

SDDS MIDI Keyboard Adaptor for Allen MOS-2 Series Organs

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Product Overview

The SDDS MIDI Keyboard adaptor board makes it easy to add MIDI keyboard output to MOS 2 series Allen Organs. The adaptor encodes up to three manuals plus pedal into four MIDI out channels. Easy to install, the adaptor requires only ten connections between it and the organ. All connections are made to an existing connector in the organ so no soldering, wire-wrapping or alteration to the organ circuit boards themselves are necessary.

What This Product Includes

- SDDS MIDI circuit board
- Ribbon interface connector
- 6' length 2 conductor wire for power connection.
- 4 x ½" pan head mounting screws (4)

Supported Instruments

The SDDS MIDI adaptor supports only multi-computer MOS 2 organs including the following models 505, 665, 705, 805, 965, 1105, 1405. MOS 1 series and single computer MOS 2 series organs are not supported by this product.

Disclaimer

This product is compatible with existing circuitry of the model organs listed in the *Supported Instruments* section of this document and when installed and used as described herein. **Zuma Group, Inc. assumes no responsibility for damage to your organ or any other liability that may result from the installation or use of this product.**

Installation Instructions

Installation Overview

Installation of the SDDS MIDI adaptor consists of the following steps

1. Mounting the SDDS MIDI adaptor board.
2. Determining the desired organ division to MIDI channel mapping.
3. Connecting the interface cable to the SDDS Mux board using the push-on connectors.
4. Connecting the SDDS MIDI adaptor board to a suitable power source.
5. Plugging the interface cable into the SDDS MIDI adaptor board.
6. Connecting the MIDI cable (not supplied) between the SDDS MIDI adaptor board and your external MIDI device.
7. Wire in division control switches.

This document contains photographs to help you with the installation process. Larger size versions of these photos to further help you with the installation process can be found at

<http://www.organforum.com/gallery/index.php?cat=10001>

What You Will Need

1. Small regular and Phillips screwdrivers.
2. Wire strippers
3. Wire cutters
4. Mounting spacers (optional)

1. Mounting the SDDS MIDI Adaptor Circuit Board

In this step you will find a suitable mounting location and mount the circuit board

1. Remove all power from the organ.

Danger!

Potentially lethal voltages are present inside the organ console. Disconnect all power from the organ before beginning the installation process.

2. Remove the back from the organ.
3. Identify the location of the organ's SDDS Mux board. (figure 1). The name will appear on the board. The board can also be identified by the two connectors, J171 and J172 which plug into it.

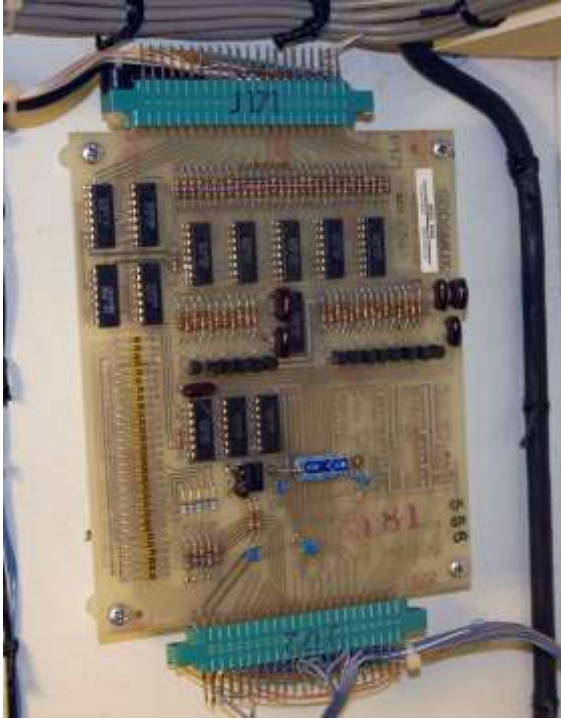


Figure 1 – SDDS MUX Board



Figure 2 – Mounting Location

4. Choose a location in the vicinity of this board to mount the SDDS MIDI Adaptor board (figure 2).
5. Using the appropriate screws and spacers mount the SDDS MIDI Adaptor board.

Caution

If you are mounting the board to an outward facing panel of the console, take care that you use the proper combination of screws and spacers to avoid poking through the finish on the other side.

2. Determine the Division to Channel Mapping

Before proceeding with connecting the interface cable to the SDDS Mux connector, you need to decide which MIDI channel you want each organ division keyboard data to appear upon.

The SDDS MIDI adaptor outputs MIDI data on channels 1 through 4. You can assign any one of the organ's keyboards or pedal board to any one of these channels. For example, if you assign the Great manual to MIDI channel one, notes that you play on the Great will be sent as data on channel one.

The assignment shown in the photo (figure 4) is:

| Division | MIDI Channel | Wire Color (position) | J172 Pin |
|---------------------|--------------|-----------------------|----------|
| Great | 1 | Red (6) | 14 |
| Choir/Accompaniment | 2 | Brown (7) | 12 |
| Pedal | 3 | Orange (8) | 10 |
| Swell/Solo | 4 | Black (5) | 16 |

An alternative assignment might be

| Division | MIDI Channel | Wire Color (position) | J172 Pin |
|---------------------|--------------|-----------------------|----------|
| Swell/Solo | 1 | Red (6) | 16 |
| Great | 2 | Brown (7) | 14 |
| Choir/Accompaniment | 3 | Orange (8) | 12 |
| Pedal | 4 | Black (5) | 10 |

To create your own mapping, fill in the table below using the wire color that corresponds to the desired MIDI channel.

- Channel 1 red wire (6)
- Channel 2 brown wire (7)
- Channel 3 orange (8)
- Channel 4 black (5)

| Division | MIDI Channel | Wire Color | J172 Pin |
|---------------------|--------------|------------|----------|
| Swell/Solo | | | 16 |
| Great | | | 14 |
| Choir/Accompaniment | | | 12 |
| Pedal | | | 10 |

3. Connect Interface Cable to SDDS MUX Connector

Once you have decided which organ divisions are assigned to each MIDI channel it's time to connect the supplied interface cable to the SDDS MUX Connector, J172.

Danger!

Potentially lethal voltages are present inside the organ console. Disconnect all power from the organ before, and exercise caution while, making these connections.

Caution

Organ circuitry is sensitive to, and maybe damaged by, static electricity discharge. Always discharge yourself by first touching a metal chassis or another ground point within the organ before handling organ circuit boards and connectors.

1. Identify the SDDS Mux board J127 connector. Figure 3 shows the connector unplugged from the SDDS Mux Board. You can choose to either leave the connector plugged in or unplugged to make these connections, whichever is more convenient. If you choose to unplug the connector,

be sure to note its orientation so that you can restore it when you plug it in again.

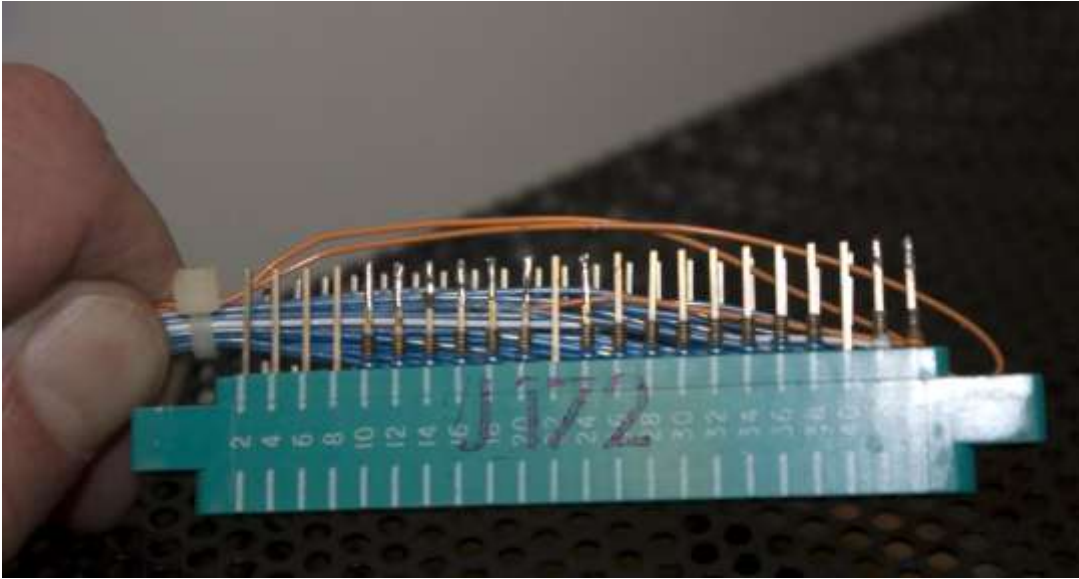


Figure 3 - Connector J172 unplugged from the SDDS Mux board.

2. Note that the connector has two rows of pins, one row containing the odd-numbered pins and the second the even number pins. All connections to the interface cable will be made to the even number pins.
3. The interface cable has 12 wires with push on connectors that will connect to J172. Four of these wires are bundled together for the sake of convenience. The four wires without connectors are for the channel control on/off.
4. Hold the interface cable so that purple wire is to your left. The connections will be made to each wire to the corresponding connection pin proceeding from the left wire to right. **NOTE: Wire colors are repeated on the interface cable. Be sure to connect the wires in the order below. The number in parenthesis next to the color in the steps below indicates the order of the wire in the cable.**
5. Slide the **purple (1)** wire connector onto **pin 44** of J172.
6. Slide the **red (2)** wire connector onto **pin 42** of J172.
7. Slide the **orange (3)** wire connector onto **pin 24** of J172.
8. Slide the **brown (4)** wire connector onto **pin 20** of J172.
9. In the following 4 steps the J172 pin number depends upon how you have decided to map the divisions to the MIDI channels. Use either one of the two example mapping tables or your custom mapping table to determine the correct pin for your configuration. The [bracketed] pin numbers in the steps below are the ones from the default mapping and correspond to the photo of Figure 4.
10. Slide the **black (5)** wire connector onto the pin chosen for **channel 4**. [pin 16 of J172]
11. Slide the **red (6)** wire connector onto the pin chosen for **channel 1**. [pin 14 of J172]
12. Slide the **brown (7)** wire connector onto the pin chosen for **channel 2**. [pin 12 of J172]
13. Slide the **orange (8)** wire connector onto the pin chosen for **channel 3**. [pin 10 of J172]
14. The following four connections are made with the wires in the group of four. Slide the **purple (9)** wire connector onto **pin 30** of J172

15. Slide the **red (10)** wire connector onto **pin 28** of J172
16. Slide **the orange (11)** wire connector onto **pin 26** of J172
17. Slide **the brown (12)** wire connector onto **pin 32** of J172

The completed connector should resemble Figure 4, keeping in mind that your chosen channel mapping will affect the position of 4 of the wires on pins 10, 12, 14, and 16. Regardless of the channel mappings, pins 44,42,32,30,28,26,24,20,16,14,12, and 10 of J172 should be connected to the interface cable.

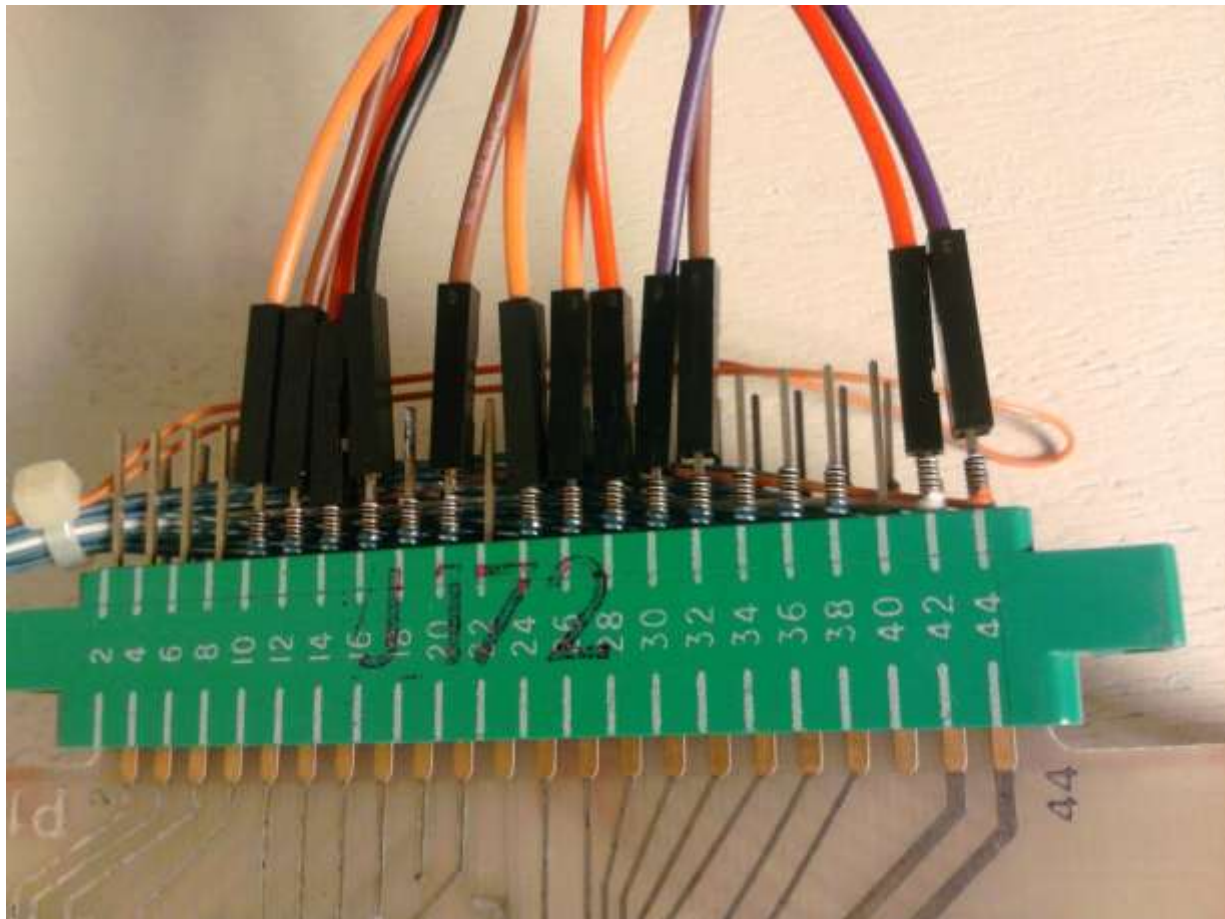


Figure 4 – J172 with interface cable wires connected. Note that the wire colors on pins 10, 12, 14, and 16 will depend upon your channel mapping. Colors on pins 20, 24, 26, 28, 30, 32, 42, and 44 are the same for all mappings. Mapping for the first table is depicted here.

Connecting the SDDS MIDI Adaptor to a Power Source

The SDDS MIDI Adaptor board requires an external voltage source of between 7 and 15 volts DC @ 25 mA. It is most convenient to obtain this from the organ's internal 12 VDC power supply, but a suitable external supply from a DC wall wart could be used as well.

1. If you wish to obtain the board's power from the organ, locate the 12 volt power supply. (see figure 5) .



Figure 5 – Internal 12VDC power supply

2. Connect a wire from the positive terminal of the power supply or wall wart to the positive terminal (marked with + on the circuit board) of the blue screw connector on the SDDS MIDI Adaptor board.
3. Connect a wire from the negative terminal of the power supply to the negative terminal (marked with - on the circuit board) of the blue screw connector of the SDDS MIDI Adaptor board.

Connect the Interface Cable

1. Plug the black sixteen pin connector from the interface cable into the corresponding connector on the SDDS MIDI Adaptor board. This connector is keyed to ensure that it is not plugged in the wrong way.

Connect the MIDI Cable

1. Plug your MIDI cable (not supplied) into the 5 pin round MIDI connector on the SDDS MIDI Adaptor Board.

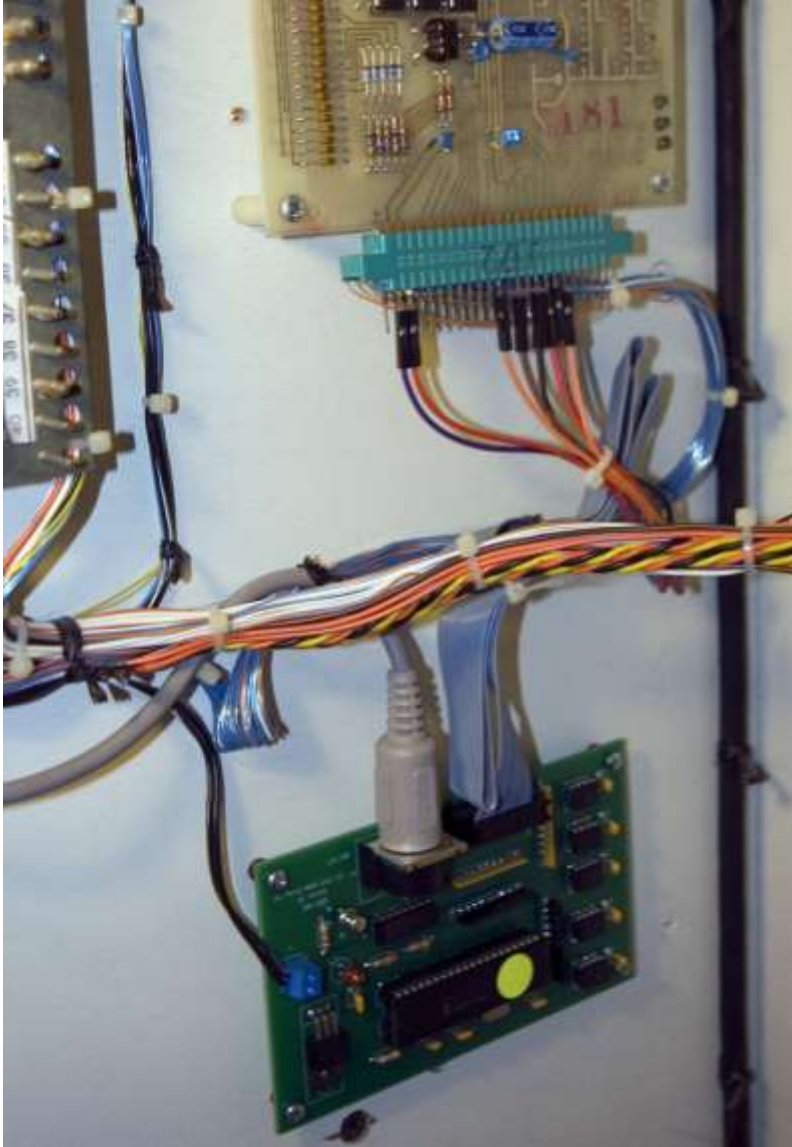


Figure 6 – Completed installation.

Controlling MIDI Channels

With version 2 of the firmware, all four MIDI channels are disabled from sending keyboard data by default. Each channel can be selectively enabled by connecting it to the negative (-) power connection terminal on the SDDS MIDI board.

To Enable All Channels

If you are not going to control the MIDI channels from your console, peel back these four wires, separating them from the main cable, and connect them to the negative screw terminal on the SDDS board. This will enable sending data on all four midi channels.

Selectively Control Channels

If you wish to selectively enable and disable MIDI channels from the organ, it is probably most convenient to mount a terminal strip (not provided) that will serve as a mechanical junction for the connection between the interface cable and the controlling stop switches.

- If the SDDS MIDI board is being powered from organ's 12vdc power supply, connecting a wire to the organ's ground will enable the channel.
- If you are using an external power supply for the SDDS MIDI board, the switch must connect the wire to the negative power connection terminal on the SDDS MIDI board. The negative wire from the external power supply can be connected to the organ's ground for convenience.

Each wire controls one of the four midi channels. Wires may be connected together in any fashion permitting a single switch to control 1 or more channels.

Starting with the tinned wire toward the center of the cable and working outward, the wires control channels 1 through 4 in consecutive order.

Note: The particular organ division controlled by each wire is determined by how you mapped divisions to the midi channels in a previous step.

This completes the installation of the MIDI board. Carefully recheck your connections to ensure they are correct, paying particular attention to the connections to J172, and that the correct wires are connected to the correct pins for your desired division to channel mapping. Also verify that you've observed correct polarity for the power supply wiring.