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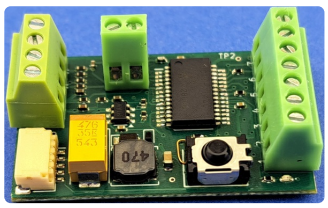
Micron MSND01 Mini Sound Module Installation Manual

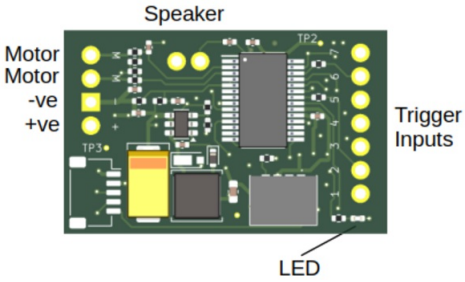
MSND01 is a smaller version of the MyLocoSound card. It runs the same firmware so available with all MyLocosound sound profiles. MSND01 is suitable for smaller O Gauge and SM32 locos.


MSND01 with terminals

MSND01 is 35mm x 22mm x 12mm with terminal blocks or 6mm high without.

Connections

MSND01 is available as either a circuit board with solder pads or with screw terminals. The image here shows the card without screw terminals.



MSND01 Connections

Connections on the left are for power and motor, the 2 connections at the top are for the speaker and the connections on the right trigger the various sounds. The trigger terminals are labelled F1 to F7 and are referred to by these labels in these instructions. For example, “Triggering F1” means to close a contact between the F1 terminal and the battery negative terminal. The trigger inputs are best used by connecting to a Micron receiver 'F' switch pad.

Sounds can also be triggered by a Sony infra-red TV remote control. Low cost, universal, TV remote controls are available from most consumer electronics stores and need to be set to Sony coding to work with the soundcard. Only one remote is required for many sound cards. A pre-configured IR remote is available from Micron. Although the remote can be used to trigger sounds when running, the it is intended mainly for the adjustment and testing of sounds.

Speakers and Sound Quality

The soundcard requires an 8 ohm loudspeaker which is not included and may be purchased separately. A 4 ohm speaker can also be used but you may cause the soundcard to overheat and temporarily shut down if the volume is very high and the soundcard is in a confined space. Your choice of speaker is highly important because it determines the quality of the sound produced.

1. To get maximum volume, the rated (or RMS) power should be 3 watts. A 1 watt or lower speaker will fall short on volume. Speakers exceeding 3 watts can be used but will not produce any more volume due to the limited output of the soundcard amplifier.
2. The resonant frequency should ideally be below 350 Hz but certainly below 500 Hz. The lower the resonant frequency, the deeper and more realistic the sounds
3. Use the largest diameter which you can fit in your loco.

For a better quality sound and more volume, the speaker needs to be baffled. That means that it needs to be built into the front face of an airtight box so that sound is heard only from the front of the speaker and none from the back. The plastic top of a spray paint can is good for making a baffle for larger speakers.

Speakers can be connected to the terminals either way around.

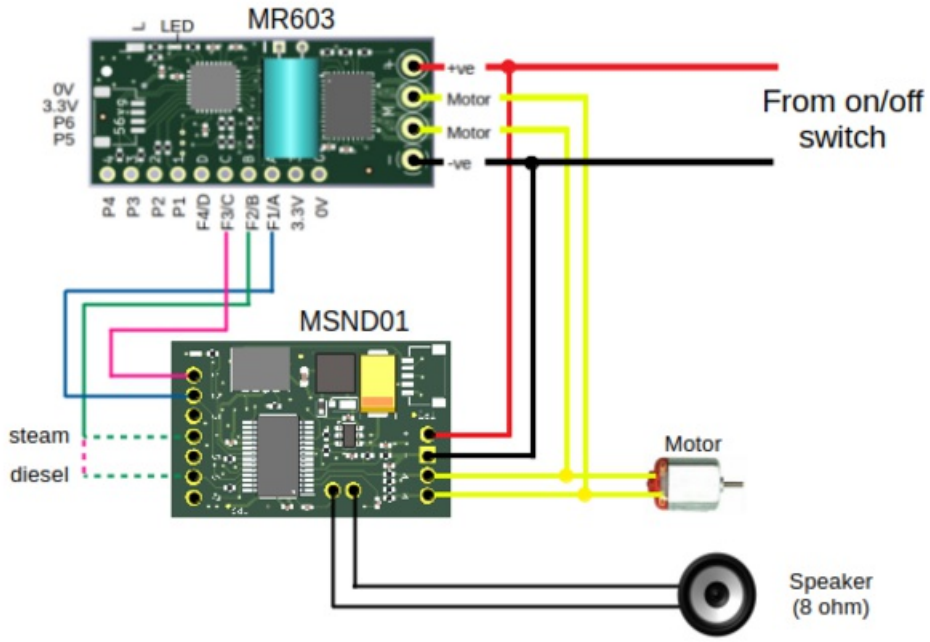
Important Notes

The soundcard is designed for outdoor use and may not work correctly under bright incandescent lights on a workbench. LED lights are okay.

The soundcard is in a “sleep” mode when not in use. Connecting it to power at the B+ and Bterminals will not wake it up. It must also be connected to a motor at the M1 and M2 terminals as well. The small voltage it sees at the motor will wake it up and it will then stay awake for as long as it has power.

Installation and Use with Micron Receivers

The wiring diagram shows a typical installation for Micron battery powered radio control systems.



MSND01 & MR603

MSND01 trigger inputs are connected to the MR603 F pads - these are switches, open circuit when off and connected to negative when on. MR603 configurations 2, 2b or 3 should be selected depending on your transmitter. Alternatively, you can setup the F pads by programming.

MR601 can be used in a similar manner using its 2 F pads. MR001d has no F switches; P outputs may be used with a series 4K7 ohm resistor.

The Infra-Red Receiver and IR Remote

The infra-red receivers accept commands from the handheld remote control to adjust or trigger sounds. Two receivers are provided. One is fixed in the middle of the soundcard. The other is on a flying lead which plugs into the small white socket as shown on page one.

In some installations, the soundcard is visible when installed in the loco. This usually occurs when the soundcard is mounted on the floor of a cab, with or without windows. In this case, the remote control can be pointed directly at the soundcard and the on-board receiver is all that is needed.

If the soundcard is within the loco and is not visible then the flying lead needs to be used. Plug it into the white socket and glue the black receiver, round side outwards, to any external surface of the loco to which you can easily point the TV remote. Do not paint the receiver. When the soundcard is on the floor of the vehicle then a common practice is to drill a hole in the floor and glue the black receiver to the underside. You can then operate the TV remote by pointing it under the vehicle so that the IR signal bounces up off the sleepers and ballast.

The soundcard will operate with any Sony™ TV remote control using the buttons described in this section. It will also operate with any universal remote control when it is set to Sony coding. You will probably find a number of codes listed for Sony and will need to try each one until you get to the code which operates the soundcard volume, mute and function buttons correctly.

Please ensure that your remote control has batteries installed and follow the instructions which come with it to set the coding. The remote control shown here is the Universal Simply TV remote. To set its coding hold down the POWER and MUTE buttons together until the red light stays on. Press and release the 0, then the 1, then the 4 and then the 0 button in turn. The red light will then flash three times and the remote control is then ready for use.

Note that the buttons on the remote control auto-repeat if held down. If you want a single event to occur, like turning on the safety valve, then press the safety valve and release it immediately. If you want to make a large change in volume or tone then you can hold the button down to avoid the need to press the button repeatedly.

- The **Mute** button will start and stop the sound and lets you select the different sounds.
- The **MENU** button changes the way the sounds operate.

Trouble Shooting Guide

THE TV REMOTE CONTROL WON'T WORK

Start the soundcard, press any button on the remote control and the LED should flash. If it does not flash then the battery probably needs replacing. If the LED flashes but the soundcard does not respond then the Sony™ coding may have been lost and can be reset as follows.

If the TV remote still does not work then the Sony™ coding may have been lost and will need to be reentered. For the PIFCO remote, hold down the POWER and MUTE buttons together until the red light stays on. Press and release the 0, then the 1, then the 4 and then the 0 button in turn. The red light will then flash three times and the remote control is then ready for use.

If the remote control still does nothing then the problem may be the infra-red receiver on the loco which must not be painted or obstructed.

I GET NO SOUND AT ALL

Press the Mute button on the remote control in case the sound has been accidentally turned off.

Switch the loco off and then on again. When the soundcard starts, the LED should flash once. If not then use a multimeter to check that there is at least nine volts at the B+ and B- terminals and the M1/M2 voltage is greater than zero to wake up the soundcard. If not then check your wiring in case something has come adrift.

Check that the speaker is connected correctly.

If you are bench testing and there is a light shining on circuit board then this can put the soundcard into factory programming mode and stop the sound. In that case, the yellow LED next to the F1 terminal will stay on. You can fix this by covering the IR receiver on the soundcard and on the flying lead, if fitted.

THE SOUNDCARD MAKES A CLICKING NOISE OR SHUTS DOWN

This most often occurs when the horn is sounded. It is caused by the soundcard restarting because there is insufficient voltage in the battery to sustain the volume setting. Recharge the battery.

WHEN INSTALLED IN A LOCO, THE SOUND STOPS INTERMITTENTLY AND I HAVE TO RESET THE CONTROLLER TO GET IT GOING AGAIN

If the soundcard is installed in a very confined space and is run for a prolonged period at high volume then it can overheat and switch itself off until it cools down.

HOW TO RESET YOUR SOUNDCARD

A time may come when you have been adjusting the sound and you want to start again. This can be achieved by resetting the soundcard back to the settings when it left the factory. You can do this by pressing the 0 button on the remote control and hold it down for three seconds. The soundcard will beep five times when the reset is complete.

Firmware Identifying Marks

The firmware type and version is marked on the bottom of the PCB using these abbreviations:

UKS : UK Steam	UE : Universal Electric
UKD : UK Diesel	LI : Light Industrial
USS : USA Steam	RB : Railbus / Railcar
USD : USA Diesel	TR : Tram

For example, "UKS 23D" is UK Steam version 23D.