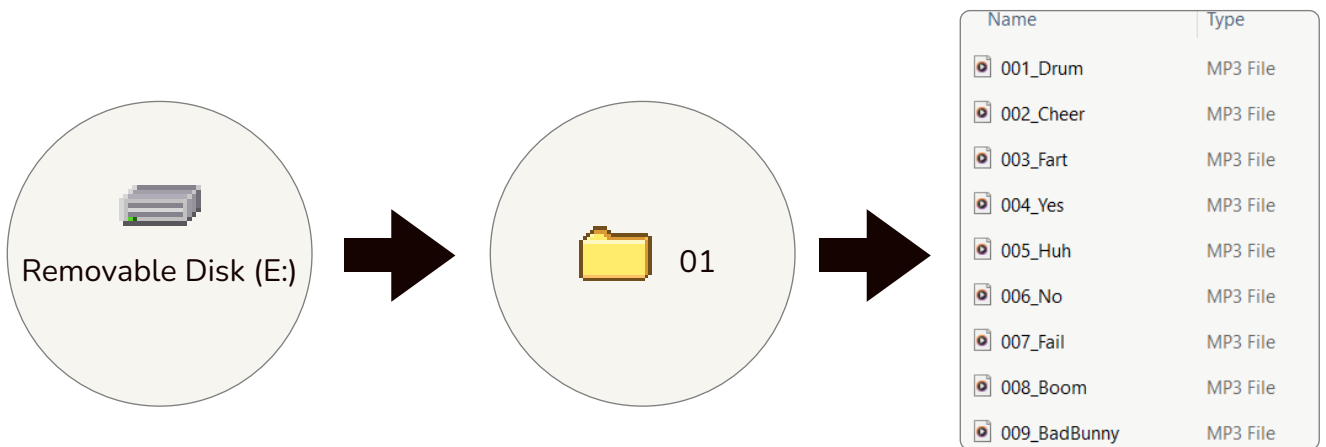
Do NOT use earphones or unpowered headphones with this jack. The module's output is powerful and could be harmful to your ears at close range.



Only one of the two audio outputs (the screw terminal or the audio jack) should be used at a time to prevent damage to the module and ensure proper audio playback.

MicroSD Card

- You can only use SD cards that are **32GB** or less and formatted as **FAT32**.
- All audio files must be in **MP3 format**.
- Create a folder on your microSD card and name it **01**.
- All MP3 files must be saved within the **01** folder.
- Name your MP3 files starting with a three-digit number (e.g., **001**, **002**, etc.). The number corresponds to the file number you will use in your code.
- You can optionally add a word after the number for better organization (e.g., **001_Drum** will work just the same as **001**).



Coding

The Sounds module requires a specific MakeCode extension to function properly.

- **Adding the DFPlayer Mini Extension**

To add the necessary code blocks, you will need to add an extension to your MakeCode project.

dfplayermini
makecode pxt extension for
Xuefeng DFPlayer Mini Audio Board

[Learn More](#)

1. Open your MakeCode project.
2. Click on Extensions under the Advanced tab.
3. Search for dfplayer in the search bar.
4. Select and add the DFPlayer Mini extension.

● Simple Coding Example

For this example, we will assume you have the Sounds module connected to the Bolt Board. We will use the micro:bit's built-in accelerometer to trigger a sound when the micro:bit is shaken.



● How the Code Works:

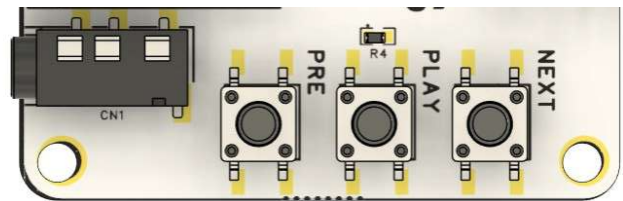
- > **On start:** This block initializes the DFPlayer Mini and sets the volume. You will need to specify a TX pin and an RX pin, which correspond to the XH connector on the Sounds module. Since you have your module connected to the Bolt Board's Port 3, we set both the TX and RX pins to P12. This is because the DFPlayer Mini extension on the micro:bit requires both pins to be specified in the same block, but we only need the RX pin, which is connected to P12 on Port 3. We also set the volume to a safe level, such as 30.
- > **On button A pressed:** This block prompts the Sounds module to play Track 1 from the folder you named "01" when the A button on the micro:bit is pressed.
- > **On loud sound:** This block prompts the Sounds module to play Track 2 from the folder you named "01" when a loud sound is detected.

Standalone Mode

The Sounds module was designed to also work as a standalone MP3 player. When the module is not connected to a micro:bit, or any other microcontroller, the buttons on the board can be used to control playback of the MP3s saved on the microSD card.

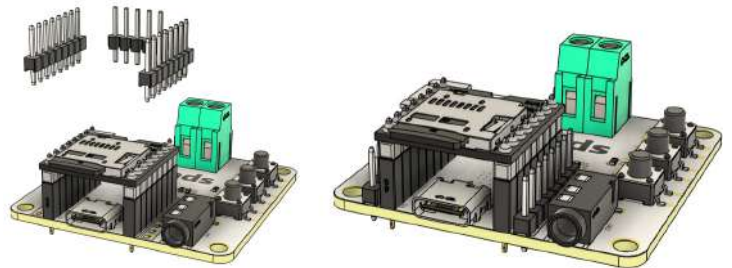
The functions of the three buttons are as follows:

- **PRE**
 - › Quick press = skip to previous track
 - › Long press = turn down the volume
- **PLAY**
 - › Press to start playback
 - › Press again to pause playback
- **NEXT**
 - › Quick press = skip to next track
 - › Long press = turn up the volume

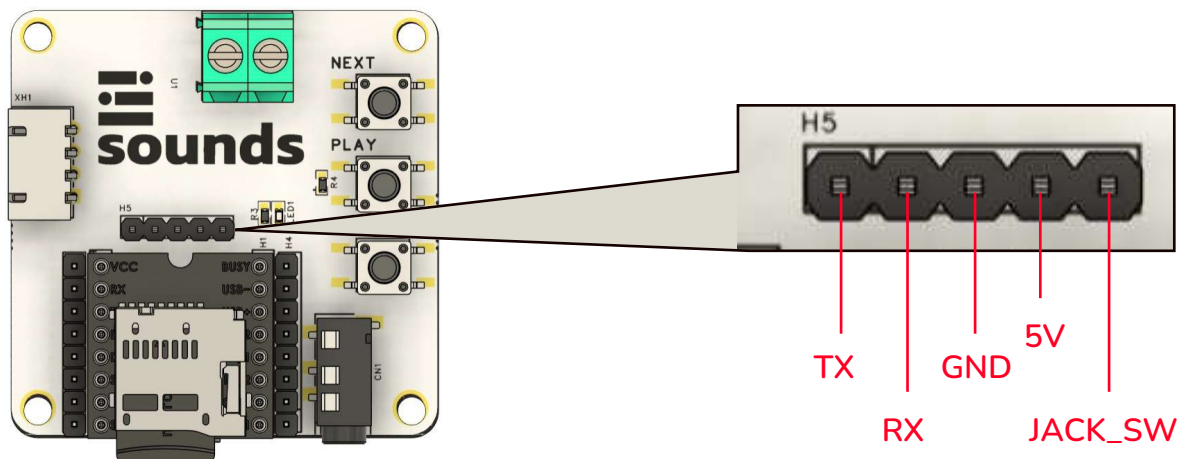
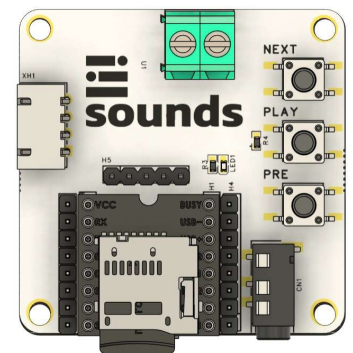


Advanced Connections

For advanced users, the Sounds module has additional features that can be accessed by soldering to the board.



- The headers on the sides give users direct access to the DFPlayer Mini pins. For more information, please refer to the official [DFPlayer Mini datasheet](#).
- The row of 5 pins have the same pin connections as the XH connections with the addition of a pin called **JACK_SW**. This pin is connected to the audio jack. To use this feature, the **JACK_SW** pin needs to be connected to a PULLUP pin on your microcontroller. When no audio jack is connected, this pin will read as 1, but when a jack is connected, it will read as 0.



Safety and Best Practices

The Sounds module is designed to be a safe and educational tool. To ensure a positive learning experience, please follow these best practices:

- **Compatibility:** The Sounds module was designed specifically for use with the amomii Bolt Board. While it can be used with other microcontrollers, it is crucial to verify that the voltage and pin requirements are compatible to avoid damage. Incorrect connections can cause irreversible harm to the components.
- **Proper File Format:** The DFPlayer Mini can only read and play MP3 files. Ensure that any files you transfer to the microSD card are in this format to prevent playback issues.
- **Power:** Always ensure the module is receiving the correct voltage (3.3V-5V). The module must also be connected to a power port on the Bolt Board. If the module is not connected to a power port, it can draw too much current from the data pins and damage the micro:bit.

By following these simple guidelines, you can ensure a safe and enjoyable experience with the Lumin module.

Revision History

Date	Revision	Changes
September. 01. 2025	1	First release