AXB-DMX512 DMX512 Interface

Overview

The AXB-DMX512 creates a bi-directional DMX512-to-AxLink connection, transmitting and receiving up to 512 DMX channels. On-board processing and memory create as many as 96 channel groups, eight faders, and 72 presets (284 by adding extended memory), as well as soft-patch channels. A DMX lighting board can operate in tandem with the AXB-DMX512, generate levels for storing presets, or bypass the AXB-DMX512 for direct control of channels.
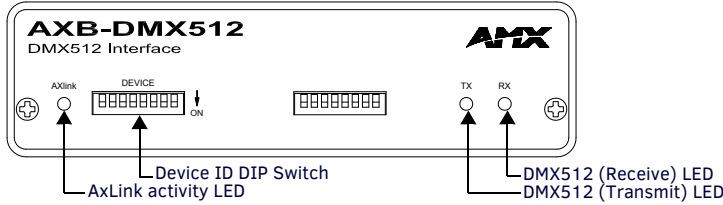

FIG. 1 AXB-DMX512 (FRONT VIEW)

Specifications

AXB-DMX512 SPECIFICATIONS	
Power consumption	160 mA @ 12 VDC
Power supply	12 VDC
Front panel components:	
LED Indicators	• AXlink LED (green and blinks to indicate AXlink communication activity and power: *Full-Off* indicates no power is being received or the controller is not functioning properly. *One blink per second* indicates power is active and AXlink communication is functioning. *Full-On* indicates there is no AXlink control or activity, but power is On. • RX LED (red) indicates the AXB-DMX512 is receiving DMX512 data. Corresponds to the IN and OUT ports on the rear panel. • TX LED (red) indicates the AXB-DMX512 is transmitting DMX512 data. Corresponds to the IN and OUT ports on the rear panel.
DIP switch	• 8-position DEVICE DIP switch sets the AxLink address (Device ID) for the AXB-DMX512. • The DIP Switch to the right of the DEVICE DIP is reserved - no settings are required.
Rear panel components:	
DMXIN port	5-wire, captive-wire connector for receiving data.
DMXOUT port	5-wire, captive-wire connector for transmitting data.
AXlink	4-wire, captive-wire connector for data and power.
Dimensions (HWD)	1.5" x 5.5" x 5.5" (38 mm x 140 mm x 140 mm)
Enclosure	Metal with black matte finish
Mounting	Rack mounting with the optional AC-RK Accessory Rack Kit
Weight	1.1 lb (0.5 kg)

Setting the Device DIP Switch

The 8-position DEVICE DIP switch on the front panel (FIG. 1) sets the AxLink identification number for the AXB-DMX512. Make sure the device number matches the number assigned in the Axcess software program.

The following table describes the values on the DEVICE DIP switch.

DEVICE DIP SWITCH SETTINGS								
Position	1	2	3	4	5	6	7	8
Value	1	2	4	8	16	32	64	128

Terminating the Device

When using the DMX input and if this device is the last device in a chain of DMX512 devices, you must terminate the line. To terminate the device, position jumpers on jumper pin trios JP4 and JP5 (FIG. 2):
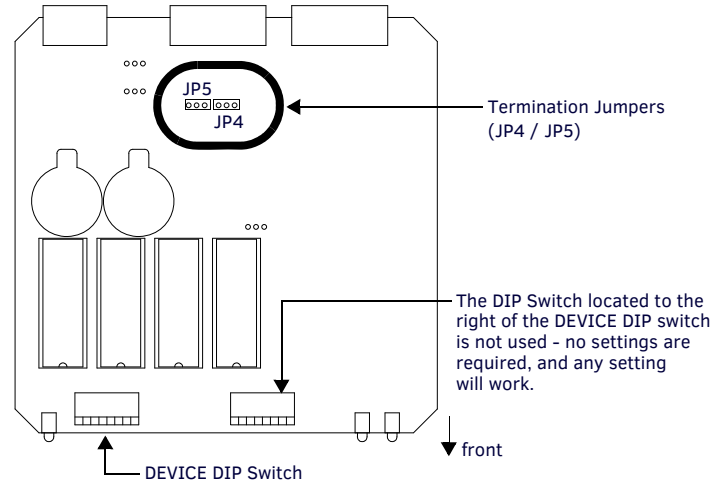

FIG. 2 LOCATION OF TERMINATION JUMPERS (JP4-JP5)

1. Remove the jumper that is on pins 1 and 2 of jumper trios JP4 and JP5. (Pins 1 and 2 are marked HIZ - see FIG. 3).
2. Place the jumper on pins 2 and 3 of jumper trios JP4 and JP5. (Pins 2 and 3 are marked TERM -see FIG. 3). This terminates the incoming DMX input with a 120 ohm resistor.
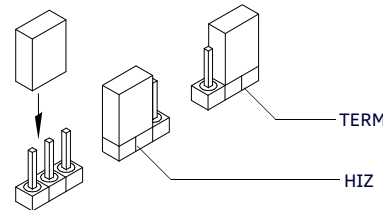

FIG. 3 TERMINATION JUMPER PIN SETTINGS FOR JP4 AND JP5

Wiring Devices to the AXB-DMX512

The AXB-DMX512 has three captive-wire connectors on the rear panel (FIG. 4) for DMX512 transmit and receive, and AxLink.
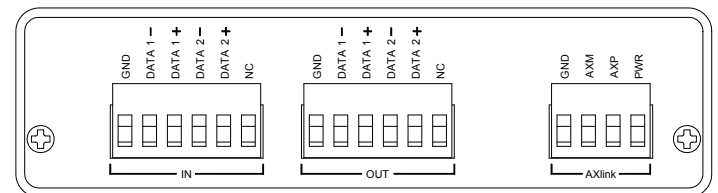

FIG. 4 AXB-DMX512 (REAR VIEW)

Preparing/Connecting Captive Wires

1. Strip 0.25 inch of wire insulation off all wires.
2. Insert each wire into the appropriate opening on the connector according to the wiring diagrams and connector types described in this section. Do not tighten the screws excessively; doing so may strip the threads and damage the connector.

Wiring Guidelines

The interface requires a 12 VDC power to operate properly. The Central Controller supplies power via the AxLink cable or external 12 VDC power supply. The maximum wiring distance between the Central Controller and interface is determined by power consumption, supplied voltage, and the wire gauge used for the cable.

The table below lists wire sizes and maximum lengths allowable between the AXB-DMX512 and Central Controller. The maximum wiring lengths for using AxLink power are based on a minimum of 13.5 volts available at the Central Controller's power supply.

WIRING GUIDELINES AT 160 MA	
Wire Size	Maximum Wiring Length
18 AWG	733.57 feet (223.59 m)
20 AWG	464.11 feet (141.46 m)
22 AWG	289.35 feet (88.19 m)
24 AWG	182.39 feet (55.59 m)

Using AxLink communication

Connect the AxLink wiring to the connector on the AXB-DMX512, as shown in FIG. 5.
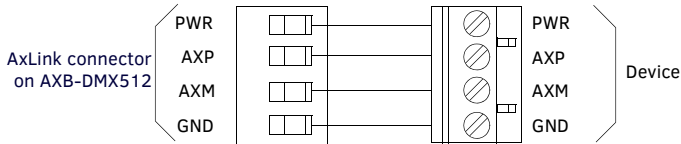

FIG. 5 AXLINK WIRING

DMX512 data communication

Note: Some DMX devices only use DATA+ and DATA-. Connect these to DATA1+ and DATA1-, leaving DATA2+ and DATA- unconnected. The DATA2 In and Out ports are not currently supported.

Transmit Wiring

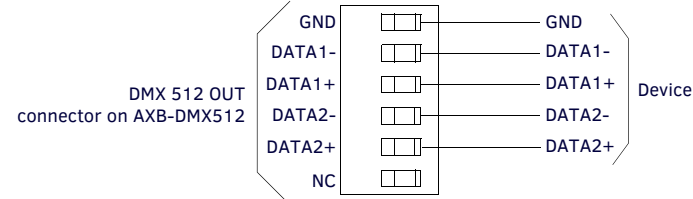For transmit wiring, connect the DMX512 wiring to the OUT connector, as shown in FIG. 6.

FIG. 6 DMX512 TRANSMIT WIRING

Receive Wiring

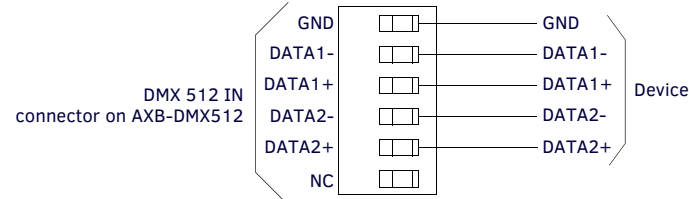For receive wiring, connect the DMX512 wiring to the IN connector, as shown in FIG. 7.

FIG. 7 DMX512 RECEIVE WIRING

Mounting the AXB-DMX512 in a Rack

To mount the AXB-DMX512 in an equipment rack, you will need an AC-RK rack mounting kit.

1. Remove the two screws on the front panel of the AXB-DMX512.
2. Remove the front panel and the space bracket behind the panel.
3. Remove the rubber feet on the bottom of the unit, if necessary. Insert a scissors blade or other sharp object into the side of one of the rubber feet and pull it off. Do the same to remove the other three rubber feet.
4. Place the unit in the appropriate opening in the AC-RK.
5. Place the front panel of the AXB-DMX512 on the front of the rack over the unit and secure the screws.

Replacing the Lithium Battery

A lithium battery (FIG. 8) with a life of approximately 5 years, protects stored presets if a power loss occurs. The battery is not used when DC power is supplied to the AXB-DMX512. Write down the replacement date on a sticker or label by adding 5 years to the date of installation, and then attach it to the bottom of the AXB-DMX512.
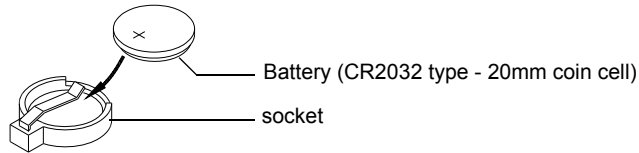

Battery (CR2032 type - 20mm coin cell)

socket

FIG. 8 LITHIUM BATTERY AND SOCKET

Note: All control commands in AXB-DMX512 memory are lost when the lithium battery is replaced

Contact your AMX dealer before you replace the lithium battery and verify that they have a current copy of the Axcess program for your AXB-DMX512. This will avoid any inadvertent loss of data or a service outage.

You will need a flat-blade tool (non-conducting) that can be slipped under the lithium battery to pry it up and out of the socket.

Note: Static electricity can damage electronic circuitry. Before removing the lithium battery from the enclosure, discharge any accumulated static electricity from your body by touching a grounded metal object.

1. Discharge the static electricity from your body.
2. Unplug all cables from the AXB-DMX512.
3. Remove the AC-RK and AXB-DMX512 from the mounting rack. Otherwise, go to step 4.
4. Remove the five pan-head screws on the top of the AXB-DMX512 enclosure.
5. Pull the two enclosure halves apart and set the bottom portion of the enclosure on a flat surface.
6. Locate the battery on the circuit card.
7. Carefully pry the battery out of its socket and insert the new battery. Write down the next replacement date on a sticker or label by adding 5 years to the replacement date, and then attach it to the bottom of the AXB-DMX512.
8. Plug all cables back into the AXB-DMX512.
9. Place the top portion of the enclosure back onto the bottom portion. Then, refasten the five pan-head screws.
10. Reconnect the cables removed for battery replacement.

Note: There is a danger of explosion if you replace the battery incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of used battery according to the manufacturer's instructions. Never recharge, disassemble, or heat the battery above 212 °F (100 °C). Never solder directly to the battery or expose the contents of the battery to water.