

Buchla MIDI I/O panels explained

There are three different MIDI I/O panels that work in a Buchla boat

- 1) The original 225e MIDI I/O panel that only has MIDI input
- 2) The h-MIDI panel made primarily for the 225h, 226h, or 208MIDI (208C), and can be made to provide MIDI in and out for a 218e.
- 3) The 22X-I-O Panel that comes with newer 225e's and can be used with the 208MIDI (208C) also includes some flexibility in the use of it's ¼" connectors with a 206/7e, 208, 208C, or 218e.

Simply use the I/O panel and cable that your module was supplied with or, for more specifics, continue reading.

The cables that connect the panels to the module.

10-pin MIDI input cable: In all cases, connect the back of the 225e or 225h with the MIDI I/O panel with the provided 10-pin IDC cable. For the 225h, 226h, or 208MIDI, the 10pin cable will also connect the USB-MIDI.

218e 6-pin MIDI connections: For MIDI input and output as well as sustain pedal input, there is a 6pin SIP connector. This connects all the signals to the Easel power board, but also can connect to an h-MIDI panel (if the 6-pin is soldered) or to a 22X-I-O panel.

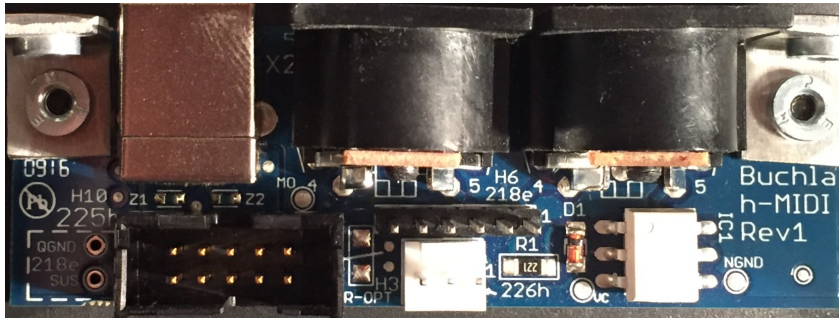
226h 3-pin MIDI output cable: This is a simple 3pin SIP cable. The 3-pin connectors are polarized so that the cable can only be inserted one way.

225e 2-pin MIDI input options for DIY 5pin DIN panel mounting: Optionally on the back of a 225e it would be sufficient to use the 2pin header connection. On the back of the 225e there are pads for a 2-pin connection for MIDI In at header labeled P7. Pins 1 and 2 of this connection can directly connect to pins 4 and 5 of a 5-pin DIN jack. Note: This is the same for pins 1 and 2 of any header labeled for the 218e MIDI connection.

The different panels:

The original 225e panel

The original 225e panel is simple: only the DIN MIDI input is implemented, and the connection is made with the 10-pin cable. This only works with the 225e. Additional MIDI Output and USB outputs were not implemented. This assembly is out of production in favor of more flexible options.



The h-MIDI panel for the 226h and 225h.

To connect the 225h to the MIDI 5-pin DIN and USB connectors, use H10, the 10-pin header labeled “225h”.

For 5-pin DIN MIDI output of the 226h use connector H3 labeled “226h” h-MIDI board. This connection is made with a 3-pin keyed cable. The 3-pin connectors are polarized so that the cable can only be inserted one way. For USB-MIDI output of the 226h, use H10. It is **NOT** possible to share the USB port between a 226h AND a 225h. Use of H10 for 226h USB-MIDI precludes any connection of a 225h.

h-MIDI for 225e: (Only for Rev5 and higher)

The 22X-I-O will be included with new 225's, but the 225e Rev 5 and higher can also use the h-MIDI panel for MIDI input simply using the 10-pin header H10. See the back to the 225e to read the revision number. Using the h-MIDI panel could be useful if you have both a 225e and 226h in a system.

If you have 225e Rev4 or below, it will require some thought. The 10pin of the h-MIDI board is NOT compatible with the 225e Rev4 and lower. But the connection easily made using the pins 1 and 2 labeled for the 218e and the connecting to 225e header at P7 header on the back of the 225e.

This 2-pin option leaves open the possibility of the connecting the 226h, 225e (any Rev), and even the 225h simultaneously.)

h-MIDI panel for a 218e:

To get MIDI In and MIDI out for a 218e, use “**h-MIDI**” **IO board header H6**. This header connects MIDI In and MIDI Out for 5-pin DIN connections (not USB) via the 6-pin connector from the 218e .

A DIY mounted ¼” jack can be wired to the h-MIDI panel for a sustain pedal if it is wired to pads on the left side of the board labeled “218 Sustain” (You may need to get a blank panel and drill a hole for a panel mounted ¼” connector.)

h-MIDI panel for 208MIDI (208C daughter card): To get both DIN and USB-MIDI IN to the 208MIDI board, use the h-MIDI adaptor and the 10pin header. (For MIDI In only; there is no MIDI output available on the 208MIDI.)

Buchla 22X-I-O: ¼" and MIDI adapter

The 22X-I-O panel also a flexible I/O panel, but was designed for 2 main uses:

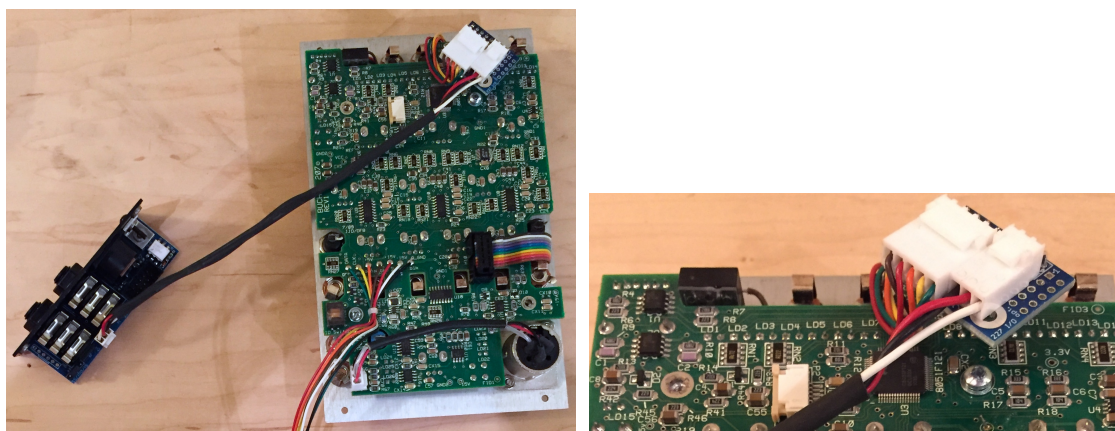
- 1) 225e/h MIDI input
- 2) 207e/206e ¼" breakout

You may plug use it for either MIDI input or audio output, or both simultaneously.

Pictured from left to right: MIDI In for 225e or 225h / Left audio / Right audio



For use with a 225e (or 225h), use the 10pin header to connect the 5-pin DIN MIDI input.



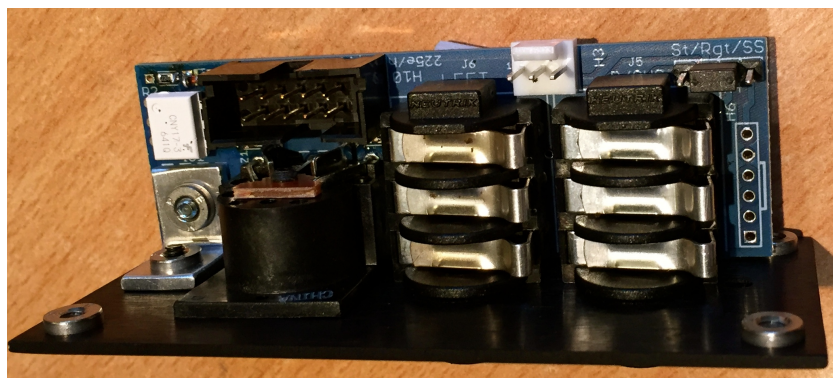
For use with a 207e or 206e, you replace the 5pin audio output cable with this little board as pictured. Restore the audio to the panel by inserting the 207e or 206e audio cable back in to the right angle 5pin header and then insert a 3pin cable into the 3pin header and plug the other end into the 22X-I-O.

A note about unused holes: There is a large mounting hole for a standoff, but as pictured, a standoff should be unnecessary. Friction holds the adapter firmly. But if your system is subject to an unusual amount of vibration and you are concerned, request a 1/2" M-F standoff then bend up the 3-pin header to accommodate the screw head. (The 10 small holes are a footprint for the unusual use of 10 pin header connection to a 227e's four ¼" output I-O connection, of which only two outputs would then be used.)

For use with a 225e or 225h, use the 10pin header (H10) to connect the 5-pin DIN MIDI input.

Explanation of the 4-pin header/2-pin jumper:

Notice that there is a two pin jumper between pins 2 and 3 (the middle) of the header labeled: “St/Rgt/SS”. This “Rgt” position this connects the Right audio output to Right ¼” jack. This is the normal position.



If the jumper was in the “St” [Stereo] position (connecting pins 3 and 4) then the left audio jack becomes a Stereo output.

Alternative uses for 22X-I-O:

Uses with a 218e:

If the jumper was in the “SS” [Sustain Switch] position (connecting pins 3 and pin 4) then the right jack becomes the Sustain pedal input for a 218e.

This requires that H6 be stuffed with an appropriate header and connected to the 218e. If that is done, then the MIDI input will also connect to the 218e through the 6pin cable.

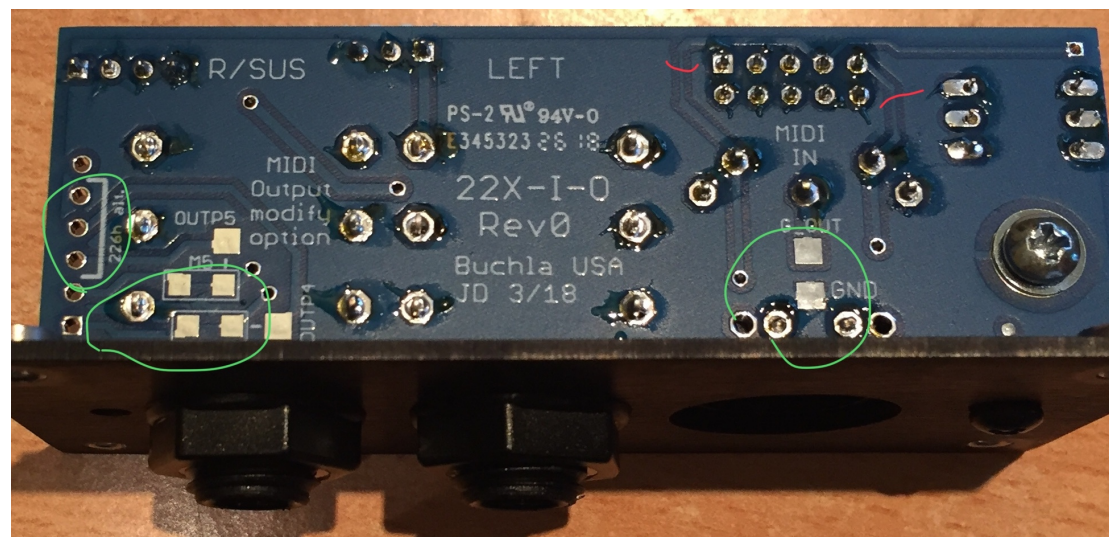
Uses with a 208: If you are lucky enough to have a boat deep enough to fit a 2013-2019 era 208, then the audio from the 208 can connect to H3 for audio output for a 200e boat.

Uses with the 208C:

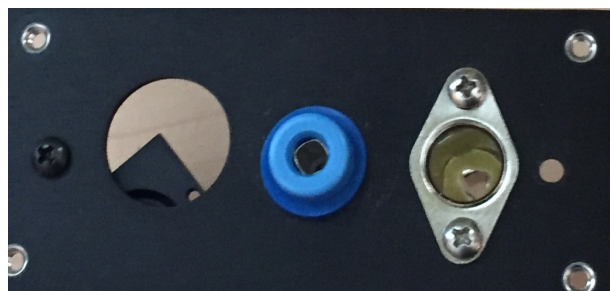
You can use the 22X-I-O for ¼” audio outputs for a 208C as with the 208. Also for 208C’s with a **208MIDI daughterboard**, you can use the 22X-I-O 10pin header for DIN MIDI In. If you don’t use USB-MIDI then this option gives you both the audio output and the MIDI input.

Alternative use of the 22X-I-O for 226h output (with 206/7e ¼" audio):

The h-MIDI panel is more complete as MIDI interface, but if you want to use the audio output connections and 226h MIDI **output** on the same panel, this can be done using the 22X-I-O board by modifying the board: shorting bottom side pads/positions M5 and M4 and connecting G_out and GND pads all using three 1206 0-ohm resistors. Then inserting a 3pin header for the MIDI connection to the 226h where labeled "226h", and cutting the MIDI In wires (see red lines) to H10 as pictured below all on the bottom side.



Alternative 22X-I-O panel as a 272e antenna panel:



The 22X-I-O panel can be used for the 272e by using a washer or nut on the 12v banana connection and drilling small mounting holes for the antenna connector



This can be combined with an old 225e I/O board with the unused MIDI out jack is removed and the USB position is nibbled to make room for the antenna mount

FAQ's about the different MIDI connector boards:

Can I connect the 225e to the Easel MIDI input? Yes. If you have the connector that is labeled “**225h/e**” on the newer Easel power supplies, this is the simple connection. This connector can connect MIDI input to either the 225h or 225e.

If you have any older Easel power supply without this connector, you can use the 2-pin header labeled J3 (used to connect MIDI to the 218 Rev1.) Using that older 2-pin header on the older Easel power supplies requires using the 2-pin P7 header on the back of the 225e.

Why aren't the 225e and 225h ALWAYS compatible on the 10pin connector? The first design of the 225e had a pinout that did not agree with proper USB implementation. And so when USB1.0 was integrated back on to the h-series MIDI I/O cable, a new pinout was devised. However, the original 225e I/O board does have USB “footprints” that could be soldered to in the future for USB2.0 connections.

Does this apply to a 3-Boat power supply? Yes. Most of these connections can be found on a 3-boat power supply board. Look at the labels for the connectors. But there is also space for an I-O panel. If you desire USB-MIDI input the 225h **and** USB-MIDI OUT of the 226h in a 3-boat? Use the I-O hole with an h-MIDI panel for your second USB-MIDI connector.

If I see the connectors I need on the boat I'm using, should I used those instead of an I-O panel? Yes, use those first. These panels are not always needed. Many boats already include these connections on their power supply boards. If you don't need the I-O panel, then save that area for some future expansion and save your panel for some other use.