

dmxB Interface
Installation Instructions
for Microstar

INSTALLATION:

1. Remove the lid from the Iie and touch the metal power supply case to discharge any static electricity. Then, unplug the AC power connector from the back of the computer. As you will be working inside the Apple Iie, you don't want to do this with any chance there is power applied!
2. From the inside, remove the rear panel DB-25 connector cover closest to the AC connector by pushing down and outward on the tab.
3. Thread the bare ends of both the grey DMX cable and the ribbon cable through the connector slot.
4. With the side of the Apple Iie containing the power supply enclosure facing you, place the component side of the *dmxB* face up on top of the power supply enclosure so the attached two-wire cable is facing away from you and the red and green LED's are to your right.
5. At the left end of the interface board, there is a 9-screw terminal strip. Insert the part of the ribbon cable that has two wires soldered together into the wire receptacle of the top terminal (labeled GND). With a small slotted screwdriver, carefully tighten the screw. DO NOT OVERTIGHTEN, or you will strip the screw. Tug on the wire to make sure it has been captured.
6. Insert the remaining 8 wires into their respective terminals, tighten, and tug test. Make sure wires are arranged in order.
7. Pass the grey DMX cable through the tie-wrap loop and across the back of the interface board assembly, under the attached two-wire cable, and to the 3-screw terminal strip on the right side.
8. Attach the black shrink-wrapped wire to the terminal marked "1", the blue wire to terminal "2", and the white wire to terminal "3". Tug test.
9. Snug the tie-wrap leaving some slack at the terminal end; there should be no strain on the wires at the terminal strip.

10. The attached two-wire power cable plugs into the 4-pin internal video connector located close to the video jack your monitor is plugged into at the upper left corner of the Iie pc board. Remove the Disk Drive interface card in Slot 6 to gain access. You will need a flashlight to identify the connector as it is partially hidden under the top lip of the case. Pass the power cable around the keyboard end of the Microstar card(s) and along the far side of the case. It is VERY IMPORTANT that the BLUE wire goes to PIN 1 of the video connector. PIN 1 is marked on the pc board but is difficult to see-- it is the pin closest to the keyboard end of the computer! Make sure all four pins line up and gently press the red power connector in place. The wires should exit next to the side of the computer case. Replace the Disk Drive card.
11. Finally, locate the AUX CONNECTOR slot on the Iie pc board. It is near the keyboard end, below the seven expansion slots and between the power supply and your Microstar card(s). If there is an interface card occupying it, remove the card, as it has no practical value to your Microstar system. Carefully plug the *dmxB* interface card into the AUX CONNECTOR, working it in with a front-to-back motion with the ribbon cable exiting the rear. Do not push down on the finned heat sink. Note there is no electrical connection between the card and the slot--it's just a means of securely mounting the *dmxB* inside the Iie.

TESTING:

1. Reattach the AC power cable and power up the Iie. The red LED on the *dmxB* interface should light indicating it is receiving power. If it does not, TURN OFF THE Iie IMMEDIATELY, then check the orientation of the red *dmxB* power connector in the video socket (Step #10).
2. From the main menu, select #2 Diagnostic Routine.
3. IMPORTANT! The *dmxB* male/female ribbon connector enables the second 8 channels of a 16-channel Microstar card to output DMX in addition to the usual control voltage output to your dimmers.

You will need to think carefully about which Microstar card you will use to drive the *dmxB* interface. You will probably want any DMX devices to operate independently of dimming channels. Most of the time, you will want to plug the ribbon cable connector into the last Microstar output because there will probably be "extra" or left over control channels (those not driving dimmers) available there.

4. Attach the male end of the *dmxB* ribbon cable connector to the desired rear panel Microstar connector, then reattach the dimmer cable connector to the female end of the *dmxB* ribbon cable connector.

5. Do a manual diagnostic test, pressing the Return key to bring each channel to full one at a time. The green LED on the *dmxB* should stay off until you reach the first DMX channel.. Remember that if you have two Microstar cards and you have plugged the *dmxB* into the second one, your first DMX channel will be Channel 25! At this point, the green LED should light, indicating Microstar output to the *dmxB* is over .25 volt. You should have a green light as each of the eight DMX channels is tested.

If you do not, first check that the ribbon cable connector is firmly plugged into the rear panel Microstar connector of the correct card and you are testing the correct channel..

This completes installation and testing of your *dmxB* interface!

Reinstall the Ile lid and continue reading if you are not familiar with DMX fixture addressing and cabling or need troubleshooting tips.

USING DMX:

DMX stands for Digital Multiplex, a control protocol capable of individually addressing up to 512 devices over one pair of wires. In order for it to work reliably, or even at all, several standards must be religiously followed.

1. Use the correct computer data-type cable. Proper DMX cable is twisted pair, foil and braid shielded, low capacitance, and 100 to 120 ohm impedance. IT IS NOT MICROPHONE CABLE even though it looks similar.
2. Although DMX standards require 5-pin XLR-type connectors, many manufacturers use 3-pin XLRs, thus causing even more confusion with microphone cables.
3. The 5-pin XLR is wired pin 1=shield, pin 2 data-, pin 3 data+, with pins 4 and 5 not connected, except for proprietary use by some manufacturers. The shield should not be connected to the shell. If 3-pin XLRs are used, they are wired exactly the same for pins 1, 2 and 3.
4. DMX fixtures or devices are "daisy-chained" to each other via IN and OUT jacks on each device. The fixture at the end of the daisy-chain must be "terminated", either with the fixture's termination switch or an external terminator plugged into the last OUT jack. There is a limit to the length of cable and number of fixtures on a chain, but this is only relevant in large installations.
5. Never use "Y" cables to split a DMX signal. Active (powered) splitters must be used to distribute a DMX signal if this is necessary. An example would be the need for DMX over the stage as well as a position out in the house in a proscenium theatre. It would be unwieldy to form a single daisy-chain in this instance, so by using a splitter two separate chains can be created, each of which is terminated at its endpoint.

6. Each individual fixture or device must have a DMX address, so it can pick off the information addressed to it in the multiplex data stream sent by the DMX transmitter (lighting console). The address must be in the same range generated by the transmitter. If your console is sending DMX addresses 1 through 8 and you set your fixtures to addresses 9 through 16, they will not receive any information.

IMPORTANT NOTE concerning DMX ADDRESSES on the *dmxB* :

Even though you might call up your DMX channels as 25 through 32 on the Microstar, your fixtures' DMX addresses will be 1-8. You will notice a set of tiny "dip switches" on the *dmxB* interface card. They set the DMX output starting address, which presently corresponds to DMX address 1. Should you wish to reset the address to match the Microstar DMX channel numbers, please contact Dimmer Ideas for instructions and we will be happy to send you a chart showing the switch settings for all 512 possible start addresses. As currently set, if the *dmxB* is plugged into card #2 (Microstar control channels 17-32), Microstar channel 25 will control DMX address 1, Microstar channel 26 will control DMX address 2, etc. Remember--the *dmxB* is set to mirror the last 8 channels of the Microstar card to which it is connected!

7. To complicate things, the Rosco I-Cue and various color scrollers use 4-pin XLR "scroller cables" to transmit both DMX and power, so the required power supply and cables must be obtained along with the device to make a working system. Usually, a 5-pin XLR cable connects the *dmxB* or standard DMX console to the power supply, and a 4-pin XLR cable connects the power supply to the I-Cue or scroller. Any further device daisy-chaining is then done with 4-pin XLR cables.
- While many scroller power supplies will work with the I-Cue, some reverse the power connections and will severely damage the I-Cue or other scrollers. You must be very careful in mixing and matching any devices using 4-pin XLR cables! Call Dimmer Ideas for assistance!

TROUBLESHOOTING TIPS:

1. Next to wrong address setting, the most common problem with DMX is reversed cable polarity. If the DMX device exhibits strange behavior like flickering or random movement, or does not respond, it is likely pins 2 and 3 have been reversed at one end of a cable. Disconnect all cables and perform a continuity check or substitute a known good cable. Also, make sure the 3 wires from the gray DMX cable are attached to the 3-screw terminal strip on the *dmxB* in the correct order!
2. Secondly, if the Microstar output voltage is even a little over 10 volts at full, the DMX channels will be forced to zero level in the *dmxB*. A high end trim pot is located at the top rear of each Microstar card and may be adjusted to get slightly under 10 volts, i.e. 9.90 volts DC.

The only way to verify this is with a voltmeter measurement between the GND (negative) and one of the channel terminals (positive) on the 9-screw terminal strip with that channel set to full. The adjustment is so small that it will not affect any dimmers controlled by this Microstar card.

If you have any questions regarding the use of your *dmxB* interface, do not hesitate to call Dimmer Ideas at 580-536-0559 or e-mail us at tetinc@yahoo.com.