

CONDUCTIVE LABS

MRCC

XpandR 4x1 User Guide



Thank you for choosing Conductive Labs for your MIDI studio needs! We really appreciate it! If you would be so kind, tag your social media posts with #MRCC so we can find them. We would love to see how MRCC XpandR improves your studio and makes it a better place to create. Share your stories and music on our forums in the “Show me what you got!” section.

Sincerely,
Steve and Darryl

Contents

What's in the box:	2
Requirements:.....	2
Specifications:	3
Precautions	3
Support	4
Getting Started	5
Operating Modes.....	5
Setting up and Connecting XpandR	5
Using MRCC XpandR 4x1 as an MRCC Expansion.....	6
MRCC MIDI Routing to and from XpandR	6
Using XpandR as a PC MIDI Interface	7
Using XpandR as a Stand-alone MIDI Merger	9

What's in the box:

1. MRCC XpandR 4x1
2. USB Type A to Type B cable, 2M
3. This User Guide

Requirements:

Power supply (not included): USB 5V DC, 50mA. Most USB 2.0 or greater ports or quality phone chargers will work.

Operating Requirements:

Works with USB hosts that support USB MIDI class compliant devices; including Conductive Labs MRCC, Microsoft Windows 10 and 11 PCs, Apple Mac, iPad, and iPhone, and most Android tablets and phones. Linux, PJRC Teensy's with a USB host, and Raspberry Pi too.

Specifications:

The MRCC XpandR 4x1 is a USB 2.0 (full speed) MIDI class compliant interface. It can function as a DIN expander for MRCC – MIDI Router Control Center, as a PC MIDI interface, or as a stand-alone 4 in to 1 MIDI merger.

- Mode button for switching from MIDI interface to MIDI merger.
- Four 5 pin DIN inputs. One shared 3.5MM TRS MIDI Type A jack, choose 5 pin DIN 1 or A jack but not both.
- One 5 pin DIN output with shared 3.5MM TRS MIDI Type A jack. Both can be used at once.
- One USB B socket for connecting to your PC or USB power supply.
- 4 USB MIDI virtual inputs, and 1 output mapped to the DIN inputs and output of the MRCC XpandR 4x1.



EU Declaration of Conformity available at
<https://conductivelabs.com/download>

Precautions, not limited to:

1. Read and follow all instructions.
2. Unplug before cleaning and use only a soft dry cloth. Do not use any cleaners, it could damage the silkscreen ink.
3. Do not use the instrument near water or moisture, such as a bathtub, sink, swimming pool or similar place.
4. Do not expose the instrument to hot sunlight.
5. Do not spill any kind of liquid onto the instrument.

6. Do not place the instrument in an unstable position where it might accidentally fall. Do not place heavy objects on the instrument.
7. Do not open or insert anything into the instrument that may cause a fire or electrical shock.
8. Always contact Conductive Labs LLC if you have an issue. **You will invalidate your warranty if you open and remove the cover.**
9. Do not use the instrument when there is a gas leak nearby.
10. Conductive Labs LLC is not responsible for any damage or data loss caused by improper operation of the instrument.

Not following the above Precautions will void the manufacturer's warranty.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

[Support](#) for MRCC XpandR 4x1 is provided by Conductive Labs and our experienced users on the Conductive Labs forums. Please register on the forums for questions not answered in this guide or the MRCC User Manual. As part of forum registration, you will receive a verification email. If you do not receive it check your spam/junk folder, the verification emails often end up there. If you experience any problem with registering on the forums, let us know using the contact page on our website and we'll get you set up. You can register on the forums at: <https://conductivelabs.com/forum>

For complete information on using the MRCC XpandR 4x1 with MRCC, please refer to the MRCC User Manual available at: <https://conductivelabs.com/download>.

Getting Started

MRCC XpandR 4x1 (let's call it XpandR for short) is powered by the USB port connection. There is no On/Off switch, just plug it in to a USB port, USB hub or USB phone charger. The status LED lights bright Red briefly, then turns a dim Blue or Red when it's ready.

LED Status Indicators

	Steady Blue: USB Interface Mode
	Steady Red: MIDI Merger Mode
	Flashing Red: MIDI Input Activity
	Flashing Blue: MIDI Output Activity

Operating Modes

To use MRCC XpandR 4x1 as a USB MIDI interface or expansion for MRCC, the status LED should be lit Blue. For MIDI merger mode, press the Mode button until the status LED turns Red. The Mode is automatically saved for the next time XpandR is powered on.

Setting up and Connecting XpandR **as a PC MIDI Interface or DIN Expansion for MRCC**

1. Connect the USB cable Type B connector to XpandR, and plug the other end into an MRCC USB Type A host port or your PC's USB port (or what have you).
2. Plug in your MIDI controllers (keyboards, sequencer, The NDLR) into XpandR's MIDI Inputs.

Note: 3.5MM jacks labeled "A" are MIDI TRS standard inputs and outputs. You can choose 1 of the inputs (A or DIN 1). Do not

connect more than one device to an **Input** with shared jacks.

3. Connect sound modules to the XpandR MIDI output, or use virtual synths or a DAW (Digital Audio Workstation) on your PC.

Note: You can use the A and DIN **Outputs** simultaneously.

Hint: Life will be rainbows and unicorns if your hardware MIDI controllers and sound modules are labeled with their assigned MIDI channels!

Note: Setting up your DAW (Digital Audio Workstation) can be somewhat complicated and is beyond the scope of this guide. Each DAW will have different configuration requirements best described by the vendor of the DAW. Check your DAW documentation for setting up MIDI tracks and virtual instruments, such as VSTs. YouTube is a good resource for learning how to setup a MIDI interface with your specific DAW.

Using MRCC XpandR 4x1 as an MRCC Expansion

MRCC MIDI Router Control Center Routing to and from XpandR

Routing from an XpandR Input

1. The MRCC USB Host port will light green when the XpandR is attached.
2. On the MRCC, hold down the Input button for the USB port XpandR is attached to, four MRCC output LEDs light green and white to indicate the 4 available XpandR inputs. Select 1, it maps to XpandR input 1. Select 2, and that will map to XpandR input 2, etc.
3. Release the input button, and select the MRCC outputs you want to route to.

Routing to the XpandR Output

1. Select a MIDI input on MRCC. Its LED lights green.
2. Select the USB host output that XpandR is attached to (A, B, C or D). Its LED lights blue.

For example, with XpandR attached to MRCC USB host port A. To route from MRCC port 1 to XpandR's output, select MIDI IN Port 1, then select the MRCC USB host A output. Now its routed! For more details, see the MRCC User Guide.

You can have an XpandR on each of the 4 MRCC MIDI host ports if desired.

Using XpandR as a PC MIDI Interface

Connect XpandR to your PC or other computing device which supports USB MIDI class compliant devices. If you aren't sure if your device supports a MIDI interface, please check with the vendor of the device.

The XpandR status LED should be lit a solid blue color indicating MIDI interface mode. If it's a solid red color, press the Mode button on XpandR to change modes.

In MIDI Interface Mode, the MIDI inputs ports are routed to the USB MIDI virtual ports 1 to 1, like this:

DIN Inputs	USB MIDI Input
DIN IN 1 →	XpandR
DIN IN 2 →	XpandR 2
DIN IN 3 →	XpandR 3
DIN IN 4 →	XpandR 4

In your MIDI application, select the XpandR input to receive MIDI from an XpandR MIDI input. For example, select MIDIIN2 (XpandR) to receive MIDI from XpandR Input 2.

It looks something like this in MIDI-OX, but might be named differently in different operating systems or programs:

MIDI Inputs:

- 1) XpandR
- 2) MIDIIN2 (XpandR)
- 3) MIDIIN3 (XpandR)
- 4) MIDIIN4 (XpandR)

MIDI Outputs:

- 1) Microsoft GS Wavetable Synth
- 2) XpandR
- 3) MIDI Mapper

To send MIDI from your PC to the XpandR MIDI output, in your MIDI application select “XpandR”. There’s just one output.

Note: The 5 pin DIN and A output jacks output the same MIDI data. Use different MIDI channels for sound modules when using both outputs.

Using XpandR as a Stand-alone MIDI Merger

For MIDI merger mode, press the XpandR Mode button until the status LED turns Red. In this mode, the XpandR may be powered by a common USB phone charger.

In MIDI merger mode all four MIDI 5 pin DIN inputs will be merged to the XpandR's MIDI Output.

DIN Inputs	MIDI Output
DIN IN 1 →	OUT 1
DIN IN 2 →	OUT 1
DIN IN 3 →	OUT 1
DIN IN 4 →	OUT 1

Note: If XpandR is powered by your computer while in MIDI merger mode, the USB MIDI virtual ports will appear but will not function. The USB port does not transmit or receive MIDI message in merge mode.

Hint: In MIDI merger mode, assign unique MIDI channels for each of the MIDI controllers attached to XpandR's MIDI inputs, so they are sent to the correct sound modules on XpandR's output.

Conductive Labs LLC, a corporation registered in the State of Oregon, USA.

Owners: Darryl McGee and Steve Barile

Office Address:

Conductive Labs LLC
11340 NW Anderson St.
Portland, OR 97229
USA

Email: Support@conductivelabs.com

COPYRIGHT @ CONDUCTIVE LABS LLC 2022. ALL RIGHTS RESERVED.

All documentation, images, software, firmware, user interface, industrial design and hardware design is protected by copyright law and international treaties. The firmware is licensed (not sold), and its use is subject to a License Agreement. Unauthorized use, copying or distribution of any of the above material or any of its components may result in severe criminal or civil penalties, and will be prosecuted to the maximum extent under the law.

All trademarks and registered trademarks used in this documentation are the property of their owners.

Version 0.06 February 2022