
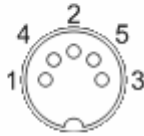
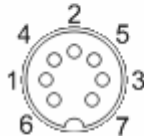
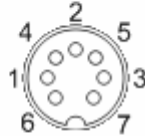


MIDI Connector configurations

2 of the 4 MIDI connectors (“MIDI OUT” and “FROM FCB”) are 7-pins connectors, instead of the regular 5-pins. These 2 connectors can be configured in different ways. Configuration is done by placing some jumpers on the Little Giant main board. Therefore, the desired configuration needs to be specified during the online ordering process for a Little Giant. Later on, it is still possible to change this configuration yourself. There is no soldering required, just moving the jumpers to a different position, but this requires a complete disassembly of the unit in order to reach the main electronics board.

REGULAR MIDI IN	REGULAR MIDI OUT	7-PINS MIDI IN	7-PINS MIDI OUT																												
LG2 "MIDI IN" port	LG2 "TO FCB" port	LG2 "FROM FCB" port	LG2 "MIDI OUT" port																												
																															
<table border="1"> <tr><td>4,5</td><td>MIDI IN</td></tr> <tr><td>1,3</td><td>No Connect</td></tr> <tr><td>2</td><td>No Connect</td></tr> </table>	4,5	MIDI IN	1,3	No Connect	2	No Connect	<table border="1"> <tr><td>4,5</td><td>MIDI OUT</td></tr> <tr><td>1,3</td><td>No Connect</td></tr> <tr><td>2</td><td>Shield</td></tr> </table>	4,5	MIDI OUT	1,3	No Connect	2	Shield	<table border="1"> <tr><td>4,5</td><td>MIDI IN</td></tr> <tr><td>1,3</td><td>configurable</td></tr> <tr><td>2</td><td>No Connect</td></tr> <tr><td>6,7</td><td>Power</td></tr> </table>	4,5	MIDI IN	1,3	configurable	2	No Connect	6,7	Power	<table border="1"> <tr><td>4,5</td><td>MIDI OUT</td></tr> <tr><td>1,3</td><td>configurable</td></tr> <tr><td>2</td><td>Shield</td></tr> <tr><td>6,7</td><td>Power</td></tr> </table>	4,5	MIDI OUT	1,3	configurable	2	Shield	6,7	Power
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Attention !

As mentioned in the schematic above, the different configurations apply to pins 1 & 3 of the 7-pins connectors. The MIDI standard specifies that these pins should be not connected. However, some manufacturers reuse these pins for specific needs (phantom power or 2-way communication). Therefore, when you order an LG2 with configuration other than the “regular MIDI IN” or “regular MIDI OUT”, you actually make the LG2 no longer MIDI compliant... Of course this shouldn’t be an issue, since you will only choose one of those special configurations because the connected device supports this. But keep this in mind when connecting other devices to the LG2. Especially the option “phantom power through 5-pins connector”, discussed later, is a “dangerous” one, since it can cause power to be applied to pins 1 & 3 of the connected device. This can result in severe damage if the connected device actually uses these pins for something you were not aware of...

And more attention !

We just mentioned that pins 1 & 3 are defined as “not connected” in the MIDI spec. As a result, many 5-pins MIDI cables on the market actually don’t have pins 1 & 3 wired. When you decide to use one of the special configurations, which reuse those unused pins, don’t forget to check your MIDI cables, and make sure they have pins 1 & 3 actually wired! On our GORDIUS website, you can order “7/7” and “7/5” MIDI cables. The 7/7 cable has a 7-pins connector at both sides, and has all 7 pins actually wired. So it is safe to use this cable with the 2-way communication option. The 7/5 cable has a regular 5-pins connector plus female power jack at one side. It does NOT have pins 1 & 3 wired, so this cable can only be used to combine phantom power with MIDI OUT, no 2-way communication is possible with this cable.

Phantom power (using pins 6 & 7 of the 7-pins connector)

All 7-pins connectors of the LG2 carry power on their pins 6 and 7: these 2 pins are simply connected to the 2 leads of the LG2 power connector. This means that the LG2 can be “phantom powered” by the connected device. This functionality is available for any of the MIDI connector configurations discussed later on, since we are now talking about power supplied through pins 6 & 7, while these configurations only define an alternative use for pins 1 & 3.

Phantom power through the LG2 “MIDI OUT” port

There are 3 common cabling scenario’s to support phantom powering of the floorboard :

- a) the controlled device supports phantom power through its 7-pins MIDI IN connector.

This is for instance the case for the Fractal Axe-FX. In this case, cabling is simple: you can use a regular “7/7” (7-pins to 7-pins) MIDI cable, which will carry the power signal along with the MIDI. Important to notice is that controllers supporting phantom power on their MIDI IN connector normally do NOT supply this phantom power on their own (there is no standard whatsoever on voltage and power requirements for the different MIDI controllers on the market). These devices just provide a separate “phantom power in” connector, where you can plug in the power adapter of your MIDI controller.

- b) the controlled device supports phantom power through a regular 5-pins MIDI IN connector.

This is for instance the case for the Voodoo Lab GCX guitar audio switcher. In this case, the pins 6 & 7 of the 7-pins MIDI OUT are not used. For this scenario refer to the further topic about the pin 1 & 3 configuration for phantom power.

- c) the controlled device does not support phantom power.

In this case, it is still possible to “phantom power” your LG2 from the controlled rack, and not have any need for a power outlet near your floorboard. You just need a special “7/5” (7-pins to 5-pins) MIDI cable. Such a cable has a 7-pins connector at one side, which can be plugged in the MIDI OUT of the LG2. At the other end, the cable has a regular 5-pins MIDI cable, to be plugged in the MIDI IN connector of the controlled device, and a separate female power jack. The LG2 power adapter can be plugged in this jack at the rack side, and the MIDI cable will carry the power to the floorboard.

Phantom power through the LG2 “FROM FCB” port

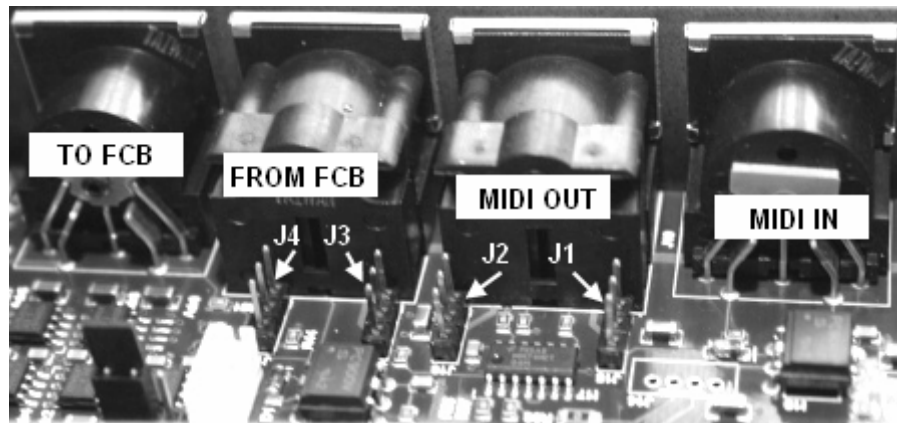
Completely similar to the scenario’s described above, it is also possible to “phantom power” a slave controller, connected to the “FROM FCB” port of the LG2. Provided that this slave controller carries a 7-pins MIDI OUT connector, a single 7/7 MIDI cable will be sufficient to carry both MIDI and power. None of the slave controllers, supported so far by the LG2, have the possibility to accept phantom power. However, we at GORDIUS plan to release slave controllers in the future, which obviously will take advantage of this possibility.

Remarks :

- As you will understand, this phantom power option is nothing but an “extension” for you power lead. It enables you to move your power adapter away from the floorboard. Of course you still need to connect your LG2 power adapter at the other end of the cable carrying the phantom power. And more important: never try to connect a power adapter to the LG2 while you have another adapter supplying phantom power. This will cause a short between both power supplies, which can result in severe damage.
- You might not know the exact wiring of the phantom power connectors used in controlled devices. The 2 power leads may well be inverted by the time they arrive at the LG2. Don't worry about this, the LG2 was redesigned specifically to work with these different wirings. Applied power can be 9V AC, 9V DC with positive center pin, or 9V DC with negative center pin.
- If you want to power several devices from the same power adapter, don't forget to check if the adapter supplies sufficient power. The LG2 requires 500mA on 9V (AC or DC). Add this to the spec of the other device in order to know the total required power. The adapter supplied with the LG2 is not suited for powering multiple devices.

The different configurations for pin 1 & 3 of the 7-pins connectors

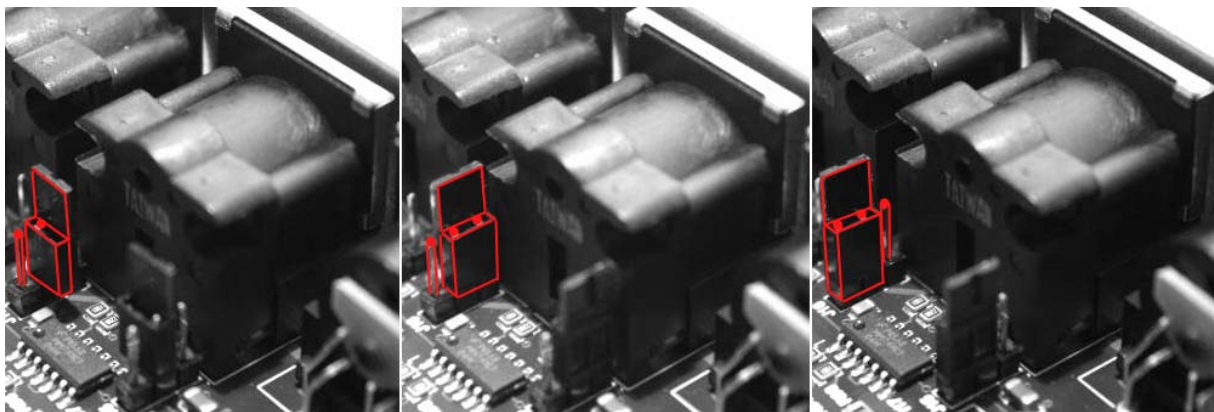
The main board of the LG2 contains 4 jumpers, labeled J1, J2, J3 and J4 on the picture below. J1 & J2 configure the "MIDI OUT" connector, J3 & J4 configure the "FROM FCB" connector.



View on the LG2 main board, backside of the MIDI connectors

Three different options can be chosen :

- regular MIDI IN (for the FROM FCB connector) or regular MIDI OUT (for the MIDI OUT connector)
- phantom power through a 5-pins cable
- 2-way communication (carrying both MIDI IN and MIDI OUT over 1 cable)



regular MIDI IN or OUT

phantom power through 5-pins

2-way communication

- **“Regular MIDI IN” / “Regular MIDI OUT” (for the “FROM FCB” / “MIDI OUT” connector)**

With this configuration, the pins 1 & 3 are not connected to anything, just like it should be for a regular MIDI connector. As you can see in the left side picture above, the jumpers are placed so that no 2 adjacent pins are connected to each other.

Use this configuration whenever you don't have any particular reason to choose another one... It ensures that you can use your LG2 with any MIDI compatible device.

- **Phantom power through 5-pins cable**

You can read all details about phantom powering in a previous topic. One of the cabling scenario's mentioned there was the option where the controlled device supports phantom power through pins 1 & 3 of a regular 5-pins connector. The Voodoo Lab GCX guitar audio switcher is one example of such device.

In order to support this scenario, the LG2 needs to be configured so that pins 1 & 3 are connected with the 2 leads of the LG2 power jack. This is done by placing the 2 jumpers in the position closest to the MIDI connectors, as shown in the middle picture above.

As we mentioned earlier, this is a “dangerous” option, because it definitely turns your LG2 into a non-MIDI-compliant device. When you decide to connect a different device to the LG2 MIDI OUT connector, and therefore power the LG2 through its own power jack, the incoming power is also sent to pins 1 & 3 of the MIDI OUT connector. Shouldn't be a problem with a standard MIDI device at the receiver side, but things can go wrong if this device actually has some internal circuitry connected to these pins 1 & 3.

- **2-way communication**

For the moment there is only one device we are aware of that supports 2-way communication through a 7-pins connector, and that's the Fractal Axe-FX. In this case, the pins 1 & 3 are used to send MIDI from controlled device back to the floorboard, while the regular “MIDI OUT” pins are used for sending MIDI commands from floorboard to guitar effects processor.

This option is configured by setting the jumpers in the position away from the MIDI connector, as shown in the rightside picture above. In this case, the signal pins of the MIDI IN connector are simply interconnected with pins 1 & 3 of the MIDI OUT connector. This also means that with this configuration it is **no longer allowed** to use the MIDI IN connector ! If you would do so, you would create a “short” between the MIDI OUT signal of the 2 connected devices, which could result in a damaged MIDI circuit (although these circuits by design should be protected against this kind of shorts, but you never know...)