AEON RAVEN®
DMX BLACKBIRD PFX edition™

PRODUCT DESCRIPTION:

AEON RAVEN's DMX BLACKBIRD PFX is a state-of-the-art DMX Control Module which is activated by direct audio input. It provides DMX commands to RGB, RGBA, RGBW, 5-in-1 and Hex lighting fixtures from live audio feeds creating a synchronized light show which far surpasses simple beat recognition. It operates from live music with no lag, pre-programming or computer interface, freeing you to play any music and still provide a choreographed light show. Additionally, it provides for direct DMX control by the user for assigning color to all connected fixtures.

SETUP:

The BLACKBIRD only operates on supported lighting fixtures. Please refer to the DMX START ADDRESS IMPLEMENTATION section for properly setting up your lights to receive commands.

1. Connect the power adapter to your BLACKBIRD and then plug the adapter into an AC outlet. Only use the supplied power adapter. The green light on the BLACKBIRD should now be on.

2. Using a standard stereo RCA audio cable, connect the right and left sides to the audio input of the BLACKBIRD and the other ends to an audio output jack on your DJ console, mixing board, or other audio device. DJ mixing consoles will typically have a "Monitor Out", "Booth Out", or "Record Out", these are suitable outputs for the BLACKBIRD. If your audio device uses 3.5mm or ¼ inch phone jacks, you may use an adapter (not included).

3. Connect a 3 pin XLR cable to the DMX output jack of the BLACKBIRD and the other end to the DMX input jack of the lighting fixture. Configure your fixture's DMX settings according to the configuration table for your specific light. Daisy-chain the other lights you will be using in conjunction with the BLACKBIRD. Wireless DMX will work as well; consult your manual.

PERFORMANCE:

For the best results, set the equalization flat on your music device's audio output connected to the BLACKBIRD. Any bass-boosting or other equalization should be done on the speaker output only. Music files should be uncompressed or only minimally compressed. If you tend to overdrive the bass in order to activate typical "beat detect" lighting, you no longer need to do this and you can equalize your mix properly.

When planning the layout of your lighting, keep in mind that you should have the BLACKBIRD unit close to your console in order to activate the switches at appropriate times.

If you are using HEX lights, the DMX BLACKBIRD PFX incorporates White and UV as part of its color palette during performances.

IMPORTANT:

Familiarize yourself with the menus and functions of the lights you intend to use with the BLACKBIRD. Lights may need to be set to SLAVE mode; the BLACKBIRD is the MASTER. Some lights only need to be set to a specific DMX CHANNEL MODE to be a SLAVE; have your light's manual handy in order to reference the DMX functions for it. Know how to set the DMX MODE and START ADDRESS for your specific light fixtures.

If you are having difficulty, call or e-mail your questions and we will be happy to help you; your success with our product is our number one priority. For common questions, visit our website's FAQ page. Look for our tutorials on YouTube for in depth setup procedures.

COLORstrip users: use the RGB chart on page 6.

www.aeonraven.com
www.youtube.com/user/AeonRavenLights

SWITCHES & KNOBS:

There are two switches on the DMX BLACKBIRD PFX: a FUNCTION switch located on the top face of the unit and a MODE switch located on the left end-plate next to the DMX output jack. There are also 4 knobs on the face: Red, Green, Blue and White/UV.

FUNCTION SWITCH
This two-position switch allows you to choose between the following functions:

  -**Color Assign:** When switched to "Color Assign", lighting connected to the unit will display the color produced by the positions of the knobs. The red, green and blue knobs can be adjusted to produce any color in the RGB 0-255 color space. Additionally, if your light includes White and/or UV, you can use the white/UV knob. It has no affect on RGB or RGBA fixtures. When "Color Assign" is chosen, the "MODE SWITCH" has no effect; it is only active when the function switch is set to "Sound Reactive".

  -**Sound Reactive:** Switching to "Sound Reactive" changes control of your lights to the "MODE SWITCH". Lights addressed to the "Non-Reactive" DMX start addresses will always display the color created by the knobs regardless of the switch positions (See STYLES).

MODE SWITCH
The 3 position switch on the left face of the BLACKBIRD sets the mode of operation. It is only functional when the FUNCTION SWITCH is set to "Sound Reactive".

  -**LIVE MODE:** In the "LIVE MODE" position, DMX commands will be sent in real-time to the lighting fixture according to the audio content of the music provided through the audio input.

  -**BEAT MODE:** In the "BEAT MODE" position, the light will react primarily to the beat of the music. This is a "slower" mode than "LIVE MODE".
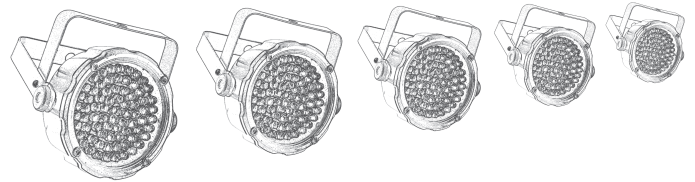
  -**OFF:** In the "OFF" position, your connected lights will be off (blackout). "Non-Reactive" lights are not affected (see STYLES section).

STYLES:

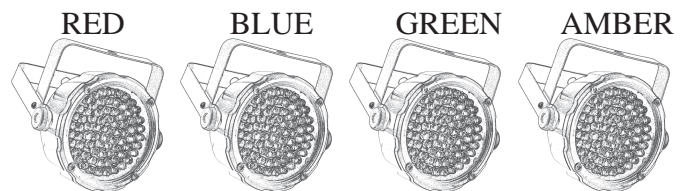Lighting styles are set by assigning a specific DMX Start Address to each light in your show.

ALL-IN-ONE
The All-in-One Style sends all the color data to all the lights. Lights assigned to this style will all display the same color at the same time during the performance.
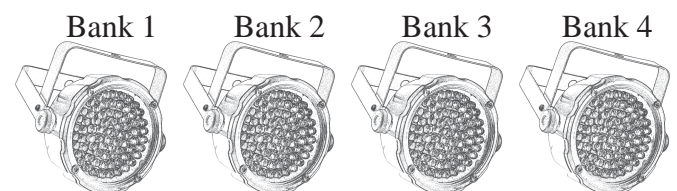

STATIC BANKS
Static Bank Style requires you to assign a particular color to each light. This Style works with 4 or more lights. Each fixture can be addressed to receive RED, BLUE, GREEN, or AMBER color data. Even if you only have RGB fixtures, you can assign AMBER to a light because the DMX BLACKBIRD PFX will synthesize the amber color for you. Once a light is assigned a color, it will always perform that color.

RED   BLUE   GREEN   AMBER

DYNAMIC BANKS
Dynamic Bank Style has you assign each light to a numbered bank (1, 2, 3, & 4). Again, you need at least 4 lights for this to work. This style creates a changing light show where colors pass from light to light and blend into countless variations. RGB lights can also be used because AMBER will be synthesized as needed.

Bank 1   Bank 2   Bank 3   Bank 4

NON-REACTIVE
Lights addressed to this Style will always display the color created by the positions of the knobs regardless of the position of the switches and are not reactive to any sounds. This feature allows you to maintain steadily colored lighting in one part of the venue while the rest of the connected lights perform in the Sound Reactive Styles.

A Word About Styles:

Multiple lighting fixtures can be assigned to any Style and Bank; All the STYLES work simultaneously. This flexibility allows you to design your lighting according to your requirements. Mix and match styles and lights in any combination; with enough lights, you can have all four STYLES going at once.

DMX START ADDRESS IMPLEMENTATION

Most lighting fixtures will have a DMX MODE that corresponds to the number of colors it has for LED's; for example, RGB lights typically have a 3ch. DMX mode, RGBA's have a 4Ch. mode and HEX lights have a 6Ch. mode corresponding to the 6 colors. If your light has that mode, set it that way for best results. Additionally, if you are using QUAD, 5-in-1, or HEX lights, it is very important to know the channel order of the Amber and White colors. QUAD lights are either RGBW or RGBA. For 5-in1 and HEX lights, channels 4 & 5 will be either AMBER & WHITE or WHITE & AMBER. Lights from Chauvet and Blizzard typically follow the AW order and American DJ lights are typically ordered WA. This information should be found in the manual that came with your light.

Find the DMX chart that matches your light.

RGBA (Quad) Light - 4 Ch. DMX Mode

Channel	Value	Function
1	0-255	Red 0% - 100%
2	0-255	Green 0% - 100%
3	0-255	Blue 0% - 100%
4	0-255	**Amber** 0% - 100%

RGBAW (5in1) Light - 5 Ch. DMX Mode

Channel	Value	Function
1	0-255	Red 0% - 100%
2	0-255	Green 0% - 100%
3	0-255	Blue 0% - 100%
4	0-255	**Amber** 0% - 100%
5	0-255	White 0% - 100%

HEX Light - 6 Ch. DMX Mode

Channel	Value	Function
1	0-255	Red 0% - 100%
2	0-255	Green 0% - 100%
3	0-255	Blue 0% - 100%
4	0-255	**Amber** 0% - 100%
5	0-255	White 0% - 100%
6	0-255	UV 0% - 100%

These charts are for lights that have AMBER as the 4th channel in their DMX charts. If your light doesn't, check the charts on the next page.

If your light matches one of the above DMX charts, use the tables below to set your light's DMX START ADDRESS:

ALL IN ONE
Start Address 002

STATIC BANKS

BANK	ADDRESS
Red	044
Blue	054
Green	064
Amber	074

DYNAMIC BANKS

BANK	ADDRESS
1	212
2	222
3	232
4	242

NON-REACTIVE
Start Address 380

Check the next page for additional DMX charts and address tables.

RGBWA (5in1) Light - 5 Ch. DMX Mode

Channel	Value	Function	
1	0-255	Red	0% - 100%
2	0-255	Green	0% - 100%
3	0-255	Blue	0% - 100%
4	0-255	**White**	0% - 100%
5	0-255	Amber	0% - 100%

HEX Light - 6 Ch. DMX Mode

Channel	Value	Function	
1	0-255	Red	0% - 100%
2	0-255	Green	0% - 100%
3	0-255	Blue	0% - 100%
4	0-255	**White**	0% - 100%
5	0-255	Amber	0% - 100%
6	0-255	UV	0% - 100%

If your light matches one of the above DMX charts, use the tables below to set your light's DMX START ADDRESS:

ALL IN ONE
Start Address 012

STATIC BANKS

BANK	ADDRESS
Red	084
Blue	094
Green	104
Amber	114

DYNAMIC BANKS

BANK	ADDRESS
1	252
2	262
3	272
4	282

NON-REACTIVE
Start Address 390

RGB Light - **3 Ch. DMX Mode**

Channel	Value	Function	
1	0-255	Red	0% - 100%
2	0-255	Green	0% - 100%
3	0-255	Blue	0% - 100%

RGBW (Quad) Light - 4 Ch. DMX Mode

Channel	Value	Function	
1	0-255	Red	0% - 100%
2	0-255	Green	0% - 100%
3	0-255	Blue	0% - 100%
4	0-255	White	0% - 100%

RGB+UV - 4 Ch. DMX Mode

Channel	Value	Function	
1	0-255	Red	0% - 100%
2	0-255	Green	0% - 100%
3	0-255	Blue	0% - 100%
4	0-255	UV	0% - 100%

ALL IN ONE
Start Address 022

STATIC BANKS

BANK	ADDRESS
Red	124
Blue	132
Green	140
Amber	148

DYNAMIC BANKS

BANK	ADDRESS
1	292
2	300
3	308
4	316

NON-REACTIVE
Start Address 400

Lights with a fixed dimmer on channel 1 can still be used. Here are more charts:

HEX Light 7-10 Ch. DMX Modes

Channel	Value	Function
1	0-255	Master Dimmer
2	0-255	Red 0% - 100%
3	0-255	Green 0% - 100%
4	0-255	Blue 0% - 100%
5	0-255	**Amber** 0% - 100%
6	0-255	White 0% - 100%
7	0-255	UV 0% - 100%
8 9 10	Additional channels may include Strobe, Speed, or Macros - As long as they are disabled with value = 0 it'll work.	

ALL IN ONE
Start Address 001

STATIC BANKS

BANK	ADDRESS
Red	043
Blue	053
Green	063
Amber	073

NON-REACTIVE
Start Address 379

DYNAMIC BANKS

BANK	ADDRESS
1	211
2	221
3	231
4	241

If your light does not have a dimmer on ch. 1 but still has strobes or macros after the colors, simply add 1 to the address numbers in the charts. (001 becomes 002... etc.)

HEX Light 7-10 Ch. DMX Modes

Channel	Value	Function
1	0-255	Master Dimmer
2	0-255	Red 0% - 100%
3	0-255	Green 0% - 100%
4	0-255	Blue 0% - 100%
5	0-255	**White** 0% - 100%
6	0-255	Amber 0% - 100%
7	0-255	UV 0% - 100%
8 9 10	Additional channels may include Strobe, Speed, or Macros - As long as they are disabled with value = 0 it'll work.	

ALL IN ONE
Start Address 011

STATIC BANKS

BANK	ADDRESS
Red	083
Blue	093
Green	103
Amber	113

NON-REACTIVE
Start Address 389

DYNAMIC BANKS

BANK	ADDRESS
1	251
2	261
3	271
4	281

If your light does not have a dimmer on ch. 1 but still has strobes or macros after the colors, simply add 1 to the address numbers in the charts. (011 becomes 012... etc.)

RGBW Light 5-8 Ch. DMX Modes

Channel	Value	Function
1	0-255	Master Dimmer
2	0-255	Red 0% - 100%
3	0-255	Green 0% - 100%
4	0-255	Blue 0% - 100%
5	0-255	White 0% - 100%
6	0-255	Strobe
7	0-255	Macro
8	0-255	Speed

ALL IN ONE
Start Address 021

STATIC BANKS

BANK	ADDRESS
Red	123
Blue	131
Green	139
Amber	147

NON-REACTIVE
Start Address 399

DYNAMIC BANKS

BANK	ADDRESS
1	291
2	299
3	307
4	315

If your light does not have a dimmer on ch. 1 but still has strobes or macros after the colors, simply add 1 to the address numbers in the charts. (021 becomes 022... etc.)

RGBA Light 5-8 Ch. DMX Modes

Channel	Value	Function
1	0-255	Master Dimmer
2	0-255	Red 0% - 100%
3	0-255	Green 0% - 100%
4	0-255	Blue 0% - 100%
5	0-255	Amber 0% - 100%
6	0-255	Strobe
7	0-255	Macro
8	0-255	Speed

ALL IN ONE
Start Address 029

NON-REACTIVE
Start Address 407

STATIC BANKS

BANK	ADDRESS
Red	155
Blue	163
Green	171
Amber	179

DYNAMIC BANKS

BANK	ADDRESS
1	323
2	331
3	339
4	347

If your light does not have a dimmer on ch. 1 but still has strobes or macros after the colors, simply add 1 to the address numbers in the charts. (029 becomes 030... etc.)

RGB* Light 4-6 Ch. DMX Modes

Channel	Value	Function
1	0-255	Master Dimmer
2	0-255	Red 0% - 100%
3	0-255	Green 0% - 100%
4	0-255	Blue 0% - 100%
5		Strobe or macros disabled
6		with value = 0

ALL IN ONE
Start Address 037

NON-REACTIVE
Start Address 415

STATIC BANKS

BANK	ADDRESS
Red	187
Blue	193
Green	199
Amber	205

DYNAMIC BANKS

BANK	ADDRESS
1	355
2	361
3	367
4	373

*Use this chart if you are using Chauvet's **COLORstrip** or **COLORstrip mini**. For the **FX** version, add 1 to each number: 037 becomes 038... etc. There is no Laser function.

If your light does not have a dimmer on ch. 1 but still has strobes or macros after the colors, simply add 1 to the address numbers in the charts. (037 becomes 038... etc.)

If your light does not conform to any of the DMX charts in this manual, contact us and we'll see if we can address it.

TROUBLESHOOTING:

In the event that the BLACKBIRD does not function properly or as expected, please review this troubleshooting guide to ensure everything is properly connected and configured.

1. Complete Non-Functionality: Is the power LED on? If not, power is not reaching the unit. Check power connector, DC adapter and AC Outlet. If LED is on, power is OK.

2. LED is on but no functionality: Put the FUNCTION SWITCH in the "Color Assign" position. Turn up the RGB knobs. If your lights come on, DMX is working. If not, check power to the lighting unit and its DMX address, channel mode and slave status. Fixtures must be set according to the tables in this guide.

3. Color assigning works but when switched to "Sound Reactive" lights are off. Check to make sure the volume level on the audio output of your console, mixer, etc. (which is connected to the BLACKBIRD) is at least mid-way up and that audio is routed to the output (monitor, booth, rec., etc) which is connected to the BLACKBIRD. Check to make sure the output patch isn't muted on the control panel.

4. Light fixture behaves erratically or unexpectedly: Make sure the light fixture is configured properly; most fixtures operate in multiple DMX channel modes, be sure they are set to the correct DMX MODE. The audio signal equalization should be as flat as possible, make sure volume isn't too low or so high that clipping occurs. Music which does not contain dynamic content (wall-of-sound, white noise, etc.) will produce equally un-dynamic lighting patterns.

More Troubleshooting on next page.

MORE TROUBLESHOOTING:

Some lights have Dimmer Curves or Profiles. If your light does, make sure it is off or set to "standard" or "Linear".

If you are certain that everything is set up correctly and there is still no functionality, you can narrow down the problem by entering "troubleshoot mode".

1. Power on the BLACKBIRD unit and a light fixture. Make sure your light is set to receive DMX.

2. Make sure the DMX connection is secure.

3. Put the MODE SWITCH on the Blackbird to the "OFF" position and the FUNCTION SWITCH to "Sound Reactive".

4. Set the START ADDRESS on the light fixture to 500.

At this point one of two things will be happening: either the light will remain off or it will be on and probably flickering. If the light comes on, it indicates that the BLACKBIRD is functioning and the Light is receiving DMX commands. The trouble must therefore be related to the audio and you should search there for a solution.

If the light remains off, DMX commands are not getting to the light. If your light works properly on its own, this may be due to a DMX configuration issue, cable problems, or a problem with the BLACKBIRD.

Switch the BLACKBIRD to "Color Assign" and set the START ADDRESS on your light to 1. Turn all the knobs clockwise to the fully on position. If it is still off, advance the START ADDRESS to 2, then 3 etc, up to 10, checking for light at each step. If at any point your light comes on, it is receiving a DMX command and the problem is likely the DMX configuration of your light.

If you see no light in either procedure, and your light works fine on its own, it indicates no DMX commands reaching the light either due to configuration, cabling or BLACKBIRD malfunction.

If you think your BLACKBIRD unit is malfunctioning, call or e-mail us for service details. We urge you to eliminate other possibilities by using known good cables and lights that you know are compatible and configured properly. If the BLACKBIRD unit is outside of its warranty, there may be a charge for service.

AEON RAVEN - DMX BLACKBIRD PFX v1912

Cautions:
The BLACKBIRD is designed for indoor use; do not let the product get wet.
There are no user serviceable parts inside. Opening the unit or attempting to repair it will void the manufacturers warranty. If something goes wrong, call us, we'll be happy to help.
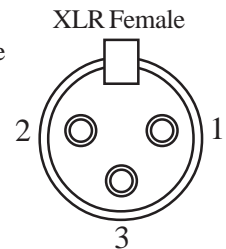Do not operate with an inappropriate or damaged power supply.
Do not operate if unit is damaged.
The unit should not be placed on top of speakers; constant direct vibration can damage the unit.

Data Connector:
XLR Female

The 3 pin XLR DMX connector uses the following pin definitions.

Pin 1 - Common/wire Shield
Pin 2 - Data -
Pin 3 - Data +

Line Termination:
If long runs of cable are used, a line terminating resistor may be needed at the end of the cable run. Use a 120 ohm ¼ watt resistor between Pin 2 and Pin 3 at the end of the cable run, to minimize poor signal quality. A DMX Terminator may also be used.
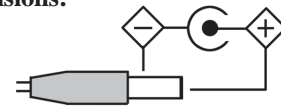
Audio Cable:
Use a stereo shielded RCA cable to minimize external noise.

Power Requirement: 5 volt DC. 400mA minimum.

DC Power Jack Dimensions:
5.5mm x 2.1mm x 9.5mm center positive barrel

WARNING: Using a power supply greater than 5 volts will fry the unit. We can fix it, but service charges will apply.

Customer Support: AEON RAVEN® provides a customer support line to provide help and to answer any question should you encounter problems during your set up or initial operation. Office Hours: Monday through Friday 10:00 a.m. to 6:00 p.m. Pacific Time. (805) 484-2306

www.aeonraven.com

Please Note: Specifications and improvements in the design and function of the DMX BLACKBIRD PFX module and this manual are subject to change without any prior written notice.