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atmos**FEAR**221^B
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<http://www.blizzardpro.com>
Waukesha, WI USA
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1. GETTING STARTED

What's In The Box?

- 1 x AtmosFEAR® 221b Fog Machine
- 1 x Remote Control
- 1 x 5m Cable for Removable LCD Control
- 1 x Ever-So-Handy Power Cord
- This Lovely User Manual

Getting It Out Of The Box

Congratulations! Your audiences will be blown away when they take a gander at the colored fog effects of your new AtmosFEAR® 221b! Now that you're the proud owner of a AtmosFEAR® 221b (or hopefully, 221b'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, please just visit our website at www.blizzardpro.com and open a support ticket. 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.

Attention:

To keep your AtmosFEAR® 221b in good working order please remember to:

- **IMPORTANT! This machine requires a power cord of at least 14 AWG.**
- **Use only water-based, non-toxic fog fluid in the fluid tank.**
- **Keep the machine clean.**
- **Turn the power off before adding fog fluid.**
- **Turn the power off when not in use.**

And also...

- 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.
- This product is intended for indoor use only.
- To prevent risk of fire or shock, do not expose fixture to rain or moisture.
- Make sure there are no flammable materials close to the unit while operating.
- The unit must be used in a location with adequate ventilation, at least 20in (50cm) from adjacent surfaces. Be sure that no air intake 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.
- 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.
- Make sure the power cord is never crimped or damaged.
- Never disconnect the power cord by pulling or tugging on the cord.

Caution! There are no user serviceable parts inside the unit. Do not open the housing to attempt any repairs yourself. In the unlikely event your unit may require service, please visit our support website at: www.blizzardpro.com/support.

2. MEET THE ATMOSFEAR® 221B

MAIN FEATURES:

- High-output 1,500 watt fog machine
- Color mixing via 6x 3W 3-in-1 RGB LEDs
- Fog intensity, duration, and interval control in manual & DMX modes
- Easy-to-use duration/interval fog preset macros via DMX
- Built-in automated color macros with speed control
- RGB color mixing ability in standalone mode
- Virtual color wheel
- Variable electronic dimming & strobe
- Built-in timer with interval and duration
- Manual 3-slot configuration to save/load settings
- 5.0L capacity fog fluid tank
- 3/5-pin XLR signal input & outputs

Control:

- Protocol: USITT DMX-512
- DMX channels: 11/3/1-channel
- Removable LCD 6-button control panel with 5m extension cable
- 6-button wireless remote with 3 customizable buttons
- Wireless remote range: up to 25-meters (manual mode only)
- Operating modes: standalone, master/slave, auto mode

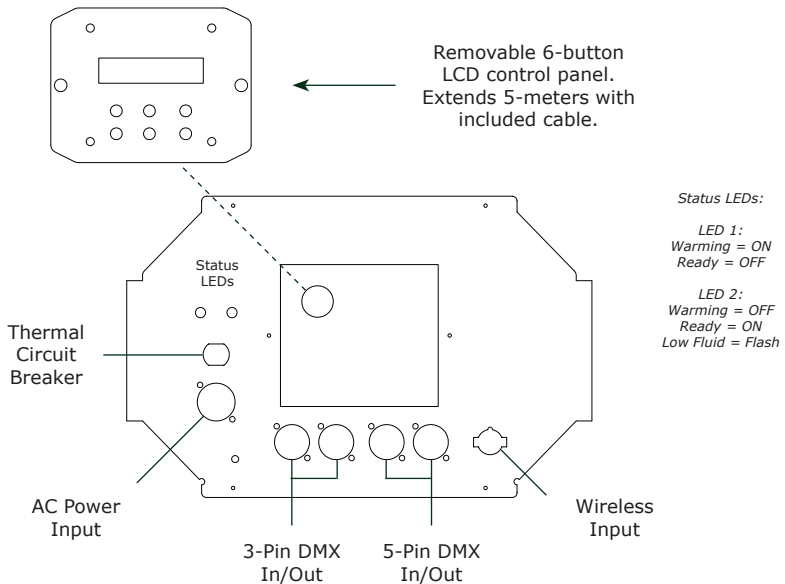
DMX Quick Reference (11/3/1-Channel Modes)

11CH	3CH	1CH	What it does
1	--	--	Fog Intensity
2	--	--	Fog Duration
3	--	--	Fog Interval
4	--	--	Master Dimmer (0% <--> 100%)
5	--	--	Red Intensity (0% <--> 100%)
6	--	--	Green Intensity (0% <--> 100%)
7	--	--	Blue Intensity (0% <--> 100%)
8	--	--	Strobe (Slow <--> Fast)
--	1	1	Fog Output Presets
9	2	--	Color Macros
10	3	--	Color Macro Speed (Slow <--> Fast)
11	--	--	Heater Enable/Disable

Figure 1: The AtmosFEAR® 221b Pin-Up Picture



Figure 2: The Rear Connections



3. SETUP



This fog machine comes equipped with a 20A, push-to-reset thermal circuit breaker.

Fuse Replacement

AtmosFEAR® 221b is equipped with an easy-to-use, push-button thermal circuit breaker. The button will extend for visual trip indication, and can simply be pushed back in to be reset.

Connecting A Bunch of AtmosFEAR® 221b Units

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

Units on a serial data link must be daisy chained in one single line. Also, connecting more than 32 units 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 units on a serial data link is 32 fixtures.

Data/DMX Cabling

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.

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

This unit is ideal for use with any DMX controller. It comes equipped with both 3-pin and 5-pin XLR in/out sockets with standard pin configuration:

Conductor	3-Pin Female (Output)	5-Pin Male (Input)
Ground/Shield	Pin 1	Pin 1
Data 1- (Primary Data Link)	Pin 2	Pin 2
Data 1+ (Primary Data Link)	Pin 3	Pin 3
Data 2- (Optional Secondary Data Link)	Pin 4	Pin 4
Data 2+ (Optional Secondary Data Link)	Pin 5	Pin 5

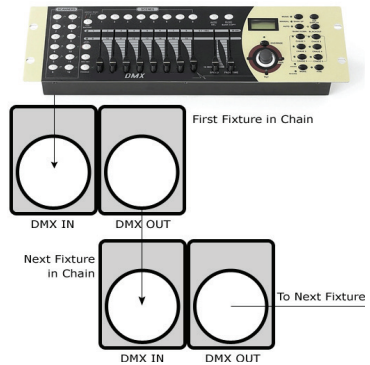
CAUTION: Do not allow contact between the common and the fixture's chassis ground. Grounding the common can cause a ground loop, and your fixture may perform erratically. Test cables with an ohm meter to verify correct polarity and to make sure the pins are not grounded or shorted to the shield or each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

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 3/5-pin connector side of the DMX cable to the output (female) 3/5-pin connector of the first fixture.
2. Connect the end of the cable coming from the first fixture which will have a (female) 3/5-pin connector to the input connector of the next fixture consisting of a (male) 3/5-pin connector. Then, proceed to connect from the output as stated above to the input of the following fixture and so on.

Mounting & Rigging

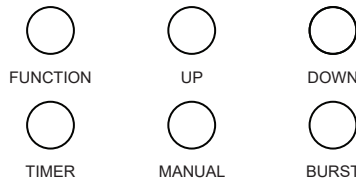
- This unit may be used on the floor, or mounted in any SAFE position provided there is enough room for ventilation.
- Mount the fixture using a suitable "C" or "O" type clamp. The clamp should be rated to hold at least 10x the unit's weight to ensure structural stability. Do not mount to surfaces with unknown strength, and ensure properly "rated" rigging is used when mounting fixtures overhead.
- Adjust the angle by loosening both knobs and tilting the unit. After finding the desired position, retighten both knobs.
- Safety cables MUST ALWAYS be used.
- Never mount in places where the unit will be exposed to rain, high humidity, extreme temperature changes or restricted ventilation.

4. OPERATING ADJUSTMENTS

The Control Panel

All the settings possible with the AtmosFEAR® 221b are accessed by using the control panel on the rear of the unit. There are 6 control buttons below the display which provide functionality and allow you to navigate through the various options.

Shown below: DMX Menu Home Screen - This is the top level of the DMX menu structure which displays the **DMX Status**, **Interval** or **Duration** status (0I or 0D), the set **DMX Address**, and the set **Channel Mode** (1-3).



Button	Function
<FUNCTION>	Used to navigate the menu upward.
<UP>	Value adjustment upward.
<DOWN>	Value adjustment downward.
<TIMER>	Start/Stop: <u>Hold 3 seconds</u> . Also used for downward navigation.
<MANUAL>	Switch between DMX Mode and Manual Mode.
<BURST>	Press and hold the button to engage manual fog burst.

Button Shortcuts:

<FUNCTION> + <TIMER>: Return to the main **DMX Menu** or **Manual Menu** home screen from within either menu.

<FUNCTION> + <MANUAL>: Turns the fluid tank + status LEDs on/off.

To navigate the menu, use the <FUNCTION/TIMER> buttons to scroll through the various options. Any currently displayed option can then be altered by using the <UP/DOWN> buttons. All value changes are saved automatically.

Control Panel Menu Structure

DMX Menu Home Screen		
<p>Press the <MANUAL> button to enter the Manual Menu (from within DMX Menu). Press the <FUNCTION> + <TIMER> buttons to return to the DMX Menu Home Screen.</p>		
DMX Address	1-512	Set the starting DMX address
DMX Channel Mode	1 Fog	1-channel DMX mode
	3 Fog + Macro	3-channel DMX mode
	11 All	11-channel DMX mode
Manual Menu Home Screen		
<p>Press the <MANUAL> button to enter the DMX Menu (from within Manual Menu). Press the <FUNCTION> + <TIMER> buttons to return to the Manual Menu Home Screen.</p>		
Fog Level	Wimpy	Low output
	Mild	Medium output
	Blazin	High output
Fog Duration	1-255	Fog output duration
Fog Interval	1-255	Time between fog output
Macros *When color macros are used, they override R/G/B static colors.	Off	Macros off
	Rainbow	Color macro 1
	Fire	Color macro 2
	Water	Color macro 3
	Acid	Color macro 4
	Ether	Color macro 5
	Storm	Color macro 6
Macro Speed	Off, 1-255	Macro speed (slow <--> fast)
Red Level	Off, 1-255	Red intensity (0% <--> 100%)
Green Level	Off, 1-255	Green intensity (0% <--> 100%)
Blue Level	Off, 1-255	Blue intensity (0% <--> 100%)
Strobe Level	Off, 1-255	Strobe (slow <--> fast)
Remote 4/5/6 Action *Setup the actions for button numbers 4, 5, and 6 on the remote control unit.	No Action	No Function
	Choose Macro (cycles thru color macros 1-6, speed set in menu)	
	Red	
	Yellow	
	Green	
	Cyan	
	Blue	
	Magenta	
	Strobe Slow	
	Strobe Medium	
	Strobe Fast	
	Blackout	
	Whiteout	
	Save Settings	Slot 1
Slot 2		
Slot 3		
Load Settings	Slot 1	Load any saved custom settings from slots 1-3. Press & hold the <UP> button for 3 seconds to load from slots 1-3.
	Slot 2	
	Slot 3	

DMX Settings

The following DMX instructions require the **DMX Menu as the starting point. Press the **<MANUAL>** button until you are in **DMX Mode**.*

Setting the DMX Address

1. Use the **<FUNCTION/TIMER>** buttons to navigate to **DMX Address**.
2. Then use the **<UP/DOWN>** buttons to select a starting DMX address from 1-512.
3. Changes are saved automatically upon value change.

DMX Channel Mode Settings

1. Use the **<FUNCTION/TIMER>** buttons to navigate to **DMX Channel Mode**.
2. Then use the **<UP/DOWN>** buttons to select **1 Fog** (1-channel mode), **3 Fog + Macro** (3-channel mode), or **11 All** (11-channel mode).
3. Changes are saved automatically upon value change.

Manual Settings

The following Manual instructions require the **Manual Menu as the starting point. Press the **<MANUAL>** button until you are in **Manual Mode**.*

Fog Level

1. Use the **<FUNCTION/TIMER>** buttons to navigate to **Fog Level**.
2. Then use the **<UP/DOWN>** to select highlight either **Wimpy** (low output), **Mild** (medium output), or **Blazin** (high output).
3. Changes are saved automatically upon value change.

Interval, Duration, & Timer Settings

Interval settings control the period of time in between timed fog outputs (in seconds), while duration settings are used to control the actual period of time of the timed output (in seconds) while using timer mode.

1. Use the **<FUNCTION/TIMER>** buttons to navigate to either **Interval** or **Duration**.
2. Then use **<UP/DOWN>** to select the number of seconds.
3. Press the **<FUNCTION>** or **<TIMER>** button to return home.
4. Hold the **<TIMER>** button for **3 seconds** to start or stop timed output.

Color Macros

Note: When color macros are being used, they will override R/G/B static colors.

1. Use the **<FUNCTION/TIMER>** buttons to scroll to **Macros**.
2. Then use the **<UP/DOWN>** to highlight **Off**, or any of the built-in **Color Macros**.
3. Changes are saved automatically upon value change.

Color Macro Speed

1. Use the **<FUNCTION/TIMER>** buttons to scroll to **Macro Speed**.
2. Then use the **<UP/DOWN>** to select **Off**, or adjust the **1-255** values (slow to fast).
3. Changes are saved automatically upon value change.

Custom Static Colors:

1. Use the <FUNCTION/TIMER> buttons to navigate to **Red Level, Green Level, or Blue Level**.
2. Then use the <UP/DOWN> buttons to adjust the intensity level from **0-255** (0% <--> 100%).
3. Changes are saved automatically upon value change.

Strobe Settings:

1. Use the <FUNCTION/TIMER> buttons to navigate to **Strobe Level**.
2. Then use the <UP/DOWN> buttons to highlight **Off**, or adjust the value from **1-255** (slow to fast).
3. Changes are saved automatically upon value change.

Save and Load Settings:

You can save and load up to 3 customized manual settings. These are the only settings in the menu that are required to be manually saved.

1. Press the <MANUAL> button to reach the **Manual Menu**.
2. Use the <FUNCTION/TIMER> buttons to navigate to **Save or Load Settings**.
3. Then use the <UP/DOWN> to select any slot ranging from **Slot 1-3**.
4. Press & hold the <UP> button for 3 seconds to either save or load from slots 1-3.

Remote Control *(for use in manual mode only)*

1. Plug the wireless receiver into the input on the rear of the machine.
2. Setup the remote actions for the customizable buttons 4-6.
3. You can use the wireless remote control from up to 25-meters in distance.

Remote Actions (Buttons 4-6)

1. Use <FUNCTION/TIMER> buttons to navigate to **Remote Action 4, 5, or 6**.
2. Then use <UP/DOWN> to select any available action (*see page 9*).
3. Changes are saved automatically upon selection.
4. Press the <FUNCTION> + <TIMER> buttons to return home.

Wireless Receiver:



Remote control with 3 customizable buttons (numbers 4-6):

- Button 1: Start Timer
- Button 2: Stop Timer
- Button 3: Burst
- Button 4: As set in menu
- Button 5: As set in menu
- Button 6: As set in menu



DMX Values In-Depth (11/3/1-Channel Modes)

11CH	3CH	1CH	Value	What it does	
1	--	--	000 <--> 020 021 <--> 100 101 <--> 200 201 <--> 255	Fog Intensity No Output Low Medium High	
2	--	--	000 001 <--> 230 231 <--> 255	Fog Duration No Output Duration (seconds) Constant On	<i>If duration is set to constant on, interval has no function.</i>
3	--	--	000 001 <--> 255	Fog Interval Constant On (if fog intensity is not 0) Interval (seconds)	
4	--	--	000 <--> 255	Master Dimmer (0% <--> 100%)	
5	--	--	000 <--> 255	Red Intensity (0% <--> 100%)	
6	--	--	000 <--> 255	Green Intensity (0% <--> 100%)	
7	--	--	000 <--> 255	Blue Intensity (0% <--> 100%)	
8	--	--	000 <--> 010 011 <--> 255	Strobe Open Slow <--> Fast	
--	1	1	000 <--> 020 021 <--> 040 041 <--> 060 061 <--> 080 081 <--> 100 101 <--> 120 121 <--> 140 141 <--> 160 161 <--> 180 181 <--> 200 201 <--> 220 221 <--> 240 241 <--> 255	Fog Output Presets No Output Macro: 3s Duration, 13s Interval Macro: 3s Duration, 21s Interval Macro: 3s Duration, 34s Interval Macro: 3s Duration, 55s Interval Macro: 8s Duration, 21s Interval Macro: 8s Duration, 34s Interval Macro: 8s Duration, 55s Interval Macro: 8s Duration, 89s Interval Macro: 8s Duration, 144s Interval Macro: 21s Duration, 55s Interval Macro: 21s Duration, 89s Interval Fog Constant On	
9	2	--	000 <--> 020 021 <--> 148 149 <--> 180 181 <--> 190 191 <--> 200 201 <--> 210 211 <--> 220 221 <--> 230 231 <--> 240 241 <--> 255	Color Macro No Color Virtual Color Wheel White Rainbow Fire Water Acid Ether Storm Moriarty	<i>*When color macros are used, they override R/G/B static colors.</i>
10	3	--	000 <--> 010 011 <--> 255	Color Macro Speed Off Slow <--> Fast	
11	--	--	000 <--> 127 128 <--> 255	Heater Enable/Disable Heater Enabled Heater Disabled	

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 AtmosFEAR® 221b As Good As New

The fogger you have received is a rugged, tough piece of professional 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 Instructions:

- 1.) You should follow these instructions after approximately 40 hours of use.
- 2.) Take off the nozzle before heating the fog machine, and clean the nozzle with straight vinegar.
- 3.) To clean the tank, pour in and run a solution of 80% distilled water and 20% white vinegar through the machine. When empty turn off the machine.
- 4.) Wait for it to cool down, re-install the nozzle, and you can now add more fluid to prepare for its next use.

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.blizzardpro.com/support, 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	
Length	21.75 inches
Width	11 inches
Height	7.6 inches (13 inches with bracket extended)
Weight	22 lbs. (10 kg)
Power	
Operating Voltage	AC 110-130VAC, 50/60 Hz
Power Consumption	1,500W, 13.4A, PF: .99
Fuse	20A push-button thermal circuit breaker
Power Cord	A power cord with a minimum of at least 14 AWG must be always used with this machine.
Light Source	
LED	6 x 3W RGB 3-in-1 LEDs
Optical	
LED Beam Angle	25° Beam Angle
Thermal	
Max. Operating Temp.	104 degrees F (40 degrees C) ambient
Operation/Capacity/Consumption	
Warm-up Time	5-7min
Tank Capacity	5.0L
Output	20,000 cu.ft/min
Control	
Protocol	USITT DMX-512
DMX Channels	11/3/1 DMX Channels
Input	3/5-pin XLR Male
Output	3/5-pin XLR Female
Other Operating Modes	Standalone, Master/Slave, Auto, Remote Control
Warranty	1-year limited warranty



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