# THE PUCK

skywire

intellon
INTELLIGENT
LITHIUM-ION
BATTERY SYSTEM

blizzard
LIGHTING

Blizzard Lighting, LLC
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# 1. GETTING STARTED

### What's In The Box?

- 1 x Puck™ Fab5 Skywire Flat LED PAR Fixture
- 1x IEC Power Cord
- This Lovely User Manual

### Getting It Out Of The Box

Congratulations on purchasing one of the coolest flat LED PAR cans on the market today! Based on our fantastic Puck™ design, THEN adding built-in Skywire™ wireless DMX, AND our proprietary ultra long-life intelion™ Lithium-Ion Battery System give you a fixture with TONS of output, flexibility and fantastic battery-powered run time.

Now that you've got the Puck™ Fab5 Skywire (or hopefully, Puck Fab5 *Skywire'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 or send an email. We'll be happy to help, honest.**

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| Author: | Date: | Last Edited: | Date: |
|---|---|---|---|
| J. Thomas | 6/27/2013 | J. Thomas | 7/19/2013 |

# SAFETY INSTRUCTIONS

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

- Please keep this User Guide for future use. If you sell the unit, be sure that they also receive this.
- ALWAYS be sure 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.
- 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.
- 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 connect the device to a dimmer pack.
- Be sure the power cord is never damaged, do not pull/tug cord to disconnect it.
- 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 contact Blizzard Lighting at support@blizzardlighting.com.

# LITHIUM-ION BATTERY WARNINGS & INFO

**1. CAUTION! TO REDUCE THE RISK OF INJURY AND/OR EQUIPMENT DAMAGE, DO NOT TAMPER WITH THE CHARGING CIRCUITRY IN THIS FIXTURE.** The use of other types of chargers may result in personal injury or equipment damage. Under no circumstances attempt to connect the battery pack to any power supplies or other equipment that is not specifically and expressly designated for use with this model battery pack.

**2. USE THE LITHIUM ION BATTERY PACK ONLY WITH EQUIPMENT SPECIFICALLY AND EXPRESSLY DESIGNATED FOR USE WITH THIS MODEL BATTERY PACK.** Use with other equipment may result in fire, electric shock, personal injury, and/or damage to equipment.

**3. AVOID DANGEROUS CONDITIONS AND ENVIRONMENTS.** Do not charge the battery pack in damp or wet conditions. Avoid using the pack in direct exposure to rain or snow. Do not use the battery pack or charger in the presence of explosive gases or flammable materials.

**4. AVOID USING OR STORING THE BATTERY PACK IN EITHER EXTREME COLD OR EXTREME HOT TEMPERATURES.** The battery pack will disable itself under conditions of extreme heat (above 60 °C) and may not function to full performance under conditions of extreme cold (below –20 °C). Storage at elevated temperatures (above 25 °C) will shorten the life of the battery pack.

**5. DO NOT BURN OR INCINERATE BATTERY PACKS.** Battery packs may explode causing personal injury, fire, and/or damage. Fumes resulting from burning of battery packs may be toxic.

**6. DO NOT DROP, CRUSH, IMPACT, OR MECHANICALLY ABUSE BATTERY PACKS.** Cease use of fixtures that have suffered a sharp impact, been dropped, run over, or damaged in any other way. Such impacts may cause internal damage that is not externally visible and that, over time, may cause short circuits, battery cell leakage, or other events that may lead to fire, personal injury, and or equipment damage.

**7. DO NOT DISASSEMBLE BATTERY PACK.** There are no user serviceable parts within battery packs. Disassembly may result in short circuiting or other damage that may cause fire, personal injury, and/or other damage.

**8. AVOID CONTACT WITH BATTERY CHEMICALS.** If a battery pack leaks battery chemicals, avoid any contact with skin, eyes, or mouth. In the event of contact with skin, wash immediately with soap and water and rinse with vinegar. For eye contact, begin flushing with clean water, immediately call for medical help, and continue flushing for 20 minutes or until medical help arrives.

**9. STORE IN A COOL, DRY PLACE.** Avoid leaving the fixture in direct sunlight, vehicle cabs, compartments, or unventilated storage buildings during hot summer conditions. Under extreme temperature conditions damage may occur. Elevated temperatures in general shorten the life of your battery pack.

# 2. MEET THE PUCK™ FAB5 SKYWIRE LED FIXTURE

## MAIN FEATURES

- Light Source: 6* 15-watt, 5-in-1 RGBAW 5-in-1 LED's
- 2.4Ghz built-in wireless DMX receiver
- 512 auto-assigning frequencies in 7 groups
- Ultra Long-life intelion™ Lithium-Ion Battery System
- Variable electronic strobe and dimmer
- Built-in automated programs via DMX and master/slave
- Built-in sound active programs
- Full RGBAW color mixing in standalone and master/slave
- Color Preset (3-Channel), RGBAW (5-Channel) + extended (12-Channel)

**Additional Features:**

- Lightweight and Compact (It kept its New Years' resolution!)
- 4-button LED control panel for easy programming
- Dual bracket for flexibility in mounting
- Power outlet for fixture linking (up to 50 fixtures)
- Running hours display
- Two-piece mounting yoke allows flexibility in positioning

**Optical:**

- Beam Angle: 25°, Field Angle: 29°
- Light Source: 6* 15-watt, 5-in-1 RGBAW 5-in-1 LED's
- Flicker-free constant-current LED driver

***Warning:***

**This fixture MUST only use cable and connectors which separate chassis/case ground from cable shielding. Cabling with the shield connected to the connector's case/chassis may cause malfunction and damage to the fixture!**

**DMX Quick Reference (12-Channel Mode)**

| Channel | What It Does |
|---|---|
| 1 | Dimmer |
| 2 | Strobe (0-15 off, 16-255 strobe slow <-> fast) |
| 3 | Red Intensity |
| 4 | Green Intensity |
| 5 | Blue Intensity |
| 6 | Amber Intensity |
| 7 | White Intensity |
| 8 | Color Snap |
| 9 | Snap Speed (0-15 off, 16-255 Snap Slow <--> Fast) |
| 10 | Color Fade |
| 11 | Fade Speed (0-15 off, 16-255 Snap Slow <--> Fast) |
| 12 | Sound Active (0-127 off, 128-255 Sound Active) |

**Warning:** This fixture MUST only use cable and connectors which separate chassis/case ground from cable shielding. Cabling with the shield connected to the connector's case/ chassis may cause malfunction and damage to the fixture!

### DMX Quick Reference (3-Channel Mode)

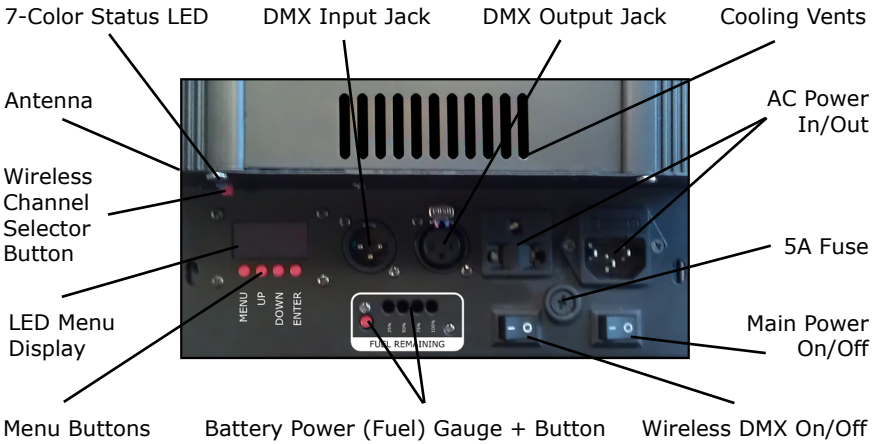
| Channel | What It Does | | | | | |
|---|---|---|---|---|---|---|
| 1 | Dimmer (0-15 off, 16-255 Dim <--> Bright) | | | | | |
| 2 | Strobe (0-15 off, 16-255 strobe slow <-> fast) | | | | | |
| 3 | Color Select | | | | | |
| | **Value** | **Red** | **Green** | **Blue** | **Amber** | **White** |
| | 001-004 | ON | | | | |
| | 005-008 | | ON | | | |
| | 009-012 | | | ON | | |
| | 013-016 | | | | ON | |
| | 017-020 | | | | | ON |
| | 021-024 | ON | ON | | | |
| | 025-028 | ON | | ON | | |
| | 029-031 | ON | | | ON | |
| | 032-035 | ON | | | | ON |
| | 036-039 | | ON | ON | | |
| | 040-043 | | ON | | ON | |
| | 044-047 | | ON | | | ON |
| | 048-051 | | | ON | ON | |
| | 052-055 | | | ON | | ON |
| | 056-059 | | | | ON | ON |
| | 060-062 | | | ON | ON | ON |
| | 063-066 | | ON | | ON | ON |
| | 067-070 | | ON | ON | | ON |
| | 071-074 | | ON | ON | ON | |
| | 075-078 | ON | | | ON | ON |
| | 079-082 | ON | | ON | | ON |
| | 083-086 | ON | | ON | ON | |
| | 087-090 | ON | ON | | | ON |
| | 091-093 | ON | ON | | ON | |
| | 094-097 | ON | ON | ON | | |
| | 098-101 | ON | ON | ON | ON | |
| | 102-105 | ON | ON | ON | | ON |
| | 106-109 | ON | ON | | ON | ON |
| | 110-113 | ON | | ON | ON | ON |
| | 114-117 | | ON | ON | ON | ON |
| | 118-120 | ON | ON | ON | ON | ON |
| | 121-255 Chase (Slow <--> Fast) | | | | | |

### DMX Quick Reference (5-Channel Mode)

| Channel | What It Does |
|---|---|
| 1 | Red Intensity |
| 2 | Green Intensity |
| 3 | Blue Intensity |
| 4 | Amber Intensity |
| 5 | White Intensity |

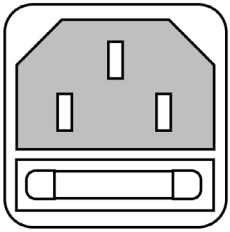
**Figure 1: The Puck™ Fab5 Skywire Pin-Up Picture**


**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**

With a flat head screwdriver, wedge the fuse holder out of its housing. Remove the damaged fuse from its holder and replace with exact same type fuse. Insert the fuse holder back in its place and reconnect power.

**Connecting A Bunch of Puck™ Fab5 Skywire 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*

## Using Skywire™ Wireless DMX

In addition to the unbridled thrill you already received the first time you turned on your fixture, you'll be delighted to know that the Puck™ Fab 5 Skywire wireless DMX system is designed to work seamlessly with all Blizzard Lighting wireless DMX products.

The Puck™ Fab 5 Skywire is equipped to release you from the crushing chains of cable-fed DMX lighting. It features 512 auto-assigning frequencies in 7 groups allowing up to 7 systems to run simultaneously in the same space, completely free of interference! It's capable of reliable wireless communication for over 1000 feet, line-of-sight!

So first, you'll either need a Blizzard wiCICLE® transmitter, Lightcaster™ wireless transceiver, or any Blizzard Lighting controller that has a built-in wireless transmitter (such as the Kontrol 5 Skywire™) to act as a transmitter for your lights. The 7-color coded frequencies of the Puck™ Fab 5 Skywire™ match up perfectly with all Blizzard wireless DMX products. If you're using a Blizzard Lighting controller with built-in wireless DMX transmission, please refer to the instruction manual of that controller for more information.

**Ready to move on? Well alrighty!**

1. If you're using an external wireless DMX transmitter like our wiCICLE® transmitter or LightCaster® Transceiver, plug it into the "DMX OUT" connector of the controller and verify it is receiving power. If you are using a DMX controller with a built-in DMX transmitter like our KONTROL 5 SKYWIRE™, enable the DMX transmitter on that unit. Please refer to that controller's user manual for specific instructions on enabling wireless DMX output.
2. Turn on the wireless DMX switch located on the back of the fixture and verify it is receiving power (the **STATUS LED** should illuminate.)
3. Press the **CHANNEL SET** button on the back of the fixture to select your desired operating channel group (this setting will be stored for future use.)

The 7-Color Status LED will change color to indicate the current channel group:

- GROUP 1: **RED**
- GROUP 2: **GREEN**
- GROUP 3: **YELLOW**
- GROUP 4: **BLUE**
- GROUP 5: **VIOLET**
- GROUP 6: **CYAN**
- GROUP 7: **WHITE**

**NOTE: "GROUP" number also corresponds to the "GROUP" setting on our LightCaster™ wireless DMX transceiver, wiCICLE™ transmitter, and all Blizzard Skywire™ wireless controllers.**

4. Follow the same procedure on the transmitter to select the channel group. applicable), or the DMX out of a fixture on your DMX chain.
5. The LED on the transmitter will blink **RED** slowly until communication is established with the receiver. The status LED on the receiving fixtures will flash **GREEN** slowly until communication is established.
6. Once the clearest channel is auto-selected, the status LEDs will blink quickly on both the transmitter and receiver. NOTE: The color of the Puck™ Fab 5 Skywire's status LED DURING operation does not indicate channel group, instead it indicates whether the unit is transmitting or receiving. **That's It!**

## Using the Intelion™ Battery System

The Puck™ Fab 5 Skywire features our proprietary intelion™ Lithium-Ion internal battery system which allows the user to the flexibility to operate their light fixture without AC power for up to 20 hours.

To charge the battery simply plug the fixture into a power source. The battery will charge weather the fixture is powered on or off. It will charge even while in use! To use the internal battery, just locate the battery power switch on the rear of the fixture and flip it on.

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The built-in microprocessor of the battery system controls the charge and overall battery health, so all you need to do is plug and play.
Push the battery power (fuel) gauge button to see the approximate percentage of power remaining. A charge indicator on the back of the fixture turns from **RED** to **GREEN** when charging is complete.

***IMPORTANT:***

A full charge is obtained after charging the fixture for at least 4 hours. The fixture will automatically stop charging when the battery is in optimal condition.

Display color/fade/chase/strobe, and environmental factors including ambient temperature will all impact battery life. Depending on program, battery life may range from 3-20 hours.

# 4. OPERATING ADJUSTMENTS

**NOTE: After making any change, the unit will return to the correct mode in about 10 seconds.**

## DMX Mode

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

1.) The default mode for the fixture is DMX, which appears as Addr on the LED Readout. Use the **<ENTER>** button then the **<UP>** and **<DOWN>** buttons to choose a channel between 1 and 512. Press **<ENTER>** again to confirm.

2.) To change between 3 and 6 channel DMX mode, select ChNd, then press **<ENTER>.** Select either 3Ch, 5Ch or 12Ch, then press **<ENTER>** again to confirm.

## Master/Slave Mode (Auto/Sound Active/Color Preset/Custom):

1.) Use standard DMX cables to daisy chain your units together via the DMX connector on the rear of the units.

2.) Choose a unit to function as the Master. Select MAST. The master unit must be the first unit. Finally, chain the units together using DMX cable.

Master SLNd then MASt to confirm.

3.) Select slave function by using the **<UP>/<DOWN>** keys to reach SLAV in the Master/Auto menu on the slave units, and they will react in the same as the Master.

Slave SLNd then SLAv to confirm**.**

**NOTE:** When a unit is set to slave and no master is connected, StbY will appear on the LED display.

4.) On the master fixture, use the **<UP>/<DOWN>** keys to reach SHNd, which allows you to select the following:

| | | | |
|---|---|---|---|
| Sound active | SoUn | then **<ENTER>** to confirm. | |
| Auto mode | CoLo | then | AuLo, then **<ENTER>** to confirm. |
| Color preset | CoLo | then | CoL 1 - CoL 31, **<ENTER>** |
| Color strobe | StCo | then | 0-255 (Slowest <-.-> Fastest) |
| | | then | CoL 1 - CoL 31, **<ENTER>** |

## To set a custom color in Master/Slave/Standalone Mode:

*Using this function, you can select any color by adjusting the Red, Green, Blue, Amber and White values from 0-255. You may also adjust the color balance of the fixture.*

**Please note that modifying the values in this step will affect ALL modes, therefore we recommend resetting all levels to their highest value (255) after using this mode.**

1.) Select MAnu from the control panel, then hit **<ENTER>**.

2.) Choose rEd, GrEE, bLuE, AMbE or UhitE, then hit **<ENTER>** to confirm.

3.) Using the **<UP>/<DOWN>** keys, select the color you wish to display by varying Red/Green/Blue intensity between 0 and 255, then hit **<ENTER>** to confirm each color choice.

4.) Select Color preset mode as instructed above, then select CoL 15, then **<ENTER>** to confirm.

**To Show the Fixture Running Hours:**

1.) Select FHrS from the control panel, then hit **<ENTER>** to confirm.

**Menu Conventions**

Addr = "ADDR," DMX Address Set/Adjust

ChMd = "CHMD," Channel Mode Adjust

3/5/12Ch = "3 Ch," 3/5/12-Channel DMX Mode

SLMd = "SLMD," Slave Mode Adjust

MASt = "MAST," Master, set the unit to Master Mode.

SLAv = "SLAV" Slave, set the unit to Slave Mode.

StbY = "STBY," Standby, unit is in Slave with no Master Fixture.

SHMd

Sou1 = "SOU1," Sound Active 1, Scenes fade slowly when there is no audio.

Sou2 = "SOU2," Sound Active 2, Independent slow fade of inner/outer LED's.

Sou3 = "SOU3," Sound Active 3, Scenes black out when there is no audio.

CoLo = "COLO," Color Preset Mode.

Co XX = "CO 1 - CO31," Color Preset X.

AUto = "AUTO," Auto (Color Snap) Mode.

FAdE = "FADE," Color Fade Mode.

SP X = "SP 1 - SP 8," Fade Speed 1-8 (Fast <-> Slow)

StCo = "STCO," Color Strobe Mode.

Co XX = "CO 1 - CO31," Color Preset X.

MANu = "MANU," Manual Color / White Point Adjustment Mode.

rEd = "RED," Adjust Red Intensity from 0 to 255.

GrEE = "GREE," Adjust Green Intensity from 0 to 255.

bLuE = "BLUE," Adjust Blue Intensity from 0 to 255.

AMbE = "AMBE," Adjust Amber Intensity from 0 to 255.

UhIt = "WHIT," Adjust White Intensity from 0 to 255.

FHrS = "FHRS," Displays Fixture Running Hours

tESt = "TEST," Test Mode.

**Quick Tips & Tricks:**

**Problem:** The Puck LED readout says "StbY," (Standby), no output."

**Solution:** The Puck is in Slave mode with no master fixture connected.

Press <**MENU**>, select "SLnd," hit <**ENTER**>, select "nASt" by pressing up or down, hit <**ENTER**> to confirm. The unit will reset after approximately 10 seconds.

**Problem:** The Puck is only displaying certain colors (an entire color group of LEDs is dimly lit or entirely off.)

**Solution:** The manual color adjustments have been set at levels less than the full intensity for each color.

Press <**MENU**>, select "MAnu," and ensure that all of the color settings (rEd, GrEE, bLuE, AMbE or WHit) are set to 255. This is the maximum value and the fixture should be left in this mode unless setting a custom standalone color (See page 9. Should the problem persist, please contact technical support.

**Problem:** The fade you've selected is too fast/too slow.

**Solution:** Press <**MENU**>, select "SHnd," hit <**ENTER**>, select "FAdE," hit <**ENTER**>, and select the speed by selecting "SP 1 - SP 8,". 1 is the fastest, 8 is the slowest.

## Troubleshooting

| Symptom | Solution |
|---|---|
| Fixture Auto-Shut Off | Check the fan in the fixture. If it is stopped or moving slower than normal, the unit may have shut itself off due to high heat. This is to protect the fixture from overheating. Clear the fan of obstructions, or return the unit for service. |
| Beam is Dim | Check optical system and clean excess dust/grime. Also ensure that the 220V/110V switch is in the correct position, if applicable. |
| No Light Output | Check to ensure fixture is operating under correct mode, IE sound active/auto/DMX/Etc., if applicable. Contact service for more information. |
| Chase Speed Too Fast/Slow | Check to ensure proper setup of speed adjustment. |
| No Power | Check fuse, AC cord and circuit for malfunction. |
| Slow Movement | Verify that 220V/110V switch is in the correct position, if applicable. Also check that speed channels are set appropriately. |
| No Response to Audio | Verify that the fixture is in "Sound Active" mode.<br>Adjust Audio Sensitivity, If Applicable. |
| Fixture Not Responding / Responding Erratically | Make sure all connectors are seated properly and securely.<br>Use Only DMX Cables.<br>Install a Terminator.<br>Check all cables for defects.<br>Reset fixture(s). |

**If your problem isn't listed, or if problems persist, please contact support: support@blizzardlighting.com.**

# 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 Puck™ Fab5 Skywire 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 send an email to support@blizzardlighting.com, 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 | 8.25 inches (210 mm) | | | | | | |
| Width | 3.75 inches (98.43 mm) | | | | | | |
| Height | 7.5 inches (215.9 mm) | | | | | | |
| Weight | 4.4 lbs (2 kg) | | | | | | |
| **Power** | | | | | | | |
| Operating Voltage | 90-230VAC, 50-60 Hertz | | | | | | |
| Fuse | 5A | | | | | | |
| Power & Current | 22 watts, .13A | | | | | | |
| Power Factor | .51 | | | | | | |
| **Light Source** | | | | | | | |
| LED | 6x 15-watt RGBAW 5-in-1 LED's | | | | | | |
| **Optical** | | | | | | | |
| Beam Angle | 25 degrees<br>29 degree field | | | | | | |
| Luminous Intensity | Lux / Meter | RGBAW | Red | Green | Blue | Amber | White |
| | 1M | 6,120 | 950 | 1,390 | 1,540 | 1,490 | 2,260 |
| | 2M | 2,000 | 330 | 750 | 540 | 540 | 810 |
| **Thermal** | | | | | | | |
| Max. Operating Temp. | 104 degrees F (40 degrees C) ambient | | | | | | |
| **Control** | | | | | | | |
| Protocol | USITT DMX-512 | | | | | | |
| DMX Channels | 3/5/12 (User Selectable) | | | | | | |
| Input | 3-pin XLR Male | | | | | | |
| Output | 3-pin XLR Female | | | | | | |
| Other Operating Modes | Standalone, Master/Slave, Sound Active, Color Preset, Standalone Color Mixing | | | | | | |
| **Wireless Receiver** | | | | | | | |
| Transmission band | 2.4Ghz ISM (2.4-2.525Ghz) | | | | | | |
| Channels | 512 | | | | | | |
| Frequency Groups | 7 | | | | | | |
| Receiver sensitivity | -94dBm | | | | | | |
| **Other Information** | | | | | | | |
| When people yawn, do deaf people think they're screaming? | | | | | | | |
| **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**