MLA-XLR

MIDI Line Amplifier



Users Manual

JL COOPER ELECTRONICS

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Description

The MLA-XLR is designed to act as a single channel, bi-directional, long distance amplifier or driver for MIDI signals.

While the normal MIDI protocol specifies a maximum cable distance of about 50 feet, this is sometimes not sufficient for some installations. The reason for this restriction is based on simple physics. MIDI uses a simple electrical interface known as a current loop. This lends itself to immunity from noise and ground loops while allowing for cost effective implementation.

Although successful installations of 100 feet or more have been made, this is usually the exception rather that the rule. Additionally, this requires high quality, shielded, low capacitance cable. Much more than 100 feet of MIDI transmission requires some buffering or amplification.

The MLA-XLR takes a MIDI input and converts it to a balanced, differential signal using the RS-422 specification. At the other end, another MLA-XLR detects the signal using a sensitive receiver that has a high degree of noise immunity. Connecting the two MLA-XLRs are two standard, shielded, twisted pair microphone cables.

The combination of a low impedance, differential driver coupled with a sensitive differential receiver signal lends itself to long distance, error free installations required in professional applications. It is now possible to send your MIDI signal through 1000 feet of cable or more. Using lower gauge, high quality, low capacitance, shielded, twisted pair cables, it is possible to reach distances of 4000 feet!

Since the MIDI signal is converted into a non-MIDI signal, an installation requires a MIDI Line Amplifier at each side. The MLA-XLR is compatible with the JLCooper MLA-1 and MLA10.

Setting up the MLA-XLR

Connections

The MLA-XLR is refreshingly simple to use. There are no settings to configure. Just plug in the power supply and connect two MLA-XLRs together with a pair of standard mic cables. Then, connect your MIDI gear as you would normally. Do not use ground lifters, signal splitters or audio transformers on the XLR cables between the MLA-XLRs.

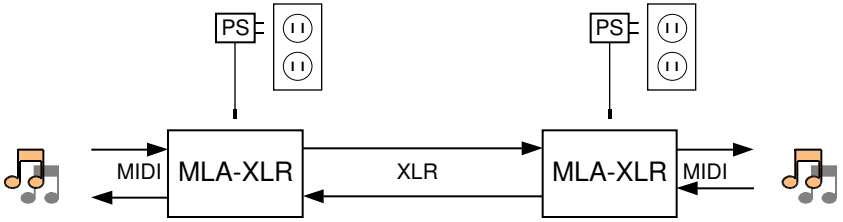


Figure 1 – Connecting 2 MLA-XLRs

Using with MLA-1 or MLA-10

The MLA-XLR can be used with the MLA-1 and MLA-10 with some custom wiring. See the following page for details.

As with the MLA-1 and MLA10, the MLA-XLR can drive multiple MLA-XLRs, MLA-1s and MLA-10s. However, the usable distance will decrease with each additional receiver.

Note: As with any amplifier, do not connect multiple outputs together. This can damage your MLA-XLR, MLA-1 or MLA-10.

The MLA-XLR cannot supply power or derive its power from an MLA-1 or MLA-10.

Connection to MLA-1 and MLA-10

MLA-XLR Line Out	MLA-10 Port 1	MLA-10 Port 2	MLA-10 Port 3	MLA-10 Port 4
1	*	*	*	*
2	9	11	13	15
3	10	12	14	16

Table 1 - MLA-XLR Line Out to MLA-10

MLA-XLR Line In	MLA-10 Port 1	MLA-10 Port 2	MLA-10 Port 3	MLA-10 Port 4
1	*	*	*	*
2	1	3	5	7
3	2	4	6	8

Table 2 - MLA-10 to MLA-XLR Line In

MLA-XLR Line Out	MLA-1 Port 1	MLA-1 Port 2	MLA-1 Port 3	MLA-1 Port 4
1	*	*	*	*
2	1	3	5	7
3	2	4	6	8

Table 3 - MLA-XLR Line Out to MLA-1

MLA-XLR Line In	MLA-1 Port 1	MLA-1 Port 2	MLA-1 Port 3	MLA-1 Port 4
1	*	*	*	*
2	9	11	13	15
3	10	12	14	16

Table 4 - MLA-1 to MLA-XLR Line In

* Pin 17, 18, 19 or 20 can be used to terminate the shield.

Technical Reference

Electrical Interface

The MLA-XLR uses the EIA RS-422A electrical interface over an XLR connector.

1	Shield
2	MIDI Data-
3	MIDI Data+

Table 5 - XLR Pinout

The XLR input has an internal 100Ω termination. This is done to reduce errors caused by reflections in the cable.

Troubleshooting

If for some reason the MLA-XLR does not give you the expected results, take a moment to do some investigating. The most important concept is that you have your MLA-XLR connected properly as outlined in *Setting up the MLA-XLR*. Take a moment to double check this setup.

The MLA-XLR has three LEDs to aid you in troubleshooting your setup. There is one green LED that indicates the presence of power. Two red LEDs indicate the presence of MIDI activity.

Care and Service

If properly cared for, your MLA-XLR should provide years of troublefree performance. While the MLA-XLR is built in a rugged steel enclosure, please avoid dropping the MLA-XLR.

Clean with a soft, damp cloth. Do not allow liquids to get inside the unit.

There are no user-serviceable parts in the MLA-XLR. Please refer to the JLCooper Electronics Limited Factory Warranty for detailed warranty and service information.

JLCooper Electronics Limited Factory Warranty

JLCooper Electronics ("JLCooper") warrants this product to be free of defects in materials or workmanship for a period of 12 months from the date of purchase. This warranty is non-transferable and the benefits apply to the original owner. Proof of purchase in the form of an itemized sales receipt is required for warranty coverage. To receive service under this warranty, customers in the United States should contact the JLCooper factory at (310) 322-9990 and talk to a service technician. If necessary, a Return Authorization number may be issued. For our customers outside the United States, it is recommended that you first contact your Dealer or Distributor, since they may offer their own service or support policy. If local support is not obtainable, please send a FAX to JLCooper's Service Department at (310) 335-0110 with a detailed description of the service required. Upon issuance of return authorization, the product should be properly packed and shipped to: Service Department, JLCooper Electronics, 142 Arena Street, El Segundo, CA 90245. Please include the following: copy of the sales receipt, your name and address (no P.O. Boxes, please), a brief description of the problem, and any other related items discussed with the service department and considered necessary to evaluate the product or effect a repair. The return authorization number must be clearly written on the outside of the package. JLCooper will at its option, without charge for parts or labor, either repair or replace the defective part(s). Shipping costs are not covered by this warranty. JLCooper's normal repair turn around time at the factory is approximately 15 business days from receipt of product to shipping. Your actual turn around time will include return shipping. Actual turn around time will vary depending upon many factors including the repeatability of the customer's reported complaint, the availability of parts required for repair, the availability of related products needed to evaluate the product if necessary. Priority services are available at additional cost. These should be discussed with the service technician at the time the return authorization is issued.This warranty provides only the benefits specified and does not cover defects or repairs needed as result of acts beyond the control of JLCooper including but not limited to: abuse, damage by accident/negligence, modification, alteration, improper use, unauthorized servicing, tampering, or failure to operate in accordance with the procedures outlined in the owner's manual; nor for natural or man-made events such as, but not limited to flooding, lightning, tornadoes, earthquake, fire, civil unrest, war, etc.

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