PRODUCT MANUAL

ProAv 12 Channel DMX & RDM to RGBW Decoder

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Manual Content

- Product Information
- Product Installation
- Product Operation Guide
- Product Troubleshooting and Safety

Product Description

Solid Apollo's ProAV 12 Channel Decoder is a heavy-duty decoder that converts DMX and RDM signal to RGBW.

The ProAV decoder has a high-power output capability and is loaded with powerful adjustable settings. It also has Remote Device Management (RDM) capability with which it can communicate to any RDM capable consoles or fixtures to remotely control them.

When connected to a DMX Console, the decoder works to decode DMX signals from the console to control LED fixtures. However, it also has a standalone capability through which it can work perfectly without a console. The standalone mode includes pre-saved light scenes that can be played and adjusted easily through the digital display screen.

The decoder offers a larger selection of DMX Input/ Output options including XLR3, RJ45, or screw terminals. This allows user to connect the decoder to any type of DMX fixture or console.

Product Features

- DMX512 to RGBW Decoder
- Powerful 12 X 5A Outputs
- Operates at 12V – 24V DC
- Maximum power of 720W – 1440W
- Adjustable frequency from 500 – 30KHz
- Visual display for easy configuration
- PWM resolution of 8 or 16 bits
- Linear and logarithmic dimming
- Micro-dimming function
- Excellent for audiovisual applications
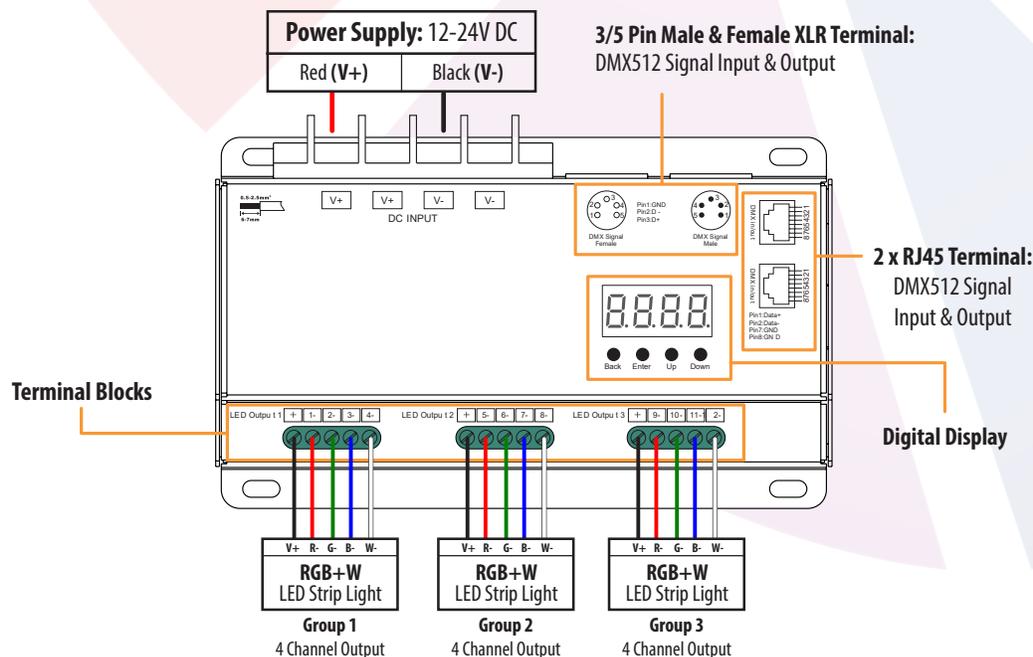- Multiple DMX In/out: RJ45, XLR, and screw Terminals

Product Specs

- Dimming : Yes
- Input Voltage : 12V - 24V DC
- Max Power : 720W @12V - 1440W @ 24V
- Max Amp : 12 x 5A
- Control System : DMX512 & RDM
- DMX Channels : 512
- PWM Refresh Rate : 500 - 30000Hz
- Dimming Curve : 0.1 - 9.9 Gamma
- Resolution : 8-bit / 16-bit
- Weight : 1.40 lbs
- Dimension : 6.52" x 3.93" x 1.50"
- Product Color : Black
- Product Material : Metal
- Working Temperature : -4°F – 122°F
- Warranty : 3 Years
- Certificates : CE, RoHS

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Product Installation

In order to successfully and effectively be able to use Solid Apollo's ProAv 12 Channel DMX & RDM to RGBW Decoder, it will have to be properly installed/wired. The correct amount of power has to be supplied and proper connections made between DMX Console or Controller, Light Fixtures, or LED Strips. Here is a guide on how to correctly install the product:

1. Ensure that the necessary accessories (DC Wires and DC-Plug – if necessary, and XLR or RJ45 Cable) are available.

2. Verify that the Power Supply has the right voltage and Wattage required.

3. To connect power to the decoder:

    a. Strip off about ¼-inch of the plastic jacket from the ends of the Power Supply's wires. Twist each wire to bind the strands together for a better installation.

    b. Open the DC Input slots on the "INPUT" side of the controller using a philips screw driver.

    c. Connect the Red (positive) wire of the Power Supply to the V+ of the "INPUT" screw-terminals. This is done by unscrewing the screw (just enough to get the wires under it) and then placing the wire under the screw. Re-tighten the screw and proceed to connect the Black (negative) wire to the V- in a similar manner.

4. To connect the LED fixture to the controller,

    a. Strip off about ¼-inch of the plastic jacket from the ends of the LED Fixture's wires. Twist each wire to bind the strands together for a better installation.

    b. Open the green terminal-block slots on the "OUTPUT" side of the controller using a flat-head screw driver.

    c. Connect the RGBW fixture's wires to the "OUTPUT" screw-terminals of the controller. This is done by installing each wire in the corresponding slot (on the side) and tightening the screw at the top. (Red goes to output R; Green to output G; Blue to output B, White to output W, and the positive wire to V+).

5. Plug the power supply/transformer to a power outlet and power up. The display Screen on the decoder will show A001 in Red where 001 is the DMX starting address.

6. Finally, connect the DMX input/output cable (if applicable) to any of the DMX ports on the decoder using either XLR3, or RJ45.
    Note: Always make sure that the Decoder is powered on first before sending DMX signals.

Power Supply: 12-24V DC
Red **(V+)**   Black **(V-)**

3/5 Pin Male & Female XLR Terminal:
DMX512 Signal Input & Output

V+   V+   V-   V-
DC INPUT

Pin1:GND
Pin2:D -
Pin3:D+
DMX Signal Female   DMX Signal Male

Pin1:Data+
Pin2:Data-
Pin7:GND
Pin8:GN D

2 x RJ45 Terminal:
DMX512 Signal
Input & Output

Back   Enter   Up   Down

Terminal Blocks

LED Outpu t 1   +   1-   2-   3-   4-   LED Outpu t 2   +   5-   6-   7-   8-   LED Outpu t 3   +   9-   10-   11-   2-

Digital Display

V+   R-   G-   B-   W-
RGB+W
LED Strip Light
Group 1
4 Channel Output

V+   R-   G-   B-   W-
RGB+W
LED Strip Light
Group 2
4 Channel Output

V+   R-   G-   B-   W-
RGB+W
LED Strip Light
Group 3
4 Channel Output

Product Operation Guide

Solid Apollo's ProAV 12 Channel DMX and RDM Decoder works in two different modes. A standalone mode called "**Master Mode**" or decoding mode called "**Slave Mode**" (conjunction with a DMX Control System).

On the ProAV, the Master mode is depicted as "**run2**" and the Slave mode is depicted as "**run1**". Each mode has its set of parameters that are adjustable and different from the other. Hence, the mode has to be chosen first to access the right parameters.

Note: Anytime you change mode, the device will need to be powered off and on again for the selected mode to work.

Buttons

Up / Down: These are used to *navigate/scroll through* settings and adjust parameters.

Enter: This button is used to *select* a parameter to be adjusted.

Back: This button is used to *save* the selected parameter setting on display.

. . . .

Master Mode

To enter the Master mode, power ON the Decoder. Push the "**Down**" button to display "**run1**" or "**run2**". Then press the "**Enter**" button once and the display will start blinking. Use the "**Up**" or "**Down**" button to select "**run2**" and then push the "**Back**" button. Power OFF the device and power it back ON.

Master Display Parameters

Means **Output Channel** selection from 01 to 12.

Means **Color-Changing Scheme** with four different fading effects. Selectable between 01 – 04.

Means **Output Brightness** setting for each channel from channel 00 (0%) to FL (100%).

Means **Color-Changing Speed** that can be set from 01 to 09 (fastest).

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Product Operation Guide *(continued)*

Master Parameter Setting

Output Channel

This parameter is for selecting the output channel desired. It is the first **01** (see picture **A**) in the display and it is selectable from 01 to 12. Since the 12 channels are **three sets of RGBW** outputs; the 01, 05, 09 are the Red outputs, the 02, 06, 10 are the Green outputs, the 03,07, 11 are the Blue outputs, and the 04, 08, 12 are the White outputs. Each of these channels can be turned on by first selecting the channel and then increasing its brightness from 0 upwards (next parameter). Different channels can be turned ON to mix and produce other colors for example Red + Green = Yellow.

To select an output channel, push the "**Up**" button until the display with the four numbers appear (see picture **A**). This automatically enters the output channel selection mode. Keep pushing the "**Up**" button to select from 01 (channel 1) to 12 (channel 12).

A.
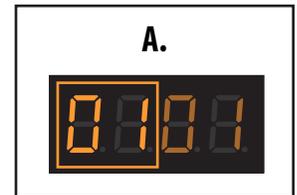
Output Brightness

This is the second **01** in the display (see picture **B**) and it is selectable from 00(0%) to 99(99%) and *Full-Load* (FL=100%) brightness. To select this parameter, first push the "**Up**" button to select the desired output channel (the first 01 in the display). Then push the "**Enter**" button to adjust the channel's brightness (the display will start blinking). Use the "**Up**" or "**Down**" buttons to select the brightness level from 0 to FL. Once the desired brightness level is set, push the "**Back**" button to save and exit the brightness setting mode.
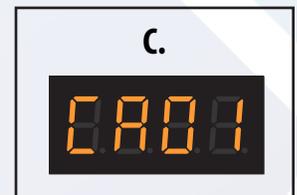
Note: To turn OFF any output channel in the Master mode, set its brightness level to 00.

B.
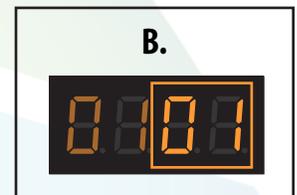
Color-Changing Scheme

The **CA0X** (where X is 1 - 4 : see picture **C**) parameter is for choosing the type of color-fading scheme applied between the output channels as the colors change. There are four types:

1. **CA01:** Output 1 fades upwards from 0 to 100% and then fades down from 100 to 0%, then output 2 follows the same trend, then output 3 and so on. After output 12 completes the fading the cycle repeats.

2. **CA02:** Output 1 fades up from 0 to 100% and as it fades down from 100 to 0%, output 2 simultaneously fades up from 0 to 100%. Then as output 2 fades down towards 0%, output 3 fades up towards 100%, and so on through output 12 and then the cycle repeats.

3. **CA03:** Output 1 fades up from 0 to 100%, then output 2 follows (fades up from 0 to 100%) and so on.

C.

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Product Operation Guide *(continued)*

Color-Changing Speed

This parameter is for adjusting the speed of the color-changing scheme. The speed needs to be set before selecting any of the four color-changing schemes mentioned above. It can be set between 01 and 09 (the fastest).

To set this parameter, push the "**Up**" button until the **SP0X** (where X is 1 - 9 : see picture **D**) is displayed. Push the "**Enter**" button and the display will start blinking. Then use the "**Up**" and "**Down**" buttons to set the speed between SP01 and SP09. Push the "**Back**" button to save the desired speed. Then you can go to the color-changing parameter and select your desired scheme and it will play with the speed chosen.

D.
SP09

Slave Mode

To enter the Slave mode, power on the decoder. Push the "**Down**" button to show "***run1***" or "***run2***". Then press the "**Enter**" button once and the display will start blinking. Use the "**Up**" or "**Down**" button to select "***run1***" and then push the "**Back**" button. Power off the device and power it back on.

Slave Display Parameters

A.8.8.8.   Means **DMX Address** which can be set from 001 to 512. The default Address setting is 001.

CH.8.8.   Means **DMX Channel** quantity which can be set from 01 to 12. The default setting is Ch12.

bt.8.8.   Means **Bit** which is the output smoothing resolution of either 8-bit or 16-bit (default setting).

dP.8.8.   Means **Decoding Mode** with some settings that could allow micro dimming. Default setting is 1.1

PF.8.8.   Means **Pulse Width Modulation** Frequency of 500Hz to 30KHz for output flicker filtering. 1KHz is the default setting.
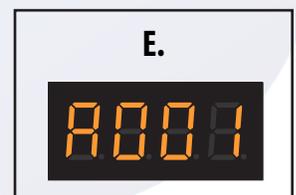
9A.8.8.   Means **Gamma Value** of 0.1 to 9.9 for precise output dimming at various brightness levels. The default set value is 1.5.

Slave Parameter Setting

DMX Address

When the Decoder is powered on, the display shows an **A001** (see picture **E**) address which is the default starting address. To change or set to a different address, press the "**Enter**" button and this will cause the display to start blinking. Then use the "**Up**" or "**Down**" button to scroll through the addresses to the desired number. The "**Up**" and "**Down**" buttons can be held down to quickly scroll through the addresses. Once the desired address is displayed, press the "**Back**" button to confirm it and then display will stop blinking.

E.
A001

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Product Operation Guide *(continued)*

LED Output Channel

This parameter allows the utilization of all five LED output channels using fewer or more DMX Channels at specified DMX Decoding Modes (See tables in DMX Decoding Mode section below). To change the Output Channel, scroll through the menu with the "**Up**" or "**Down**" buttons and select the "**CH01**" (see picture **F**) menu with the "**Enter**" button. The parameter will start blinking when the "**Enter**" button is pressed. Use the "**Up**" or "**Down**" button to change to the desired channel and then press the "**Back**" button to confirm.

F.
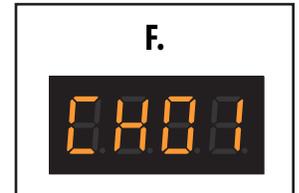
An example of the channel mappings at the default DMX Address (001) and Decoding Mode (dp 1.1) settings is as follows:

- **CH01** = 1 DMX address for all the output channels, which are all address 001.
- **CH02** = 2 DMX addresses, output 1&3 is address 001, output 2, 4 & 5 are address 002.
- **CH03** = 3 DMX addresses, output 1, 2 is address 001, 002, output 3, 4 & 5 are address 003.
- **CH04** = 4 DMX addresses, output 1,2,3 is address 001, 002, 003, output 4 & 5 are address 004.
- **CH05** = 5 DMX addresses, output 1, 2, 3, 4, 5 are address 001, 002, 003, 004, 005.

Output Resolution Bit

This parameter allows user to select either an 8-bit or 16-bit output smoothing resolution. The default setting is at 16-bit however to change that, use the "**Up**" or "**Down**" buttons to scroll through the menu until "**bt xx**" (see picture **G**) is displayed on the screen. Press "**Enter**" to select and adjust the parameter. Once "**Enter**" is pressed the parameter will start blinking. Use the "**Up**" or "**Down**" button to change to 8 bit and then press the "**Back**" button to confirm.

G.

Output PWM Frequency

The Pulse Width Modulation Frequency can be adjusted from 500 Hertz to 30000 Hertz for extremely high-quality audiovisual application requirements.

To change this setting, scroll through the menu with the "**Up**" or "**Down**" buttons and select the "**PF xx**" menu with the "**Enter**" button. The "**xx**" in the display means frequency in kilo Hertz (kHz). Therefore, "**PF 01**" (which is the default setting, see picture **H**) means 1kHz PWM frequency and "**30**" means 30kHz. The "**00**" option corresponds to a 0.5kHz (500 Hertz).

H.

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Product Operation Guide *(continued)*

Output Resolution Bit

This parameter is used to adjust the rate at which the output brightness changes at different DMX values (see graph, picture **I**).

Humans perceive the brightness change non-linearly and have better sensitivity at low luminance than high luminance.

The non-linear gamma dimming can help make dimming less sensitive for greater precision at various brightness levels (low or high).

Gamma values less than 1 give more precise dimming at higher brightness levels while gamma values greater than 1 give better precision dimming at low brightness.

The default gamma value is 1.5 but the values can be adjusted from 0.1 to 9.9. To set a desired value, scroll through the menu with the "**Up**" or "**Down**" buttons to "**GA xx**" (see picture **J**) and press the "**Enter**" button to select it. Once selected, the display will start blinking. Use the "**Up**" or "**Down**" buttons to scroll to the desired gamma value. Press the "**Back**" button to confirm.

Micro dimming: The micro dimming effect can only be visible when the dimming curve gamma value is set lower than 1.4, and the lower the value is, the more visible the micro dimming effect will be.
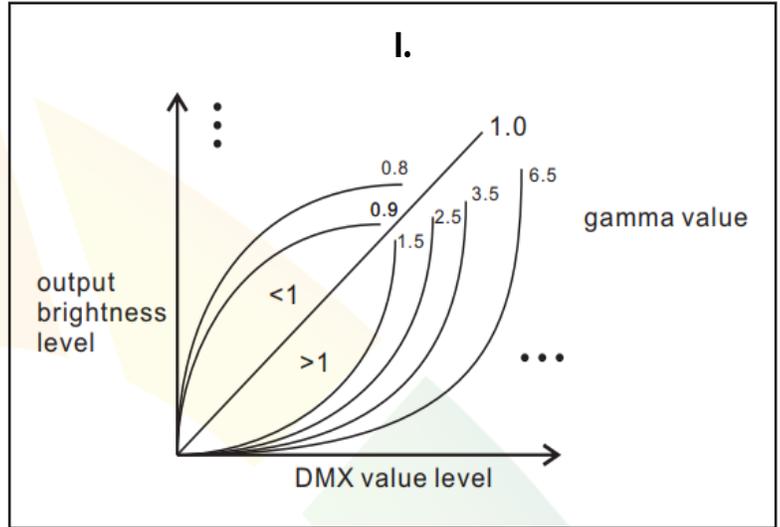
Output Resolution Bit

This is the parameter that determines how the DMX input is processed and mapped to the outputs. Its effect is related to the settings of the Output Channels parameter. It is important to set the output Channel parameter first in order to effectively utilize the DMX Decoding modes. For example, the "**dP2.1**" decoding mode uses two DMX input channels for each output, the first channel is the standard DMX adjustment and the second is for fine dimming control.

To set this parameter, scroll through the menu with the "**Up**" or "**Down**" buttons and select the "**dP xx**" menu with the "**Enter**" button. Use the "**Up**" or "**Down"** buttons to scroll to the desired decoding mode and then press the "**Back**" button to confirm selection.

The tables below show the Decoding modes relationship to the DMX Channels when the DMX Address is set to 001.

DMX Address 001, CH01

DMX Channel Decoding Mode	dp 1.1	dp 2.1	dp 2.2	dp 3.1
1	All output dimming	All output dimming	All output dimming	All output dimming
2		All output micro dimming	All output micro dimming	All output micro dimming
3				All output strobe effects

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Product Operation Guide *(continued)*

DMX Address 001, CH12

DMX Channel Decoding Mode	dp 1.1	dp 2.1	dp 3.2	dp 3.4	dp 4.3	dp 5.3	dp 5.4	dp 6.4	dp 8.6	dp 9.6
1	Output 1 dimming	Output 1 dimming	Output 1&2 dimming	Output 1,2,3 & 4 dimming	Output 1,2 &3 dimming	Output 1,2 &3 dimming	Output 1,2,3 & 4 dimming	Output 1,2,3 & 4 dimming	Output 1,2,3 & 4 dimming	Output 1,2,3 & 4 dimming
2	Output 2 dimming	Output 1 micro dimming	Output 1 dimming	Output 1&3 dimming	Output 1 dimming	Output 1 dimming	Output 1 dimming	Output 1 dimming	Output 1 dimming	Output 1 dimming
3	Output 3 dimming	Output 2 dimming	Output 2 dimming	Output 2&4 dimming	Output 2 dimming	Output 2 dimming	Output 2 dimming	Output 2 dimming	Output 2 dimming	Output 2 dimming
4	Output 4 dimming	Output 2 micro dimming	Output 3&4 dimming	Output 5,6,7 & 8 dimming	Output 3 dimming	Output 3 dimming	Output 3 dimming	Output 3 dimming	Output 3 dimming	Output 3 dimming
5	Output 5 dimming	Output 3 dimming	Output 3 dimming	Output 5&7 dimming	Output 4,5 &6 dimming	Output 1,2 &3 Strobe Effects	Output 4 dimming	Output 4 dimming	Output 4 dimming	Output 4 dimming
6	Output 6 dimming	Output 3 micro dimming	Output 4 dimming	Output 6&8 dimming	Output 4 dimming	Output 4,5 &6 dimming	Output 5,6,7 & 8 dimming	Output 1,2,3 & 4 Strobe Effects	Output 5&6 dimming	Output 5&6 dimming
7	Output 7 dimming	Output 4 dimming	Output 5&6 dimming	Output 9,10,11 & 12 dimming	Output 5 dimming	Output 4 dimming	Output 5 dimming	Output 5,6,7 & 8 dimming	Output 5 dimming	Output 5 dimming
8	Output 8 dimming	Output 4 micro dimming	Output 5 dimming	Output 9 & 11 dimming	Output 6 dimming	Output 5 dimming	Output 6 dimming	Output 5 dimming	Output 6 dimming	Output 6 dimming
9	Output 9 dimming	Output 5 dimming	Output 6 dimming	Output 10 & 12 dimming	Output 7,8 &9 dimming	Output 6 dimming	Output 7 dimming	Output 6 dimming	Output 7,8,9&10 dimming	Output 1,2,3,4,5&6 Strobe Effects
10	Output 10 dimming	Output 5 micro dimming	Output 7&8 dimming		Output 7 dimming	Output 4,5 & 6 Strobe Effects	Output 8 dimming	Output 7 dimming	Output 7 dimming	Output 7,8,9&10 dimming
11	Output 11 dimming	Output 6 dimming	Output 7 dimming		Output 8 dimming	Output 7,8 &9 dimming	Output 9,10,11 & 12 dimming	Output 8 dimming	Output 8 dimming	Output 7 dimming
12	Output 12 dimming	Output 6 micro dimming	Output 8 dimming		Output 9 dimming	Output 7 dimming	Output 9 dimming	Output 5,6,7,&8 Strobe Effects	Output 9 dimming	Output 8 dimming
13		Output 7 dimming	Output 9&10 dimming		Output 10,11 &12 dimming	Output 8 dimming	Output 10 dimming	Output 9,10,11&12 dimming	Output 10 dimming	Output 9 dimming
14		Output 7 micro dimming	Output 9 dimming		Output 10 dimming	Output 9 dimming	Output 11 dimming	Output 9 dimming	Output 11&12 dimming	Output 10 dimming

Product Operation Guide *(continued)*

DMX Address 001, CH12

DMX Channel Decoding Mode	dp 1.1	dp 2.1	dp 3.2	dp 3.4	dp 4.3	dp 5.3	dp 5.4	dp 6.4	dp 8.6	dp 9.6
16		Output 8 micro dimming	Output 11&12 dimming		Output 12 dimming	Output 10,11 &12 dimming		Output 11 dimming	Output 12 dimming	Output 11 dimming
17		Output 9 dimming	Output 11 dimming			Output 10 dimming		Output 12 dimming		Output12 dimming
18		Output 9 micro dimming	Output 12 dimming			Output 11 dimming		Output 9,10,11 &12 Strobe Effects		Output 7,8,9,10,11 &12 Strobe Effects
19		Output 10 dimming				Output 12 dimming				
20		Output 10 micro dimming				Output 10,11 &12 Strobe Effects				
21		Output 11 dimming								
22		Output 11 micro dimming								
23		Output 12 dimming								
24		Output 12 micro dimming								

Supported RDM PIDS

DISC_UNIQUE_BRANCH
DISC_MUTE
DISC_UN_MUTE
DEVICE_INFO
DMX_START_ADDRESS
IDENTIFY_DEVICE
SOFTWARE_VERSION_LABEL
DMX_PERSONALITY
DMX_PERSONALITY_DESCRIPTION
SLOT_INFO
SLOT_DESCRIPTION
MANUFACTURER_LABEL
SUPPORTED_PARAMETERS

Restoring to Factory Default Settings

Press and hold down both "**Back**" and "**Enter**" buttons until the digital display turns OFF, then release the buttons for the system to reset and the digital display will turn on again. All settings will be restored to the following factory settings:

DMX Address: A001

Output Channels: CH12

PWM Resolution: 16-bit

PWM Frequency: 1kHz

Gamma Dimming Value: 1.5

Decoding Mode: dp1.

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Product Troubleshooting

The following recommendations can help in troubleshooting the ProAV 12 Channel DMX & RDM to RGBW Decoder.

1. Decoder does not turn ON after powering up:
    A. Ensure that the correct voltage requirement of the decoder is supplied.
    B. Ensure that the wiring of the power supply to the device is correctly done with the live wire connected to one of the V+ terminals of the decoder and the neutral wire connected to one of the V- terminal.
2. Decoder is ON but LED fixtures are not:
    A. Ensure that the LED fixtures are correctly wired in the green terminal blocks of the decoder.
    B. Make sure that the correct mode of the decoder (Master "run2" or Slave "run1") is set (see Product Operation Guide section - Pg.3). **Note:** The slave mode needs a DMX control system to control LED fixtures.
3. Decoder and LED fixtures are on but LEDs do not respond to DMX control:
    A. Ensure that the proper DMX signal connections are installed between the Decoder and DMX control system. Use either standard RJ45 or 3 pin XLR to connect the two and make sure to connect to the right ports DMX in/out.
    B. If the decoder is set to the Master mode, make sure to turn on the output channels by increasing the brightness for the channels (see Product Operation Guide section - Pg. 3-4).
    C. Restore the decoder to factory default by pressing and holding the "Back" and "Enter" buttons until the screen turns OFF.

Safety Recommendations

In order to efficiently operate the ProAV 12 Channel DMX & RDM to RGBW Decoder it is important to correctly and safely install it. Here are a few tips on things to be aware of:

1. Ensure that all the accessories (Drivers, LED Fixtures or Strips, Connectors, etc.) necessary are obtained beforehand.
2. Ensure that the product is properly installed with the right accessories and guidelines.
3. Ensure that wires or cables are correctly connected to their right ports or terminals.
4. Do not try to install/screw-in the LED fixtures wires while the decoder is powered.
5. Ensure that the Decoder is placed or mounted in a dry location.
6. Use only one (not multiple) type of DMX in/out connection at a time between Decoder and DMX Console.
7. Ensure that peeled (bare) section of the wires going into Screw Terminals are not extending out of the terminal without the insulation.
8. Ensure that the right parameters are set in order to better see the effects of associated parameters.
9. Connect and test the decoder with the accessories to ensure everything works before final installation.
10. Install the decoder in an accessible area for easy settings adjustment when needed.

* The product is backed by a 3-year warranty. Please refer to www.solidapollo.com for more information on warranty coverage.