xDMX8

8 Channel DMX Lighting Dimmer

User Manual

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Introduction

Congratulations on your purchase of the xDMX. This controller is part of our xDMX line of lighting controllers. It was designed as a commercial based DMX lighting controller perfect for indoor and outdoor lighting applications. The controller is a microprocessor based, intelligent controller than can perform a number of different lighting effects. The controllers can easily be daisy chained via the Cat-5 cabling or XLR cabling up to a maximum of 32 devices.

The xDMX can be used with a variety of sequencing software packages or DMX consoles. The software will allow you to sequence various lighting commands and allow you to create lighting shows based on a schedule. You will also need a DMX dongle, like the xDONGLE, to communicate to between the computer and the lighting controllers.

This controller is designed to control incandescent or line voltage LED lighting. It operates at 120 VAC at 60Hz. It can handle up to 15 amps with the included heat sink per bank. This configuration will allow you to control large quantities of LED lights. The controller also features an expansion port which allows the user to connect up to 3 additional 8 channel controllers (xEXP8) to make one single 32 channel controller.

Information as far as channel settings, powering options and address settings can be found throughout this manual. You will also learn how to use the expansion port and what is needed to make the additional channels function

Please take the time to read the following sections of this manual. Be sure to fully understand all the information provided in this manual before powering any xDMX8 units. Failure to understand the information provided here could render your unit useless.

***Disclaimer!** This device uses potentially deadly voltages in operation. If you do not feel it is within your ability to work with these voltages please stop and get assistance, or purchase a ready built product. Improper use of this equipment could be hazardous to life and property and the suitability of use is your responsibility. Seasonal Entertainment assumes no responsibility in the use or operation of this equipment.

In the Box

When you receive your xDMX8 the package should contain the following:

- Circuit Board and component parts *(if a DIY kit)*
- Fully assembled xDMX8
- Two 6' AC power cord
- Outdoor enclosure *(optional)*

The most recent copy of both the Assembly Manual and User Manual can be found at www.seasonalentertainmentllc.com. Click on the *Downloads* page and locate the product you are working on.

Applications

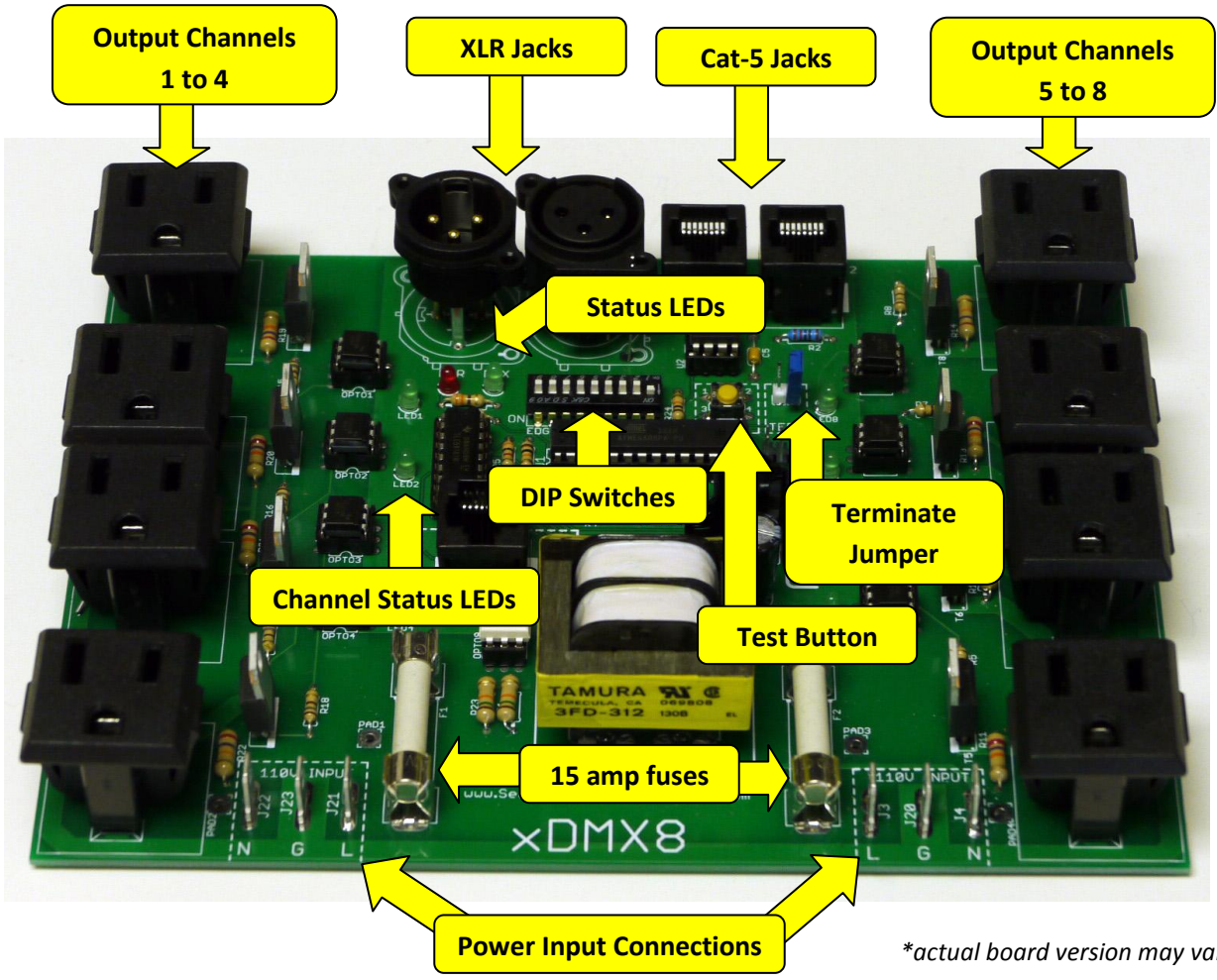
The xDMX8 is part of our full line of commercial DMX lighting products and lighting control products. This device, with the use of countless pieces of software, allows the end user to create stunning lighting displays quickly and easily. The device switches currents at 110 VAC and powers various types of lighting, motors, pumps and most any device powered by 110 VAC. The device also features 3 pin XLR jacks and Cat-5 standard DMX jacks to allow easy connectivity to almost any DMX devices on the market. The unit also features two LEDs to indicate power and DMX activity and channel status LEDs. Microprocessor control allows for reliable operation, even on the oldest computers.

- LED lighting
- Incandescent lighting
- Pool and pond pumps
- Landscape lighting
- Security lighting
- Machine motors

The remainder of this manual assumes you have fully assembled your xDMX8 unit. If you have not done so, please fully assemble your unit as per the instructions in the Assembly Manual.

Understanding the xDMX8

Each xDMX8 features two banks of 4 channels. These channels are controlled via triacs for smooth channel operation. Each channel has it's own 3 pronged outlet to easily connect the light, device or extension cord to. The power is supplied via the included 6ft, 16ga cords. The power connected to the device will power the attached devices as well as the on board components. Address is set via the on board DIP switches. Data is connected via XLR or Cat-5 cables. DMX termination is done via the on board termination jack. Entering the test mode is done via the on board push button. The controller and channels are protected via a 15 amp, fast acting fuse.



*actual board version may vary

Hardware Functions

Setting the Address

The xDMX8 uses a standard DIP switch for setting its DMX address. The technique for setting the address is not difficult to understand, but if you have never set a device like this, you will need to read the following section carefully.

Begin by setting all the pins of the DIP switch to the "Off" side of the switch. This position will give the unit an address of 0. This is not an acceptable DMX address but the xDMX8 will automatically set this address to "1." If you purchase your xDMX8 assembled from us the default factory setting is set to an address of "1." We must now understand what value each switch has. To the right, you will find a chart that shows what value each switch has. Below, there are some examples of a DMX address set by this switch.

Switch #	DMX Value
1	1
2	2
3	4
4	8
5	16
6	32
7	64
8	128
9	256

DMX Addressing Examples

To set the start address of the unit, you need to add together the values of the pins and turn those pins "on."

For example, to set the unit to Address 24, Pin # 5 and Pin #4 would be turned on. If you add up their values (16+8) you get a value of 24. That would then be the address of the unit.

Another example would be to set the unit to Address 17. To get this address you would turn on Pin #5 and Pin #1. This is because their values (16+1) give you an address of 17.

Another example would be to set the unit to Address 387. To get this address you would turn on Pin #9, Pin #8, Pin #2 and Pin #1. This is because their values (256+128+2+1) give you an address of 387

Also note that the highest possible address for any xDMX8, without an expansion board, is 504.

Data Cable Connections

Each of our "X" line of DMX controllers features both 3 pin XLR jacks and DMX standard Cat-5/modular jacks. These jacks are used to connect the data into the controller and also help daisy chain the data to the next controller in line. Please note there only can be one input connection and one DMX Thru/Out connection per board. The additional jacks do not act as a way of splitting the DMX data signal. However, you can use any combination of input and outputs you would like. For example, you can input via XLR cable and output via Cat-5 cable. Or you can input via Cat-5 cable and output via XLR cable. The controller does not care.

Connecting to a Computer

When connecting your xDMX controllers to a computer you will need to use some form of DMX dongle. The xDMX line of controllers does not care what type DMX dongle you use, just as long as it puts out standard DMX data. We strongly recommend using the xDONGLE to send data out to your controllers, however it is not required. Whatever dongle you choose to use, please be sure to fully read and understand how your DMX dongle functions. Be sure to install all the necessary device drivers as well as set up your software to output to the correct COM port and DMX dongle.

Connecting to a DMX Console

Connecting to your DMX console is as simple as connecting to the DMX Out of the console. Most commercial DMX consoles will feature XLR outputs. Use the XLR input on your xDMX controllers to quickly connect the data stream.

Status LEDs

Each xDMX controller features a red power and a green DMX LED. These LEDs are used to show the status of the controller. When power is properly applied to the device the red LED will illuminate solid. The DMX status LED has a few different blink patterns to illuminate the controller's status. When the xDMX controller is not connected to a DMX network it will not blink at all. When the xDMX controller is connected to a DMX network it will blink at a rate of about two flashes per second. When the xDMX controller is receiving DMX data it will blink at a rate of about 4 flashes per second. It will only blink at double the speed when the device is receiving the commands for that particular unit.

Green Status LED Flash Patterns	
No Blinking	*Not connected to a DMX network*
2 flashes per second	*Connected to a DMX network*
4 flashes per second	*Device is receiving DMX commands for the unit*

Channel Status LEDs

Each xDMX8 controller features one green LED per channel output. This LED will do exactly what the channel should be doing. For example, if your channel is supposed to be fading up from 0 to 100% over a 10 second period, the green LED will also fade from 0 to 100% over a 10 second period. The channel status LEDs can be very helpful in viewing a setup without having to attach any lights. It can also be helpful in diagnosing any problems.

Power Connections

Power Input Connections

Each xDMX8 controller features two channel banks. Each channel bank features its own power input which powers the attached devices as well as the on board components. Included in your package will

be two 6ft, 16ga power cord with 3-isolated quick connect tabs. Each tab is connected to one color wire; white, black and green. No matter if your purchase the controller is a DIY kit or fully assembled you will need to attach the power cord. On the controller you will notice there are 3 posts labeled “L,” “N,” “G.” The “G” is the ground connection, which is very important for outdoor use. The green wire from the power cord gets attached to this post. The “L” post is the line or hot connection and you should attach the black wire here. The “N” post is the neutral connection and you should attach the white wire here.

To make the connection, push the quick connect ends onto the posts. Be sure that the quick connect ends are securely attached to the posts. This connection will feature potentially dangerous line voltage and it is imperative that the connection is made securely.

Single Power Input Connection

The xDMX8 gives the user the ability to attach one single power input by jumping the line/hot and neutral connections. It is important to remember that when using a single power input the controller will no longer be able to handle 30 amps but rather 15 amps max, across the entire board. To make the board use a single power feed you will need two 14 to 16 gauge wires cut to a length of 8”. Strip the wiring off of the end. You will need to solder the wires to the following pads.

PAD1 to PAD3
PAD2 to PAD4

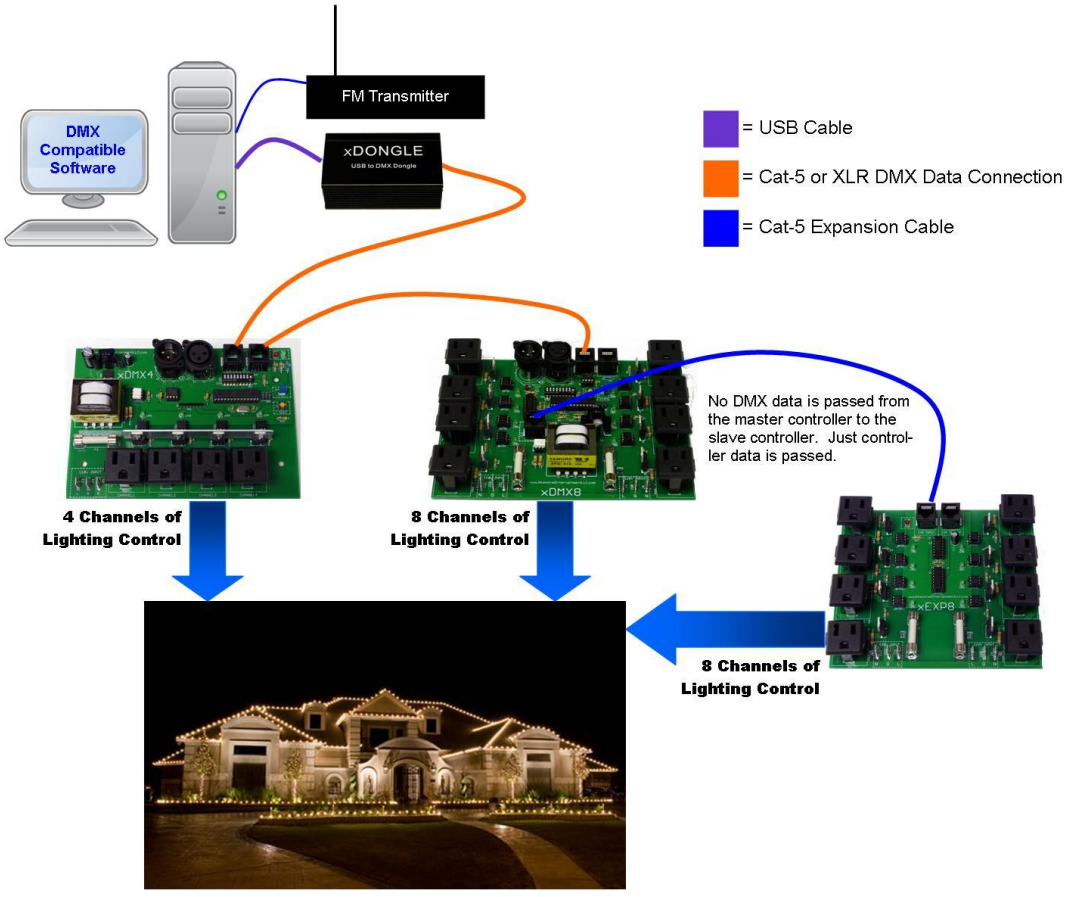
Power input connect can be made on any bank of input terminal tabs. It does not matter which side you choose.

Power Output Connections

Each of our AC powered xDMX controllers feature on board power outlets. These outlets are used just like wall outlets to connect your lighting devices to the controller. They are 3-pronged outlets and all the ground connections are tied together for safe outdoor operation. You can plug any sort of power cord into these outlets. It is important to note that if you are using the xDMX outdoor enclosure you are limited to 3” of max headroom from the top of the outlet to the bottom of the enclosure lid.

Expansion Port

Every xDMX8 controller features a single expansion port connection. It is important to understand that no DMX data is sent through this port. There is voltage present on this port and connecting a DMX data line to this port will all but **render your controller useless.** This port is used to connect to additional 8 channel expansion boards from Seasonal Entertainment. Currently the xEXP8 is available. When connecting between the xDMX8 and the xEXP8 boards the xDMX8 will act as a master controller and the xEXP8 will act as slaves. There is no need to change any settings on the master controller; it will automatically control the attached devices. What is important to realize is by attaching 2 expansion boards to the xDMX8, the controller is now a 24 channel controller instead of just an 8 channel controller. This means if you set the controller to a start address of 1, then next controller attached to your DMX data line will have a start address of 25.



To make the connection between the xDMX8 and the xEXP8 the user should use a standard cat-5 cable that is **LESS THAN 15FT LONG.** It is very important to keep the cable distance between the master controller and subsequent slave controllers as short as possible. It is also important to ensure you input the slave connection into the EXP INPUT side of the expansion board.

Test Mode

Each xDMX controller features a built in test mode. This mode allows the user to test the outputs of the controller without having a DMX data signal connected. This can be useful for testing your attached lights without having to add your DMX control source. Test mode can be entered at any time, even when receiving DMX data. If the controller is receiving DMX data and test mode is entered, it will complete the test and again start responding to the DMX data commands.

To enter test mode, press the push button labeled "TEST" twice within a 5 second period. To indicate test mode has been entered the DMX status light will blink 4 times very quickly. The test will then scroll through all 8 channels, one at a time. Each time a channel is supposed to turn on the DMX status light will blink once. Once the test is complete the DMX status light will again blink 4 times very quickly, indicating the controller is exiting test mode.

Testing with Expansion Board Attached

When an expansion board(s) is attached to the xDMX8 controller the subsequent channels will turn on at the same time as the master controller. For example, when channel one on the master controller is turned the first channel of each attached expansion board will also turn on. The individual channels of the attached expansion boards will not go on by themselves, just when the master controller channels do.

Channel Current Handling

The xDMX8 comes with an aluminum heat sink that is used to more effectively dissipate the heat from the control triacs. If you purchased the controller fully assembled the heat sink will already be installed. However, if you purchased the controller as a DIY kit you will have to install the heat sink during assembly. You do not need to operate the controller with this heat sink installed however your current handling capacity will be reduced.

Each controller is rated at a max of 30 amps, 15 amps per bank. Each channel can handle a max of 8 amps. Knowing the current draw of your attached devices is key to ensuring the safety and longevity of your controller.

Snubbers

The xDMX8 controller has built in "snubbers" to help with smooth dimming with low current draw loads. Snubbers are just resistors built into the controller which creates a phantom load across the channel. This additional load "tricks" the controller into believing that there is more current on the channel then there really is. Snubbers are especially useful when LED lights are used and the current draw is not large enough to fully turn off the channel. This will sometimes result in leaked voltage that will keep the lights on when they aren't intended to be on or flickering as the lights fade off. In the past lighting installers would have had to install additional loads at the end of these strings to help with the fading. That no longer needs to happen with the xDMX line of lighting controller.

Sequencing

The xDMX controllers can handle any lighting effects set by any current sequencing software. The controller supports on/off commands, fading up and down, twinkling, shimmer and intensities. Sequencing can be completed like any other lighting controller on the market.

You're Done!

That's it. You have completed the setup and sequencing of your xDMX8 controller. Now just sit back and enjoy the light show!

Troubleshooting

If you are having a problem, check out the *Downloads* page on www.seasonalentertainmentllc.com. There you will find a list of common problems that should be able to help you along. In the event that doesn't answer your question, do not hesitate to send an email to support@seasonalentertainmentllc.com