Simtelic

Stereo FM Receiver Module

Thank you for purchasing this Simtelic module.
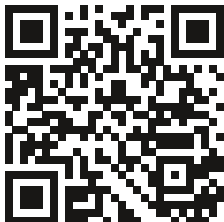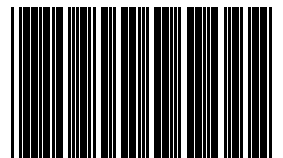
**Revision:** 1.0.0-EN

EL0002

Introduction

This compact module packs a punch, allowing you to tune into your favorite FM stations with ease. With built-in buttons for scanning, volume control, and station saving, it offers user-friendly operation. It automatically searches the entire FM spectrum (88MHz to 108MHz) and delivers crisp stereo sound. This module requires no programming and only a stereo power amplifier to bring your FM radio project to life.

- **Easy to Use Controls:** Built-in buttons for station scanning, volume adjustment, and saving/recalling favorite stations.

- **Automatic FM Scanning:** Scans the entire FM radio spectrum (88MHz to 108MHz) to find available stations.

- **Stereo Audio Output:** Delivers high-fidelity stereo sound for a superior listening experience.

- **Informative Display:** A seven-segment display shows the current station frequency and volume level.

- **Stereo and Memory Indicators:** LED indicators for stereo reception and memory management functions.

- **Station Presets:** Stores up to 10 FM radio stations for quick access to your preferred channels.

- **Wide Power Input Range:** Operates on a flexible 5V to 9V DC power source.

- **Plug and Play Operation:** No programming is required, just connect a stereo power amplifier for FM radio playback.

Identify connectors and controls

Top Side
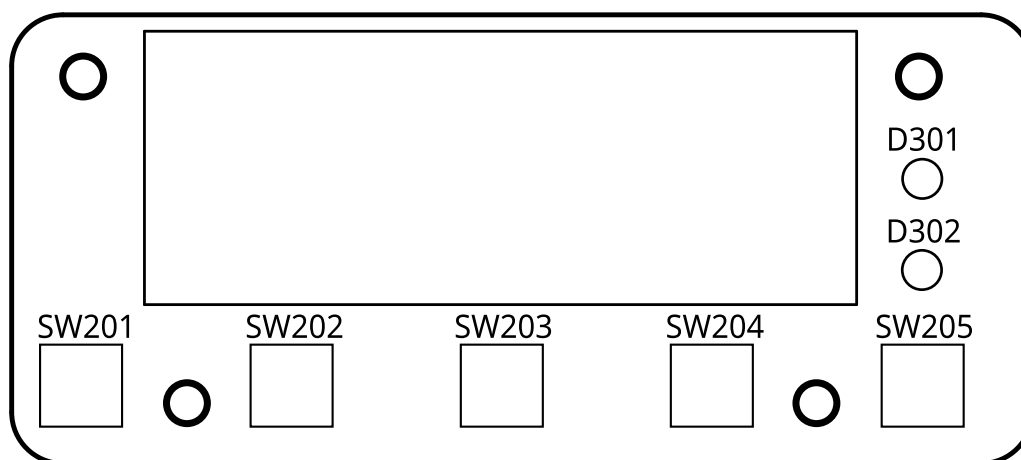
SW201 - Press this button to initiate a scan for the next available FM broadcasting station in the downward direction.

SW202 - Press this button to initiate a scan for the next available FM broadcasting station in the upward direction.

SW203 - Increase volume

SW204 - Decrease volume

SW205 - Memory manager function: Use this button to store or recall FM radio stations saved in memory.

D301 - FM stereo indicator. This LED illuminates when the receiver detects an FM stereo broadcast with a 19kHz pilot signal and channel difference signal.

D302 - This LED illuminates when the module enters the memory manager function. This indicator is associated with the memory manager SW205 button.

Bottom Side
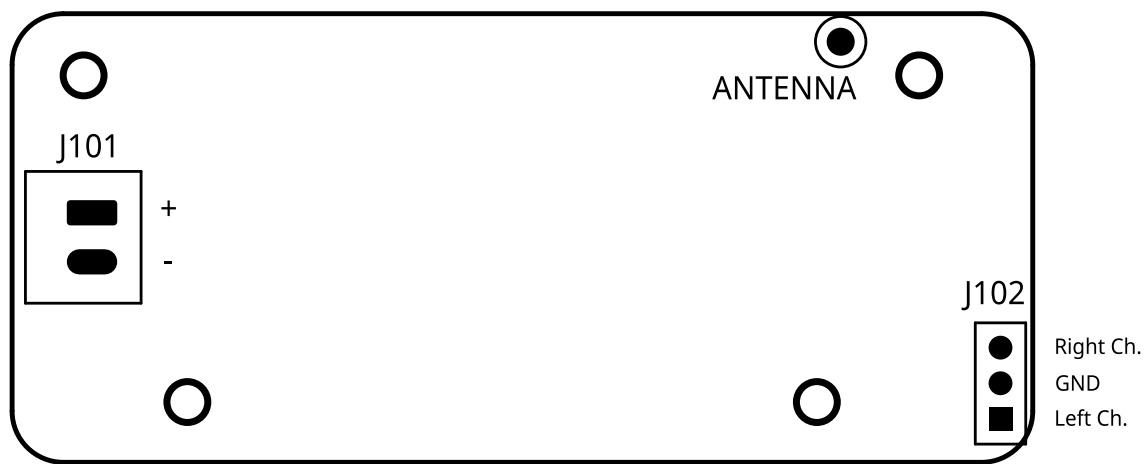
J101 - Connect a 5V to 9V (200mA) DC power source to this connector.
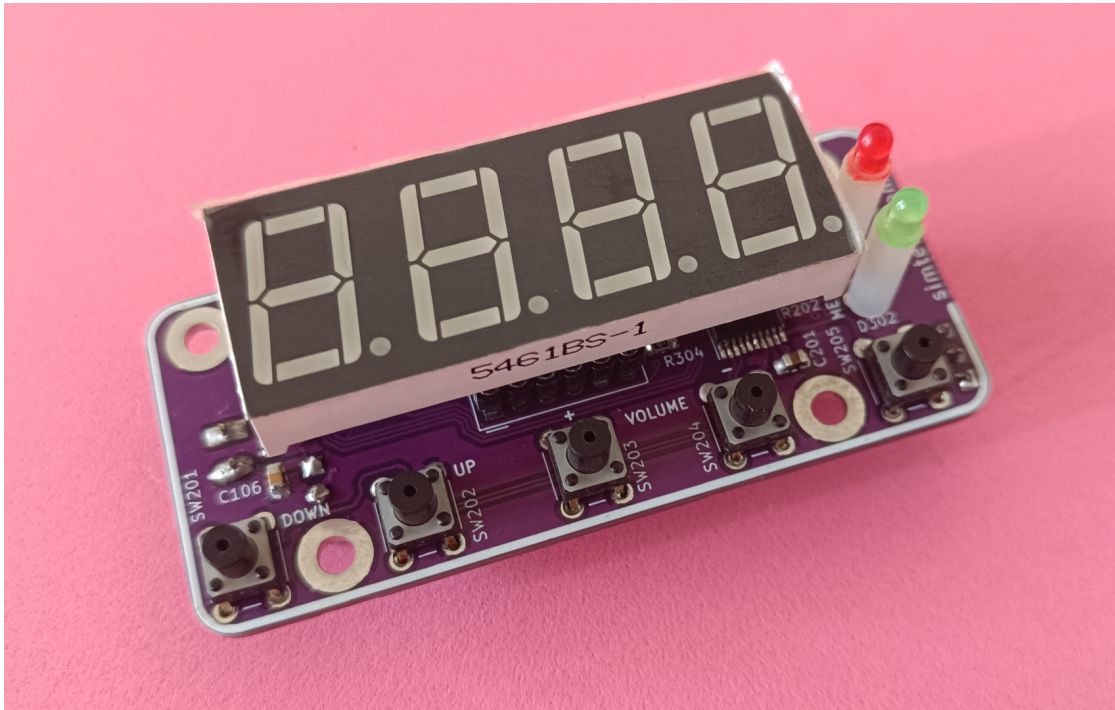
J102 - Stereo audio output.

ANTENNA - Connect a 0.5m to 1m 7/0.20mm single core PVC wire or a 75Ω FM antenna to this terminal. If connecting a 75Ω antenna, connect one terminal to this pin and the remaining terminal to the ground.

Initial setup and configurations

To test this unit, you will need the following components in addition to the module:

- Stereo audio power amplifier

- 4-digit common cathode 7-segment display (if not provided)

- 5V to 9V DC power source

- Antenna wire or 75Ω FM antenna

- Pair of speakers compatible with the selected audio power amplifier

1. Connect the 0.56", 4-digit common cathode 7-segment display to this module. (If the 7-segment display is already attached, please skip this step.). The recommended display is KYX-5461AG.

2. Connect DC power source and audio power amplifier with the module.

3. Connect 0.5m to 1m 7/0.20mm single core PVC wire or 75Ω FM antenna into this terminal. When connecting 75Ω antenna connect one terminal of the antenna to this pin and the remaining terminal to the ground.

4. Apply the power and press the UP button to scan for FM stations. Press the volume + button to increase the audio output level of this module.

Tuner controls and memory manager

Scanning for FM stations

To automatically scan stations, press the SW201 (UP) or SW202 (DOWN) buttons on the receiver module. During auto-scanning, the module increases or decreases the tuner frequency in 25kHz steps until it detects a strong FM radio station.

Changing the volume level

To adjust the output volume, press SW203 (+) or SW204 (-) buttons in the receiver module.

Saving FM station in to the memory

To save FM stations in the receiver's program memory, follow these steps:

1. Use the SW201 (UP) or SW202 (DOWN) buttons to tune the receiver to the desired station.

2. Press the (memory manager button) SW205 to open the memory manager.

3. Use the SW201 (UP) or SW202 (DOWN) buttons to select the memory slot. In memory manager mode, the seven-segment display will show the memory slot number with the prefix "S."

4. Press the SW203 (+) button to save the station.

Recall FM station in the memory

To recall a programmed FM station, follow these steps:

1. Press the (memory manager button) SW205 to open the memory manager.

2. Use the SW201 (UP) or SW202 (DOWN) buttons to select the memory slot. In memory manager mode, the seven-segment display will show the memory slot number with the prefix "S."

3. Press the SW204 (-) button to load the FM station from the selected memory slot. If the selected slot is empty, the receiver module will tune to the lower limit of the FM band.

Module specification
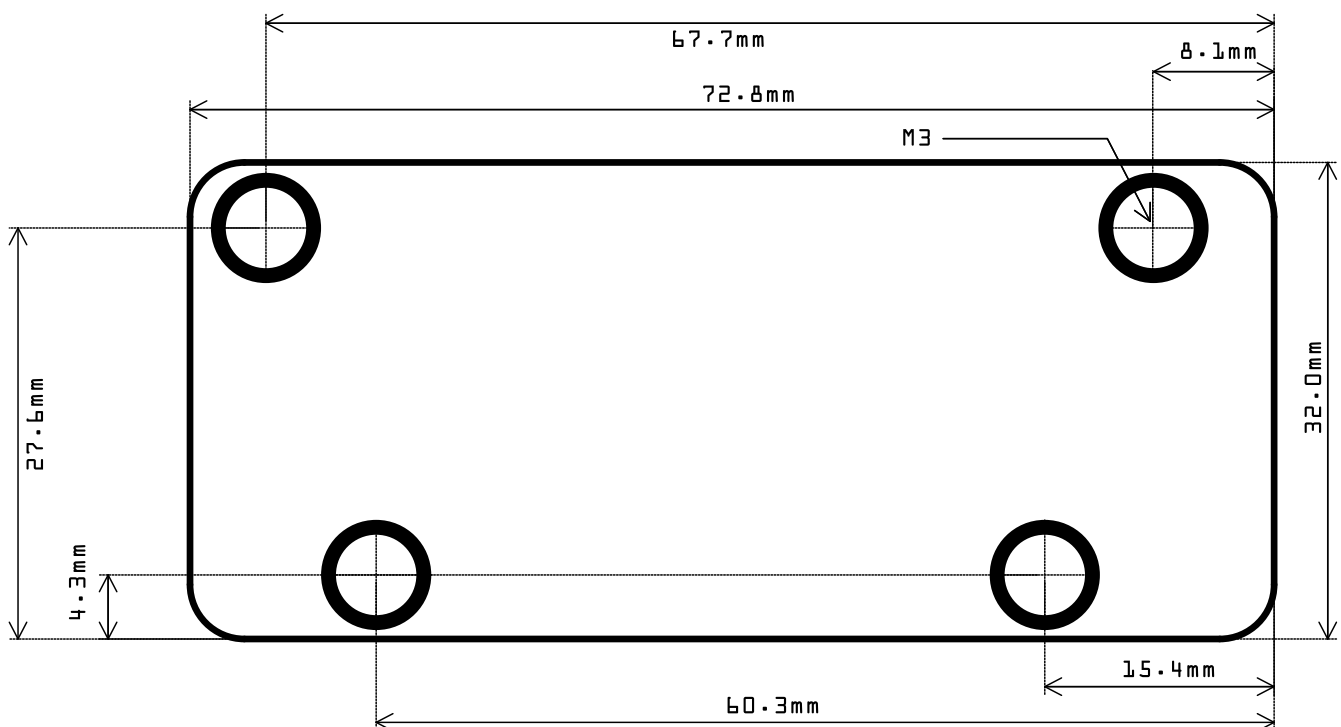
1. Dimensions of the module (width × height)... 72.8mm × 27.6mm
2. Weight (without 7-segment display)... 14.2g (± 0.2g)
3. Average power consumption (with KYX-5461AG with 6V DC input)........................ 0.12W
4. Working voltage.. 5.0V - 9.0V DC
5. Tuner frequency range.. 87.0MHz - 108.0MHz
6. Tuner sensitivity (at 98.0MHz).. 1.2µV
7. Stereo channel separation.. 35dB
8. Scanning step.. 25kHz

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