EM·PULSE

blizzard LIGHTING

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- This Lovely User Manual

Getting It Out Of The Box

Congratulations! You are now the proud owner of one intensely bright, multitalented strobe fixture that is sure blast a ton of fun into your light show! Now that you've got your EM-Pulse™ (or hopefully, EM-Pulse*'s!*), you should carefully unpack the box and check the contents to ensure that all parts are present and in good condition. If anything looks as if it has been damaged in transit, notify the shipper immediately and keep the packing material for inspection. Again, please save the carton and all packing materials. If a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Powering Up!

All fixtures must be powered directly off a switched circuit and **cannot be run off a rheostat (variable resistor) or dimmer circuit, even if the rheostat or dimmer channel is used solely for a 0% to 100% switch**.

AC Voltage Switch - Not all fixtures have a voltage select switch, so please verify that the fixture you receive is suitable for your local power supply. See the label on the fixture or refer to the fixture's specifications chart for more information. A fixture's listed current rating is its average current draw under normal conditions. Check the fixture or device carefully to make sure that if a voltage selection switch exists that it is set to the correct line voltage you will use.

Warning! ***Verify that the voltage select switch on your unit matches the line voltage applied. Damage to your fixture may result if the line voltage applied does not match the voltage indicated on the voltage selector switch. All fixtures must be connected to circuits with a suitable Ground (Earthing).***

Getting A Hold Of Us
If something is wrong, just give us a call. We'll be happy to help, honest.

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SAFETY INSTRUCTIONS

Please read these instructions carefully. They include important information about the installation, usage and maintenance of this product.

Please note: Certain people with epilepsy and photosensitivity may suffer a seizure if exposed to flashing or strobe lighting. If strobe lighting is to be used in a production, warnings should be posted at the front of house or entrance doors to the theater as well as in a program, if distributed. Example: "WARNING: Strobe lights are used during this performance."

- Please keep this User Guide for future use. If you sell the unit to someone else, be sure that they also receive this User Guide.

- ALWAYS make sure that you are connecting to the proper voltage, and that the line voltage you are connecting to is not higher than that stated on the decal or rear panel of the fixture.

- Make sure there are no flammable materials close to the unit while operating.

- The unit must be installed in a location with adequate ventilation, at least 20in (50cm) from adjacent surfaces. Be sure that no ventilation slots are blocked.

- ALWAYS disconnect from the power source before servicing or replacing fuse and be sure to replace with same fuse size and type.

- ALWAYS secure fixture using a safety chain. NEVER carry the fixture by its cord. Use its carrying handles.

- DO NOT operate at ambient temperatures higher than 104°F (40°C).

- In the event of a serious operating problem, stop using the unit immediately. NEVER try to repair the unit by yourself. Repairs carried out by unskilled people can lead to damage or malfunction. Please contact the nearest authorized technical assistance center. Always use the same type spare parts.

- NEVER connect the device to a dimmer pack.

- Make sure the power cord is never crimped or damaged.

- Never disconnect the power cord by pulling or tugging on the cord.

- Avoid direct eye exposure to the light source while it is on.

Caution! There are no user serviceable parts inside the unit. Do not open the housing or attempt any repairs yourself. In the unlikely event your unit may require service, please go to our website and open a support ticket at www.blizzardlighting.com/tickets.

2. MEET THE EM-PULSE™ LED STROBE FIXTURE

MAIN FEATURES

- Super bright output via 1,452 white SMD LEDs
- Intense built-in strobe programs + random strobe
- 3/9-segment pixel modes can safely be used as wash (max 40% brightness)
- Built-in over heat protection temperature sensor to extend the lamp life
- Variable electronic strobe & 16-bit dimmer
- User adjustable flash rate of 0-30 flashes per second
- Flash duration can be set from 0-650ms in DMX mode
- 7000Hz LED scan rate
- 4-button easy to use LCD control panel menu
- Aluminum mounting bracket with locking knobs + base plate
- 3-pin & 5-pin DMX Input/Output
- PowerCon™ compatible AC power In/Out connectors

DMX Quick Reference (1/3/4/6/7/16-Channel Modes)

Channel Mode						What it does
1	**3**	**4**	**6**	**7**	**16**	
---	1	1	1	1	1	Master Dimmer (0-100%)
---	---	---	2	2	2	Segment 1-3 Intensity (0-100%)
---	---	---	3	3	3	Segment 4-6 Intensity (0-100%)
---	---	---	4	4	4	Segment 7-9 Intensity (0-100%)
---	2	2	5	5	5	Flash duration (0-full on)
1	3	3	6	6	6	Strobe rate (0-30Hz)
---	---	4	---	7	7	Built-In Effects
---	---	---	---	---	8	Segment 1 Intensity (0-100%)
---	---	---	---	---	9	Segment 2 Intensity (0-100%)
---	---	---	---	---	10	Segment 3 Intensity (0-100%)
---	---	---	---	---	11	Segment 4 Intensity (0-100%)
---	---	---	---	---	12	Segment 5 Intensity (0-100%)
---	---	---	---	---	13	Segment 6 Intensity (0-100%)
---	---	---	---	---	14	Segment 7 Intensity (0-100%)
---	---	---	---	---	15	Segment 8 Intensity (0-100%)
---	---	---	---	---	16	Segment 9 Intensity (0-100%)

DMX Quick Reference (3/9-Channel: Pixel Modes)

3-Channel Pixel Mode		9-Channel Pixel Mode
1	Segment 1-3 Intensity (0-100%)	Segment 1 Intensity (0-100%)
2	Segment 4-6 Intensity (0-100%)	Segment 2 Intensity (0-100%)
3	Segment 7-9 Intensity (0-100%)	Segment 3 Intensity (0-100%)
4	---	Segment 4 Intensity (0-100%)
5	---	Segment 5 Intensity (0-100%)
6	---	Segment 6 Intensity (0-100%)
7	---	Segment 7 Intensity (0-100%)
8	---	Segment 8 Intensity (0-100%)
9	---	Segment 9 Intensity (0-100%)

Figure 1: The EM-Pulse™ Pin-Up Picture

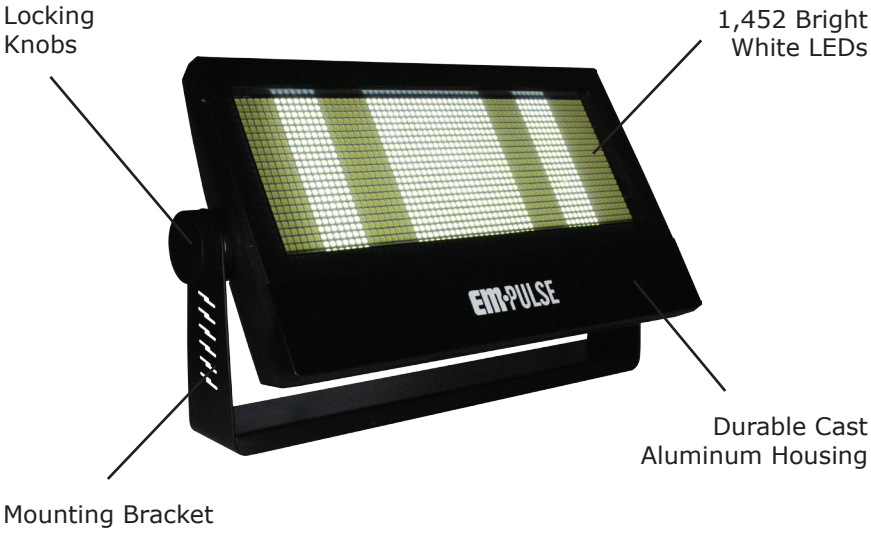
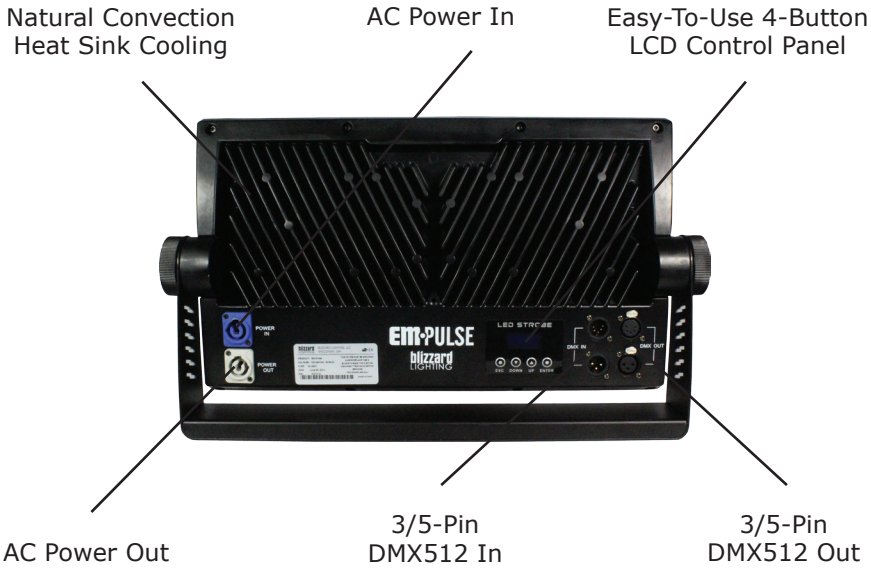


Figure 2: The Rear Connections



3. SETUP

Before replacing a fuse, disconnect power cord. ALWAYS replace with the same type and rating of fuse.

Fuse Replacement

CAUTION! The EM-Pulse™ utilizes a high-output switch-mode power supply with an internal fuse. Under normal operating conditions, the fuse should not require replacement. The fuse is field replaceable, however it is an advanced procedure suited to qualified individuals. Should your EM-Pulse™ fuse require replacement, please contact Blizzard Lighting for instructions, or to return your unit for service.

Connecting A Bunch of EM-Pulse™ Fixtures

You will need a serial data link to run light shows using a DMX-512 controller or to run shows on two or more fixtures set to sync in master/slave operating mode. The combined number of channels required by all the fixtures on a serial data link determines the number of fixtures the data link can support.

Fixtures on a serial data link must be daisy chained in one single line. Also, connecting more than 32 fixtures on one serial data link without the use of a DMX optically-isolated splitter may result in deterioration of the digital DMX signal. The maximum recommended cable-run distance is 500 meters (1640 ft). The maximum recommended number of fixtures on a serial data link is 32 fixtures.

Data/DMX Cabling

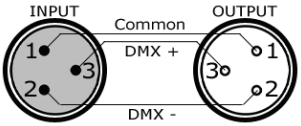
To link fixtures together you'll need data cables. You should use data-grade cables that can carry a high quality signal and are less prone to electromagnetic interference.

For instance, Belden© 9841 meets the specifications for EIA RS-485 applications. Standard microphone cables will "probably" be OK, but note that they cannot transmit DMX data as reliably over long distances. In any event, the cable should have the following characteristics:

2-conductor twisted pair plus a shield
Maximum capacitance between conductors – 30 pF/ft.
Maximum capacitance between conductor & shield – 55 pF/ft.
Maximum resistance of 20 ohms / 1000 ft.
Nominal impedance 100 – 140 ohms

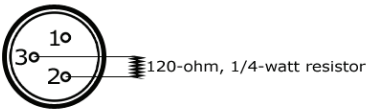
Cable Connectors

Cables must have a male XLR connector on one end and a female XLR connector on the other end. (Duh!)



A Word on Termination: DMX is a resilient communication protocol, however errors still occasionally occur. Termination reduces signal errors, and therefore best practices include use of a terminator in all circumstances. If you are experiencing problems with erratic fixture behavior, especially over long signal cable runs, a terminator may help improve performance.

To build your own DMX Terminator: Obtain a 120-ohm, 1/4-watt resistor, and wire it between pins 2 & 3 of the last fixture. They are also readily available from specialty retailers.



CAUTION: Do not allow contact between the common and the fixture's chassis ground. Grounding the common can cause a ground loop, and your fixture may perform erratically. Test cables with an ohm meter to verify correct polarity and to make sure the pins are not grounded or shorted to the shield or each other.

3-Pin??? 5-Pin??? Huh?!?

If you use a controller with a 5 pin DMX output connector, you will need to use a 5 pin to 3 pin adapter. They are widely available over the internet and from specialty retailers If you'd like to build your own, the chart below details a proper cable conversion:

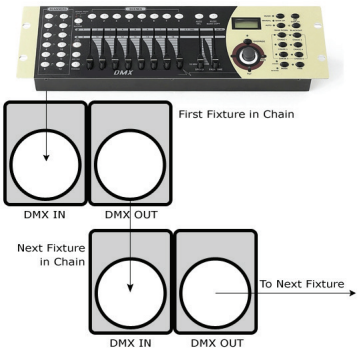
Conductor	3-Pin Female (Output)	5-Pin Male (Input)
Ground/Shield	Pin 1	Pin 1
DMX Data (-)	Pin 2	Pin 2
DMX Data (+)	Pin 3	Pin 3
Not Used.	No Connection.	No Connection.
Not Used.	No Connection.	No Connection.

Take It To The Next Level: Setting Up DMX Control

Step 1: Connect the male connector of the DMX cable to the female connector (output) on the controller.

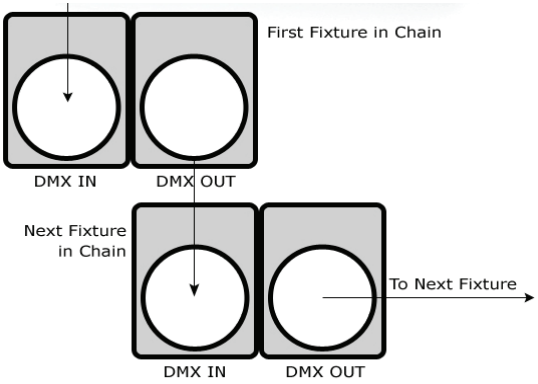
Step 2: Connect the female connector of the DMX cable to the first fixture's male connector (input). *Note:* It doesn't matter which fixture address is the first one connected. We recommend connecting the fixtures in terms of their proximity to the controller, rather than connecting the lowest fixture number first, and so on.

Step 3: Connect other fixtures in the chain from output to input as above. Place a DMX terminator on the output of the final fixture to ensure best communication.



Fixture Linking (Master/Slave Mode)

1. Connect the (male) 3 pin connector side of the DMX cable to the output (female) 3 pin connector of the first fixture.
2. Connect the end of the cable coming from the first fixture which will have a (female) 3 pin connector to the input connector of the next fixture consisting of a (male) 3 pin connector. Then, proceed to connect from the output as stated above to the input of the following fixture and so on.



A quick note:
Often, the setup for Master-Slave and Standalone operation requires that the first fixture in the chain be initialized for this purpose via either settings in the control panel or DIP-switches. Secondarily, the fixtures that follow may also require a slave setting.

Check the "**Operating Adjustments**" section in this manual for complete instructions for this type of setup and configuration.

Mounting & Rigging

This fixture may be mounted in any SAFE position provided there is enough room for ventilation.

It is important never to obstruct the fan or vents pathway. Mount the fixture using a suitable "C" or "O" type clamp. The clamp should be rated to hold at least 10x the fixture's weight to ensure structural stability. Do not mount to surfaces with unknown strength, and ensure properly "rated" rigging is used when mounting fixutres overhead.

Adjust the angle of the fixture by loosening both knobs and tilting the fixture. After finding the desired position, retighten both knobs.

- When selecting installation location, take into consideration lamp replacement access (if applicable) and routine maintenance.
- Safety cables MUST ALWAYS be used.

4. OPERATING ADJUSTMENTS

The Control Panel

All the goodies and different modes possible with the EM-Pulse™ are accessed by using the control panel on the front of the fixture. There are 4 control buttons below the LCD display which allow you to navigate through the various control panel menus.

Button	Function
<ESC>	Used to access the menu or return to a previous menu option.
<DOWN>	Scrolls through menu options in descending order.
<UP>	Scrolls through menu options in ascending order.
<ENTER>	Used to store the current menu or option within a menu.

The LCD control panel display shows the menu items you select from the menu map on page #11. When a menu function is selected, the display will show immediately the first available option for the selected menu function. To select a menu item, press **<ENTER>**.

To navigate through the LCD control panel, use the **<UP/DOWN>** buttons to scroll through the menu options. Press the **<ENTER>** button, then use the **<UP/DOWN>** buttons to view any sub-menu options. Press **<ESC>** to continue without saving, or press **<ENTER>** button, then the **<ESC>** to save and return to the previous menu item.

Control Panel Menu Structure

Menu	Sub-menu	
Address	Set DMX Address	001-512
Auto	Mode 1	Auto Mode 1
	Mode 2	Auto Mode 2
	Mode 3	Auto Mode 3
	Mode 4	Auto Mode 4
	Mode 5	Auto Mode 5
Speed	000-031	Auto Run Speed
Test LED	All ON	All On + Individual LED Segment Testing
	White 1 ON	
	White 2 ON	
	White 3 ON	
	White 4 ON	
	White 5 ON	
	White 6 ON	
	White 7 ON	
	White 8 ON	
	White 9 ON	
Temp	**<ENTER>**	Internal Temperature
Time	**<ENTER>**	Total Run Time
Config	DMX Status	**Value Hold** Holds the last DMX values if signal is lost.
		Value Clear Clears the DMX values if signal is lost.
	Display Mode	LCD Display ON or Auto OFF
	Channel Mode	**Channel 1** (1ch DMX mode)
		Channel 3 (3ch DMX mode)
		Channel 4 (4ch DMX mode)
		Channel 6 (6ch DMX mode)
		Channel 7 (7ch DMX mode)
		Channel 16 (16ch DMX mode)
		Pixel 3 (3ch DMX pixel control)
		Pixel 9 (9ch DMX pixel control)
	Key Mode	**Key Lock** Menu buttons lock after 30sec of inactivity (push more than once to temporarily unlock buttons).
		Key Unlock Menu buttons are not locked.
	Load Default	Resets all values to default

DMX Mode

Allows the unit to be controlled by any universal DMX controller.

Set the Starting DMX Address:

The default mode for the fixture is DMX, so the first menu item that you can edit is the starting DMX address.

1.) Press the **<UP/DOWN>** buttons until you reach **Address**.
2.) Push the **<ENTER>** button.
3.) Use the **<UP/DOWN>** buttons to select a channel from **001-512**.
4.) Press the **<ENTER>** button to confirm.
5.) Press the **<ESC>** button to return to the main menu.

Select the DMX Channel Mode:

1.) Press the **<UP/DOWN>** buttons until you reach **Config.**
2.) Push the **<ENTER>** button.
3.) Using the **<UP/DOWN>** buttons, highlight **DMX Mode**, then press **<ENTER>.**
4.) Use the **<UP/DOWN>** buttons to select **1, 3, 4, 6, 7, 16, or 3/9** pixel modes.
5.) Press **<ENTER>**, and then press the **<ESC>** button until you reach the **Address** screen.

Master/Slave Mode:

1.) Disconnect fixture(s) from any DMX signal source.
2.) Set each fixture to matching DMX modes.
3.) Connect all fixtures together via DMX. The first fixture in the DMX chain will be the master, followed by the slave fixtures.
4.) Connect DMX controller to the master unit for DMX control.

Load Default Settings:

1.) Press the **<UP/DOWN>** buttons until you reach **Load Default**.
2.) Push the **<ENTER>** button.

Auto & Standalone Modes:

Allows a single or Master/Slaved units to run factory installed programs at user selectable speeds.

Auto Mode:

1.) Press the **<UP/DOWN>** buttons until you reach **Auto**.
2.) Push the **<ENTER>** button.
3.) Use the **<UP/DOWN>** buttons to select from **Mode 1** to **Mode 5**.
4.) Press the **<ENTER>** button to confirm.

Auto Program Speed:

1.) Press the **<UP/DOWN>** buttons until you reach **Speed**.
2.) Push the **<ENTER>** button.
3.) Use the **<UP/DOWN>** buttons to select from **000-031**.
4.) Press the **<ENTER>** button to confirm.

Additional Features:

Never thought you would ever see so many nifty neato features in a strobe light did you?

Temperature:

IMPORTANT** - Brightness will decrease when the LED temperature rises over 55ºC. If a temperature of +70ºC is reached, the overheat protection sensor will activate, initiating blackout until a safe temperature is reached.* ***It's highly recommended to not use the LEDs at full strobe brightness for longer than a 1 minute period. You can safely use the fixture as a normal wash in 3/9 pixel modes which are programmed to achieve a max of 40% strobe brightness.

1.) Press the **<UP/DOWN>** buttons until you reach **Temp**.
2.) Push the **<ENTER>** button.
3.) The display will show the current temperature in Celsius degrees.

Signal Loss Settings:

In the event of DMX signal loss, you can set the fixture to either hold its last received DMX signal values, or clear them.

1.) Press the **<UP/DOWN>** buttons until you reach **Config**.
2.) Push the **<ENTER>** button.
3.) Using the **<UP/DOWN>** buttons, navigate to **DMX Status**, then press the **<ENTER>** button.
4.) Use the **<UP/DOWN>** buttons to select either **Value Hold**, or **Value Clear.**
5.) Press the **<ENTER>** button to confirm.

LCD Display On/Auto Off:

Display mode On will keep the LCD illuminated continually, Auto will shut the display off after 30 seconds of inactivity.

1.) Press the **<UP/DOWN>** buttons until you reach **Config**.
2.) Push the **<ENTER>** button, and navigate to **Display Mode**.
3.) Push the **<ENTER>** button, then select either **On** or **Auto**, and press the **<ENTER>** button.

Key (Button) Protection Mode:

With Key Lock active, buttons will be unresponsive to any initial button press after 30 seconds of inactivity. Temporary unlock will occur with more than 1 button press. To disable this feature, activate Key Unlock.

1.) Press the **<UP/DOWN>** buttons until you reach **Config.**
2.) Push the **<ENTER>** button.
3.) Press the **<UP/DOWN>** buttons until you reach **Key Mode**, then press **<ENTER>**.
4.) Use the **<UP/DOWN>** buttons to select either **Key Lock**, or **Key Unlock**, and press the **<ENTER>** button.

Test Mode:

1.) Press the **<UP/DOWN>** buttons until you reach **Test LED**.
2.) Push the **<ENTER>** button.
3.) Now, you can choose to test all of the LEDs at once, or individually test each of its 9 segments. Use the **<UP/DOWN>** buttons to navigate, and press the **<ENTER>** to confirm.

DMX Values In-Depth (16-Channel Mode)

Ch.	Value	What It Does
1	000 <--> 255	Dimmer (0% <--> 100%)
2	000 <--> 255	Segment 1-3 Intensity (0% <--> 100%)
3	000 <--> 255	Segment 4-6 Intensity (0% <--> 100%)
4	000 <--> 255	Segment 7-9 Intensity (0% <--> 100%)
5	000 <--> 255	Flash Duration (0% <--> 100%)
6	000 <--> 255	Strobe Rate (0-30Hz)
7	 000 <--> 005 006 <--> 042 043 <--> 085 086 <--> 128 129 <--> 171 172 <--> 214 215 <--> 255	**Built-In Programs** No function Ramp up effect (slow <--> fast) Ramp down effect (slow <--> fast) Ramp up-down effect (slow <--> fast) Random effect (slow <--> fast) Lightning effect (slow <--> fast) Spike effect
8	000 <--> 255	Segment 1 Intensity (0-100%)
9	000 <--> 255	Segment 2 Intensity (0-100%)
10	000 <--> 255	Segment 3 Intensity (0-100%)
11	000 <--> 255	Segment 4 Intensity (0-100%)
12	000 <--> 255	Segment 5 Intensity (0-100%)
13	000 <--> 255	Segment 6 Intensity (0-100%)
14	000 <--> 255	Segment 7 Intensity (0-100%)
15	000 <--> 255	Segment 8 Intensity (0-100%)
16	000 <--> 255	Segment 9 Intensity (0-100%)

DMX Values In-Depth (7-Channel Mode)

Ch.	Value	What It Does
1	000 <--> 255	Dimmer (0% <--> 100%)
2	000 <--> 255	Segment 1-3 Intensity (0% <--> 100%)
3	000 <--> 255	Segment 4-6 Intensity (0% <--> 100%)
4	000 <--> 255	Segment 7-9 Intensity (0% <--> 100%)
5	000 <--> 255	Flash Duration (0% <--> 100%)
6	000 <--> 255	Strobe Rate (0-30Hz)
7	 000 <--> 005 006 <--> 042 043 <--> 085 086 <--> 128 129 <--> 171 172 <--> 214 215 <--> 255	**Built-In Programs** No function Ramp up effect (slow <--> fast) Ramp down effect (slow <--> fast) Ramp up-down effect (slow <--> fast) Random effect (slow <--> fast) Lightning effect (slow <--> fast) Spike effect

DMX Values In-Depth (6-Channel Mode)

Ch.	Value	What It Does
1	000 <--> 255	Dimmer (0% <--> 100%)
2	000 <--> 255	Segment 1-3 Intensity (0% <--> 100%)
3	000 <--> 255	Segment 4-6 Intensity (0% <--> 100%)
4	000 <--> 255	Segment 7-9 Intensity (0% <--> 100%)
5	000 <--> 255	Flash Duration (0% <--> 100%)
6	000 <--> 255	Strobe Rate (0-30Hz)

DMX Values In-Depth (4-Channel Mode)

Ch.	Value	What It Does
1	000 <--> 255	Dimmer (0% <--> 100%)
2	000 <--> 255	Flash Duration (0% <--> 100%)
3	000 <--> 255	Strobe Rate (0-30Hz)
4	 000 <--> 005 006 <--> 042 043 <--> 085 086 <--> 128 129 <--> 171 172 <--> 214 215 <--> 255	**Built-In Programs** No function Ramp up effect (slow <--> fast) Ramp down effect (slow <--> fast) Ramp up-down effect (slow <--> fast) Random effect (slow <--> fast) Lightning effect (slow <--> fast) Spike effect

DMX Values In-Depth (3-Channel Mode)

Ch.	Value	What It Does
1	000 <--> 255	Dimmer (0% <--> 100%)
2	000 <--> 255	Flash Duration (0% <--> 100%)
3	000 <--> 255	Strobe Rate (0-30Hz)

DMX Values In-Depth (1-Channel Mode)

Ch.	Value	What It Does
1	000 <--> 255	Strobe Rate (0-30Hz)

DMX Values In-Depth (3-Channel Pixel Mode)

Ch.	Value	What It Does
1	000 <--> 005 006 <--> 255	No Function Segment 1-3 Intensity (0% <--> 100%)
2	000 <--> 005 006 <--> 255	No Function Segment 4-6 Intensity (0% <--> 100%)
3	000 <--> 005 006 <--> 255	No Function Segment 7-9 Intensity (0% <--> 100%)

DMX Values In-Depth (9-Channel Pixel Mode)

Ch.	Value	What It Does
1	000 <--> 005 006 <--> 255	No Function Segment 1 Intensity (0% <--> 100%)
2	000 <--> 005 006 <--> 255	No Function Segment 2 Intensity (0% <--> 100%)
3	000 <--> 005 006 <--> 255	No Function Segment 3 Intensity (0% <--> 100%)
4	000 <--> 005 006 <--> 255	No Function Segment 4 Intensity (0% <--> 100%)
5	000 <--> 005 006 <--> 255	No Function Segment 5 Intensity (0% <--> 100%)
6	000 <--> 005 006 <--> 255	No Function Segment 6 Intensity (0% <--> 100%)
7	000 <--> 005 006 <--> 255	No Function Segment 7 Intensity (0% <--> 100%)
8	000 <--> 005 006 <--> 255	No Function Segment 8 Intensity (0% <--> 100%)
9	000 <--> 005 006 <--> 255	No Function Segment 9 Intensity (0% <--> 100%)

Troubleshooting

Symptom	Solution
Fixture Auto-Shut Off	If it is stopped or dimmer than normal, the unit may have shut itself off due to high heat. This is to protect the fixture from overheating.
No Light Output	Check to ensure fixture is operating under correct mode, IE sound active/auto/DMX/Etc., if applicable.
Chase Speed Too Fast/Slow	Check to ensure proper setup of speed adjustment.
No Power	Check fuse, AC cord and circuit for malfunction.
Blown Fuse	Check AC cord and circuit for damage, verify that moving parts are not restricted and that unit's ventilation is not obstructed
Slow Movement	Check that speed channels are set appropriately.
Fixture Not Responding / Responding Erratically	Make sure all connectors are seated properly and securely. Use Only DMX Cables and/or check cables for defects Install a Terminator. Reset fixture(s).
Fixture Moving On Its Own	Verify proper mode of operation. Is the fixture in "Auto" mode?

If your problem persists or isn't listed, please contact us by using our online support system: www.blizzardlighting.com/tickets.

5. APPENDIX

A Quick Lesson On DMX

DMX (aka DMX-512) was created in 1986 by the United States Institute for Theatre Technology (USITT) as a standardized method for connecting lighting consoles to lighting dimmer modules. It was revised in 1990 and again in 2000 to allow more flexibility. The Entertainment Services and Technology Association (ESTA) has since assumed control over the DMX512 standard. It has also been approved and recognized for ANSI standard classification.

DMX covers (and is an abbreviation for) Digital MultipleXed signals. It is the most common communications standard used by lighting and related stage equipment.

DMX provides up to 512 control "channels" per data link. Each of these channels was originally intended to control lamp dimmer levels. You can think of it as 512 faders on a lighting console, connected to 512 light bulbs. Each slider's position is sent over the data link as an 8-bit number having a value between 0 and 255. The value 0 corresponds to the light bulb being completely off while 255 corresponds to the light bulb being fully on.

DMX data is transmitted at 250,000 bits per second using the RS-485 transmission standard over two wires. As with microphone cables, a grounded cable shield is used to prevent interference with other signals.

There are five pins on a DMX connector: a wire for ground (cable shield), two wires for "Primary" communication which goes from a DMX source to a DMX receiver, and two wires for a "Secondary" communication which goes from a DMX receiver back to a DMX source. Generally, the "Secondary" channel is not used so data flows only from sources to receivers. Hence, most of us are most familiar with DMX-512 as being employer over typical 3-pin "mic cables," although this does not conform to the defined standard.

DMX is connected using a daisy-chain configuration where the source connects to the input of the first device, the output of the first device connects to the input of the next device, and so on. The standard allows for up to 32 devices on a single DMX link.

Each receiving device typically has a means for setting the "starting channel number" that it will respond to. For example, if two 6-channel fixtures are used, the first fixture might be set to start at channel 1 so it would respond to DMX channels 1 through 6, and the next fixture would be set to start at channel 7 so it would respond to channels 7 through 12.

The greatest strength of the DMX communications protocol is that it is very simple and robust. It involves transmitting a reset condition (indicating the start of a new "packet"), a start code, and up to 512 bytes of data. Data packets are transmitted continuously. As soon as one packet is finished, another can begin with no delay if desired (usually another follows within 1 ms). If nothing is changing (i.e. no lamp levels change) the same data will be sent out over and over again. This is a great feature of DMX -- if for some reason the data is not interpreted the first time around, it will be re-sent shortly.

Not all 512 channels need to be output per packet, and in fact, it is very uncommon to find all 512 used. The fewer channels are used, the higher the "refresh" rate. It is possible to get DMX refreshes at around 1000 times per second if only 24 channels are being transmitted. If all 512 channels are being transmitted, the refresh rate is around 44 times per second.

In summary, since its design and evolution in the 1980's DMX has become the standard for lighting control. It is flexible, robust, and scalable, and its ability to control everything from dimmer packs to moving lights to foggers to lasers makes it an indispensable tool for any lighting designer or lighting performer.

Keeping Your EM-Pulse™ As Good As New

The fixture you've received is a rugged, tough piece of pro lighting equipment, and as long as you take care of it, it will take care of you. That said, like anything, you'll need to take care of it if you want it to operate as designed. You should absolutely keep the fixture clean, especially if you are using it in an environment with a lot of dust, fog, haze, wild animals, wild teenagers or spilled drinks.

Cleaning the optics routinely with a suitable glass cleaner will greatly improve the quality of light output. Keeping the fans free of dust and debris will keep the fixture running cool and prevent damage from overheating.

In transit, keep the fixtures in cases. You wouldn't throw a prized guitar, drumset, or other piece of expensive gear into a gear trailer without a case, and similarly, you shouldn't even think about doing it with your shiny new light fixtures.

Common sense and taking care of your fixtures will be the single biggest thing you can do to keep them running at peak performance and let you worry about designing a great light show, putting on a great concert, or maximizing your client's satisfaction and "wow factor." That's what it's all about, after all!

Returns (Gasp!)

We've taken a lot of precautions to make sure you never even have to worry about sending a defective unit back, or sending a unit in for service. But, like any complex piece of equipment designed and built by humans, once in a while, something doesn't go as planned. If you find yourself with a fixture that isn't behaving like a good little fixture should, you'll need to obtain a Return Authorization (RA).

Don't worry, this is easy. Just go to our website and open a support ticket at www.blizzardlighting.com/tickets, and we'll issue you an RA. Then, you'll need to send the unit to us using a trackable, pre-paid freight method. We suggest using USPS Priority or UPS. Make sure you carefully pack the fixture for transit, and whenever possible, use the original box & packing for shipping.

When returning your fixture for service, be sure to include the following:

1.) Your contact information (Name, Address, Phone Number, Email address).
2.) The RA# issued to you
3.) A brief description of the problem/symptoms.

We will, at our discretion, repair or replace the fixture. Please remember that any shipping damage which occurs in transit to us is the customer's responsibility, so pack it well!

Shipping Issues

Damage incurred in shipping is the responsibility of the shipper, and must be reported to the carrier immediately upon receipt of the items. Claims must be made within seven (7) days of receipt.

Tech Specs!

Weight & Dimensions	
Width	17.8 in (45 cm), Base: 15.7 in (39.8 cm)
Depth	3 in (7.4 cm), Base: 6.3 in (15.8 cm)
Height	11.25 in (28.6 cm)
Weight	16.5 lbs (7.5 kg)
Power	
Operating Voltage	100-240VAC 50/60Hz
Power Consumption	300W Max, 3.74A, pf: .67
Light Source	
LED	1,452 white SMD LEDs, 50,000 hrs.
Optical	
Beam Angle	120 degree
Luminous Intensity	9,300 Lux@ 1m, 2,300 Lux @ 2m
Thermal	
Max. Operating Temp.	104 degrees F (40 degrees C) ambient
Control	
Protocol	USITT DMX-512
DMX Channels	1/3/4/6/7/9/16 Channels
Input	3/5-pin XLR Male
Output	3/5-pin XLR Female
Operating Modes	Standalone, Master/Slave, Auto Mode
Other Information	
A lot of things look cooler in slow motion. Eating isn't one of them.	
Warranty	2-year limited warranty, does not cover malfunction caused by damage to LED's.

Enjoy your product!
Our sincerest thanks for your purchase!
--The team @ Blizzard Lighting