Part No. ELDMX16 (light controller in enclosure) and Part No. BLDMX16 (light controller only)

PowerPrism DMX Professional Light Controllers Instruction Guide

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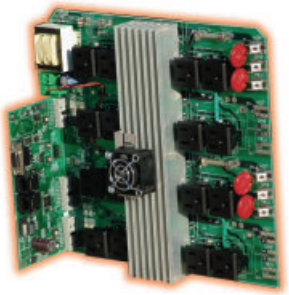
Part No. ELDMX16



Part No. BLDMX16

Overview

The PowerPrism DMX Light controller is a microprocessor-controlled light controller that is part of Animated Lighting's line of intelligent animation controllers. It has been designed to be extremely durable and operate reliably for years to come.

Power Handling

The Pro Series ELDMX16 and BLDMX16 controllers described in this document handle 10 amps maximum per channel with a maximum of 30 amps total per controller. It's important to remenber that in most cases you will not be pulling 30 amps continuously because lights will be cycling on and off or running at reduced levels (dimmed).

If you are interested in a PowerPrism lighting controller that can handle loads in excess of 30 amps per controller or if you need a controller in an enclosure configured with terminal strips for direct wire connection, please contact Animated Lighting.

Most North American household power outlets/sockets are rated at 15 amps maximum at 120VAC.and North American commercial power outlets/sockets are rated at 20 amps maximum at 120VAC. The ELDMX16 is supplied with two power cords, and each should be plugged into a different outlet (on different circuits) in order to reach the 30 amp maximum (15 amps each cord). Units that operate on 240VAC and have terminal strip outputs are available.

The PowerPrism series also offers multi-phase capabilities. It can be used on one- or two-phase installations and correctly detect what phase each power input is connected to.

The heat sink will get quite warm when run at full capacity at 100% duty cycle. If you bought the BLDMX16 (bare board without the enclosure), the board should be mounted so air can circulate around the heat sink.

The fan will automatically run as the board warms up. Its purpose is to circulate the air by removing the hottest air next to the heat sink.

Setting Up the BLDMX16: Connections

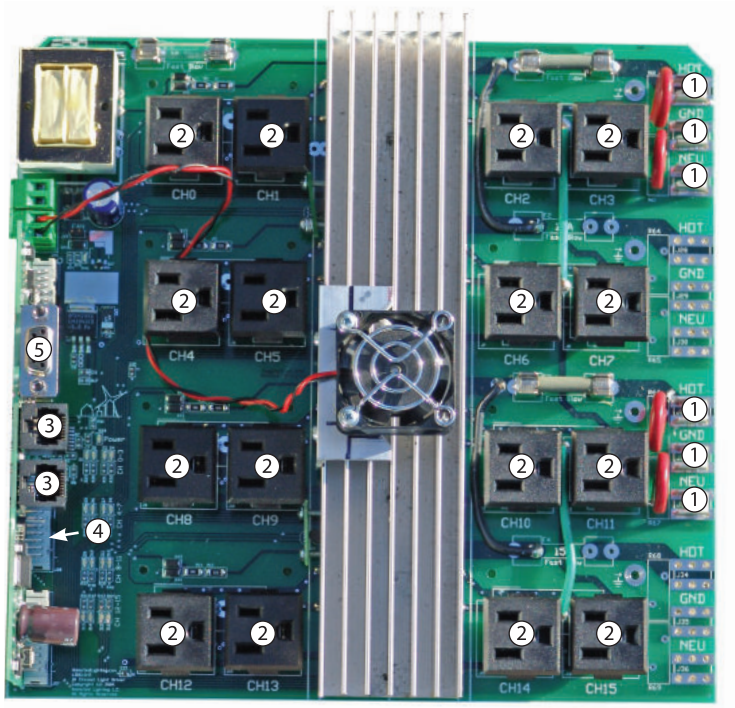
Refer to the following diagram of the PowerPrism16 board for connection information.

① **Power In:** There are two sets of power input terminals. Each should be connected to a separate 15 amp power source. The power input connectors are 3 screw terminals labeled AC Ground, AC Neutral, and AC Hot. Make sure you connect all three to a properly rated electrical plug.

② **Channel Outs:** The light outputs are labeled 0 through 15 and are standard 3 prong Edison sockets. Your light strings (or extension cords) plug directly into these sockets.

③ **RS485:** There are two RJ45 jacks for connecting the light controller to your DMX data network and other controllers. They are located on the small plug-in board attached to the main controller. All controllers are connected in a daisy-chain. Both connectors are identical so you can use either one. Standard network cabling can be used to connect the controllers. These cables are available from local electronics stores, most large hardware stores, or Animated Lighting.

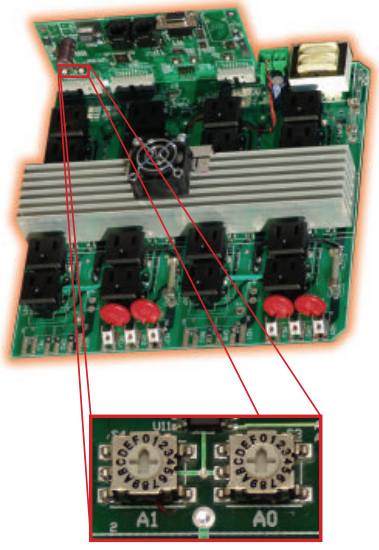
④ There is a termination jumper for the RS485 connection. In small setups or short cable runs this jumper usually doesn't need to be installed. On longer runs, this jumper should be installed on the first and last controllers in the daisy-chain.



⑤ **Serial In:** There is an RS232 DB9 serial connector for use with other software that uses RS232 signaling rather than RS485 signaling.

Setting Up the BLDMX16: Controller Addressing

Each light controller in the system can have a unique starting channel number. This is how the system differentiates one output or channel from another. The controller's starting channel is set using the two rotary address switches on the board. There are 16 positions on each switch allowing a possible 256 possible settings (16 x 16). Reference page 6 of this manual to determine the proper switch settings for the desired starting DMX channel.



Each light and/or device in the system has its own light channel. Valid channel numbers are 1 through 512.

Typically you would set each controller's starting channel to a unique number, making sure the channels don't overlap from controller to controller. However, this is not a requirement. It is possible to overlap channels on controllers. If two controllers have the same channels then those channels will do the same thing (e.g. first controller has channels 1 through 16, second controller has channels 8 through 23, etc). This feature makes it very easy to have two controllers doing the same thing without needing to control more channels.

Indicator LEDs

There are three indicator LEDs on the controller board. They are located on the small plug-in board attached to the main controller.

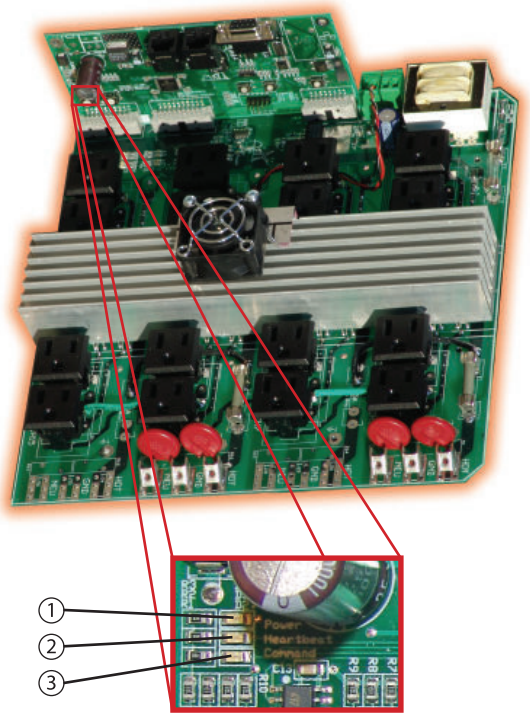
① **RED POWER LED:** Lights constantly if the controller is powered on.

② **RED HEARTBEAT LED:** Blinks continuously when the controller is operating properly.

③ **COMMAND INDICATOR:** Lights whenever the controller is receiving data.

If the Power and Command LEDs are both on solid, it means the board has entered bootloader mode. This means the program on the controller has detected a problem and new firmware needs to be installed. This can easily be done using Animation Director.

There are also 16 channel indicator LEDs. These will light when a channel is turned on. These can be used to visually verify whether the controller has received data and turned on the proper channel.



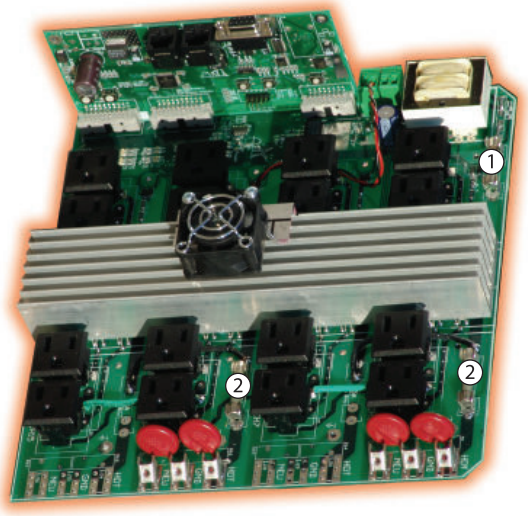
Fuses

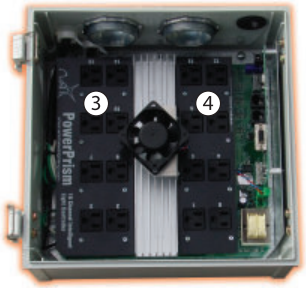
There are three fuses on the controller board.

① The small one is a 1 amp fuse for the board's low-voltage power supply.

② The larger two are 15 amp fast blow fuses for protecting the high voltage circuitry in case of overload or a short.

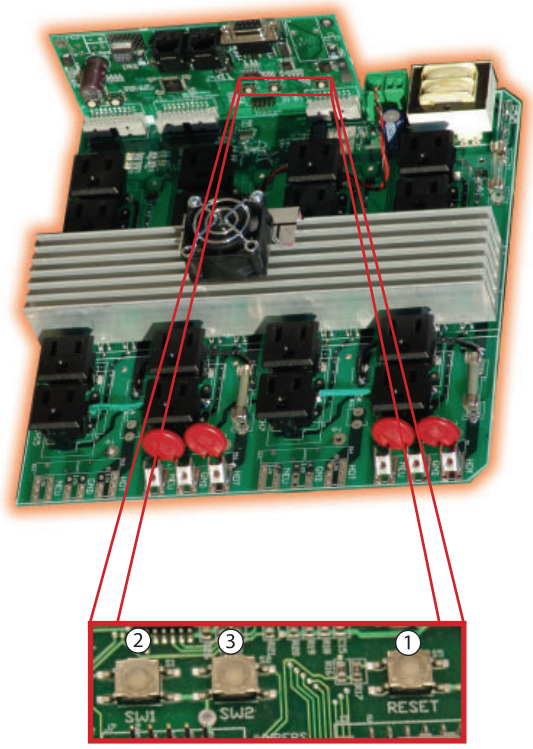
If you have the ELDMX16 unit the fuses are under the left ③ and right ④ cover panels, which can be removed with a screw driver.





Switches and Controls

There are three pushbutton switches on the controller. They are located on the small plug-in board attached to the main controller.



① **RESET:** The first switch is labeled RESET. This switch resets the onboard microprocessor. This should be used if the address switches are changed, or the controller appears to be frozen. You should rarely if ever need to use this switch.

② **SW1:** The second switch, labeled SW1 is the Test Switch. It will cause the controller to turn the lights on in order. This will help you diagnose mis-wires or burned out lights.

③ **SW2:** The third switch, labeled SW2 is not used.

Troubleshooting Guide and F.A.Q.

If the unit isn't working the fastest test that can be done is to substitute a known working unit in place of the suspected unit to see if it works in the same conditions. Remember to make sure the address switches are set exactly the same as the suspected unit.f

Here's a checklist to follow if you experience problems:

- Does the unit have power? Is the power LED lit?
- Is the heartbeat LED blinking to indicate proper operation? If it isn't try pressing and releasing the reset button.
- Are the address switches set to an address that should be receiving data?
- Do the lights run the test pattern when the test (SW1) pushbutton is pressed? First look at the indicator LEDs and see if they are running the pattern. If so, and the lights are not working you probably have a blown fuse or one of the plugs is connected to a circuit that is not powered.
- Try disconnecting every other piece of equipment from the light controller and get it working stand-alone using the test (SW1) button. Then begin connecting other devices one at a time to see if something external is causing a failure.
- If the unit shows no response to commands, is the RS485 cable connected between the light controller and unit that is transmitting DMX data? Can you communicate to other controllers?
- Are all power cords plugged into live circuits? Even if you aren't using all of the channels of the light controller, it is a good idea to plug all power inputs to live circuits. If power inputs are left unconnected, the light controller may misinterpret noise picked up by that floating input and the outputs may flicker.

Technical Specifications

- **Power Input:** Two 15-amp power cords 120VAC/60Hz (240V/50Hz optional)
- **Multi-Phase Operation:** Each power input will automatically detect the phase it is connected to and operate properly.
- **Channels:** 16
- **Channel Capacity:** 10 amps per channel
- **Board Capacity:** 30 amps (up to 60 amps in other configurations)
- **Protection:** Two inputs fused at 15 amps each, Transient protected with Metal Oxide Varistors (MOVs)
- **Output:** Edison Outlets (terminal strips optional)
- **Isolation:** Low-voltage section is optically isolated from high voltage
- **Control Input:** RS485 via RJ45 Jacks
- **Addressing:** Up to 512 DMX channels supported (up to 16 per controller)

Appendix A

Use this table to help convert the address switch setting to the starting DMX channel for the unit. The first number of each Hex Switch pair is for rotary switch A1 and the second number of each pair is for rotary switch A0. **Note: F-9 through F-F is at the end of range and has reduced dimmer count.*

Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel	Hex Switch A1-A0	DMX Start Channel
0-0	1	2-0	65	4-0	129	6-0	193	8-0	257	A-0	321	C-0	385	E-0	449
0-1	3	2-1	67	4-1	131	6-1	195	8-1	259	A-1	323	C-1	387	E-1	451
0-2	5	2-2	69	4-2	133	6-2	197	8-2	261	A-2	325	C-2	389	E-2	453
0-3	7	2-3	71	4-3	135	6-3	199	8-3	263	A-3	327	C-3	391	E-3	455
0-4	9	2-4	73	4-4	137	6-4	201	8-4	265	A-4	329	C-4	393	E-4	457
0-5	11	2-5	75	4-5	139	6-5	203	8-5	267	A-5	331	C-5	395	E-5	459
0-6	13	2-6	77	4-6	141	6-6	205	8-6	269	A-6	333	C-6	397	E-6	461
0-7	15	2-7	79	4-7	143	6-7	207	8-7	271	A-7	335	C-7	399	E-7	463
0-8	17	2-8	81	4-8	145	6-8	209	8-8	273	A-8	337	C-8	401	E-8	465
0-9	19	2-9	83	4-9	147	6-9	211	8-9	275	A-9	339	C-9	403	E-9	467
0-A	21	2-A	85	4-A	149	6-A	213	8-A	277	A-A	341	C-A	405	E-A	469
0-B	23	2-B	87	4-B	151	6-B	215	8-B	279	A-B	343	C-B	407	E-B	471
0-C	25	2-C	89	4-C	153	6-C	217	8-C	281	A-C	345	C-C	409	E-C	473
0-D	27	2-D	91	4-D	155	6-D	219	8-D	283	A-D	347	C-D	411	E-D	475
0-E	29	2-E	93	4-E	157	6-E	221	8-E	285	A-E	349	C-E	413	E-E	477
0-F	31	2-F	95	4-F	159	6-F	223	8-F	287	A-F	351	C-F	415	E-F	479
1-0	33	3-0	97	5-0	161	7-0	225	9-0	289	B-0	353	D0-	417	F-0	481
1-1	35	3-1	99	5-1	163	7-1	227	9-1	291	B-1	355	D-1	419	F-1	483
1-2	37	3-2	101	5-2	165	7-2	229	9-2	293	B-2	357	D-2	421	F-2	485
1-3	39	3-3	103	5-3	167	7-3	231	9-3	295	B-3	359	D-3	423	F-3	487
1-4	41	3-4	105	5-4	169	7-4	233	9-4	297	B-4	361	D-4	425	F-4	489
1-5	43	3-5	107	5-5	171	7-5	235	9-5	299	B-5	363	D-5	427	F-5	491
1-6	45	3-6	109	5-6	173	7-6	237	9-6	301	B-6	365	D-6	429	F-6	493
1-7	47	3-7	111	5-7	175	7-7	239	9-7	303	B-7	367	D-7	431	F-7	495
1-8	49	3-8	113	5-8	177	7-8	241	9-8	305	B-8	369	D-8	433	F-8	497
1-9	51	3-9	115	5-9	179	7-9	243	9-9	307	B-9	371	D-9	435	*F-9*	*499**
1-A	53	3-A	117	5-A	181	7-A	245	9-A	309	B-A	373	D-A	437	*F-A*	*501**
1-B	55	3-B	119	5-B	183	7-B	247	9-B	311	B-B	375	D-B	439	*F-B*	*503**
1-C	57	3-C	121	5-C	185	7-C	249	9-C	313	B-C	377	D-C	441	*F-C*	*505**
1-D	59	3-D	123	5-D	187	7-D	251	9-D	315	B-D	379	D-D	443	*F-D*	*507**
1-E	61	3-E	125	5-E	189	7-E	253	9-E	317	B-E	381	D-E	445	*F-E*	*509**
1-F	63	3-F	127	5-F	191	7-F	255	9-F	319	B-F	383	D-F	447	*F-F*	*511**

Support Issues or Questions

- **Phone:** 816.941.0400 (9 a.m. to 5 p.m. CST, M-F excluding holidays)
- **Email:** support@animatedlighting.com
- **Forum:** http://support.animatedlighting.com

Warranty and Disclaimer

- Please consult www.animatedlighting.com for product warranty and disclaimer information.