

Punch Plus Series Light

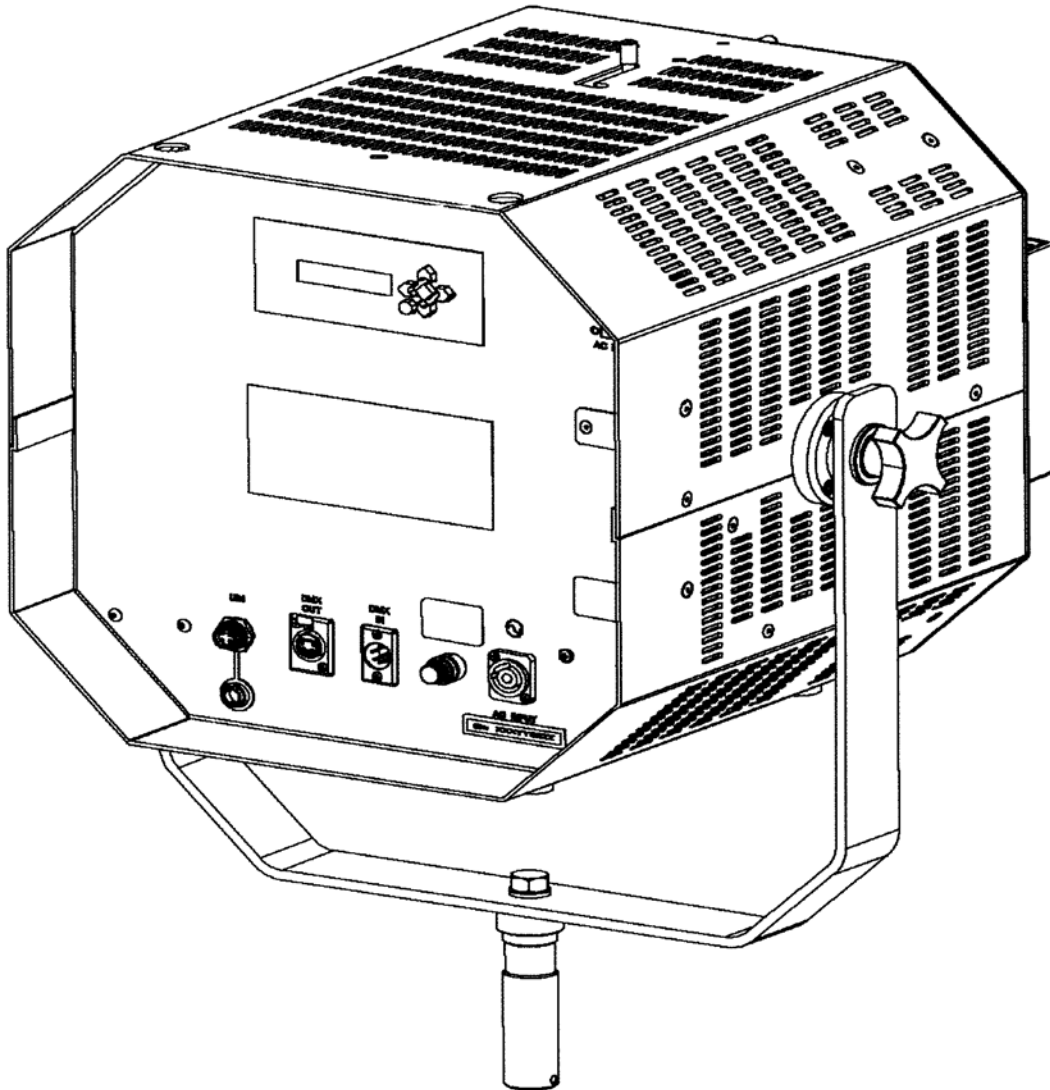
User Manual (IP20 Protection)



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Before You Begin

What is Included

- User's Manual
- One (1) Punch Plus light
- AC Power Input cable with plug
 - USA voltage (120Vac), three-prong plug standard
 - 1- 120/240V Adapter
- Diffuser lens, four (4), 5, 15°, 30° and 55°, 1 scrim bag, one Minus Green & CTO Filter
- One (1) Yoke Pin with attaching hardware
- External User Interface Module UIM (Sold Separately)

Unpacking Instructions

Immediately upon receipt of this light, carefully inspect the shipping packaging for any obvious signs of damage from mishandling or exposure to the elements. If any is noted, please provide this information to the shipper immediately so that the proper claims can be processed. Place packaging in upright position (with labeling and markings in readable orientation) and open the top end of the carton. Verify that all material shown above in the "What is included" section is present and in good condition. Remove the light and associated material from the carton and place the light on a stable surface or mounting configuration.

Symbol Definitions



Note: This symbol indicates important information that should be carefully considered and followed.



Note: This symbol indicates important safety information and warnings. Special attention should be paid to reading, understanding and heeding these warnings. Failure to observe these warnings could result in damage to the fixture, third-party equipment or harm to the user.



Note: This symbol indicates important information concerning the operation or functions of this light.



Safety Notes

The Punch Series light fixtures are for professional use only. **Please Read Entire User Manual Before Using Equipment.**

- This light is intended for indoor use only. The light is ETL & CE listed with IP20 protection.
- Only qualified and certified personnel should perform installation, not for household use.
- Punch Series light should always be installed/mounted in a stable and secure location or mounting.
- Make sure that light is only used in dry location. Do not use light in or around falling water, wet locations or moisture.
- Always allow adequate ventilation of the light. Never cover or in any way obstruct the louvered openings in the light.
- If light is suspended either from above or below using yoke, make sure that a safety cable (not supplied) is attached to the light and properly secured. The strength of the cable/chain should be sized suitably to hold 6 times the weight the secured light. Note: Weight of fixture is 50 lbs.
- When mounting the light, make sure that only hardware rated for the weight and size of the fixture is used.
- Never look directly into the light source while the fixture is turned on. Light source is very bright and could cause damage to eyes.
- Do not probe or touch any interior features of the fixture. This includes the LED sources inside the barrel of the light. Doing so may cause damage to the fixture and/or may present a shock or burn hazard.
- Always make sure that the light fixture is connected to the proper power source with proper voltage and current ratings. Also, make sure that adequate over current protection is provided for the circuit as well.



Note: This light contains no user serviceable parts. Do not open the light housing or attempt any repair or modification of the light. Failure to observe this warning could result in damage to the light, injury and/or voiding the limited warranty.



Warning! Inserting objects or fingers inside louvered openings could result in a shock hazard/injury and damage to the light.

Introduction

Product Description

The Punch Plus series light is a professional grade, LED based, fixture which provides exceptional light output and control. The light is capable of standalone, tethered remote, wired DMX, or wireless DMX control and offers a full array of brightness settings as well as Strobe and Lightning functions.

Features

- Light Off Control
- CIM/UIM Control



- DMX control (Compatible with Slow and Fast speeds)
 - Up to 500 selectable DMX addresses
 - Daisy-chain operation of up to 32 lights in one string
 - Controls Brightness, Fade, Strobe and Lightning modes

Setup

Quick Start

Remove the Aadyn light from its protective shipping packaging and place it in a safe and secure location for setup or use.

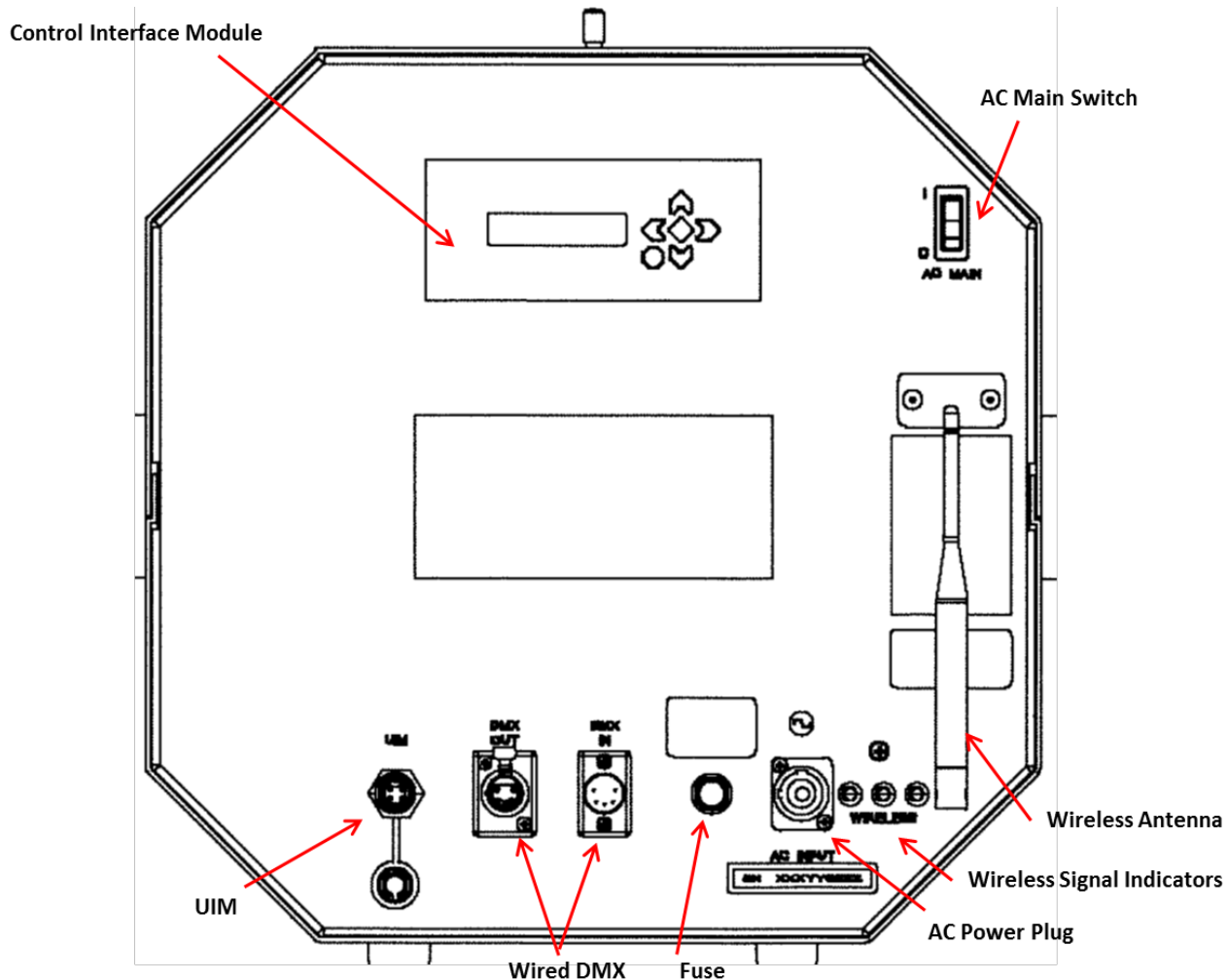


Prior to proceeding further, make sure that light is resting on a stable surface or is properly attached to a mounting location using the supplied yoke and yoke pin mounting system.



Make note of the location of the inputs and outputs along with the light controls found on the light's rear bulkhead.





The 6'0" AC power cable for the Punch Plus series light is located in a plastic bag under the diffuser kit.



- Uncoil the black AC power cord from the holder and plug the blue female end into the AC Input receptacle on the lower right portion of the housing.



Warning! Lights operate on grounded 110Vac, 50/60Hz or 240Vac, 50/60Hz AC Input. AC Supply Source must be sized properly and have approved protection circuitry for safe operation. Take care to observe all proper precautions when connecting power.



Warning! Lights are intended for indoor operation and use only. Use in safe and dry location only

- Plug the male end of the AC power cord into an appropriate AC power source.
- Turn on light by pressing the green power switch located in the upper right hand portion of the rear bulkhead, as shown above.
- Upon power up, the light will turn on immediately to its full brightness unless a specific “Power On” Setting which has been previously programmed into the light. This “Power On” Setting will be covered later in these instructions.
- The Internal UIM (User Interface Module) is mounted on the bulkhead. The External UIM port is located on the bottom of the bulkhead.
- The display on the UIM will display the following Splash Screen message upon power up.

Aadyn Technology
Remote Interface

- Using the Left/Right Arrow button, a desired brightness level can be selected. Other functions are also available and can be viewed using the UIM by pressing the Up/Down arrow to the desired menu function as detailed below in section 1.0, then pressing the (√) once a function has been selected. All of these functions are covered later in these instructions.
- The (X) button on the UIM is a non-latching douse switch which, when pressed, will momentarily extinguish the light. Releasing the switch will allow the light to return to operation at its previous setting.



AC Power

Punch Plus series lights operate on standard single phase AC power.

- Input voltage range: 100 – 277Vac
- Input frequency range: 50/60 Hz



Warning! Standard power cord supplied with Punch light is intended to connect with standard, single-phase 110-120 Vac, 60 Hz USA circuit. Other power cords for connection to other countries' single phase circuits are available as options. No other special adjustments or changes are required for operation at international voltages.



Warning! Never connect ECO series lights to anything other than a single-phase circuit. Connection to three-phase power can/will cause serious damage and/or bodily injury.

Control Selection

The light can be controlled via three means of interface as shown below:

- OFF
- CIM/UIIM
- DMX (wired or wireless)

CIM/UIIM Operation



1. Functional Requirements

The Aadyn Punch Plus light are controlled by software (embedded firmware). In general the software shall control the light and accept user inputs from multiple device types. Via the user inputs the light may be controlled and various parameters may be saved in non-volatile memory.

The software shall monitor input from the following:

- CIM – an AAdyn proprietary **C**ontrol **I**nterface **M**odule
- UIM – an AAdyn proprietary **U**ser **I**nterface **M**odule.
- DMX – a unidirectional digital network based on the DMX512 standard.
- Cancel (X) – which also referred to as the douse button, is a button that shuts off the light while it is pressed.

The following sections provide all of the functional requirements for the Aadyn ECO Light Series.

1.1. Proprietary Control/User Interface Module Requirements

Note: Operation of the integral Control Interface Module (CIM) is identical to that of the User Interface Module (UIM)

- The CIM/UIM Remote Interface Controller has a backlit LCD display that the software shall control and six user input keys. The keys shall provide the following functionality:
 - UP/DOWN keys – select the parameter to be controlled.
 - LEFT/RIGHT keys – adjust the value of the selected parameter.
 - CHECKMARK (Enter) key – some parameters are only put into effect after the enter key is pressed. It also causes savable values to be stored.
 - Red 'X' (UIM remote douse) – shall cause the light to be extinguished while it is pressed.
- The software shall display a menu of parameters on the UIM controller. The parameters listed below shall be displayed in the order shown from top to bottom when the down key is pressed and shall default to LIGHT CONTROL. When the up key is pressed the order will proceed from LIGHT CONTROL to the bottom of the list, then upwards.
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECT
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE
 - WIRELESS SHOW ID
 - MODEL NAME / SW VERSION / SN# / LIGHT UNIQUE ID / RADIO SW
RECALIBRATION HOURS / RESET FACTORY DEFAULT
 - POWER ON SETTING
 - SAVE CUSTOM



- RECALL SETTING
- Under each parameter, the software shall present settings pertaining to the parameter for the user to select. The settings shall be:
 - POWER ON SETTING
 - The software shall present individually sixteen startup profiles to the user: PRESET1, PRESET2, PRESET3, CUSTOM1 through CUSTOM12, and OFF changing the choice each time the right or left arrow button is pressed.
 - When a profile is selected by the user, the software shall save this choice to non-volatile memory.
 - When power is applied to light the software shall determine which stored parameters will be recalled and put into effect. If a startup profile has been previously set it will be used to set the parameters.
 - If the POWER ON SETTING is set to OFF the software will restore the parameters that were automatically saved the last time the light was in operation. The parameters recalled are:
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECTION
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE
 - LIGHT CONTROL
 - This parameter shall support four values: "UIM", "Wired DMX", "Wireless DMX" and "OFF".
 - Selecting "UIM" shall allow the UIM button pad to control all functions of the light. Selecting "DMX" shall allow the DMX controller to control all functions of the light. Selecting "OFF" shall turn off the light. The light shall turn on and the prior brightness level shall be restored when "UIM" is selected again.
 - The factory default for LIGHT CONTROL is UIM (CIM/UIM control).
 - Note: In this mode, control is through either and/or both the integral CIM or optional UIM.
 - UIM BRIGHTNESS parameter:
 - Values from 0 to 100 percent that can be incremented or decremented in steps of 0.3, 0.7 and 1.0 on slow scroll. Medium and medium fast shall scroll by one and fast shall scroll by five.
 - Each setting value shall represent a brightness level where 0 percent is off and 100 percent is the maximum brightness of the light.
 - The change from one brightness value setting to another positive value shall be as smooth as possible. The built in smoothing delay shall be 250ms. If the DMX controlled brightness level is changed from a positive value to 0, the software shall turn the light off within one half second unless UIM FADE is non-zero.
 - The factory default for the UIM BRIGHTNESS parameter shall be 100%.
 - DMX BASE ADDRESS
 - This parameter shall range between 1 and 508 for 5 CHANNELS mode.
 - This parameter shall range between 1 and 511 for 2 CHANNELS mode.



- This parameter shall range between 1 and 512 for 1 CHANNEL mode.
- It shall represent the DMX address on the network that is used to address the light.
- This parameter shall be meaningful only if the light control is set to “DMX”.
- The factory default for DMX BASE ADDRESS is 1.

- DMX CHANNEL MODE
 - There shall be three modes of operation when the light is under DMX control. These modes are called: 1 CHANNEL, 2 CHANNELS, and 5 CHANNELS mode. Each mode is described in section 3.3 below.
 - The factory default for the DMX CHANNEL MODE shall be 5 CHANNELS mode.

- RECALL SETTING
 - The software shall present individually fifteen choices to the user: PRESET1, PRESET2, PRESET3, and CUSTOM1 through CUSTOM12 changing the choice each time a right or left arrow button is pressed. The CUSTOM settings are described below.
 - The PRESET settings shall be hard coded into the software and not changeable by the user. Preset values are described below.
 - When the user presses the select (green check) button, the software shall set these parameters with the saved settings from a CUSTOM or a PRESET, given the profile the user has chosen:
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECTION
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE
 - The factory default for the RECALL SETTING parameter shall be PRESET1.

- SAVE CUSTOM
 - The software shall present individually twelve choices to the user: CUSTOM1 through CUSTOM12 changing the choice each time the right or left arrow button is pressed.
 - When the custom setting is selected (green check button) by the user, the software shall save these parameters to non-volatile memory:
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECTION
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE
 - The factory default for the SAVE CUSTOM parameter shall be CUSTOM1.

- MODEL NAME
 - Current model names:
 - Punch Plus
 - Tungsten



- SOFTWARE VERSION
 - The software shall maintain and display the software version.
- RECALIBRATION PT
 - The software shall start at 25000 hours and count down to zero and then count negatively if necessary to let the user know it is time to have the LED's replaced. The time shall count down based on hours of continuous use at a particular brightness setting.
- UIM FADE parameter:
 - Values from 0 to 100 percent that can be incremented or decremented in steps of 0.3, 0.7 and 1.0 on slow scroll. Medium and medium fast shall scroll by one and fast shall scroll by five.
 - Each setting value shall represent a delay in the increase or decrease of the UIM BRIGHTNESS parameter.
 - 0 shall indicate that the UIM BRIGHTNESS parameter change is to occur immediately and 100 percent shall introduce a three second delay in changing the current parameter value to the requested value.
 - At power on, the value of UIM FADE shall default to 0 percent if there is no power on profile.
 - The factory default for the UIM FADE parameter shall be 0%.
 - The UIM FADE parameter is only active when UIM EFFECT is set to NONE (OFF).
- UIM EFFECT SELECT
 - The software shall present individually thirteen choices for the UIM EFFECT SELECT parameter:
 - NONE (OFF) – Turn off any current effect
 - STROBE,
 - LIGHTNING1 SGL,
 - LIGHTNING1 RPT,
 - LIGHTNING2 SGL,
 - LIGHTNING2 RPT,
 - LIGHTNING3 SGL,
 - LIGHTNING3 RPT,
 - LIGHTNING4 SGL,
 - LIGHTNING4 RPT,
 - LIGHTNING5 SGL,
 - LIGHTNING5 RPT,
 - LIGHTNING CYCL
 - The choice shall change by one each time a right or left arrow button is pressed.
- STROBE shall make the LEDs emit pulses of light at a 30 percent on / 70 percent off duty cycle and that are of a user designated frequency and brightness. These parameters are UIM EFFECT FREQUENCY and UIM BRIGHTNESS.
- LIGHTNINGx SGL shall make the LEDs emit pulses of varied length and brightness based on internal parameters to simulate a lightning strike. SGL indicates that this sequence shall be shown only once each time the Enter Key is pressed. The length and brightness components of lightning shall be defined in the software. There shall be five different sequences of lightning defined and designated by a number where the x is located.



- LIGHTNINGx RPT shall make the LEDs emit pulses of varied length and brightness based on internal parameters to simulate a lightning strike. RPT indicates that this sequence shall be shown repeatedly, with each sequence separated by a two second off interval. The length and brightness components of lightning shall be defined in the software. The same five single sequences defined above shall be used for the repeat lightning.
- LIGHTNING CYCL shall show each sequence in order with each sequence separated by a two second off interval. At the end of the fifth sequence, the process shall be repeated.
- If a LIGHTNING effect has been started, it shall be completed even if the user disables effects during the sequence.
- At power on, the UIM EFFECT SELECT shall default to NONE(OFF) if there is no power on profile.
- The factory default for the UIM EFFECT SELECT shall be NONE.

- UIM EFFECT FREQUENCY
 - Values from 0 to 100 percent that can be incremented or decremented in steps of 0.3, 0.7 and 1.0 on slow scroll. Medium and medium fast shall scroll by one and fast shall scroll by five.
 - Each setting value shall represent how quickly the lightning and strobe effects operate. Higher numbers represent a slower effect.
 - The factory default for the UIM EFFECT FREQUENCY parameter shall be 75%.

- The preset values shall be set as follows:
 - PRESET 1

▪ LIGHT CONTROL	=	UIM
▪ UIM BRIGHTNESS	=	100%
▪ UIM FADE	=	0%
▪ UIM EFFECT SELECTION	=	NONE
▪ UIM EFFECT FREQUENCY	=	0%
▪ DMX BASE ADDRESS	=	1
▪ DMX CHANNEL MODE	=	5

 - PRESET 2

▪ LIGHT CONTROL	=	UIM
▪ UIM BRIGHTNESS	=	45%
▪ UIM FADE	=	0%
▪ UIM EFFECT SELECTION	=	NONE
▪ UIM EFFECT FREQUENCY	=	0%
▪ DMX BASE ADDRESS	=	1
▪ DMX CHANNEL MODE	=	5

 - PRESET 3

▪ LIGHT CONTROL	=	UIM
▪ UIM BRIGHTNESS	=	25%
▪ UIM FADE	=	0%
▪ UIM EFFECT SELECTION	=	NONE
▪ UIM EFFECT FREQUENCY	=	0%
▪ DMX BASE ADDRESS	=	1
▪ DMX CHANNEL MODE	=	5



- The custom profile shall default to these settings:
 - LIGHT CONTROL = UIM
 - UIM BRIGHTNESS = 100%
 - UIM FADE = 0
 - UIM EFFECT SELECTION = NONE
 - UIM EFFECT FREQUENCY = 75%
 - DMX BASE ADDRESS = 1
 - DMX CHANNEL MODE = 5

- The software shall implement medium, medium fast and fast scroll where noted. If the Right or Left Arrow button is held down for one half second, the values shall be medium scrolled on the display. If the Arrow button is held down for two seconds the values shall be medium fast scrolled on the display. If the Arrow button is held down for six seconds the values shall be fast scrolled by five on the display.

- The software shall power the LED's based on UIM settings and any saved profile described under POWER ON SETTING before detecting the presence of a UIM (User Interface Module).

- If a UIM cannot be detected at light startup, the software shall transmit the AADYN TECHNOLOGY splash screen and check again next time through the main loop. If a UIM is attached after startup, the software shall display the UIM BRIGHTNESS screen.

- If the UIM is removed after startup, the software shall maintain the current settings. If the UIM is reattached later, the splash screen shall show again and any value in the buffer shall be processed. The software shall retain the menu state after the UIM is unplugged and remain on the same screen if the UIM is reattached.

1.2. Douse Switch/Douse Button

- The software shall separately detect and process a press and release of the red Cancel (X) button from the UIM. On Cancel button press, the software shall turn off the LED's immediately. On Cancel button release, the software shall turn on the LED's immediately if the Douse switch is not being pressed.

1.3. Wireless DMX Operation- Special User Instructions Enclosed

- The wireless transmitter/receiver of the Punch Plus light is designed to communicate with City Theatrical transmitters/ receivers.
- The back panel of the light has three LED indicator lights (red, yellow, green) that show wireless signal strength/link.
- When installing the light, make sure to adjust wireless antenna for best signal reception.

1.4. DMX Controller Interface Requirements

- The software shall accept input from the DMX512 controller that represents user requested values for BRIGHTNESS, FADE, EFFECT, EFFECT FREQUENCY and EFFECT ACTIVATION.
- The DMX input to the light is mapped as follows for each DMX MODE:



- 1 CHANNEL mode: Each DMX channel shall be used for BRIGHTNESS control.
- 2 CHANNELS mode: DMX channel 1 shall be used for BRIGHTNESS control. DMX channel 2 shall be used for FADE control.
- 5 CHANNELS mode: DMX channel 1 shall be used for BRIGHTNESS control. DMX channel 2 shall be used for FADE control. DMX channel 3 shall be used for EFFECT SELECTION control. DMX channel 4 shall be used for EFFECT FREQUENCY control. DMX channel 5 shall be used for EFFECT ACTIVATION control.
- When the mode is set for more than one channel, BRIGHTNESS will be at the DMX BASE ADDRESS, FADE will be at DMX BASE ADDRESS + 1, etc.
- DMX BRIGHTNESS parameter shall range between 0 and 255. 0 means the light is off and 255 means the light is 100% bright.
- DMX FADE parameter shall range between 0 and 255. 0 means that fade is completely off and 255 means that a three to four second fade is present.
- DMX EFFECT SELECTION parameter shall range between 0 and 255. The selections shall be as follows:
 - 0: No Effect Selected
 - 1 – 40: Lightning 1 Selected
 - 41 – 80: Lightning 2 Selected
 - 81 – 120: Lightning 3 Selected
 - 121 – 160: Lightning 4 Selected
 - 161 – 200: Lightning 5 Selected
 - 201 – 255: Strobe Selected
- DMX EFFECT FREQUENCY parameter shall range between 0 and 255. 0 means that the effect frequency is at a maximum. 255 means that the effect frequency is at the minimum.
- DMX EFFECT ACTIVATION parameter shall range between 0 and 255. 0 means that the effect is off. 1 through 255 means that the effect is activated. An effect shall be reactivated only if channel 5 is brought to 0 and then made positive again.

Technical Information

General Maintenance and Care

This light is intended for indoor use only. When not in use, the light should be stored in a generally dry and dust free area. General maintenance and care consists of making sure that the light always has good ventilation and that nothing is obstructing free air flow through and around the light. Do not use



chemicals to clean light. Any cleaning of the light, especially the LED optics should be with a damp, not wet, soft cloth that is non-abrasive.

Limited Warranty

AADYN TECHNOLOGY, LLC LIMITED WARRANTY

AAdyn Technology, LLC ("AAdynTech") products are covered by a limited warranty against manufacturing defects for two (2) years from the date of purchase by the original purchaser. AAdynTech's liability is limited, at AAdynTech's option, to repair or replacement of the product with the same or an equivalent product and does not include installation costs, removal costs, or transportation costs. AAdynTech reserves the right to determine whether the AAdynTech product is defective. Damage due to normal wear and tear, incorrect installation, misuse, abuse, accident, or any cause other than a manufacturing defect is not covered by the warranty. AAdynTech disclaims any liability for damage to products, adapters, other property, or personal injury resulting in whole or in part, from improper installation or use of its products. Components not manufactured by AAdynTech are subject to the warranty or guarantee set forth by the manufacturer thereof, and then only to the extent AAdynTech is able to enforce the warranty or guarantee.

In order to make a warranty claim, you must notify AAdynTech in writing within sixty (60) days after your discovery of the defect, obtain from AAdynTech an RMA, then provide proof of purchase, such as the invoice, and promptly return the product to AAdynTech or its authorized service provider, freight prepaid.

THE FOREGOING WARRANTY PROVISIONS ARE EXCLUSIVE AND ARE GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY AGAINST INFRINGEMENT AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL AADYNTECH BE LIABLE FOR INCIDENTAL, COMPENSATORY, CONSEQUENTIAL, DIRECT, SPECIAL OR OTHER DAMAGES. AADYNTECH'S AGGREGATE LIABILITY WITH RESPECT TO A DEFECTIVE PRODUCT SHALL IN ANY EVENT BE LIMITED TO THE REPAIR OR REPLACEMENT OF THAT DEFECTIVE PRODUCT OR, AT AADYNTECH'S OPTION, THE REIMBURSEMENT OF THE PURCHASE PRICE THEREFOR.

This warranty is effective for purchases of AAdynTech's product on or after the effective date set forth below. AAdynTech reserves the right to modify this warranty from time to time. Any modification of this warranty shall be effective for all orders placed with AAdynTech on or after the effective date of such revised warranty.

Effective Date: November 11, 2014

All prices and specifications are subject to change without notice.

Contact Us

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Technical Specifications

GENERAL SPECIFICATIONS:

Dimensions:	Length	Width	Height	Weight
	431.4 mm (17.0 in)	468.9mm (18.5 in)	515.5mm (20.3 in)	22kg (48.4 lbs)
Power Supply				
Input Voltage	100 - 277V _{ac}			
Input Frequency	50/60 Hz			
Input Current	4.87A _{rms} @120V (584.4 watts at full brightness)			
Power Connection:	US NEMA 5-15 standard, others available			
Control:	UIM, DMX			
Wireless or RDM:	Optional			
Environmental Class:	IP20			
Light Source:	LED			



PUNCH PLUS

No Diffuser @ 5 Feet @ 10 Feet @ 15 Feet

Lux	199,132	64,090	29,110
Ft. Candles	18,500	5,972	2,704

5° Diffuser @ 5 Feet @ 10 Feet @ 15 Feet

Lux	132,500	46,000	21,000
Ft. Candles	12,306	4,273	1,950

15° Diffuser @ 5 Feet @ 10 Feet @ 15 Feet

Lux	92,000	30,390	13,540
Ft. Candles	8,546	2,823	1,258

30° Diffuser @ 5 Feet @ 10 Feet @ 15 Feet

Lux	46,220	11,800	5,180
Ft. Candles	4,293	1,096	481

55° Diffuser @ 5 Feet @ 10 Feet @ 15 Feet

Lux	16,410	4,060	1,830
Ft. Candles	1,524	377	170



Special Instructions for use utilizing RDM

Proprietary User Interface Module Requirements

- A UIM is mounted in the back panel and has six user input keys and a backlit LCD display that the software shall control. The keys shall provide the following functionality:
 - UP/DOWN keys – select the parameter to be controlled.
 - LEFT/RIGHT keys – adjust the value of the selected parameter.
 - CHECKMARK (Enter) key – some parameters are only put into effect after the enter key is pressed. It also causes savable values to be stored.
 - Red 'X' (UIM remote douse) – shall cause the light to be extinguished while it is pressed.

- REMOTE UIM
A connector is provided on the back panel to which a cabled remote UIM may be attached. Its function is identical to the internal UIM and keystrokes may be entered on either at any time.

- UIM BACKLIGHT TIMEOUT
After one minute of inactivity the backlight will extinguish and stay off until another button is pushed or power is cycled. A momentary push of any button for less than 2 seconds will enable the backlight immediately but the action normally associated with that button will be ignored. Pressing a key for more than two seconds will immediately enable the backlight and the button press will be honored after 2 seconds. The left and right buttons will begin to scroll as normal. Holding the up or down buttons will on cause the parameter field to change by one, the same action as when these buttons are held with the backlight on. The enter key will turn on the light immediately and have normal effect if held for two seconds. When there are two UIMs their backlight timeouts are independent of each other.

- UIM PARAMETERS
The software shall display a menu of parameters on the UIM controller. The parameters listed below shall be displayed in the order shown from top to bottom when the down key is pressed and shall default to LIGHT CONTROL. When the up key is pressed the order will proceed from LIGHT CONTROL to the bottom of the list, then upwards.
 2. LIGHT CONTROL
 3. UIM BRIGHTNESS
 4. UIM FADE
 5. UIM EFFECT SELECT



6. UIM EFFECT FREQUENCY
7. DMX BASE ADDRESS
8. DMX CHANNEL MODE
9. WIRELESS SHOW ID
10. MODEL NAME / SOFTWARE RELEASE / SERIAL NUMBER/ LIGHT UNIQUE ID / RADIO SOFTWARE / RECALIBRATION PT / RESET FACTORY DEFAULTS?
11. POWER ON SETTING
12. SAVE CUSTOM
13. RECALL SETTING

- Under each parameter, the software shall present settings pertaining to the parameter for the user to select. The settings shall be:

- LIGHT CONTROL

- This parameter shall support four values: "UIM", "DMX WIRED", "DMX WIRELESS", and "OFF".
- Selecting "UIM" shall allow the UIM button pad to control all functions of the light. Selecting "DMX WIRED" shall allow the wired DMX controller to control all functions of the light. Selecting "DMX WIRELESS" gives control to the wireless DMX controller. Selecting "OFF" shall turn off the light. When transitions from "OFF" to any selection other than off the light shall turn on and the brightness level shall be restored to the value provided by the control device when "UIM" is selected again.
- The factory default for LIGHT CONTROL is UIM.

- UIM BRIGHTNESS parameter:

- Values from 0 to 100 percent that can be incremented or decremented in steps of 0.3, 0.7 and 1.0 on slow scroll. Medium and medium fast shall scroll by one and fast shall scroll by five.
- Each setting value shall represent a brightness level where 0 percent is off and 100 percent is the maximum brightness of the light.
- The change from one brightness value setting to another positive value shall be as smooth as possible. The built in smoothing delay shall be 250ms. If the DMX controlled brightness level is changed from a positive value to 0, the software shall turn the light off within one half second unless UIM FADE is non-zero.
- The factory default for the UIM BRIGHTNESS parameter shall be 100%.

- UIM FADE parameter:

- Values from 0 to 100 percent that can be incremented or decremented in steps of 0.3, 0.7 and 1.0 on slow scroll. Medium and medium fast shall scroll by one and fast shall scroll by five.



- Each setting value shall represent a delay in the increase or decrease of the UIM BRIGHTNESS parameter.
 - A value of 0 shall indicate that the UIM BRIGHTNESS parameter change is to occur immediately and 100 percent shall introduce a three second delay in changing the current parameter value to the requested value.
 - At power on, the value of UIM FADE shall default to the last used value if there is no power on profile.
 - The factory default for the UIM FADE parameter shall be 0%.
 - The UIM FADE parameter is only active when UIM EFFECT is set to NONE (OFF).
- UIM EFFECT SELECT
 - The software shall present individually thirteen choices for the UIM EFFECT SELECT parameter:
 - NONE (OFF) – Turn off any current effect
 - STROBE,
 - LIGHTNING1 SGL,
 - LIGHTNING1 RPT,
 - LIGHTNING2 SGL,
 - LIGHTNING2 RPT,
 - LIGHTNING3 SGL,
 - LIGHTNING3 RPT,
 - LIGHTNING4 SGL,
 - LIGHTNING4 RPT,
 - LIGHTNING5 SGL,
 - LIGHTNING5 RPT,
 - LIGHTNING CYCL
 - The choice shall change by one each time a right or left arrow button is pressed.
 - STROBE shall make the LEDs emit pulses of light at a 30 percent on / 70 percent off duty cycle and that are of a user designated frequency and brightness. These parameters are UIM EFFECT FREQUENCY and UIM BRIGHTNESS.
 - LIGHTNINGx SGL shall make the LEDs emit pulses of varied length and brightness based on internal parameters to simulate a lightning strike. SGL indicates that this sequence shall be shown only once each time the Enter Key is pressed. The length and brightness components of lightning shall be defined



in the software. There shall be five different sequences of lightning defined and designated by a number where the x is located.

- LIGHTNINGx RPT shall make the LEDs emit pulses of varied length and brightness based on internal parameters to simulate a lightning strike. RPT indicates that this sequence shall be shown repeatedly, with each sequence separated by a two second off interval. The length and brightness components of lightning shall be defined in the software. The same five single sequences defined above shall be used for the repeat lightning.
- LIGHTNING CYCL shall show each sequence in order with each sequence separated by a two second off interval. At the end of the fifth sequence, the process shall be repeated.
- If a LIGHTNING effect has been started, it shall be completed even if the user disables effects during the sequence.
- At power on, the UIM EFFECT SELECT shall default to NONE(OFF) if there is no power on profile.
- The factory default for the UIM EFFECT SELECT shall be NONE.

- UIM EFFECT FREQUENCY
 - Values from 0 to 100 percent that can be incremented or decremented in steps of 0.3, 0.7 and 1.0 on slow scroll. Medium and medium fast shall scroll by one and fast shall scroll by five.
 - Each setting value shall represent how quickly the lightning and strobe effects operate. Higher numbers represent a slower effect.
 - At power on, the value of UIM EFFECT FREQUENCY shall default to the last used value if there is no power on profile.
 - The factory default for the UIM EFFECT FREQUENCY parameter shall be 75%.

- DMX BASE ADDRESS
 - This parameter shall range between 1 and 508 for 5 CHANNELS mode.
 - This parameter shall range between 1 and 511 for 2 CHANNELS mode.
 - This parameter shall range between 1 and 512 for 1 CHANNEL mode.
 - It shall represent the DMX address on the network that is used to address the light.
 - This parameter shall be meaningful only if the light control is set to "DMX".
 - At power on, the value of DMX BASE ADDRESS shall default to the last used value if there is no power on profile.
 - The factory default for DMX BASE ADDRESS is 1.

- DMX CHANNEL MODE



- There shall be three modes of operation when the light is under DMX control. These modes are called: 1 CHANNEL, 2 CHANNELS, and 5 CHANNELS mode. Each mode is described in section 3.3 below.
- The factory default for the DMX CHANNEL MODE shall be 5 CHANNELS mode.

- WIRELESS SHOW ID
Each light shall have the ability to have a Radio Show ID assigned in the range of 101 – 164 and 201-204. Groups of lights may be assigned to a single ID. This allows multiple transmitters to control different groups of lights.

- MODEL NAME
 - Current model names:
 - E-3 PUNCHPLUS (displayed as ECO PUNCHPLUS on UIM)
 - E-3 TUNGSTEN (displayed as ECO TUNGSTEN on UIM)

- SOFTWARE VERSION
 - The software shall maintain and display the software version.
 - It shall be in the form: MajorVersion.MinorVersion.Build for display on the UIM.
 - It shall be in the form: MajorVersion.MinorVersion.MaintenanceVersion.Build for use with RDM.

- SERIAL NUMBER
The unique serial number assigned to this light.

- LIGHT UNIQUE ID
A unique ID (UID) made up of a two byte manufacturer ID and a four byte device ID (serial number). The AAdyn two byte prefix is 0x08AF.

- RECALIBRATION POINT
The software shall start at 25000 hours and count down to zero and then count negatively if necessary to let the user know it is time to have the LED's replaced. The time shall count down based on hours of continuous use at a full brightness setting.

- RESET FACTORY DEFAULTS?
This shall cause all user settable parameters to be reset to the factory default values when the enter key is pressed. RECALIBRATION POINT is not user resettable.
 - POWER ON SETTING
 - The software shall present individually sixteen startup profiles to the user: PRESET1, PRESET2, PRESET3, CUSTOM1 through CUSTOM12, and OFF changing the choice each time the right or left arrow button is pressed.



- When a profile is selected by the user, the software shall save this choice to non-volatile memory.
 - When power is applied to light the software shall determine which stored parameters will be recalled and put into effect. If a startup profile has been previously set it will be used to set the parameters.
 - If the POWER ON SETTING is set to OFF the software will restore the parameters that were automatically saved the last time the light was in operation. The parameters recalled are:
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECTION
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE
 - SHOW ID
-
- RECALL SETTING
 - The software shall present individually fifteen choices to the user: PRESET1, PRESET2, PRESET3, and CUSTOM1 through CUSTOM12 changing the choice each time a right or left arrow button is pressed. The CUSTOM settings are described below.
 - The PRESET settings shall be hard coded into the software and not changeable by the user. Preset values are described below.
 - When the user presses the select (green check) button, the software shall set these parameters with the saved settings from a CUSTOM or a PRESET, given the profile the user has chosen:
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECTION
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE



- SHOW ID

- The factory default for the RECALL SETTING parameter shall be PRESET1.

- SAVE CUSTOM
 - The software shall present individually twelve choices to the user: CUSTOM1 through CUSTOM12 changing the choice each time the right or left arrow button is pressed.
 - When the custom setting is selected (green check button) by the user, the software shall save these parameters to non-volatile memory:
 - LIGHT CONTROL
 - UIM BRIGHTNESS
 - UIM FADE
 - UIM EFFECT SELECTION
 - UIM EFFECT FREQUENCY
 - DMX BASE ADDRESS
 - DMX CHANNEL MODE
 - SHOW ID

 - The factory default for the SAVE CUSTOM parameter shall be CUSTOM1. The preset values shall be set as follows:
 - PRESET 1

▪ LIGHT CONTROL	=	UIM
▪ UIM BRIGHTNESS	=	100%
▪ UIM FADE	=	0%
▪ UIM EFFECT SELECTION	=	NONE
▪ UIM EFFECT FREQUENCY	=	0%
▪ DMX BASE ADDRESS	=	1
▪ DMX CHANNEL MODE	=	5
▪ SHOW ID	=	201



- PRESET 2
 - LIGHT CONTROL = UIM
 - UIM BRIGHTNESS = 45%
 - UIM FADE = 0%
 - UIM EFFECT SELECTION = NONE
 - UIM EFFECT FREQUENCY = 0%
 - DMX BASE ADDRESS = 1
 - DMX CHANNEL MODE = 5
 - SHOW ID = 201

- PRESET 3
 - LIGHT CONTROL = UIM
 - UIM BRIGHTNESS = 25%
 - UIM FADE = 0%
 - UIM EFFECT SELECTION = NONE
 - UIM EFFECT FREQUENCY = 0%
 - DMX BASE ADDRESS = 1
 - DMX CHANNEL MODE = 5
 - SHOW ID = 201

- The custom profile shall default to these settings:
 - LIGHT CONTROL = UIM
 - UIM BRIGHTNESS = 100%
 - UIM FADE = 0
 - UIM EFFECT SELECTION = NONE
 - UIM EFFECT FREQUENCY = 75%
 - DMX BASE ADDRESS = 1
 - DMX CHANNEL MODE = 5
 - SHOW ID = 201



- The software shall implement medium, medium fast and fast scroll where noted. If the Right or Left Arrow button is held down for one half second, the values shall be medium scrolled on the display. If the Arrow button is held down for two seconds the values shall be medium fast scrolled on the display. If the Arrow button is held down for six seconds the values shall be fast scrolled by five on the display.
- The software shall power the LED's based on UIM settings and any saved profile described under POWER ON SETTING before detecting the presence of a UIM (User Interface Module).
- If a UIM cannot be detected at light startup, the software shall transmit the AADYN TECHNOLOGY splash screen and check again next time through the main loop. If a UIM is attached after startup, the software shall display the UIM BRIGHTNESS screen.
- If the UIM is removed after startup, the software shall maintain the current settings. If the UIM is reattached later, the splash screen shall show again and any value in the buffer shall be processed. The software shall retain the menu state after the UIM is unplugged and remain on the same screen if the UIM is reattached.

DMX Controller Interface Requirements

- The software shall accept input from the DMX512 Wired and Wireless controllers that represents user requested values for BRIGHTNESS, FADE, EFFECT, EFFECT FREQUENCY and EFFECT ACTIVATION. **Note: The wired DMX controller must be disconnected from the head of the chain when the wireless mode is active as there can only be one DMX source at a time due to signal interference. The downstream daisy chain DMX cables do not need to be disconnected. In fact if only the light at the head of the chain is under wireless control the downstream lights may receive commands via DMX wired mode.**
- The DMX input to the light is mapped as follows for each DMX MODE:
 - 1 CHANNEL mode: Each DMX channel shall be used for BRIGHTNESS control.
 - 2 CHANNELS mode: DMX channel 1 shall be used for BRIGHTNESS control. DMX channel 2 shall be used for FADE control.
 - 5 CHANNELS mode: DMX channel 1 shall be used for BRIGHTNESS control. DMX channel 2 shall be used for FADE control. DMX channel 3 shall be used for EFFECT SELECTION control. DMX channel 4 shall be used for EFFECT FREQUENCY control. DMX channel 5 shall be used for EFFECT ACTIVATION control.
 - When the mode is set for more than one channel, BRIGHTNESS will be at the DMX BASE ADDRESS, FADE will be at DMX BASE ADDRESS + 1, etc.
 - DMX BRIGHTNESS parameter shall range between 0 and 255. 0 means the light is off and 255 means the light is 100% bright.
 - DMX FADE parameter shall range between 0 and 255. 0 means that fade is completely off and 255 means that a three to four second fade is present.
 - DMX EFFECT SELECTION parameter shall range between 0 and 255. The selections shall be as follows:
 - 0: No Effect Selected
 - 1 – 40: Lightning 1 Selected
 - 41 – 80: Lightning 2 Selected



81 – 120: Lightning 3 Selected
121 – 160: Lightning 4 Selected
161 – 200: Lightning 5 Selected
201 – 255: Strobe Selected

- DMX EFFECT FREQUENCY parameter shall range between 0 and 255. 0 means that the effect frequency is at a maximum. 255 means that the effect frequency is at the minimum.
- DMX EFFECT ACTIVATION parameter shall range between 0 and 255. 0 means that the effect is off. 1 through 255 means that the effect is activated. An effect shall be reactivated only if channel 5 is brought to 0 and then made positive again.

RDM Interface Requirements

The following RDM functions are supported in DMX Wired and DMX Wireless Mode.

- Discovery Group:
 - Discovery Unique Branch Message (DISC_UNIQUE_BRANCH)
 - Discovery Mute Message (DISC_MUTE)
 - Discovery Un-Mute Message (DISC_UN_MUTE)

- Get Group:

- Get Device Info (DEVICE_INFO)

Returns:

- RDM Protocol Version supported (16-bit binary)
 - Device Model ID (16-bit binary)
 - Every model has to be unique.
 - Product Category (16-bit code – see RDM spec)
 - Software Version ID (32-bit binary/hex)
 - DMX512 Footprint (16-bit binary)
 - DMX512 Personality (16-bit binary)
 - DMX512 Start Address (16-bit binary)
 - Sub-Device Count (16-bit binary)
 - Sensor Count (8-bit binary)
- Get Software Version Label (SOFTWARE_VERSION_LABEL)
 - Returns the software version in both binary (hex) and ASCII string forms.
 - Get DMX Start Address (DMX_START_ADDRESS)



- DMX Address 1 to 512
- Get Manufacturer Label (MANUFACTURER_LABEL)
 - ASCII Text: "AAdyn Technology"

NOTE: Per the RDM specification, this text must exactly match what is on the website www.RDMP

- Get Device Model Description (DEVICE_MODEL_DESCRIPTION)
 - ECO Punch Plus
- Get Device Label (DEVICE_LABEL)
 - Set/Used by End-User
- Get Identify Device (IDENTIFY_DEVICE)
 - Retrieves current state of "Identify" flag
- Get DMX Personality (DMX_PERSONALITY)
 - - Current Personality
 - 1 = 1 Channel Mode
 - 2 = 2 Channel Mode
 - 3 = 5 Channel Mode
 - Number of supported personalities
 - Get DMX Personality Description (DMX_PERSONALITY_DESCRIPTION)
 - Number of personality requested
 - Number of DMX512 slots required (number of channels used)
 - ASCII Text description of specified personality
 - Get Supported Parameters (SUPPORTED_PARAMETERS)
 - Packed list of RDM commands supported (only the ones that are not a part of the required set)
 - Get Slot Description (SLOT_DESCRIPTION)
 - Number of slot requested



- ASCII Text description of specified slot (DMX channel)
- Get Communications Status (COMMS_STATUS)
 - Number of short messages
 - Number of length mismatches
 - Number of checksum failures
- Set Group:
 - Set DMX Start Address (DMX_START_ADDRESS)
 - DMX Address 1 to 512
 - Set Device Label (DEVICE_LABEL)
 - Set/Used by End-User
 - Set Identify Device (IDENTIFY_DEVICE)
 - Sets current state of "Identify" flag
 - While the flag is a "1", the light identifies itself by a repeating rapid burst of 8 flashes that intensifies throughout the burst. The burst repeats in 250 milliseconds.
 - While the flag is a "0", the light is in normal operation state.
 - Set DMX Personality (DMX_PERSONALITY)
 - 1 = 1 Channel Mode
 - 2 = 2 Channel Mode
 - 3 = 5 Channel Mode
 - Set Communications Status (COMMS_STATUS)
 - Resets the three communications error counters.

LED Light Interface Requirements

- The software shall interface with the light by sending the slave PWM processor values that implement the LED Brightness, Fade, Strobe and Lightning Effects, and Effect Frequency.
- The software shall limit current provided to the LED strings to hardware specified values for each light model. Currently, these values are the same for models, Punch Plus and Tungsten: 2.0A. The requirement for the CN lights is 1.9A for both models.
- The software shall monitor the temperature sensor voltage and set the fan speed at a predetermined level when thresholds are reached. The low temperature threshold shall be defined at 65 degrees C. The high temperature threshold shall be defined at 90 degrees C.
- Both the PIC32 software and the dsPIC software shall be externally read protected to prevent theft of Sturdy IP.

