



Digital Sputnik

# DS3 User Manual

June 2019

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## Safety instructions

1. Please read through these instructions carefully before operating the DS LED Lighting System, and keep these instructions for future reference.
  2. There are numerous safety instructions and warnings that must be followed for your own safety.
  3. DS LED Lighting Systems are not intended for residential use. They are intended for use in a professional studio or film set.
  4. Maintenance must be carried out exclusively by an authorized technician.
  5. The Systems are not for use in hazardous locations.
  6. Maximum ambient temperature for use is 45°C.
    - 6.1 Do not cover cooling slots and/or radiator fins.
    - 6.2 Keep a clear area of 25 cm (10") from the lit face of the module.
  7. The beam intensity is high. Never look directly into the light source.
  8. Do not lift or suspend Light module or Power Supply Unit (PSU) by the cables.
  9. Do not use any module or cable that has visible damage.
  10. Connect the DS PSU unit only to a well grounded power source.
  11. Avoid contact with the LED elements, pressure on the lens may damage the LED element.
  12. Connecting any equipment from other manufacturers to the DS LED Lighting System can damage both the DS system and said equipment. Any such use will void warranty. Use the DS light modules only with a DS PSU.
  13. The System is rated for indoor use only.
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## Intended use

This product has been designed as a professional illumination tool for dry environments. Please always follow the safety instructions.

Any usage other than described in this manual is not advised and can damage the product and lead to risks such as fire, electric shock, etc. You are not allowed to modify the product.

# 1. HARDWARE

## Parts list

### DS3 Advanced System

- 1 Pcs – Power Supply Unit (PSU)
- 1 Pcs – Communication Handle  
(Art-Net for wireless control or  
DMX/RDM for wired)
- 3 Pcs – RGBW LED Light Module
- 3 Pcs – Light Module Cable 10m/33ft
- 1 Pcs – Power Cable 10m/33ft
- 3 Pcs – Diffuser 34°/76°
- 4 Pcs – Diffuser box corner profile
- 12 Pcs – Diffuser box wall
- 3 Pcs – Tripod mount
- 3 Pcs – Eccentric lock
- 1 Pcs – Dual module adapter
- 6 Pcs – Barn doors small
- 6 Pcs – Barn doors big
- 1 Pcs – Hex key no 5
- 1 Pcs – LED System case
- 1 Pcs – Durethan Clip (Set of 14)  
with Clip bag

### DS3 System

- 1 Pcs – DS3 PSU
- 3 Pcs – Light Module RGBW
- 1 Pcs – Cardboard Box
- 3 Pcs – Tripod Mount
- 3 Pcs – Light Module Cable 10m/33ft
- 1 Pcs – Cable IEC Lock C13 6ft US
- 3 Pcs – Eccentric Lock

### DS3 SYSTEM SPECIFICATIONS:

**Module type:** RGBW LED

**Beam angle:** 20 degrees

**Maximum LED modules per PSU:** 3

**Remote control options:** Wired (RDM/DMX), Wireless (Art-Net)\*

**Operating temperature range:** 0°F ~ 115°F/-20°C ~ 45°C

**Input power:** 90-260 VAC (Worldwide) 50/60 Hz

**Cables from PSU to LED module:** 32.8' / 10 m

**Maximum power draw per DS3 PSU:** 300 watts

**Dimensions of a single light module:** 4 x 4 x 4" / 116 x 116 x 116mm, 2.8lb/1.3kg

**Dimensions of DS3 case (shipping):** 27" x 20" x 11" / 70 x 53 x 29 cm - 50 lbs/23 kg

*\*Dependant of the communication handle entailed with the set.*



### Hardware and Firmware Versions

This user manual covers features up to v2.67.5 firmware. Some functionality may not be available with earlier firmware versions

Firmware updates are released on a regular basis. We recommend updating to the latest available firmware version so all product features are available.

Each release has substantially different DMX modes.



**It is strongly recommended to use the same firmware version within single DMX universe.**

As of versions v2.xx.x, gen-1 Wifi modules are not supported.

#### Overview

- 1.16.7. Last version to support the gen-1 WiFi module
- 2.03.3. DMX changes. Art-Net WiFi gen-2 support.
- 2.67.5. DMX changes.

Conventions to make the following manual simple to follow.

- **LIGHT MODULE** - An interchangeable DS RGBW LED light that is the base illumination tool of all DS line products
- **PSU** - The power supply unit is where light modules are connected too. It can also be referred to as ballast and has a control panel through which light modules can be controlled.
- **COMMUNICATION HANDLE** - The interchangeable handle on top of the PSU that enables remote control. Handle types are DMX/RDM, for wired control and ArtNet, for wireless control.
- **FIXTURE** - A general term referring to a light source. In this manual it references to DS3 system as a whole.

**What's included:**

**PSU** - The brain of the operations, gives power and controls the light modules. The PSU will accept AC Voltage range of 90v-260v and will only draw 300 watts at 3 amps Max for DS3 unit.



**Light Module Cable** - 33 ft or 10 m-long male to male connector that allows to move the light module away from the PSU. Light module cables have identical connectors on their ends and can therefore be run either way. Light module cables cannot be daisy chained. All Ends of the cable are 90 Degrees for easier cable management.



**Light module** - has 16 RGBW LEDs under its collimator lens. Each light module has been factory calibrated with a specific profile saved into it. Constant color coordinates are kept through the dimming range using high-precision, multi-dimensional LUTs (lookup tables). The Light module stores DMX Addressing info.



**Power Cable** - Standard 6ft/2m US/EU IEC Locking power Cable.





**Eccentric Lock** - Multiple purpose spring loaded locking lever.



**Diffusion Clip** - Clip designed to hold the Holographic diffusion lens onto the light module.



**Tripod Mount** - Modular tiltable tripod mount that is both a baby and junior pin.



**Barn Doors** - Tool for shaping the light spread. Uses the Diffusion Clip to hold on to the Light Module or Diffuser box panel.



**DS Dual-Module Adapter** - Allows two connected DS light modules to use the tripod mount.



**Holographic Diffusion** - A two-sided holographic lens that determines the beam spread (either 34 or 76°) and softens the light. Comes in 1x1, 2x1, 3x1, 2x3, and 3x3 formation.



**Diffuser Box Set** - A modular rectangular softbox consisting of wall panels and corner profiles used in conjunction with diffusion lens and if needed with barndoors. Can be assembled into configuration for one, two or three module setups.



**Wired DS DMX/RDM Handle** - The DS Wired DMX/RDM Handle allows wired remote control. Has 1x5pin XLR input and 1x5pin XLR output.



**DS Wireless ArtNet Handle** - The DS Wireless ArtNet Handle creates a Wi-Fi network for wireless communication. \*

*\*The presence and the type of the communication handle is dependant of the DS3 system. Please refer to the "Parts list".*

### PSU interface

#### Screen

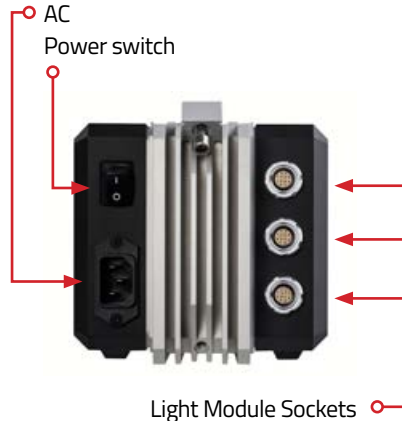
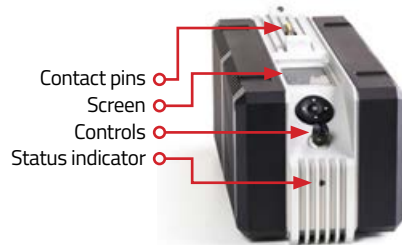
Gateway to your DS3 system. All color parameters, settings and system information is presented on here.

#### Controls

A keypad, and twist knob. Keypad has up, down, left, right, and center "OK" buttons. The twist Knob rotates both clockwise and counterclockwise and also acts as a button when pushed down.

#### AC

The back of the PSU houses the AC IEC Socket rated for 120V - 240V AC power with power switch. Plugging in a "HOT" AC IEC power cable into the PSU while the power switch is in the ON position is safe.



**ELECTRIC SHOCK HAZARD**  
Use only approved power cables. Connect only to an outlet with protective earth.

#### Light Module Socket

Back of the PSU features 3 light module sockets for communication and power feeding purposes. Light Module Cable ends and sockets can only be coupled in certain position. There are red dots on the connector and the port to act as a guide. They must be aligned accordingly. In this process it is important to **NOT TWIST THE HEAD OF THE CABLE**. The cable head should be pushed straight in when aligned and pulled straight out.



- DO NOT TWIST THE HEAD OF THE CABLE
- DO NOT HANG THE MODULE OR PSU BY THE CABLE
- DO NOT STRAIN THE CABLE

**Contact pins**

A five pin connector on top of the PSU for interacting with communication handles.

**Status indicator**

The status indicator diode on the front provides the following feedback signals about the state of the PSU:

- **OFF** - There is no power being fed to the PSU.
- **GREEN** - In the case of being stacked-PSU is on the top and controlling other PSU in the stack.
- **AMBER** - PSU is controlled by another PSU.
- **RED** blinking - There is an error. Information will be displayed in the master PSU.
- **GREEN** or **AMBER** blinking - communication activity via DMX 512 or WiFi Art-Net.

### Connecting communication handles

- Connecting and detaching procedures are the same for both wired DMX/RDM and wireless ArtNet communication handles.
- Turn off the PSU before connecting or removing the communication handles.
- Communication handle does not hold any DMX Addressing info.
- PSU can operate without communication handle being present.

**DMX/RDM****ArtNet**

**Communication handle** is accessible for both DS3 and DS6 and can be instantly swapped if needed across both platforms.

On the back of the **PSU** is a bolt keeping the **communication handle** attached to the **PSU**. To dismount, unscrew using hex key No. 5.

**For the correct orientation the XLR sockets or the Antena of the handle should be facing the back of the PSU.**

When mounting handles, make sure you don't over-tighten the bolt. Also, keep contact pins on both ends clean to ensure good connectivity.

A bolt keeping the **communication handle** attached to the PSU.



### Stacking multiple PSUs

**DS3 PSUs** can be formed into a stack (maximum of 4 DS3 PSUs) in order to accommodate larger lighting configurations. A stack of PSUs is always controlled by the **PSU** on top.

The same process when mounting any Communication Handle also applies to stacking. Remove the **communication handle** from the bottom PSU. Place the top PSU on the PSU with the removed handle and tighten the bolt using hex key No.5

A LED light indicator will show what status the PSU is in.  
Green LED is for master PSU and Orange LED is for Slave PSU

The top **PSU** will control all parameters and save settings for the whole stack.

When unstacked, the slave PSU will run on the settings saved prior to being stacked.



### Module setup

#### Connecting light modules together.

To build any combination out of light modules we recommend to use a flat level or surface.

**Position the modules in such a way that the Light Module cable socket is always on the top left corner when facing module from the rear.** This ensures the cable's weight doesn't strain the connector and the cables run evenly.

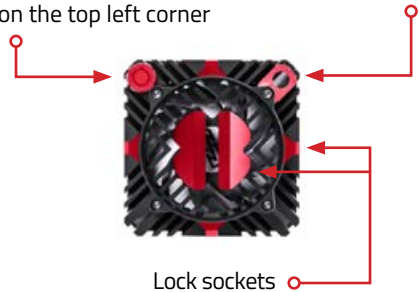
Make sure to identify the **lock socket** on the back of each light module. When you place two light modules next to each other these sockets form a "hourglass" shaped hole. Eccentric locks will fit into the sockets and act as connectors.

Insert the eccentric lock halfway, then turn the head of the lock clockwise and tighten the lock. It does not matter what direction you Fasten the Eccentric lock when Fastening Light Heads together.

If the light modules are able to be moved/ wobbled after eccentric lock has been fastened then the lock must be tightened some more. Pull the eccentric lock out half-way twist the lever head clockwise and tighten the lock again.

The cable socket is always on the top left corner

Security Washer



### Attaching Tripod Mounts.

The **tripod mount** is installed using the eccentric lock similarly to the way light modules are connected. Please take a moment to inspect your tripod mount and find the correlating socket where the lock will be fitted.

- It is important to make sure before the Tripod Mount is Fastened to know the orientation of the Light Head so that the socket is not in a wrong location. Position the modules in such a way that the cable socket is always on the top left corner when looked at from the rear. This ensures the cable's weight doesn't strain the connector and the cables runs evenly.
- You can use the whole stem as a junior pin when the locking nut on the tripod mount is removed.
- When it comes to Fastening Tripod Mounts it is easier for the longer end of the EC Lock to be inserted on the light head first, then the Tripod mount can slide on.





In the case of a two-module fixture, use the **dual module adapter**. It creates the socket where the **eccentric lock** will fit into.

In the case of a three-module fixture where modules are placed in a row, the tripod mount should be installed on the module in the middle.

If the final fixture is more than 4 modules, we recommend using **DS Yoke System** for mounting and giving better balance to the fixture.



**DS Yoke System**

Using the **dual module adapter**

### Diffuser Box

The diffuser boxes come assembled in a single module configuration with barn doors and a 1x1 diffuser plate installed. When assembled, the diffuser boxes will stay together even when no module is attached for easy transport.

The diffuser boxes are modular. They can be easily expanded to accommodate multiple-module fixtures. Follow these steps to build a two light module diffuser box:

We recommend using flat level surface for constructing diffusion boxes.

1. Connect the modules together.
2. Take one of the assembled diffuser boxes and remove one small barn door. Then remove the diffuser plate and one diffuser box wall. Install the three-walled box on one of the modules with the side with no wall facing the other module.
3. Repeat the previous step with another diffuser box, and install the three-walled box so that the sides with missing walls would be facing each other.
4. Install the corner profiles into the openings between the adjacent walls on both longer sides of the diffuser box.
5. Remove one small barn door from either side of the fixture and slide in the 1x2 diffuser.
6. Install the small barn door back.

For a 1x3 module configuration, follow the same steps. The only difference will be in the middle light module, where only two side walls need to remain.

Wall panels without diffusion lens installed can be used as snouts for the DS light modules.



**Barn Doors**

Because the DS module is a Multi Source light the barn doors will not cut the light off entirely but will help with falloff. The Barn Doors have 2 sizes, Small and Big. Barn doors have a clip to attach to the light module or a diffuser box wall.

When installing a Clip or Barn Door, hook the lip on the middle of the ridge of the light or wall panel and press down on the arch of the clip extending it to click onto the designated slot in the light or wall panel. To take off a CLIP or BARN DOOR pinch the top and bottom tab to remove.

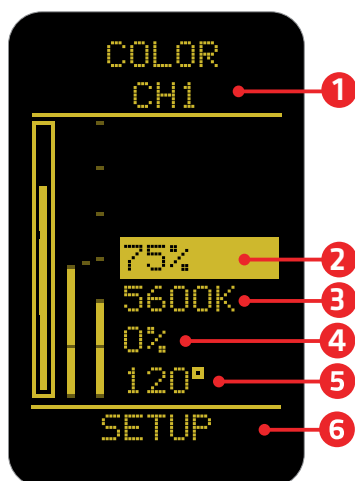
## 2.CONTROL

### Color page

From all menu pages “COLOR” menu will always be accessible from the bottom of the screen for quick manual control of the light modules.

Use the up & down arrow keys to navigate to “COLOR” menu and press OK when the page name is highlighted.

Whenever the PSU is controlled remotely through DMX or Art-Net, and regardless of the DMX mode used, the color mix is always expressed in ITSH values (Intensity, Temperature, Saturation, Hue) on the screen of the PSUs COLOR menu.



### Color control

Turn the rotary knob slowly for precise control. The incremental raise of the value is influenced by the speed of which the button is turned.

Pressing down on the OK button or the Rotary Knob for 1 second while highlighting any ITSH parameter will cause it to enter preset mode.

Use the left and right arrow keys or the rotary knob to navigate between presets.

**1. Channel selector** - allows the user to select specific light modules in the case of disparate DMX addresses. All light modules can be controlled simultaneously when cycling the selection to “ALL”.\* When all of the modules are assigned to the same DMX channel the only selection remaining is “ALL”. By default it the lowest channel number present.\*

*\*For more information on DMX addressing please refer to “DS DMX page”*

**2. Intensity (INT)**- expressed in percentages from 0 to 100, it serves as a dimmer. On the intensity parameter, user tuned value is always saved as the starting point for the presets. The presets alternate between 0%, “user value” and 100%. When no user preset is defined it will just alter between 0% and 100%.

Furthermore, holding down the OK button or Rotary Knob for two seconds on the intensity parameter lets you increase or decrease the intensity by quarter, half or a full light stops.\*

The whole dimming range is flicker free on all DS systems products.

For ease of access it is also possible to change the intensity using the rotary knob when the "COLOR" or "SETUP" page of the color menu is highlighted.

*\*Intensity is the only parameter with two sets of presets.*

**3. Temperature (TEMP)** – also known as white balance, is expressed in KELVIN units (K). It refers to the color temperature of the light. The lowest setting will give the warmest light, which is 1500 Kelvin. The maximum setting is 10,000 Kelvin, which will give the coldest light.

**Temperature presets**, are as follows: 1500, 3200, 5600 and 10000 K. Using the twist knob will allow increment changes of 100K.

**4. Saturation (SAT)** - is the amount of color mixed into the white light. It is also expressed in percentages, but it can go from -120 to 120%.

The SAT parameter has the possibility of reaching 120% both in the negative and positive sides. It means an absolute maximum of saturation, but be advised the area over 100% is outside of the sRGB color space.

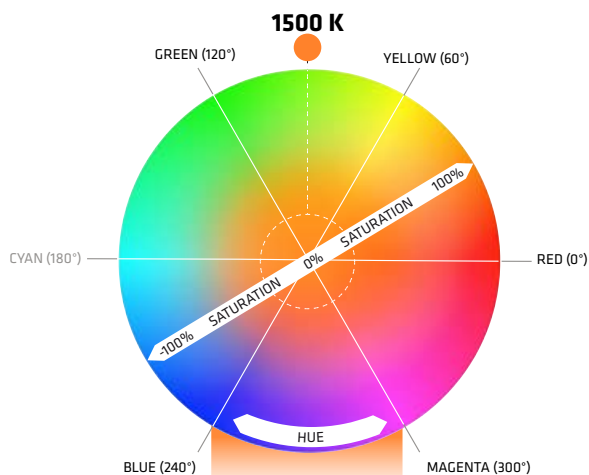
When the saturation is at 120% positive or negative the HUE color is dominant and changing the temp of the white color (TEMP) will show no effect on the light.

**Saturation** presets are: -120%, -100%, -50%, 0%, 50%, 100%, 120%.

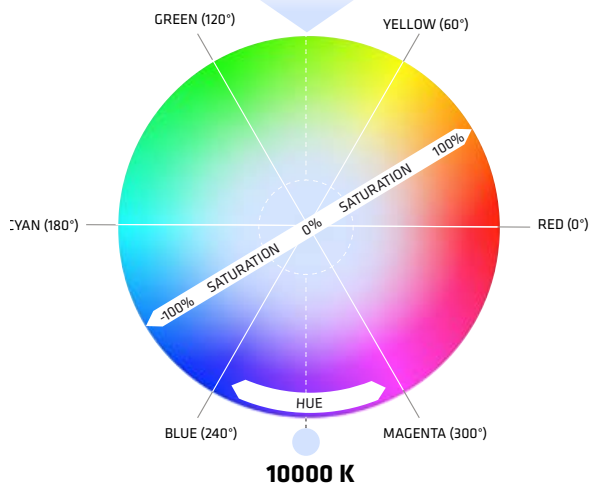
**5. Hue** - Is the tint of color you are mixing into the light. It is expressed in degrees that refer to the color wheel. The Degree defines the direction of color on the color wheel, and SAT defines how much of that color is being used/mixed with the "white color" (TEMP), white being in the middle of the color wheel. The default is 120 degrees, which means Green on the top end (when saturation is 100% or higher) and Magenta at the bottom (when saturation is -100% or lower).\*

*\*For more on the subject please refer to the next illustration.*

### Colorwheel



**WHITE POINT CAN BE CHANGED FROM 1500 K TO 10000 K**



Please note that ITSH settings will be recorded after 6 seconds after manual input and after five minutes when consistent DMX values are sent by an external controller. These will be the starting ITSH settings after PSU reboot.

When DMX communication is active and DMX packet values are changing constantly (light animation) the ITSH values are not saved.

It is possible to control the PSU manually from control panel of the PSU while wired DMX or ArtNet is active but please remember, the control will be transferred back to the active remote device after 30 seconds, which means ITSH parameters will change to those of the remote controller.

- Make sure to switch **off** the **remote mode** under "REMOTE" in the Setup menu if you intend to control your lights from the power supply.

**6. Fan Mode** - You can set the fan mode to adapt the cooling and noise level to the environment. The fan mode can be manually set from the "Color" menu of the device.

For that, navigate to the "Setup" menu selection at the bottom. When it is highlighted, press either the left or right keys. Then, use the knob to scroll through the listed values.\*

The table below shows the available options:

- FLEX: Minimum of approx 1,300 rpm when below 45 °C. Increases linearly to approx 2,900 rpm at 58 °C
- FAST: Always at max (approx 2,900 rpm)
- SLOW: Always at min (approx 1,300 rpm)
- OFF: Fan off until 77 °C, then turns on at minimum speed of approx 1,300 rpm, and turns back off when the temperature drops below 60 °C
- FLX2: Fan off until 45 °C, turns on and linearly increases to a maximum of approx 2,900 rpm at 58 °C \*\*

*\*It is possible to remotely control the fan speed using DMX or wireless Art-Net. Check the "DMX manual for DS systems" for more information.*

*\*\*Note: Critical temperature for a lamp module is 80 °C, upon which it is shut off. Covering the lamp unit even partially is not recommended, as it will increase the chances of it reaching this critical temperature. Consult with Digital Sputnik technical support if you have questions about a custom application in extreme conditions.*

### Setup Page

Allows the user to alter specific functionality and check working information about the PSU and light modules.

To navigate between the **DS DMX**, **SETUP** and **WiFi** pages, use the left and right arrow keys when the page name is highlighted.

**1. Remote** - indicates the remote control mode: It is automatically set to **DMX** or **ArtNet** depending on the communication handle installed on the PSU.

Select **OFF** to stop control by an outside device if you intend to control your lights from the power supply.

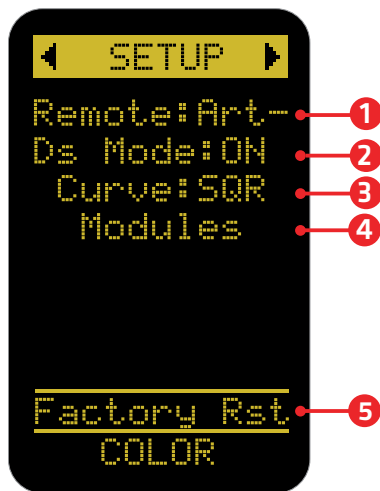
When no handle is present you can cycle through all of the choices but we recommend leaving the selection to **OFF**.

**2. DS Mode**- When turned on, the PSU will run on **DS Mode**, which is a subset of the full mode of operation, which is the DMX mode used when DS Mode selection is set to OFF.\*

DS mode is a more simplistic approach to DMX setup, eliminating the need to orientate between DMX modes, universe selection and also making channel numbering less cumbersome.

- DS mode is primarily meant to use with **DS DMX** app for iOS. If using any other control devices or controller boards switch **DS mode** to **OFF**.

*\*Please refer to "DS DMX" section for more.*



Setup page



**3. Curve** - changes the dimming curve of the value range. It can be set so the value is increased and decreased **linearly(LIN)** or by a **square factor(SQR)**.

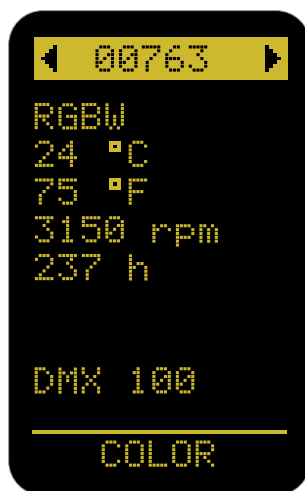
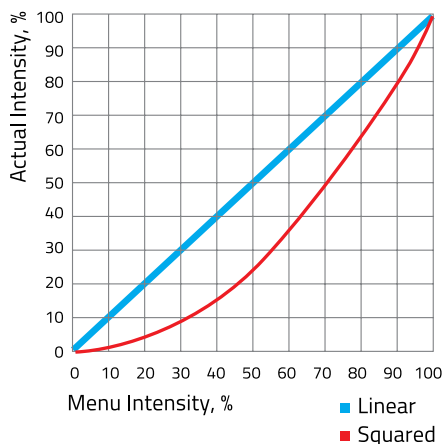
Note that when using "LIN" the light output is brighter on the whole dimming interval but **the maximum output of the module is not altered with this setting.**

**4. Module data.** It is possible to navigate right and left through all connected light modules and get an overview of the data about each module:

- 00763 Last 5 digits of light modules serial number
- RGBW Module type whether RGBW or WHITE
- 24°C Module temperature in Celsius
- 75°F Module temperature in Fahrenheit
- 3150rpm Fan RPM (Rotations per minute)
- 237h Time counter of module usage
- DMX 100 DMX addressing channel assigned to the module

**5. "Factory RST"** - factory reset page that will show firmware info and allows a factory reset.\*

*\*For more information on this topic refer to "Factory reset" topic of this manual.*



Module data

### DS mode ON/DS ADDR

**“DS mode” “ON” should only be used when controlling PSU from the “DS DMX” iOS app. When in need to change DMX universe or DMX mode set “DS mode” to “OFF” under “Setup” menu.**

DS mode is a more simplistic approach to DMX setup, eliminating the need to orientate between DMX modes, universe selection and also making channel numbering less cumbersome.

When the **DS Mode** is in use, the page will be named as **DS ADDR**.

The only variable parameter on the **DS ADDR** page is the channel number of a light module.

### DS mode ON example

- **00763:0**  
last 5 digits of light modules serial number followed by a channel address

When using **DS Mode**, DMX personality and universe settings are hidden and not modifiable.

The light modules connected to the PSU will be identifiable by the last 5 digits of their serial number. It is followed by light module's **DSCHANNEL** number.

A DS **channel** is the address or identification number assigned to the light module. It gives a controller an address number to send DMX packets to when wanting to control the light module. By default it is 0 when using DS mode.



DMX addressing info is stored in the light module. This means that when switching modules between PSUs the light module will hold it's address information.

Channels are modifiable. When using the DS mode, the **channel** numbers will go from 0 to 50.

**Up to 50 DS light modules can be independently controlled using DS mode as the DS mode only listens to communication from one universe (Universe is 0, Net 0, Subnet 0).**

**Therefore it is not recommended to use DS Mode in a configuration with more than 50 light modules.**

If “DS MODE” is “ON”, the selected PSU (and the PSU underneath, if stacked) will assume the standard DMX subset of the “DS16” personality. (Universe is 0, Net 0, Subnet 0) If PSUs are stacked all light modules connected to the slaved PSUs will show up on the DS DMX menu of the master PSU for addressing purposes.

### DS mode OFF/ DMX ADDR

When “DS Mode” is set to “OFF” the basic **DMX Mode** is in use. The starting page will be named **DMX ADDR**.

This mode enables control in a DMX addressing system for operating complex lighting configurations through a DMX controller or the DS DMX app when wanting to control 3rd party lighting equipment in conjunction with DS gear.



The **DMX ADDR** page on the display of the PSU will have three variables.

### DS mode OFF/ DMX mode example

- DS16 - DMX personality. Default is DS16
- Universe 0 - Defines the DMX universe for the PSU. Default is 0
- 00892: 1 - Lamp modules last five serial number digits followed by assigned address. In DMX mode the Default is 1

**Personality:** There are various personalities to choose from on your PSU. It is upon this setting that the amount of channels -or sliders on a DMX board- used to control the light module is determined. The default personality is DS16, which allocates 10 channels for each light module, thus, if the first module is assigned to channel 1, it will effectively occupy channels from 1 to 10 for the control of its parameters. In such a case, the second light module will start on channel 11, the third on channel 21, if going in succession. The number of channels -or sliders on a DMX board- used by a light module is called footprint.

Please take a look at the Personality chart below.

Use the 16 bit modes in combination with controllers supporting 16 bit resolution to obtain best results. The high resolution provides smooth dimming and precise color adjustments. The coarse / fine modes utilize two channels for most parameters and provide higher resolution compared to the 8 bit modes.

### Various DMX personalities

| Mode                  | Description  | Number of channels |
|-----------------------|--|--------------------|
| DS16                  | Standard DS modes.<br>DS MODE=ON uses DS16 by default. | 10                 |
| DS8                   |  | 5                  |
| ITSH16                | Similar to DS8/16, with positive saturation.           | 10                 |
| ITSH8                 |  | 5                  |
| XFADE16               | Crossfade modes  | 16                 |
| XFADE8                |  | 9                  |
| RGB8 (no fan control) | Basic RGB + Temperature modes                          | 4                  |
| iRGB8                 |  | 6                  |
| ARRI6                 | ARRI RGBW crossfade modes                              | 17 + 3 unused = 20 |
| ARRI1                 |  | 9 + 3 unused = 12  |

*\*Note: For more information about DMX personalities visit [www.digitalsputnik.com](http://www.digitalsputnik.com).*

**Universe:** Each DMX universe holds 512 channels or addresses.

When using wired DMX 512 the Universe number in the DMX ADDR menu is read-only and corresponds to the last byte of the full DMX universe (512). This value must be bound to the universe number in the transmitter (for example, using a macro or a script). This can be used to visually identify the correct DMX daisy-chain.

When using wireless Art-Net the universe can be changed from the PSU with a turn of the knob. When the knob is pushed down on the universe variable, the Net, Subnet and Universe variables can all be modified.

**Channel:** This selector is for changing the DMX address of a light module. The basic principles are the same as with the DS mode turned on, although with a few exceptions:

- When the DS Mode is turned off, the default address range for a module will be 1 - 512. When DS Mode is on the address range is 0 - 50.
- Using the twist knob will result in the movement of numbers in intervals dependant on the amount of channels your selected DMX profile uses.
- Using the left or right arrows when highlighted will change the DMX address by single digit. This is good if there is a need to dial in an exact DMX channel.

A quick and easy way to address multiple light modules at once is to highlight any light modules DMX address and press the "OK" button on the control pad. This will display the "ASSIGN ADDRESSES" function where the user can assign DMX address to "SAME" to make all light modules DMX addresses the same to the DMX address highlighted. This is good for simultaneous control.

The other option is "INC" to incrementally change all light head addresses with the proper interval dependant on the DMX profile in use. When wanting independent control of each light module.\*

*\*This feature is present whether "DS mode" is turned "ON" or "OFF".*

**DMX channels 511 and 512 are used for the purposes of Port-Address (Universe) identification, and are ignored if used for the purposes of channel control. The last available DMX channel for addressing is 510.**



**WiFi page**

Network information can be found on the WiFi page of the menu.

To navigate between the DS DMX page, SETUP and WiFi pages, use the left and right arrow keys when the page name is highlighted.

**This page is only visible when the ArtNet communication handle is installed and the “REMOTE” mode on the setup page is set to “WiFi”.**

Depending on whether the PSU is set to Server or Client mode, the information presented on the WiFi page will differ:

**Server mode:**

The WLAN Server mode is the default mode. The created wifi network name is by default the Serial Number of the WiFi (ArtNet) handle. This WiFi network is capable of supporting up to 4 other DS PSUs as clients, plus a controller. Larger networks require a dedicated router.

**Server mode example**

- **WLAN Server**  
WiFi module is in the “Server” (Access Point) mode
- **DS016240019**  
WiFi network name (SSID), either assigned by the user, or the default S/N as printed on the side of the handle
- **1.2.3.4**  
IP address of this WiFi module

### Client mode:

Through the DS DMX app for iOS, it is possible to connect the DS WiFi handle to another DS WiFi handle, or to an existing WiFi network (a wireless router).

If possible connect the DS3 to a DHCP enabled router. This ensures that the IP address, gateway, DNS1 and DNS2 are automatically assigned to the fixture by the network but If needed the IP address of the handle can be altered using DS DMX app.

DS WiFi Art-Net handle is DHCP enabled.

### Client mode example

- WLAN Client  
WiFi module is in the "Client" mode. It is connected to another device or a router.
- Router\_X  
Name (SSID) of the target network
- DS0162400190172  
Hostname of this WiFi module
- 192.168.1.101.  
IP address of this WiFi module

### Refreshing the WiFi page:

When the "WiFi" page selection is highlighted and the rotary knob is pushed down, the network information on this page will be refreshed.

### "AWAITING WIFI"

This text is displayed when the WiFi module has not yet finished acquiring its settings. It is also displayed whenever **"Remote"** is set to **"WiFi"**, but no WiFi handle is present. If



**"AWAITING WIFI"** is displayed indefinitely while the WiFi handle is mounted, there may be issues with communication.

### "CAN'T JOIN" / "WRONG PASS"

This is displayed on the bottom of the WiFi page when the module is unable to connect to the assigned Access Point either due to a name mismatch, the Access Point being unavailable, or a wrong password. The DS WiFi module will try to periodically reconnect to the appointed Access Point using its last known settings. If the issue cannot be rectified, **"Reset WiFi"** must be performed.

## Reset WIFI

This setting is used to reset the WiFi module to the default Server (Access Point) setting with the Serial Number of the WiFi module as its network name (SSID).

**The Serial Number can be checked on the side of the WiFi handle.**

Press OK a total of 3 times to activate this function. The WiFi reset takes about 15 seconds to perform.

Defaultly there is no password needed to connect to the WiFi network.

It is not possible to manually change the IP address from the control panel of the DS3. As of this Firmware v2.67.5 RDM management over Art-Net is not supported. RDM over DMX allows configuration, status monitoring, and management of the light from the external controller in a way that does not disturb normal DMX operation.

## Troubleshooting Art-Net, sACN

Firewalls and certain routers can cause issues with sACN multicast (packets are sent to every IP address of the router range.) Some routers are also known to buffer Art-Net broadcast packets more heavily than unicast packets, leading to slower than expected framerates. During troubleshooting, it is recommended to try unicast (packets are sent to one determined IP address) with the firewalls (temporarily) turned off first to establish a baseline.



When transmitting data via Art-Net or sACN protocols to DMX, make sure that the transmitter is configured to the correct universe. Note that sACN universe numbers often start from 1, and Art-Net universe numbers may start from 0.

In DS firmware release versions up to and including v2.67.5, Short DMX packets are not supported, and only full 1+512 DMX packets must be sent.

Firmware 2.67.5 Wifi communication handle supports color management over most common unicast/broadcast Artnet protocols up to 4.0



### Factory reset

A factory reset can be performed in order to change PSU settings to their default values. This option is located on the bottom of the SETUP page.

The following parameters will be changed:

- Intensity = 0%, Temperature = 5600K, Saturation = 0%; Hue = 120 degrees.
- DMX personality is set to DS 16.
- All cached Lamp Unit Calibration Tables (LUTs) will be cleared. The next boot-up will be slower due to the need to reload all calibration tables for all connected Light modules.
- The dimming curve will be set to SQR (Squared).

This reset will **not** change:

- The DS MODE setting
- WiFi settings (these are stored in the WiFi module)
- DMX addresses of light modules (these are not stored in the PSU)

Upon reboot, Remote=DMX on DS3 will be automatically changed to WiFi in case a working WiFi module is positively identified.

Similarly, Remote=WiFi on DS3 will be automatically changed to Remote=DMX if a working DMX/RDM module is positively identified.

In DS1, there are no user-swappable modules, and the Remote=DMX and Remote=WiFi settings can only be manually changed.

To check if your PSU needs a software update Bootloader (BL) software version and Main Program (MP) software version can both be revised from this page as well.

### Upgrade

All Digital Sputnik PSUs are upgradeable by the user. A Windows or macOS Upgrade Utility can be downloaded from the Digital Sputnik webpage. The update can be performed via the DS WiFi module, or through a wired connection (DMX to USB cable with FTDi chip).

Perform a Wifi reset before upgrading DS3 over WiFi.\*


*\*Refer to "WiFi Page"*

### Bootloader Mode

The PSU must be in bootloader mode when being upgraded. To enter bootloader mode, press the left arrow key while you switch on the PSU.

In some bootloader versions option there is a choice between **All to BL** or **All to MP**. **These options must never be used!**

If there have been firmware updating issues (for example, due to a bad WiFi signal), the Windows/macOS DS Upgrade Utility must be allowed to run again.



```
BOOTLOADER
FIRMWARE
UPGRADE
v1.11.5
DEVICE ID:
1008005
BOOT: MP
```

```
ALL TO BL
ALL TO MP
<NONE>
```

### Warning codes (flashing codes)

| Code                              | Description  |
|-----------------------------------|--|
| ArtDMX                            | ArtDmx stream is incoming from the WiFi module.<br>Works under Remote=WiFi only.   |
| DMX                               | DMX stream is incoming from the XLR-5 pin on the DMX/RDM handle.<br>Works under Remote=DMX only.   |
| "DEVICE ID ERROR"                 | Unable to communicate with DS3 frame or another device in a stack. The device attempts to perform a new identification sequence.                             |
| "LOADING WIFI" or "AWAITING WIFI" | WiFi settings are being acquired from the WiFi module. If there are problems with communications this message may stay active in the WiFi menu indefinitely. |
| "RESETTING WIFI"                  | WiFi is being manually reset.  |
| EL1                               | LED power delivery issues.   |
| FW1                               | Firmware version mismatch in a stack.  |
| OW##                              | Lamp Unit Communication. Various errors related to the calibration LUT acquisition failure.  |
| Handle FW!                        | DMX/RDM handle is in Bootloader mode, potentially due to unfinished flashing sequence in the DS Upgrade Utility.   |

### Error codes

**Critical/blocking codes; the device attempts to clear these every 30 seconds.**

A manual attempt to clear the error can also be made on the DS3 from a single device or Master (topmost) device in a stack, by pressing OK when the code is on screen. But when the problem persists the code reappears immediately.

| Code | On screen message | Description   |
|------|-------------------|---|
| 0    | ERROR             | Generic error                                       |
| 1    | FAN SLOW          | Fan fault, fan too slow                             |
| 2    | LAMP HOT          | Lamp too hot ( $\geq 80$ C)                         |
| 3    | PSU HOT           | Dimmer board too hot (IRQ, over 80...85 C)          |
| 4    | WRONGLAMP         | Unsupported lamp type, likely a new release         |
| 5    | CABLE ERR         | Cable error   |
| 6    | ACDC ERR          | AC/DC error   |
| 7    | 1-WIRE ERR        | 1-Wire error (unable to communicate with lamp unit) |