

Firmware Version v.34

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Document revisions

Revision number	Notes	Released
Α	First version available. Firmware v.23	April 2020
V34-20210824-1	Pixel configuration options added. Main LED PWM frequency now adjustable. PSU control panel display modified. Firmware v.34	August 2021

GLP® KNV Dot and Line User Manual – Revision V34-20210820-1

This manual covers fixture software version v.34

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	 KNV Dot overview



1. Safety

Key to symbols

The following symbols are used in the product's user documentation:



Warning! Safety hazard. Risk of injury or death.



Warning! See user documentation for important safety information.



Warning! Hazardous voltage. Risk of lethal or severe electric shock.



Warning! Fire hazard.



Warning! Risk of eye injury.



Warning! Read the KNV Dot and Line Quick Start and Safety Manual supplied with the product and available for download from www.glp.de before installing, operating or servicing the product. The Quick Start and Safety Manual contains important information for the safe use of KNV Dot and Line fixtures. If you fail to read that information you may create a safety hazard with a risk of injury, death or damage.

If you have any doubts or questions about how to use the product safely, contact your GLP supplier for assistance. Your GLP supplier will be happy to help.

The user documentation for GLP® KNV Dot and Line lighting fixtures consists of three documents:

- The **KNV Dot and Line Quick Start and Safety Manual**, supplied with KNV fixtures and available for download from www.glp.de. The Quick Start and Safety Manual contains important safety information and installation instructions that the installer and user must read. It also contains dimensions drawings and technical specifications for the product.
- The **KNV Dot and Line User Manual**, available for download from www.glp.de. The User Manual explains features and control of KNV fixtures.
- The **KNV Dot and Line DMX Channel Index**, available for download from www.glp.de. The Channel Index is a separate document containing the DMX control channel layout and DMX commands available in fixtures. This information is also included in the User Manual.

KNV Dot and Line fixtures are intended for use by experienced professionals with the knowledge and skills to set up, operate, and maintain high-powered, remotely

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controlled lighting equipment safely and efficiently. These operations require expertise that may not be provided in this manual.

- Respect all warnings and directions given in the product's user documentation and on the product. Read the product's Quick Start and Safety Manual and familiarize yourself with the safety precautions it contains before installing, using or servicing the product. GLP and affiliated companies will take no responsibility for damage or injury resulting from disregard for the information in the user documentation.
- Check the GLP website at www.glp.de and make sure that you have the latest versions of the product's Quick Start and Safety Manual and this user manual.
- Check the fixture software version indicated on page 2 of this user manual and then use the control panel on the KNV Line or KNV Dot PSU to check the version installed in the fixture. If the versions are not the same, the user manual may still cover the fixture, because software updates do not always affect the use of the fixture. However, it is possible that this manual does not match the fixture perfectly. Software release notes can help clarify this question. You can consult software release notes and download the correct version of this user manual on the GLP website if necessary.
- Make both the Quick Start and Safety Manual and this user manual available to all persons who will install, operate or service the product. Save both documents for future reference.
- If you have any questions about the safe operation of fixtures, please contact an authorized GLP distributor (see list of distributors at www.glp.de).

GLP Service and Support

Contact information for the nearest GLP Service and Support is available online at www.glp.de/en/service, by email at info@glp.de, or by telephone at the following numbers:

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2. KNV Dot overview

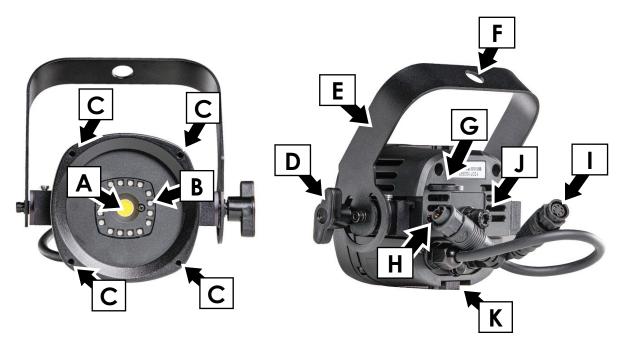


Figure 1. KNV Dot overview

- A White LED
- B 16 x RGB LEDs
- C Mounting points for optical accessories (M3 threaded holes)
- D Handscrew for tilt adjustment
- E KNV Dot Hanging Bracket
- F 13 mm hole for rigging clamp bolt or mounting bolt
- G Safety cable attachment point
- H Combined DC power and data IN connector
- I Combined DC power and data THRU connector
- J M8 Allen screw for custom mounting hardware
- K KNV Dot Slide Connector channel (4 x channels: top, bottom, left, right)



3. KNV Line overview

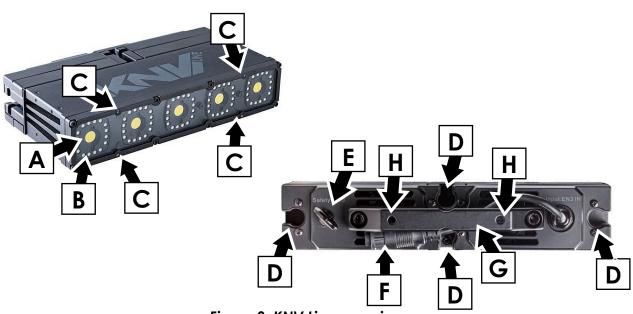


Figure 2. KNV Line overview

- A White LED
- B 16 x RGB LEDs
- C Mounting points for optical accessories (M3 threaded holes)
- D Channels for KNV Module Connectors
- E Safety cable attachment point
- F Combined DC power and data IN connector
- G Carrying handle
- H M6 threaded holes for fasteners on mounting hardware such as KNV system connector plate

4. KNV PSU overview

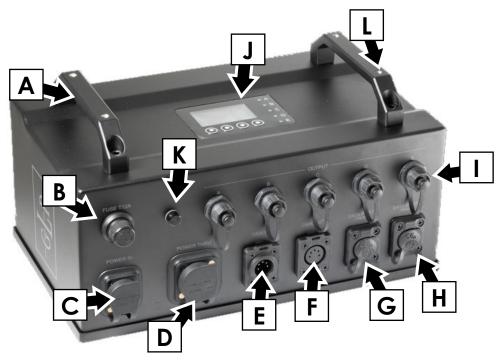


Figure 3. KNV PSU overview

- A Carrying handle
- B Primary fuse
- C Mains POWER IN connector
- D Mains POWER THRU connector
- E DMX IN connector, 5-pin XLR
- F DMX THRU connector, 5-pin XLR
- G Data port A (Art-Net/SACN), Neutrik EtherCON, failsafe
- H Data port B (Art-Net/SACN), Neutrik EtherCON, failsafe
- I Combined control data and DC power outputs A E
- J Control panel with backlit display
- K Pressure relief valve
- L M6 threaded holes for mounting hardware (4 x holes total)



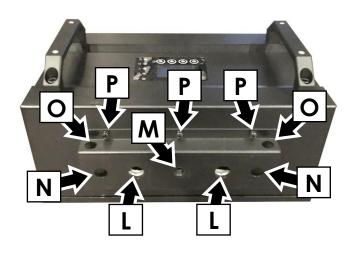


Figure 4. PSU mounting points

- L Quarter-turn fastener attachment points for 89 mm GLP Omega Bracket
- M Threaded hole for M10 mounting bolt
- N Safety cable / rigging clamp attachment point (Ø13 mm)
- O Safety cable attachment point
- P Mounting plate screw (6 x Phillips head screws total)

The PSU's mounting plate (the plate with the attachment points shown in Figure 4) can be repositioned by unscrewing the six mounting plate screws **P**, moving the mounting plate around to the side of the PSU that is opposite the control panel and reinstalling the six screws in the corresponding holes in that side.



5. Features

The KNV Dot and Line from GLP are powerful strobe/color effect lighting fixtures that can be interlocked and combined, giving enormous creative possibilities. When KNV Dot and Line fixtures are fastened together using hardware accessories from GLP, their pixel pitch and DMX control setup coordinate easily with KNV Cube and Arc fixtures. This allows all four types of fixture to be integrated easily into creative installations.

KNV Dot and Line fixtures combine powerful white light output from one 30 W cool white LED per pixel with bright color output from sixteen 0.25 W high-quality RGB LEDs per pixel in a circle around the white LED. The arrangement gives a total luminous flux of up to 2 200 lumens per pixel.

Fixtures can be used indoors in permanent and temporary installations. Their rugged construction and IP54 rating mean that they can also be used outdoors in temporary installations if precautions are taken to prevent immersion in water and damage from direct sunlight. They can be placed upright on a level surface or suspended from a suitable structure as described in the KNV Dot and Line Quick Start and Installation Manual.

Four mounting points with M3 threaded holes are provided on the front of fixtures for mounting optical accessories from GLP.

Power and data can be daisy-chained between KNV Dots.

All fixtures can be interlocked with quick-release mechanical fasteners for ease of installation.

The KNV is not suitable for household use, for use in any location where unattended children have access to it, or for use in permanent outdoor installations.

Controlling fixtures and the KNV PSU

KNV Dot and Line fixtures can be controlled as individual pixels or as groups of pixels using any standard DMX controller. White and color output can be controlled separately or combined for stunning strobe, continuous output and wash effects. Using the powerful multilayer FX engine integrated into the KNV system, complex dynamic effects can be created quickly with no need for a separate pixel-mapping media server.

Fixtures are set up and controlled via the KNV PSU, a separate external power supply and control unit with an integrated control panel and display. Each KNV PSU can manage up to 25 pixels. These pixels can consist of 25 x KNV Dot fixtures, 5 x KNV Line fixtures, or a mixture of the two fixture types. Depending on which DMX mode you use, you can group control the pixels in groups or individually. Individual pixel control combined with the freedom to locate individual pixels almost anywhere you want in the installation gives enormous creative flexibility.

DMX control commands are similar – but not identical –to those of KNV Cube and Arc fixtures. Fixtures can be configured to behave identically or symmetrically if they are placed in the installation and pixel mapped with this in mind. For detailed guidance on setting up pixel mapping, see page 26.



White LEDs

KNV Dot and Line fixtures feature one or five cool white LEDs respectively that produce powerful white light at 5000 K. White LEDs can be controlled together or individually depending on the DMX control mode selected.

The white LEDs offer shutter and dimming effects including a powerful strobe, flashing at up to 16.67 Hz, or operate continuously to give high-output wash effects with a 120° beam angle.

You can also select from a wide range of pre-programmed dynamic FX patterns to run on the white LEDs.

Color LEDs

The Dot and Line fixtures' RGB LEDs are arranged into circles of 16 LEDs around each white LED. RGB LEDs can be controlled together or individually depending on the DMX control mode selected.

You can run a wide range of color effects (including strobe effects and dynamic FX patterns) on the RGB LEDs, or you can operate them continuously using RGB color mixing to provide a color wash with a 120° beam angle.

You can also use the RGB LEDs to add blue or red to the powerful white LEDs and adjust their color temperature.

Pixel mapping and pixel orientation

See the separate chapter 'KNV Dot and Line Pixel mapping' on page 26 for details of pixel mapping and co-ordination with KNV Cube and Arc fixtures. This chapter also gives details of the test pattern that you can use to check or visualize pixel mapping in arrays of multiple KNV Dot or Line fixtures.

Extra shutter

In DMX modes 1, 6 and 7 an extra shutter channel is available. You can choose whether this shutter effect should run on all LEDs (RGBW), on RGB LEDs only or on White LEDs only by making a selection via DMX on the *Control / Settings* channel in modes 1,6 and 7 or using the fixture's control panel.

The default setting for the extra shutter effect is RGBW.

Flare effect

A feature which we call the *Flare effect* can be applied to flashes when they are activated on strobe channels. The *Flare effect* is an interference effect that you can superimpose onto a flash. This effect is particularly impressive when combined with increased flash length.

Random pixel sparkle

The Flare effect channels include a Random pixel setting. This setting applies the flare effect to individual pixels at random, giving an impressive sparkling effect. Again, we recommend that you try combining this effect with increased flash length.

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Hyperspeed

Hyperspeed is a very fast flash rate on the Shutter effects channels that gives a very powerful effect.

FX

The KNV Dot and Line share the KNV Cube and Arc's pre-programmed dynamic FX that give you quick access to a wide range of dynamic patterns and movement options for the pixels in an array of fixtures.

When FX are active, you can control them using six DMX channels:

- Five dedicated channels let you select an FX, set a crossfading speed, set pattern orientation, adjust FX length in pixels and set offsets.
- In addition to these channels, if an FX is active the third strobe channel becomes a sixth FX control channel and lets you adjust FX speed (see details below).

Dedicated FX channels

• The first FX channel, the **FX Selection** channel, lets you choose and activate an FX from a list of dynamic FX patterns.

If this channel is set to zero, the third strobe channel controls strobe flash rate. If an FX is selected on this channel, the third strobe channel controls FX speed.

- The second FX channel, the **FX Crossfading** channel, sets the time it takes for the FX to fade out. You can set FX to crossfading and apply a crossfading time from fast to slow. You can also set FX to leave a tail behind them and apply a crossfading time for the tail from slow to fast.
- The third FX channel, the **FX Orientation** channel, lets you select from a long list of options for the orientation of the FX. Running the same FX but with different orientation options in multiple fixtures is a fast way to set up symmetrical and/or coordinated effects.
- The fourth FX channel, the **FX Offset** channel, lets you apply offsets to the FX, a feature which lets you quickly set up synchronized FX chases in multiple fixtures.

Setting an offset determines the pixel *in the pattern* (not the pixel on the fixture) where the FX pattern will start. For example, if you set the length of an FX pattern to 10 pixels and you apply an offset of 6 pixels, the fixture will blackout for the time it takes the FX pattern to run on pixels 1 - 5, then the FX pattern will appear on the fixture when the pattern reaches pixel 6.

• The fifth FX control channel, the **FX Length** channel, lets you set the total length in pixels of the FX pattern.

FX speed control

If you select an FX on the FX Selection channel, the third strobe channel is redeployed and becomes the **FX Speed** control channel. Instead of controlling strobe flash rate, it now becomes the sixth FX control channel and lets you adjust the speed of the FX.



Setting up FX chases

If you select the same FX with the same speed in multiple fixtures, you can use the other FX channels in combination to set up an FX chase across multiple fixtures:

- FX Crossfading / Crossfading with tail sets the rate at which one FX pattern step fades out before the next pattern step arrives.
- FX Orientation can be used to add variety to a chase or set up multiple coordinated chases in different groups of fixtures.
- FX Offset sets the pixel on which the FX pattern will start.

An FX pattern with no offset starts on pixel 1. You will obtain this if you set the FX Offset channel to zero and also if you set the FX Offset channel to 001.

• FX Length sets the number of pixels over which the FX pattern will run.

The normal FX length is 5 pixels. You will obtain this 5-pixel length if you set the FX Length channel to zero. It is not possible to set FX Length to less than 5 pixels.

When you set up FX chases, you will normally achieve the best results by increasing FX length in steps of 5 pixels (one fixture).

To obtain synchronized chases in multiple fixtures you must set up FX Length and FX Offset parameters in combination. Here is how FX Length and FX Offset work in a single fixture:

- FX Length = Off (DMX value zero on the FX Length DMX channel): The FX pattern will have the normal length of five pixels. It will start at pixel 1, run from pixel 1 to pixel 5 and then immediately start at pixel 1 again.
- FX Length = 30 (DMX value 030 on the FX Length DMX channel): The FX pattern will start at pixel 1, run from pixel 1 to pixel 5 and then black out for the time it takes to run the FX pattern on pixels 6 30.
- FX Offset = Off (DMX value zero on the FX Offset DMX channel): The FX pattern will start at pixel 1.
- FX Offset = 6 (DMX value 006 on the FX Offset DMX channel): The FX pattern will start at pixel 6. If you have set an FX length of 30, the pixels will black out for the time it takes to run the FX pattern on pixels 1 5, then run the FX pattern on pixels 6 10, then black out for the time it takes to run the FX pattern on pixels 11 30.

To create a single FX pattern chase that will run across an array of multiple fixtures, you need to:

- Set FX Length in all the fixtures to the total number of pixels that the pattern will run across, and
- Set FX Offset in each fixture in a sequence five pixels apart.

This means that, if you want an FX pattern to run across six fixtures in a horizontal row and return immediately to pixel 1 when it reaches pixel 30 at the end of the row, you must set FX Length to 30 on all six fixtures and set FX Offsets with a gap of five pixels between fixtures. To give a concrete example, here is how you must set up each fixture:

Fixture 1: FX Length = 30, FX Offset = 1
 FX will start at Pixel 1 of the 30 pixels in FX Length and run on pixels 1 - 5

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- Fixture 2: FX Length = 30, FX Offset = 6
 FX will start at Pixel 6 of the 30 pixels in FX Length and run on pixels 6 10
- Fixture 3: FX Length = 30, FX Offset = 11
 FX will start at Pixel 11 of the 30 pixels in FX Length and run on pixels 11 15
- Fixture 4: FX Length = 30, FX Offset = 16
 FX will start at Pixel 16 of the 30 pixels in FX Length and run on pixels 16 20
- Fixture 5: FX Length = 30, FX Offset = 21
 FX will start at Pixel 21 of the 30 pixels in FX Length and run on pixels 21 25
- Fixture 6: FX Length = 30, FX Offset = 26 FX will start at Pixel 26 of the 30 pixels in FX Length and run on pixels 26 - 30

RGB color generator

The RGB color generator effect available in DMX modes 3, 5 and 8 gives instant access to automatic color effects such as random colors, ramp up/down colors and random pixel colors. These effects would be difficult to program on a DMX controller.

Dimming curves

See Figure 5. You can select from three dimming curves using the PSU's control panel or the *Control / Settings* DMX channel:

- Linear makes the dimming curve appear to increase and decrease evenly throughout the dimming range.
- **Soft** gives finer control at low light levels (where the eye is more sensitive to changes in light level) and coarser control at high levels.
- Esoft (Extra-soft) gives even finer control at low light levels even and coarser control at high levels.

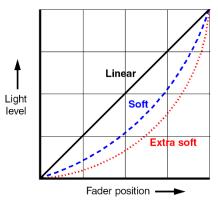


Figure 5. Dimming curves

The default setting is **Soft**.

Dimmer Flash

A shortcut to creating single flashes is available if you activate Dimmer Flash using the Control / Settings DMX channel or the Fixture Settings menu in the fixture's control panel.

When *Dimmer Flash* mode is enabled, if the Flash rate channel (the third of the Strobe channels) is set to zero, any new DMX value that you input on the Intensity channel (the first of the Strobe channels) will produce a single flash. In effect, all you need to do is 'nudge the dimmer fader' to produce a flash.

If you activate this function, you can tap flashes in sync with a music beat, easily keeping track of changes in the beat.



Output limitation

It is possible to limit LEDs to 10, 20, 40, 60 or 80 percent of their maximum output on the *Control / Settings* channel or using the fixture's control panel. You can set the limits separately for White and RGB LEDs.

Behavior when the fixture is not receiving a DMX signal

You can set the fixture to react in three different ways if no DMX signal is present (if the fixture is being controlled by DMX but the DMX signal stops, or if you apply power to the fixture when no DMX signal is present):

• No DMX = Hold sets the fixture to continue obeying the last DMX values it received. This is the default setting.

If no DMX signal was being received, the fixture will black out.

- No DMX = Blackout sets the fixture to black out.
- No DMX = Stand-alone sets the fixture to show the scene that has been stored using Capture scene (see below).

To program the scene that the fixture will display if it is set to Stand-alone and no DMX signal is present, use the Capture scene command:

• No DMX = Capture scene stores the scene that the fixture is currently displaying. Once stored, the scene is used as the fixture's Stand-alone scene.

All these settings are available via DMX on the *Control / Settings* channel and in the fixture's control panel.

To avoid any possibility of unexpected behavior from a powerful strobe light if the DMX signal fails, we recommend that you always set the fixture to *Blackout*.

Display

The KNV PSU's backlit graphic LCD display lets you set up control and behavior in the fixtures that you connect to the PSU. See Chapters 6 and 7 for more details.

Using the Control / Settings DMX channel or the fixture's control panel you can:

- Change the display orientation from Normal to Inverted for easier reading if the PSU is flown upside-down in a rig.
- Choose between three different display modes:
 - Auto: The display will automatically switch off after a few seconds if the PSU is receiving a valid control signal and has not detected an error. If the PSU is not receiving a valid control signal the display will flash. If the PSU has detected an error, the display will remain constantly on and show the error. Auto is the default setting.
 - **On**: The display stays on constantly. This setting can be useful when you are configuring or testing the installation.
 - **Off**: The display will automatically switch off after a few seconds even if the PSU is not receiving a valid control signal or if it has detected an error.



Fixture information

The **Information** menu in the control panel gives access to information such as the PSU's serial number and currently installed software version, a list of any errors that have been logged, readouts from the PSU's counters and temperature sensors, and general device information. You can also see a readout of the quality of the DMX signal that the PSU is receiving.

Custom settings and factory defaults

You can customize settings (DMX mode, Pixel orientation, etc.) via DMX or using the PSU's control panel. Custom settings are stored after a power off/on cycle and after a reset.

Two options are available in the control panel for deleting multiple custom settings and restoring defaults:

- Load Setting Defaults reloads all the factory default settings except DMX address, DMX mode and Control protocol. This option returns the PSU and connected fixtures to baseline settings (Output limitation, Pixel orientation, Dimmer curve, etc.) without affecting their basic configuration in an installation.
- Load Factory Backup reloads all the factory default settings including DMX address, DMX mode and Control Protocol. This option reinitializes the PSU completely and returns it to its state when it left the factory.



6. Control menus and LCD display



Warning! DMX control is disabled when the control menus are active. Be prepared for connected fixtures to emit strong light as soon as you exit the control menus.

The control panel and LCD display provide access to user settings, readouts and utilities.

See Figure 6. The status LEDs **A – E** light to indicate the status of outputs A – E (see next page).

If the control panel display is in sleep mode, pressing any button activates the display.

You can change display orientation and display mode options on the DMX Control / Settings channel and in the Display Orientation and Display Mode menus in the control panel.

Default screen

When the PSU boots up it carries out a reset. Once the reset is completed, the panel displays the default screen. See Figure 6.

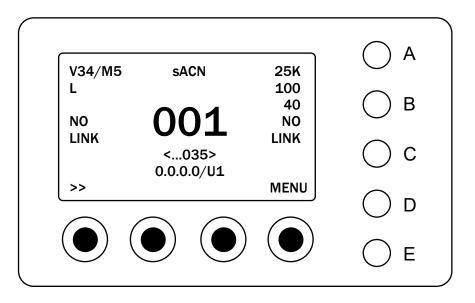


Figure 6. Default screen

The default screen as shown in Figure 6 gives the following commands and information:

>>	Opens shortcuts menu
MENU	Opens main control menus
NO LINK	Status of etherCon port
V34	Currently installed software version



/M5	Currently selected control mode
sACN	Currently selected signal source
001	Current DMX start address
(035)	Highest DMX channel occupied (i.e. last channel in DMX footprint)
25k	Currently selected PWM
0.0.0.0/U1	Current IP Address and DMX universe (not available in battery mode)
L	Dimmer curve (L = Linear, S = Soft, E >= Extra Soft)
100	White output limit (100% = No limit, 1080% = output limit enabled)
40	RGB output limit (100% = No limit, 1080% = output limit enabled)

Main control menus

See Figure 7. Opening the main control menus from the default screen gives access to the full menu structure. 'Control menu layout' on page 22 lists the contents of the control menus.

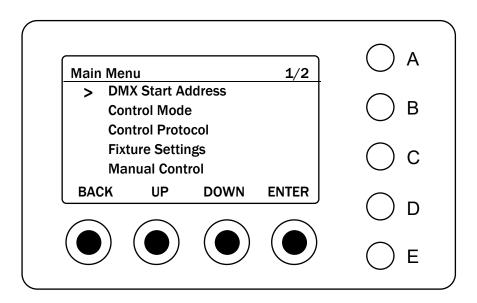


Figure 7. Control panel display

Control buttons

The functions of the four buttons below the display window are indicated in the display. The main functions are as shown in Figure 7:

- BACK Go back one level and return to the top of the menu.
- UP Scroll up or increase a number.
- **DOWN** Scroll down or reduce a number.
- ENTER Enter a menu, select a setting or implement a command.



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Status LEDs

The five LEDs ${\bf A}$ to ${\bf E}$ indicate the status of the corresponding power/data outputs as follows:

- WHITE Output in testing mode.
- **GREEN** Output working normally, no errors detected.
- **GREEN FLASHING** Output sending/receiving data, no errors detected.
- **RED** Output has detected an error (overload, overcurrent, short circuit etc.). Shut down power to PSU and check all connected fixtures, cables and connections.

Shortcut menu

See Figure 8. Opening the *Shortcut Menu* from the default screen gives quick access to the PSU's basic functions:

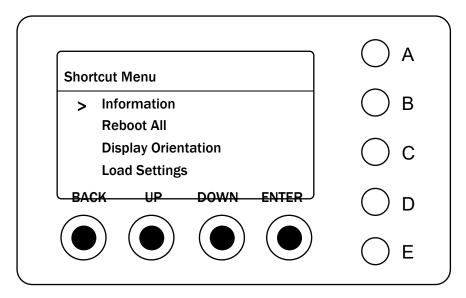


Figure 8. Shortcut menu

The Shortcut Menu contains the following submenus (see 'Control menu layout' on page 22 for full details of menu items).

Information	Scroll through PSU information readouts
Reboot All	Reboot all functions
Display Orientation	Invert control panel display
Load Settings (hold for 3 seconds to confirm)	Load Preset 1, 2 or 3, or load default settings (except DMX address, DMX mode and control mode)
Load Factory Backup (hold for 5 seconds to confirm)	Load all factory default settings (including DMX address, DMX mode and control mode)



7. Control protocol setup

The KNV PSU receives control data from a DMX controller and manages the control of up to 25 pixels (25 x KNV Dot fixtures, 5 x KNV Line fixtures or a mixture of the two fixture types). Setting up control of KNV Dot and Line fixtures therefore involves opening the menus in the control panel of the KNV PSU that the fixtures are connected to and configuring the PSU's DMX Address, DMX Mode and Control Protocol (DMX, Art-Net or sACN).

If you are using Art-Net or sACN you also need to make sure that the PSU will have a correct IP address and SubNet Mask.

The DMX, Art-Net and sACN fixture control settings described below will not be affected if you apply a *Load Default Settings* command in the fixture's control panel, but they **will** be returned to factory defaults if you apply a *Load Factory Backup* command in the fixture's control panel.

Setting up fixture control

KNV Dot and Line fixtures can be controlled via USITT512 DMX, Art-Net network or sACN network. The KNV PSU's EtherCON in and out ports are fail-safe (if power to the PSU is lost or the PSU stops working, the control data signal will still be relayed between the ports).

If you would like advice with planning and installing a suitable control link, your GLP supplier will be happy to provide assistance.

DMX

To configure fixtures for DMX control over a standard DMX cable link, open the menus in the KNV PSU's control panel and make the following adjustments:

- 1. In the **DMX Address** menu, use the UP and DOWN buttons to scroll to a suitable start address, then press ENTER to confirm.
- 2. In the **Control Mode** menu, scroll to and select the DMX mode you want to use to control the fixture.
- 3. In Protocol Setup \rightarrow Protocol Type, select DMX.

You can now the 25 pixels on the fixtures connected to the PSU's five outputs using standard DMX.

Art-Net

To configure fixtures connected to a KNV PSU to receive control data via Art-Net over an Ethernet network, open the menus in the PSU's control panel and make the following adjustments:

- 1. In the **DMX Address** menu, use the UP and DOWN buttons to scroll to a suitable start address, then press ENTER to confirm.
- 2. In the **Control Mode** menu, scroll to and select the DMX mode you want to use to control the fixture.
- 3. In Protocol Setup \rightarrow Protocol Type, select Art-Net.



- 4. In the **Ethernet Config** menu, configure each PSU with its own unique IP address. To do this, you can either:
 - a) set each PSU to generate its own IP address by choosing the ranges 2.x.x.x or 10.x.x.x (Art-Net specification),
 - b) set each PSU to acquire an IP address automatically by DHCP, or
 - c) assign IP addresses manually by entering individual IP addresses and Subnet masks.
- 5. Select an Art-Net port/universe from 00000 (Network 0 / Subnet 0 / Universe 0) to 32767 (Network 7 / Subnet 15 / Universe 255). Note that the first Art-Net universe is considered to be universe number 00000, not 00001.

You can now control the 25 pixels on the fixtures connected to the PSU's five outputs via Art-Net.

Note that it is possible to transmit DMX data as broadcast or unicast packages via Art-Net. If a large number of universes (more than 30) is broadcast, data loss can occur. If you suspect that this is happening, configure your console to unicast Art-Net DMX packages to the KNV PSUs or switch to sACN.

sACN

To configure fixtures connected to a KNV PSU to receive control data via sACN over an Ethernet network, open the menus in the PSU's control panel and make the following adjustments:

- 1. In the **DMX Address** menu, use the UP and DOWN buttons to scroll to a suitable start address, then press ENTER to confirm.
- 2. In the **Control Mode** menu, scroll to and select the DMX mode you want to use to control the fixture.
- 3. In Protocol Setup \rightarrow Protocol Type, select sACN.
- 4. In the **Ethernet Config** menu, configure each PSU with its own unique IP address. To do this, you can either:
 - d) set each PSU to generate its own IP address by choosing the ranges 2.x.x.x or 10.x.x.x (Art-Net specification),
 - e) set each PSU to acquire an IP address automatically by DHCP, or
 - f) assign IP addresses manually by entering individual IP addresses and Subnet masks.
- 5. Select an sACN universe from 00001 to 63999.

You can now control the 25 pixels on the fixtures connected to the PSU's five outputs via sACN.



8. Control menu layout

Menus		Notes		
DMX Address				
001 -512		Enter DMX address		
Control Mode				
Mode 1			RGBW + Shutter	
Mode 2		W Strobe FX + RGB Strobe FX		
Mode 3			RGB Strobe FX + SPix W	
Mode 4			W Strobe FX + SPix RGB	
Mode 5			Multi-layer	
Mode 6			SPix RGBW 8-bit	
Mode 7			SPix RGBW 16-bit	
Mode 8			SPix RGBW Strobe FX	
Protocol Setup				
	DMX		Control via DMX protocol	
Protocol Type	ArtNet		Control via Art-Net protocol	
	sACN		Control via sACN protocol	
		Auto 2.X.X.X	Auto addressing in the range 2.X.X.X	
	Addressing Mode	Auto 10.X.X.X	Auto addressing in the range 10.X.X.X	
		Custom IP	Use custom IP address	
Ethernet		DHCP	Get IP address by DHCP	
Config	Custom IP address	XXX.XXX.XXX.XXX	Enter custom IP address	
	Custom IP Subnet	XXX.XXX.XXX.XXX	Enter custom subnet mask	
	ArtNet Port	0 - 32768	Set Art-Net port	
	sACN Universe	1 - 63999	Set sACN universe	
Pixel Configuro	tion			
A1 < 01 25>				
A2 <01 02 2	25>			
A3 <01 03 2	25>		Link controllable pixel	
A4 <01 04 2	25>		positions to a physical pixel:	
A5 <01 05 2	25>		 A1 is the first pixel of 	
B1 <01 06 2	5>		output A.	
B2 <01 07 2	5>		A2 is the second pixel of output A.	
Etc		• Etc.		
E4 <01 24 2	5>			
E5 <01 25 >				
Auto configuration	Confirm (hold	for 3 seconds to activate)	Loads the default pixel position configuration (A1= pixel 01, A2= pixel 02, A3= pixel 03 E5= pixel 25)	



Fixture Settings				
	Normal			
Pixel	90°		Set pixel orientation:	
Orientation	180°		normal or rotated	
	270°			
Division A times a	Off			
Pixel Mirror	On		Flip pixels right-to-left	
	Linear			
Dimmer Curve	Soft		Select dimming curve	
	ESoft			
	Off		Set fixture to flash when	
Dimmer Flash	On		dimmer channel value is moved	
	RGBW		Sets which LEDs are used	
Extra Shutter	White		in the extra shutter effect that is available in DMX	
	RGB		Modes 1, 6 and 7.	
	Off			
	80%		7	
Output Limit	60%		Set maximum output for	
W	40%		White LEDs	
	20%		1	
	10%			
	Off			
	80%		1	
Output Limit	60%		Set maximum output for	
RGB	40%		RGB LEDs	
	20%		1	
	10%			
	Blackout		Fixture blacks out when no DMX signal present	
	Hold		Fixture holds current scene when no DMX signal present	
No Signal	Stand Alone		Fixture goes to Stand- Alone scene when no DMX signal present	
	Capture DMX Values	Confirm (hold for 3 seconds to activate)	Capture current scene for use as Stand-Alone scene	
	Auto		Display sleeps unless error detected or no valid control signal	
Display Mode	On		Display constantly on	
	Off		Display off, even if error detected or no valid control signal	
Display	Normal		Invert display	
Orientation	Upside-down			



	Regulated		Fan speed temperature- regulated	
Fan Mode	High		Fan speed constant high	
Fan Mode	Medium		Fan speed constant medium	
	Low		Fan speed constant low	
Effect Supe	Internal		Invert display	
Effect Sync	Immediately		Invert display	
	2400 Hz	Main LED PWM frequency = 2400 Hz		
D 1111	3000 Hz	Main LED PWM frequency = 3000 Hz	Adjust PWM frequency of	
PWM Frequency	4800 Hz	Main LED PWM frequency = 4800 Hz	main LED (RGB LED frequency remains	
nequency	9600 Hz	Main LED PWM frequency = 9600 Hz	unchanged at 18.3 kHz)	
	25 kHz	Main LED PWM frequency = 25 kHz		
	Preset 1	Confirm (hold for 3 seconds to activate)		
	Preset 2	Confirm (hold for 3 seconds to activate)	Load custom fixture	
	Preset 3	Confirm (hold for 3 seconds to activate)	– setting Preset 1 - 3	
Load Settings	Load Settings Default Confirm (hold for 3 seconds to activate)		Load factory default settings <u>apart from</u> DMX address, DMX mode, Control protocol	
Information			· ·	
Show Errorlist			Show list of any errors stored in memory	
Show Serial Nu	mber		Show PSU's serial number	
Show SW Version	on		Show PSU's currently installed firmware version	
Show device in	nfo		Shows general information for the PSU	
Show device hours			Show total number of hours powered on (resettable and non- resettable)	
Device power cycles			Show total number of power cycles (resettable and non-resettable)	
Show signal quality			Show quality of DMX signal being received	
Show temperature			Shows current temperatures of the PSU's sensors	



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Manual Contro	ol					
Reset All	No		Reboot all of the PSU's			
Kesel All	Yes	functions				
	Red 000					
	Green		000 255		Manually set effects	
	Blue		000 255		(values correspond to	
	White		000 25		DMX values)	
	Shutter		000 25	55		
Manual DMX	Load No-Signal Sce	ene	Confirm		Load stored Stand-Alone scene	
	Save as No-Signal	Scene	Confirm		Store current manually set values as Stand-Alone scene	
	Capture DMX valu	es	Confirm		Store current DMX values as Stand-Alone scene	
	Reset Manual valu	es	Confirm		Reset all manually set values to zero	
Service						
Test Sequence	Confirm				Run test sequence on all connected fixtures	
Fixture update					Loads new software to all connected fixtures at outputs A - E	
	Confirm 3 seconds					
	Reset Counters cycles			Confirm (hold for 3 s. to activate) Confirm (hold for 3 s. to activate)	Reset PSU's internal counters	
		Max. temperatures		Confirm (hold for 3 s. to activate)	Reset PSU's internal maximum temperature log	
		Preset 1		Confirm (hold for 3 s. to activate)	Load current PSU settings	
Advanced	Save Settings	Preset 2		Confirm (hold for 3 s. to activate)	as presets that can be recalled in Fixture Settings	
		Preset 3		Confirm (hold for 3 s. to activate)	→Load Settings	
	Load Factory Back	Backup		Confirm (hold for 5 seconds to activate)	Load factory default settings including DMX address, DMX mode and control protocol Important! May result in loss of communication with DMX controller until DMX address is reconfigured.	

Control Menus

Default settings are written in **BOLD type.**



9. KNV Dot and Line Pixel mapping

Three factors affect pixel mapping in KNV Dot and Line installations:

- the physical location of KNV Dot and Line fixtures,
- the order in which fixtures are connected to the outputs of the KNV PSU, and
- the pixel orientation and pixel mirroring settings available in the PSU control panel or remotely via DMX.

This means that the installer and lighting designer or operator need to plan the layout of the installation together using this chapter as a guide.

Standard pixel layout

See Figure 9 and Figure 10. Pixels are automatically mapped as shown when you connect KNV Dot and / or Line fixtures to a KNV PSU.

For example:

- If you connect a chain of five KNV Dots to **Output D** on the PSU, the **first** KNV Dot in the chain will respond to commands sent to **Pixel 16** and the **last** KNV Dot in the chain will respond to commands sent to **Pixel 20**.
- If you connect a KNV Line to Output B on the PSU, the first pixel of the KNV Line (the pixel at the cable entry end of the fixture) will respond to commands sent to Pixel 06. The last pixel of the KNV Line (the pixel at the safety cable attachment end of the fixture) will respond to commands sent to Pixel 10.

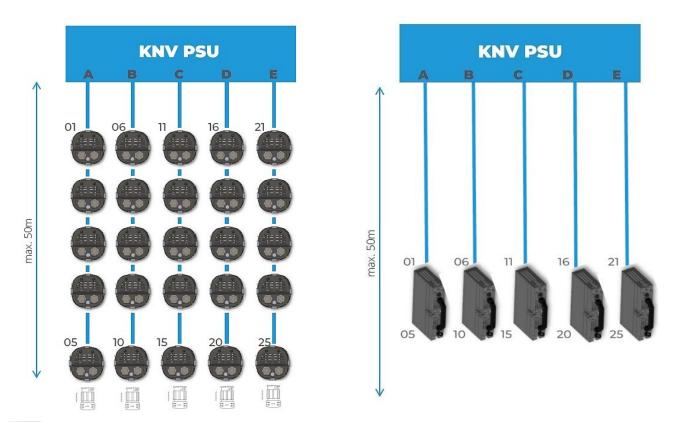


Figure 9. Pixel mapping – KNV Dot only and KNV Line only



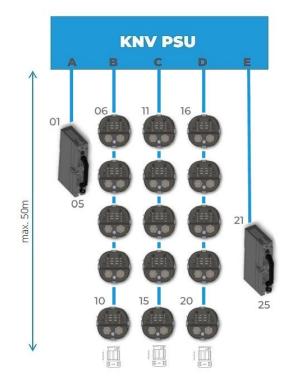


Figure 10. Pixel mapping – KNV Dot and Line mixed

KNV Dot and Line fixtures can be integrated into installations containing KNV Dot and Arc fixtures if you follow the pixel mapping guidelines below.

Matching pixel orientation in KNV Cube and Arc fixtures

To create a matrix of KNV Dot or Line fixtures that have the same 5 x 5 pixel layout as a KNV Cube or Arc fixture in its normal (unmirrored and unrotated) pixel configuration, see Configuration A below: install the KNV Dots or Lines horizontally running from left to right, connecting the top row of pixels to PSU output **A**, the next row down to PSU output **B** and so on until you connect the bottom row of pixels to PSU output **E**.

KNV Cube / Arc,
normal pixel orientation

01	02	03	04	05
06	07	08	09	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Configuration A: KNV Dots / Lines installed in horizontal rows

Α	\rightarrow	01	02	03	04	05
В	\rightarrow	06	07	08	09	10
С	\rightarrow	11	12	13	14	15
D	\rightarrow	16	17	18	19	20
Ε	\rightarrow	21	22	23	24	25



Hanging vertically downwards and adjusting KNV Cube and Arc fixture settings

If you prefer to create a matrix of KNV Dot or Line fixtures hanging vertically downwards from PSU outputs **A** to **E** (as shown in Figure 9, Figure 10 and Configuration B below) but you still want identical pixel mapping with a KNV Cube or Arc fixture, open the **Fixture Settings** control menu on the KNV Cube or Arc, set **Pixel Mirrored** to **ON** and set **Pixel Rotation** to **90° CCW**. The pixels in the KNV Cube or Arc will be mapped as shown below.

> KNV Cube / Arc, Pixel Mirrored = ON Pixel Rotation = 90° CCW

01	06	11	16	21
02	07	12	17	22
03	08	13	18	23
04	09	14	19	24
05	10	23	20	25

Configuration B: KNV Dots / Lines suspended in vertical columns

Α	В	С	D	Е
$\mathbf{\Lambda}$	\mathbf{A}	\downarrow \downarrow		$\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{$
01	06	11	16	21
02	07	12	17	22
03	08	13	18	23
04	09	14	19	24
05	10	23	20	25

Test patterns

You can check the pixel mapping setup of an array of KNV Dot and Line fixtures from the control desk by applying a Test pattern on the *Control / Settings* DMX channel or activating **Test sequence** in the **Service** menu.

KNV Dot and Line fixtures show a dynamic test pattern that helps you identify them when they are distributed freely in a creative installation. The dynamic pattern helps you identify the first fixture connected to each PSU output and see the pixel order of each line. The patterns of the pixels connected to each output are as follows:

Output A	First pixel: Constant RGB at 50% intensity All pixels: Continuous RGB chase on pixels 1-5 at 100% intensity
Output B	First pixel: Constant Red at 50% intensity All pixels: Continuous Red chase on pixels 1-5 at 100% intensity
Output C	First pixel: Constant Green at 50% intensity All pixels: Continuous Green chase on pixels 1-5 at 100% intensity
Output D	First pixel: Constant Blue at 50% intensity All pixels: Continuous Blue chase on pixels 1-5 at 100% intensity
Output E	First pixel: Constant Magenta at 50% intensity All pixels: Continuous Magenta chase on pixels 1-5 at 100% intensity



10. DMX control modes

Eight DMX control modes are available in the KNV Dot and Line.

Note that the DMX channel layout in KNV Dot and Line fixtures is not exactly the same as the channel layout in KNV Cube and Arc fixtures.

In all DMX modes, a Control / Settings channel lets you adjust fixture settings remotely from the DMX control desk.

- DMX Mode 1 lets you control all 25 pixels together as a group with 16-bit resolution. A separate Shutter channel provides strobe, pixel and ramp-up/down effects. This extra shutter affects all white and all RGB LEDs by default, but you can change this setting via the Control/Settings DMX Channel or the fixture's control panel so that the shutter applies to white LEDs only or RGB LEDs only.
- **DMX Mode 2** splits the KNV into a White Strobe and a separate RGB Strobe, each with standard strobe light control channels: Intensity, Flash Rate and Flash Duration. In addition, the Flare effect and pre-programmed dynamic FX are available for each strobe.
- DMX Mode 3 provides an RGB strobe plus 25 individually controllable white pixels. The RGB strobe has standard strobe control channels: Intensity, Flash Rate and Flash Duration. It also has the Flare effect and pre-programmed dynamic FX. The 25 individual white pixels have a separate Shutter channel with strobe, pixel and rampup/down effects.
- **DMX Mode 4** provides a White Strobe plus 25 individually controllable RGB pixels. The White strobe has standard strobe control channels: Intensity, Flash Rate and Flash Duration. It also has the Flare effect and pre-programmed dynamic FX. The 25 individual RGB pixels have a separate Shutter channel with strobe, pixel and rampup/down effects.
- DMX Mode 5 provides three different layers:
 - The **Base Layer** has lowest priority (other layers override it), so it acts as a background layer. The Base layer has RGBW intensity control.
 - Layer 2 has priority over the base layer, so it acts as a middle layer.
 - Layer 3 has highest priority, so it acts as a top layer.
 - Layers 2 and 3 both have standard RGBW strobe control channels plus the Flare effect and pre-programmed dynamic FX. Layers 2 and 3 also have a 16-bit Layer Master Channel that controls the transparency of the layer.

FX layer priorities work in true color, which means that colors are not mixed. If you run a red snake FX on Layer 2 over the top of a blue background on the Base Layer, the snake will be red, not a mix of blue and red.

Applying transparency to a layer allows the color of the background layer or the lower priority layer to shine through.

If you want to dim a layer's colors without color from lower priority layers shining through, reduce the intensity of the colors without applying transparency to the layer. If you reduce the intensity of all the colors to zero, you can run a black effect over the top of lower priority layers.

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- DMX Mode 6 provides master shutter/strobe control plus 8-bit RGBW control of 25 individual pixels.
- DMX Mode 7 provides master shutter/strobe control plus 16-bit RGBW control of 25 individual pixels.
- **DMX Mode 8** provides a base Layer 1 with RGBW 8-bit control of 25 individual pixels and an additional Layer 2 with RGBW FX.
- In **DMX Modes 2, 3, 4, 5 and 8** if no FX is selected (FX Selection channel is set to zero), the Flash rate channel controls the flash rate of the Strobe. If an FX is selected, the Flash rate channel is redeployed and controls the speed of the effect instead.
- DMX Modes 6 and 7 give individual control of 25 separate pixels plus a master Shutter channel. The extra shutter with strobe, pixel and ramp-up/down effects applies to all the LEDs (white and RGB), by default, but you can change this setting via the Control / Settings DMX Channel or the PSU's control panel so that the shutter applies to white LEDs only or to RGB LEDs only.

Pixel Configuration

By default, the PSU configures the first physical pixel of the Output A line as Pixel 01 and the last physical pixel of the Output A line as Pixel 05. It configures the first physical pixel of the Output B line as Pixel 06 and the last physical pixel of the Output B line as Pixel 10, and so on.

Pixel Configuration lets you adjust the control position of the different physical pixels on the output lines by mapping an individual pixel to a specific position. For example, if you want the second KNV Dot at Output B to be Pixel 25 in your pixel mapping setup, just change the value "B2=07" to "B2=25".

The default pixel mapping positions are as follows:

- Output A: A1=01 / A2=02 / A3=04 / A4=04 / A5=05
- Output B: B1=06 / B2=07 / B3=08 / B4=09 / B5=10
- Output C: C1=11 / C2=12 / C3=13 / C4=14 / C5=15
- Output D: D1=16 / D2=17 / D3=18 / D4=19 / D5=20
- Output E: E1=21 / E2=22 / E3=23 / E4=24 / E5=25

You can load the above default pixel mapping configuration at any time using the **Auto Configuration** command.

Note: As the pixel mapping configuration is a control-critical setting, it is not restored to default settings if you apply a **Load Fixture Setting Defaults** command. In other words, an individual pixel configuration will not be affected by a **Load Fixture Setting Defaults** command. To delete custom pixel mapping and restore the default pixel configuration, apply either an **Auto Configuration** or **Load Factory Backup** command.

Managing unused DMX channels

If you connect less than 25 pixels to a KNV PSU and you are operating in DMX Modes 3, 4, 6, 7 and 8, you can reduce the DMX footprint of the installation and free up DMX channels by deleting unused DMX channels in your controller patch.

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To give an example:

- You are operating in DMX Mode 6 and you only need to control 10 pixels. You have set the PSU to DMX address 001
- Connect pixels 1 5 to PSU output **A** and pixels 6 10 to PSU output **B**.
- PSU outputs C, D and E will not be connected to pixels.
- The KNV PSU will only work with data sent on DMX channels 001 042. DMX channels 043 102 will be ignored. You can simply unpatch these channels in your controller and give the next fixture DMX address 043.

Note that if you send a **GET device_info** query via RDM, the PSU will not report a smaller DMX footprint if you leave outputs unused – it will always report the full DMX footprint.

Special notes on the DMX tables

In the following DMX channel layout tables:

- Default settings are indicated with **bold type**.
- 'L = xx' indicates the length of the FX expressed as the number of steps that make up the FX (like the number of frames in an animation). If a pattern is listed as 'L = 10', the FX consists of ten steps.
- FX crossfade times apply to crossfading between the steps in the FX. If you apply a long crossfade time to a moving FX pattern, it will appear to leave a tail behind it as the pixels in the pattern fade down to zero.
- Where commands are marked with an asterisk * you must send that value continuously for 3 seconds (or other duration if indicated in the table) to apply the command.



11. Control channel layout

DMX Mode 1: RGBW 16-bit

10 DMX Channels

Cha	nnel	Command	DMX range	Percent	Default DMX	Fade
RGB	w					
1	Red coarse	Red intensity 0-100%	0-65535	0-100%	0	Fade
2	Red fine			0.0070		
3	Green coarse	Green intensity 0-100%	0-65535	0-100%	0	Fade
4 5	Green fine	,				
5 6	Blue coarse Blue fine	Blue intensity 0-100%	0-65535	0-100%	0	Fade
o 7	White coarse					
8	White fine	White intensity 0-100%	0-65535	0-100%	0	Fade
-		Shutter closed	0-4	0-1.6%	255	Snap
		Sync ramp up slow > fast	5-39	2.0-15.3%		Fade
		Sync ramp down slow > fast	40-74	15.7-29.0%		Fade
		Sync ramp up-down slow > fast	75-109	29.4-%42.7		Fade
9	Shutter	Sync double flash slow >fast	110-144	43.1-56.5%		Fade
,	Shoher	Random pixel slow > fast	145-179	56.9-70.2%		Fade
		Random strobe slow > fast	180-214	70.6-83.9%		Fade
		Sync strobe 0.289 > 16.67 Hz	215-249	84.3-97.6%		Fade
		Hyperspeed	250-252	98.0-98.8%		Snap
		Open	253-255	99.2-100%		Snap
Con	trol / Settings					
		Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%		
		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%	-	
		Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
		No function	33-38	12.9-14.9%		
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash On*	42-44	16.5-17.3%		
		Dimming curve ESoft*	45-47	17.6-18.4%		
		Dimming curve Soft*	48-50	18.8-19.6%		
		Dimming curve Linear*	51-53	20.0-20.8%		
		No function	54-56	21.2-22.0%		
		Extra Shutter RGBW*	57-59	22.4-23.1%		
10	Control / Settings	(Modes 1/6/7)				
		Extra Shutter RGB only* (Modes 1/6/7)	60-62	23.5-24.3%		
		Extra Shutter White only* (Modes 1/6/7)	63-65	24.7-25.5%		
		No function	66-68	25.9-26.7%	1	
		Fan mode regulated*	69-71	27.1-27.8%	1	
		Fan mode high*	72-74	28.2-29.0%	1	
		Fan mode medium*	75-77	29.4-30.2%	1	
		Fan mode low*	78-80	30.6-31.4%	-	
		No function	81-83	31.8-32.5%		
		Display On*	84-86	32.9-33.7%		
		Display Off*	87-89	34.1-34.9%		



	Display Auto*	90-92	35.3-36.1%	
	Display invert Off*	93-95	36.5-37.3%	
	Display invert On*	96-98	37.6-38.4%	
	No DMX = Capture scene*	99-101	38.8-39.6%	
	No DMX = Stand-alone*	102-104	40.0-40.8%	
	No DMX = Blackout*	105-107	41.2-42.0%	
	No DMX = Hold*	108-110	42.4-43.1%	
	Test pattern On*	111-113	43.5-44.3%	
	Test pattern Off*	114-116	44.7-45.5%	
	No function	117-134	45.9-52.5%	
	White output limitation Off*	135-137	52.9-53.7%	
	White output limitation 80%*	138-140	54.1-54.9%	
	White output limitation 60%*	141-143	55.3-56.1%	
	White output limitation 40%*	144-146	56.5-57.3%	
	White output limitation 20%*	147-149	57.6-58.4%	
Control / Settings	White output limitation 10%*	150-152	55.8-59.6%	
(continued)	No function	153-158	60.0-62.0%	
	RGB output limitation Off%*	159-161	62.4-63.1%	
	RGB output limitation 80%*	162-164	63.5-64.3%	
	RGB output limitation 60%*	165-167	64.7-65.5%	
	RGB output limitation 40%*	168-170	65.9-66.7%	
	RGB output limitation 20%*	171-173	67.1-67.8%	
	RGB output limitation 10%*	174-176	68.2-69.0%	
	No function	177-191	69.4-74.9%	
	Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%	
	Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%	
	Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%	
	Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%	
	No function	204-206	80.0-80.8%	
	Main LED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%	
	No function	210-251	82.4-98.4%	
	Reboot fixture*	252-255	98.8-100%	



DMX Mode 2: White strobe with FX, RGB with FX

23 DMX Channels

Chc	Innel	Command	DMX range	Percent	Default DMX	Fade
Chc	Innel group A: White	strobe with FX				
	White LEDs		0.055	0.100%	0	E es el e
1	intensity	Intensity 0-100%	0-255	0-100%	0	Fade
2	White LEDs flash duration	Flash duration 7-650 ms	0-255	0-100%	0	Fade
	White LEDs flash	No flash	0-1	0-0.4%	0	Snap
		Single flash if Dimmer Flash = ON				
	rate (if FX are not	and value is changed on Ch 1				
_	active)	Flash rate 0.289-16.67 Hz	2-250	0.8-98%	0	Fade
3		Hyperspeed	251-252	98.4-98.8%		Snap
		Continuously on	253-255	99.2-100%		Snap
	FX speed (if FX	FX speed = stop	0-1	0-0.4%		Snap
	are active)	FX speed = slow > fast	2-253	0.8-98.8%		Fade
	,	FX speed = stop	254-255	99.2-100%		Snap
		Off	0-9	0-3.5%	0	Snap
		Slow > fast	10-49	3.9-19.2%		Fade
	White LEDs Flare	Off	50-59	19.6-23.1%		Snap
4	effect	Random slow > fast	60-109	23.5-42.7%		Fade
		Off	110-119	43.1-46.7%		Snap
		Random pixel slow > fast	120-169	47.1-66.3%	-	Fade
		Off	170-255	66.7-100%	_	Snap
		Sync strobe - all	0-2	0-0.8%	0	Snap
		Sync strobe - circle mask	3-5	1.2-2.0%		
		Sync strobe - 4 dot mask	6-8	2.4-3.1%		
		Sync strobe - 1 dot mask	9-11	3.5-4.3%		
		Random strobe - all	12-14	4.7-5.5%		
		Random strobe - circle mask	15-17	5.9-6.7%		
		Random strobe - 4 dot mask	18-20	7.1-7.8%		
		Random strobe - 1 dot mask	21-23	8.2-9.0%		
		Lite in/out - all	24-26	9.4-10.2%		
		Lite in/out - circle mask	27-29	10.6-11.4%		
		Lite in/out - 4 dot mask	30-32	11.8-12.6%		
		Lite in/out - 1 dot mask	33-35	12.9-13.7%		
		Snake	36-38	14.1-14.9%		
	White LEDs FX	Raindrops	39-41	15.3-16.1%		
5	selection	Random pixel	42-44	16.5-17.3%		
	Selection					
		Random fake x 2 (L = 13)	45-47	17.6-18.4%	-	
		Random fake x 4 (L = 7)	48-50	18.8-19.6%		
		Line $(L = 5)$	51-53	20.0-20.8%		
		Double line (L = 3)	54-56	21.2-22.0%		
		Corner to corner line (L = 9)	57-59	22.4-23.1%	4	
		Tilted double lines (L = 5)	60-62	23.5-24.3%		
		Tilted double lines in to out (L = 3)	63-65	24.7-25.5%		
		Center line running dot (L = 5)	66-68	25.9-26.7%		
		Middle line running dot (L = 5)	69-71	27.1-27.8%		
		Outer line running dot $(L = 5)$	72-74	28.2-29.0%		
		Corner to corner (L = 5)	75-77	29.4-30.2%	1	
		Arrow $(L = 7)$	78-80	30.6-31.4%	1	
			, 0 00	30.0 01.1/0	1	



			0.4.0.4	20.0.00.77		
			84-86	32.9-33.7%		
		Half wheel (L = 16)	87-89	34.1-34.9%		
		Circling dot (L = 8)	90-92	35.3-36.1%		
1		Outer circle (L = 8)	93-95	36.5-37.3%		
		Inner circle $(L = 4)$	96-98	37.6-38.4%		
		Outer 4 dots $(L = 4)$	99-101	38.8-39.6%		
		Outer single dot $(L = 16)$	102-104	40.0-40.8%		
		Middle single dot $(L = 8)$	105-107	41.2-42.0%		
		Spinning $2x1$ dots (L = 8)	108-110	42.4-43.1%		
		Asymmetrical 4 dots $(L = 8)$	111-113	43.5-44.3%		
		Symmetrical 4 dots (L = 8)	114-116	44.7-45.5%		
		Square $(L = 3)$	117-119	45.9-46.7%		
		Inside out $(L = 6)$	120-122	47.1-48.8%		
		Inside out 2 (L = 3)	123-125	48.2-49.0%		
		Abstract 1 (L = 3)	126-128	49.4-50.2%		
		Abstract 2 (L = 3)	129-131	50.6-51.4%		
		Abstract 3 (L = 3)	132-134	51.8-52.5%		
		Hash tag (L = 2)	135-137	52.9-53.7%		
		Flip flop $(L = 2)$	138-140	54.1-54.9%		
		Jumping slash (L = 13)	141-143	55.3-56.1%		
		Jumping 'L' (L = 12)	144-146	56.5-57.3%		
		Jumping pins (L = 12)	147-149	57.6-58.4%		
		Fat dot (L = 4)	150-152	58.8-59.6%		
		Bars (L = 2)	153-155	60.0-60.8%		
		3 x lines (L = 5)	156-158	61.2-62.0%		
		2 x lines (L = 5)	159-161	62.4-63.1%		
		Spiral (L = 28)	162-164	63.5-64.3%		
		Off - No Strobe or FX	165-255	64.7-100%		
	White LEDs FX	Off	0-1	0-0.4%	0	Snap
6	crossfade time	Crossfade fast > slow	2-127	0.8-49.8%		Fade
		Crossfade and tail slow > fast	128-255	50.2-100%		Fade
		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%		
		Rotate 180°	10-14	3.9-5.5%		
		Rotate 270°	15-19	5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
1		Rotate 90° & vertical flip	25-29	9.8-11.4%		
1		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
1		Rotate 270° & vertical flip	35-39	13.7-15.3%		
1		Off	40-44	15.7-17.3%		
		Random rotate & flip	45-49	17.7-19.2%		
		Random position	50-54	19.6-21.2%		
7	White LEDs	Rotate 90° & random position	55-59	21.6-23.1%		
1	orientation	Rotate 180° & random position	60-64	23.5-25.1%		
		Rotate 270° & random position	65-69	25.5-27.1%		
1		Off	70-74	27.5-29.0%		
		Bounce	75-79	29.4-31.0%		
1		Rotate 90° & bounce	80-84	31.4-32.9%		
1		Rotate 180° & bounce	85-89	33.3-34.9%		
		Rotate 270° & bounce	90-94	35.3-36.9%		
1		Off	95-99	37.3-38.8%		
		Rotate CCW at end	100-104	39.2-40.8%		
1		Rotate CW at end	105-109	41.2-42.7%		
		Random rotate at end	110-114	43.1-44.7%		
1		Off	115-134	45.1-52.5%		



	r			0		
		Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° **	145-149	56.9-58.4%		
		Horizontal flip **	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **	155-159	60.8-62.4%		
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%		
		Rotate 270° & vertical flip **	165-169	64.7-66.3%		
		Off	170-174	66.7-68.2%		
		Random rotate & flip **	175-179	68.6-70.2%		
		Random position **	180-184	70.6-72.2%		
		Rotate 90° & random position **	185-189	72.5-74.1%		
		Rotate 180° & random position **	190-194	74.5-76.1%		
		Rotate 270° & random position **	195-199	76.5-78.0%		
		Off	200-204	78.4-80.0%		
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-214	84.3-85.9%		
		Rotate 270° & bounce **	220-224	86.3-87.8%		
		Off	225-229	88.2-89.8%		
		Rotate CCW at end **	230-234	90.2-91.8%		
		Rotate CW at end **	235-239	92.2-93.7%		
		Random rotate at end **				
		Off	240-244	94.1-95.7%		
8	White LEDs FX		245-255	96.1-100%		
0	offset	0-100%	0-255	0-100%	0	Fade
9	White LEDs FX				-	
-	length	0-100%	0-255	0-100%	0	Fade
Cho	innel group B: RGB s	trobe with FX				
10	RGB LEDs dimmer	Intensity 0-100%	0-255	0-100%	0	Fade
	RGB LEDs flash					
11	duration	Flash duration 7-650 ms	0-255	0-100%	0	Fade
	RGB LEDs flash	No flash	0-1	0-0.4%	0	Snap
	rate (if FX are not	Flash rate 0.289-16.67 Hz	2-250	0.8-98%		Fade
	active)	Hyperspeed	251-254	98.4-99.6%		Snap
12		Continuously on	255	100%		Snap
	FX speed (if FX	FX speed = stop	0-1	0-0.4%		Snap
	are active)	FX speed = slow > fast	2-253	0.8-98.8%		Fade
10	_	FX speed = stop	254-255	99.2-100%	055	Snap
13	Red	Red intensity 0-100%	0-255	0-100%	255	Fade
14 15	Green Blue	Green intensity 0-100% Blue intensity 0-100%	0-255 0-255	0-100% 0-100%	255 255	Fade Fade
15	DIVE	Off	0-255	0-100%	255	Snap
		Slow > fast	10-49	3.9-19.2%	0	Fade
		Off	50-59	19.6-23.1%		Snap
16	RGB LEDs Flare	Random slow > fast	60-109	23.5-42.7%		Fade
	effect	Off	110-119	43.1-46.7%		Snap
		Random pixel slow > fast	120-169	47.1-66.3%		Fade
		Off	170-255	66.7-100%		Snap
L	1	1 =		001. 100/0		990



	Sync strobe - all	0-2	0-0.8%	0	Snap
	Sync strobe - circle mask	3-5	1.2-2.0%	Ŭ	
	Sync strobe - 4 dot mask	6-8	2.4-3.1%		
	Sync strobe - 1 dot mask	9-11	3.5-4.3%		
	Random strobe - all	12-14	4.7-5.5%		
	Random strobe - circle mask	15-17	5.9-6.7%		
	Random strobe - 4 dot mask	18-20	7.1-7.8%		
		21-23	8.2-9.0%		
	Random strobe - 1 dot mask				
	Lite in/out - all	24-26	9.4-10.2%		
	Lite in/out - circle mask	27-29	10.6-11.4%		
	Lite in/out - 4 dot mask	30-32	11.8-12.6%		
	Lite in/out - 1 dot mask	33-35	12.9-13.7%		
	Snake	36-38	14.1-14.9%		
	Raindrops	39-41	15.3-16.1%		
	Random pixel	42-44	16.5-17.3%		
	Random fake x 2 (L = 13)	45-47	17.6-18.4%		
	Random fake x 4 (L = 7)	48-50	18.8-19.6%		
	Line (L = 5)	51-53	20.0-20.8%		
	Double line (L = 3)	54-56	21.2-22.0%		
	Corner to corner line (L = 9)	57-59	22.4-23.1%		
	Tilted double lines $(L = 5)$	60-62	23.5-24.3%		
	Tilted double lines in to out $(L = 3)$	63-65	24.7-25.5%		
	Center line running dot (L = 5)	66-68	25.9-26.7%		
	Middle line running dot $(L = 5)$	69-71	27.1-27.8%		
	Outer line running dot $(L = 5)$	72-74	28.2-29.0%		
RGB LEDs FX	Corner to corner $(L = 5)$	75-77	29.4-30.2%		
selection	Arrow $(L = 7)$	78-80	30.6-31.4%		
	Wave $(L = 8)$	81-83	31.8-32.5%		
	Wheel $(L = 8)$	84-86	32.9-33.7%		
	Half wheel (L = 16)	87-89	34.1-34.9%		
	Circling dot (L = 8)	90-92	35.3-36.1%		
	Outer circle (L = 8)	93-95	36.5-37.3%		
	Inner circle $(L = 4)$	96-98	37.6-38.4%		
	Outer 4 dots $(L = 4)$	99-101	38.8-39.6%		
	Outer single dot (L = 16)	102-104	40.0-40.8%		
	Middle single dot $(L = 8)$		41.2-42.0%		
	Spinning 2x1 dots (L = 8)	108-110	42.4-43.1%		
	Asymmetrical 4 dots (L = 8)	111-113	43.5-44.3%		
	Symmetrical 4 dots (L = 8)	114-116	44.7-45.5%		
	Square (L = 3)	117-119	45.9-46.7%		
	Inside out (L = 6)	120-122	47.1-48.8%		
	Inside out 2 (L = 3)	123-125	48.2-49.0%		
	Abstract 1 (L = 3)	126-128	49.4-50.2%		
	Abstract 2 (L = 3)	129-131	50.6-51.4%		
		132-134	51.8-52.5%		
	Abstract 3 (L = 3)				
	Hash tag (L = 2)	135-137	52.9-53.7%		
	Flip flop (L = 2)	138-140	54.1-54.9%		
	Jumping slash (L = 13)	141-143	55.3-56.1%		
	Jumping 'L' $(L = 12)$	144-146	56.5-57.3%		
	Jumping pins (L = 12)	147-149	57.6-58.4%		
	Fat dot (L = 4)	150-152	58.8-59.6%		
	Bars (L = 2)	153-155	60.0-60.8%		



		3 x lines (L = 5)	156-158	61.2-62.0%		
		$2 \times \text{lines} (L = 5)$	159-161	62.4-63.1%		
		Spiral (L = 28)	162-164	63.5-64.3%		
		Off - No Strobe or FX	165-255	64.7-100%		
		Off	0-1	0-0.4%	0	Snap
18	RGB LEDs FX	Crossfade fast > slow	2-127	0.8-49.8%	-	Fade
	crossfade time	Crossfade and tail slow > fast	128-255	50.2-100%		Fade
		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%		
		Rotate 180°	10-14	3.9-5.5%		
		Rotate 270°	15-19	5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
		Rotate 90° & vertical flip	25-29	9.8-11.4%		
		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
		Rotate 270° & vertical flip	35-39	13.7-15.3%		
		Off	40-44	15.7-17.3%		
		Random rotate & flip	45-49	17.7-19.2%		
		Random position	50-54	19.6-21.2%		
		Rotate 90° & random position	55-59	21.6-23.1%		
		Rotate 180° & random position	60-64	23.5-25.1%		
		Rotate 270° & random position	65-69	25.5-27.1%		
		Off	70-74	27.5-29.0%		
		Bounce	75-79	29.4-31.0%		
		Rotate 90° & bounce	80-84	31.4-32.9%		
		Rotate 180° & bounce	85-89	33.3-34.9%		
		Rotate 270° & bounce	90-94	35.3-36.9%		
		Off	95-99	37.3-38.8%		
		Rotate CCW at end	100-104	39.2-40.8%		
		Rotate CW at end	105-109	41.2-42.7%		
	RGB LEDs	Random rotate at end	110-114	43.1-44.7%		
19	orientation	Off	115-134	45.1-52.5%		
	onemaion	Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° **	145-149	56.9-58.4%		
		Horizontal flip **	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **	155-159	60.8-62.4%		
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%		
		Rotate 270° & vertical flip **	165-169	64.7-66.3%		
		Off	170-174	66.7-68.2%		
		Random rotate & flip **	175-179	68.6-70.2%		
		Random position **	180-184	70.6-72.2%		
		Rotate 90° & random position **	185-189	72.5-74.1%		
		Rotate 180° & random position **	190-194	74.5-76.1%		
		Rotate 270° & random position **	195-199	76.5-78.0%		
		Off	200-204	78.4-80.0%		
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-219	84.3-85.9%		
		Rotate 270° & bounce **	220-224	86.3-87.8%		
		Off	225-229	88.2-89.8%		
		Rotate CCW at end **	230-234	90.2-91.8%		
		Rotate CW at end **	235-239	92.2-93.7%		
		Random rotate at end **	240-244	94.1-95.7%]	
		Off	245-255	96.1-100%		



	RGB LEDs FX offset	0-100%	0-255	0-100%	0	Fade
21	RGB LEDs FX	0.100%	0.055	0.1007	0	Fada
	length	0-100%	0-255	0-100%	0	Fade
		Off	0-9	0-3.5%	0	Snap
		Random all pixels RGBCMY	10-19	3.9-7.5%		Snap
		Random single pixel RGBCMY	20-29	7.8-11.4%		Snap
		Random all pixels bright colors	30-39	11.8-15.3%		Snap
		Random single pixel bright colors	40-49	15.7-19.2%		Snap
		Red / Blue	50-59	19.6-23.1%		Snap
		Red / Green	60-69	23.5-27.1%		Snap
		Blue / Green	70-79	27.5-31.0%		Snap
		Yellow / Magenta	80-89	31.4-34.9%		Snap
		Yellow / Cyan	90-99	35.3-38.8%		Snap
		Cyan / Magenta	100-109	39.2-42.7%		Snap
22	RGB LEDs color	Yellow / Blue	110-119	43.1-46.7%		Snap
	generator	Green / Magenta	120-129	47.1-50.6%		Snap
		Red / Green / Blue	130-139	51.0-54.5%		Snap
		Red / Yellow / Blue	140-149	54.9-58.4%		Snap
		Red / Green / Blue / Yellow /	1.50.3.55	58.8%-62.4%		Snap
		Magenta / Cyan	150-159			
		Red / Green / Blue - Horizontal line	160-169	62.7-66.3%		Snap
		Red / Green / Blue - Vertical line	170-179	66.7-70.2%		Snap
		No function	180-219	70.6-85.9%		Snap
		Color scroll, slow -> fast	220-229	86.3-89.8%		Fade
		Lite in	230-239	90.2-93.7%		Snap
		Lite out	240-249	94.1-97.6%		Snap
<u> </u>		Off	250-255	98.0-100%		Snap
Con	trol / Settings	Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	0	Junch
		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
		Effect sync – Power line (3 sec.)	30-32	6.3-11.4% 11.8-12.5%		
l			1111111	12011007		
		No function Dimmer flash Off*	33-38	12.9-14.9%		
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash Off * Dimmer flash On*	39-41 42-44	15.3-16.1% 16.5-17.3%		
		Dimmer flash Off * Dimmer flash On* Dimming curve ESoft*	39-41 42-44 45-47	15.3-16.1% 16.5-17.3% 17.6-18.4%		
		Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft*	39-41 42-44 45-47 48-50	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6%		
		Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear*	39-41 42-44 45-47 48-50 51-53	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8%		
		Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function	39-41 42-44 45-47 48-50 51-53 54-68	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7%		
		Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated*	39-41 42-44 45-47 48-50 51-53 54-68 69-71	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8%		
	Control / Solling	Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode medium*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode ligh* Fan mode ligh*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On* Display Off*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On* Display Auto*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On* Display Auto* Display invert Off*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode medium* Fan mode low* No function Display On* Display Auto* Display invert Off* Display invert On*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95 96-98	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3% 37.6-38.4%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode medium* Fan mode low* No function Display On* Display Auto* Display invert Off* Display invert On* No DMX = Capture scene*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95 96-98 99-101	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3% 37.6-38.4% 38.8-39.6%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode medium* Fan mode low* No function Display On* Display Off* Display invert Off* Display invert On* No DMX = Capture scene* No DMX = Stand-alone*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95 96-98 99-101 102-104	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3% 37.6-38.4% 40.0-40.8%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode dium* Fan mode low* No function Display On* Display Off* Display Auto* Display invert Off* Display invert On* No DMX = Capture scene* No DMX = Blackout*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95 96-98 99-101 102-104 105-107	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3% 37.6-38.4% 38.8-39.6% 40.0-40.8% 41.2-42.0%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode medium* Fan mode low* No function Display On* Display Off* Display Auto* Display invert Off* Display invert Off* No DMX = Capture scene* No DMX = Blackout* No DMX = Hold*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95 96-98 99-101 102-104 105-107 108-110	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3% 37.6-38.4% 38.8-39.6% 40.0-40.8% 41.2-42.0% 42.4-43.1%		
23	Control / Settings	Dimmer flash Off* Dimmer flash On* Dimming curve Esoft* Dimming curve Soft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode dium* Fan mode low* No function Display On* Display Off* Display Auto* Display invert Off* Display invert On* No DMX = Capture scene* No DMX = Blackout*	39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86 87-89 90-92 93-95 96-98 99-101 102-104 105-107	15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4% 31.8-32.5% 32.9-33.7% 34.1-34.9% 35.3-36.1% 36.5-37.3% 37.6-38.4% 38.8-39.6% 40.0-40.8% 41.2-42.0%		



Rotation Off*	117-119	45.9-46.7%	
Rotate 90° *	120-122	47.1-47.8%	
Rotate 180° *	123-125	48.2-49.0%	
Rotate 270° *	126-128	49.4-50.2%	
Pixel mirror Off*	129-131	50.6-51.4%	
Pixel mirror On*	132-134	51.8-52.5%	
White output limitation Off*	135-137	52.9-53.7%	
White output limitation 80%*	138-140	54.1-54.9%	
White output limitation 60%*	141-143	55.3-56.1%	
White output limitation 40%*	144-146	56.5-57.3%	
White output limitation 20%*	147-149	57.6-58.4%	
White output limitation 10%*	150-152	55.8-59.6%	
No function	153-158	60.0-62.0%	
RGB output limitation Off%*	159-161	62.4-63.1%	
RGB output limitation 80%*	162-164	63.5-64.3%	
RGB output limitation 60%*	165-167	64.7-65.5%	
RGB output limitation 40%*	168-170	65.9-66.7%	
RGB output limitation 20%*	171-173	67.1-67.8%	
RGB output limitation 10%*	174-176	68.2-69.0%	
No function	177-191	69.4-74.9%	
Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%	
Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%	
Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%	
Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%	
No function	204-206	80.0-80.8%	
Main LED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%	
No function	210-251	82.4-98.4%	
Reboot fixture*	252-255	98.8-100%	



DMX Mode 3: RGB strobe with FX, White individual pixels

Ch	annel	Command	DMX range	Percent	Default DMX	Fade
Ch	annel group A: RGB st	robe with FX				
1	RGB LEDs dimmer	Intensity 0-100%	0-255	0-100%	0	Fade
2	RGB LEDs flash duration	Flash duration 7-650 ms	0-255	0-100%	255	Fade
	RGB LEDs flash rate	No flash Single flash if Dimmer Flash = ON and value is changed on Ch 1	0-1	0-0.4%	0	Snap
3	(if FX not active)	Flash rate 0.289-16.67 Hz Hyperspeed	2-250 251-254	0.8-98% 98.4-99.6%	-	Fade Snap
		Continuously on FX speed = stop	255 0-1	100% 0-0.4%	-	Snap Snap
	RGB LEDs FX speed (if FX active)	FX speed = slow > fast FX speed = stop	2-253 254-255	0.8-98.8% 99.2-100%		Fade Snap
4	Red	Red intensity 0-100%	0-255	0-100%	255	Fade
5	Green Blue	Green intensity 0-100% Blue intensity 0-100%	0-255 0-255	0-100% 0-100%	255 255	Fade Fade
7		Off	0-9	0-3.5%	0	Snap
	RGB LEDs Flare	Slow > fast Off Random slow > fast	10-49 50-59 60-109	3.9-19.2% 19.6-23.1% 23.5-42.7%	-	Fade Snap Fade
/	effect	Off Random pixel slow > fast	110-119	43.1-46.7% 47.1-66.3%	-	Snap Fade
		Off	170-255	66.7-100%		Snap
		Sync strobe - all Sync strobe - circle mask Sync strobe - 4 dot mask	0-2 3-5 6-8	0-0.8% 1.2-2.0% 2.4-3.1%	0	Snap
		Sync strobe - 1 dot mask Random strobe - all	9-11 12-14	3.5-4.3% 4.7-5.5%	-	
		Random strobe - circle mask Random strobe - 4 dot mask	15-17 18-20	5.9-6.7% 7.1-7.8%		
		Random strobe - 1 dot mask Lite in/out - all	21-23	8.2-9.0% 9.4-10.2%	-	
		Lite in/out - circle mask	27-29	10.6-11.4%	-	
	RGB LEDs FX	Lite in/out - 4 dot mask Lite in/out - 1 dot mask	30-32 33-35	11.8-12.6% 12.9-13.7%	-	
8	selection	Snake Raindrops	36-38 39-41	14.1-14.9% 15.3-16.1%	-	
		Random pixel	42-44	16.5-17.3%	-	
		Random fake x 2 (L = 13) Random fake x 4 (L = 7)	45-47 48-50	17.6-18.4% 18.8-19.6%		
		Line (L = 5) Double line (L = 3)	51-53 54-56	20.0-20.8% 21.2-22.0%	-	
		Corner to corner line (L = 9)	57-59	22.4-23.1%	1	
		Tilted double lines (L = 5) Tilted double lines in to out (L = 3)	60-62 63-65	23.5-24.3% 24.7-25.5%	-	
		Center line running dot (L = 5) Middle line running dot (L = 5)	66-68 69-71	25.9-26.7% 27.1-27.8%	-	
		Outer line running dot (L = 5)	72-74	28.2-29.0%		



		Corporto corpor $(1 - 5)$	75 77	20 4 20 207		
		Corner to corner (L = 5)	75-77	29.4-30.2%		
		$\frac{\text{Arrow } (L = 7)}{M_{\text{CVO}} (L = 8)}$	78-80	30.6-31.4%		
		Wave (L = 8) Wheel (L = 8)	81-83 84-86	31.8-32.5% 32.9-33.7%		
		Half wheel (L = 16)	87-89	34.1-34.9%		
		Circling dot (L = 8)	90-92	35.3-36.1%		
		Outer circle $(L = 8)$	93-95	36.5-37.3%		
		Inner circle $(L = 4)$	96-98	37.6-38.4%		
		Outer 4 dots $(L = 4)$	99-101	38.8-39.6%		
		Outer single dot $(L = 16)$	102-104	40.0-40.8%		
		Middle single dot $(L = 8)$	105-107	41.2-42.0%		
		Spinning $2x1$ dots (L = 8)	108-110	42.4-43.1%		
		Asymmetrical 4 dots $(L = 8)$	111-113	43.5-44.3%		
		Symmetrical 4 dots (L = 8)	114-116	44.7-45.5%		
		Square $(L = 3)$	117-119	45.9-46.7%		
		Inside out $(L = 6)$	120-122	47.1-48.8%		
		Inside out 2 (L = 3)	123-125	48.2-49.0%		
		Abstract 1 (L = 3)	126-128	49.4-50.2%		
		Abstract 2 (L = 3)	129-131	50.6-51.4%		
		Abstract 3 (L = 3)	132-134	51.8-52.5%		
		Hash tag $(L = 2)$	135-137	52.9-53.7%		
		Flip flop (L = 2)	138-140	54.1-54.9%		
		Jumping slash (L = 13)	141-143	55.3-56.1%		
		Jumping 'L' (L = 12)	144-146	56.5-57.3%		
		Jumping pins (L = 12)	147-149	57.6-58.4%		
		Fat dot (L = 4)	150-152	58.8-59.6%		
		Bars (L = 2)	153-155	60.0-60.8%		
		3 x lines (L = 5)	156-158	61.2-62.0%		
		2 x lines (L = 5)	159-161	62.4-63.1%		
		Spiral (L = 28)	162-164	63.5-64.3%		
		Off - No Strobe or FX	165-255	64.7-100%		
	RGB LEDs FX	Off	0-1	0-0.4%	0	Snap
9	crossfade time	Crossfade fast > slow	2-127	0.8-49.8%		Fade
		Crossfade and tail slow > fast	128-255	50.2-100%		Fade
		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%		
		Rotate 180°	10-14	3.9-5.5%		
		Rotate 270°	15-19	5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
		Rotate 90° & vertical flip	25-29	9.8-11.4%		
		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
		Rotate 270° & vertical flip	35-39	13.7-15.3%		
		Off	40-44	15.7-17.3%		
	RGB LEDs	Random rotate & flip	45-49	17.7-19.2%		
10	orientation	Random position	50-54	19.6-21.2%		
	onemanon	Rotate 90° & random position	55-59	21.6-23.1%		
		Rotate 180° & random position	60-64	23.5-25.1%		
		Rotate 270° & random position	65-69	25.5-27.1%		
			1			1
		Off	70-74	27.5-29.0%		
1		Off Bounce	70-74 75-79	27.5-29.0% 29.4-31.0%		
		Bounce	75-79	29.4-31.0%		
		Bounce Rotate 90° & bounce	75-79 80-84	29.4-31.0% 31.4-32.9%		
		Bounce Rotate 90° & bounce Rotate 180° & bounce	75-79 80-84 85-89	29.4-31.0% 31.4-32.9% 33.3-34.9%		



		Rotate CW at end	105-109	41.2-42.7%		
		Random rotate at end	110-114	43.1-44.7%		
		Off	115-134	45.1-52.5%	-	
		Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° **	145-149	56.9-58.4%		
		Horizontal flip **	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **	155-159	60.8-62.4%	-	
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%	-	
		Rotate 270° & vertical flip **	165-169	64.7-66.3%	-	
		Off	170-174	66.7-68.2%	-	
		Random rotate & flip **	175-179	68.6-70.2%	-	
		Random position **	180-184	70.6-72.2%	-	
		Rotate 90° & random position **	185-189	72.5-74.1%	-	
		Rotate 180° & random position **	190-194	74.5-76.1%	-	
		Rotate 270° & random position **	195-199	76.5-78.0%	-	
		Off	200-204	78.4-80.0%	-	
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-219	84.3-85.9%		
		Rotate 270° & bounce **	220-224	86.3-87.8%		
		Off	225-229	88.2-89.8%		
		Rotate CCW at end **	230-234	90.2-91.8%		
		Rotate CW at end **	235-239	92.2-93.7%		
		Random rotate at end **	240-244	94.1-95.7%		
		Off	245-255	96.1-100%		
11	RGB LEDs FX offset	0-100%	0-255	0-100%	0	Fade
12	RGB LEDs FX length		0-255	0-100%	0	Fade
		Off	0-9	0-3.5%	0	Snap
		Random all pixels RGBCMY	10-19	3.9-7.5%		Snap
		Random single pixel RGBCMY	20-29	7.8-11.4%		Snap
		Random all pixels bright colors	30-39	11.8-15.3%		Snap
		Random single pixel bright colors	40-49	15.7-19.2%		Snap
		Red / Blue	50-59	19.6-23.1%		Snap
		Red / Green	60-69	23.5-27.1%		Snap
		Blue / Green	70-79	27.5-31.0%		Snap
		Yellow / Magenta	80-89	31.4-34.9%		Snap
			00-07	0111011770		
		Yellow / Cyan	90-99	35.3-38.8%		Snap
		Yellow / Cyan Cyan / Magenta				Snap Snap
	RGB LEDs color		90-99	35.3-38.8%		
13	RGB LEDs color generator	Cyan / Magenta	90-99 100-109	35.3-38.8% 39.2-42.7%		Snap
13		Cyan / Magenta Yellow / Blue	90-99 100-109 110-119	35.3-38.8% 39.2-42.7% 43.1-46.7%		Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta	90-99 100-109 110-119 120-129	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6%	- - - -	Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue	90-99 100-109 110-119 120-129 130-139 140-149	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4%	· · ·	Snap Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue	90-99 100-109 110-119 120-129 130-139	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5%	· · ·	Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow /	90-99 100-109 110-119 120-129 130-139 140-149	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4%		Snap Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan	90-99 100-109 110-119 120-129 130-139 140-149 150-159	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4% 58.8%-62.4%		Snap Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan Red / Green / Blue - Horizontal line	90-99 100-109 110-119 120-129 130-139 140-149 150-159 160-169	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4% 58.8%-62.4% 62.7-66.3%		Snap Snap Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan Red / Green / Blue - Horizontal line Red / Green / Blue - Vertical line	90-99 100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4% 58.8%-62.4% 62.7-66.3% 66.7-70.2%		Snap Snap Snap Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan Red / Green / Blue - Horizontal line Red / Green / Blue - Vertical line No function	90-99 100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179 180-219	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4% 58.8%-62.4% 62.7-66.3% 66.7-70.2% 70.6-85.9%		Snap Snap Snap Snap Snap Snap Snap Snap
13		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan Red / Green / Blue - Horizontal line Red / Green / Blue - Vertical line No function Color scroll, slow -> fast	90-99 100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179 180-219 220-229	35.3-38.8% 39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4% 58.8%-62.4% 62.7-66.3% 66.7-70.2% 70.6-85.9% 86.3-89.8%		Snap Snap Snap Snap Snap Snap Snap Fade



		Shutter closed	0-4	0-1.6%	255	Shap
			5-39		255	Snap
		Sync ramp up slow > fast		2.0-15.3%		Fade
		Sync ramp down slow > fast Sync ramp up-down slow > fast	40-74	15.7-29.0% 29.4-%42.7		Fade
		Sync double flash slow > fast	110-144	43.1-56.5%		Fade Fade
14	White LEDs shutter	Pixel flare effect slow > fast	145-179	43.1-38.3% 56.9-70.2%		
		Random strobe slow > fast	180-214	70.6-83.9%		Fade Fade
		Sync strobe $0.289 > 16.67$ Hz	215-249	84.3-97.6%		Fade
		Hyperspeed	250-252	98.0-98.8%		Snap
		Open	253-255	99.2-100%		Snap
Con	ntrol / Settings	Open	200-200	77.2-10078		Janap
		Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	Ũ	onap
		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
		Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
	No function	33-38	12.9-14.9%			
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash On*	42-44	16.5-17.3%		
		Dimming curve ESoft*	45-47	17.6-18.4%		
		Dimming curve Soft*	48-50	18.8-19.6%		
		Dimming curve Linear*	51-53	20.0-20.8%		
		No function	54-68	21.2-26.7%		
		Fan mode regulated*	69-71	27.1-27.8%		
		Fan mode high*	72-74	28.2-29.0%		
		Fan mode medium*	75-77	29.4-30.2%		
		Fan mode low*	78-80	30.6-31.4%		
		No function	81-83	31.8-32.5%		
		Display On*	84-86	32.9-33.7%		
		Display Off*	87-89	34.1-34.9%		
		Display Auto*	90-92	35.3-36.1%		
15	Control / Settings	Display invert Off*	93-95	36.5-37.3%		
15	Connor / Sennings	Display invert On*	96-98	37.6-38.4%		
		No DMX = Capture scene*	99-101	38.8-39.6%		
		No DMX = Stand-alone*	102-104	40.0-40.8%		
		No DMX = Blackout*	105-107	41.2-42.0%		
		No DMX = Hold*	108-110	42.4-43.1%		
		Test pattern On*	111-113	43.5-44.3%		
		Test pattern Off*	114-116	44.7-45.5%		
		Rotation Off*	117-119	45.9-46.7%		
		Rotate 90° *	120-122	47.1-47.8%		
		Rotate 180° *	123-125	48.2-49.0%		
		Rotate 270° *	126-128	49.4-50.2%		
		Pixel mirror Off*	129-131	50.6-51.4%		
		Pixel mirror On*	132-134	51.8-52.5%		
		White output limitation Off*	135-137	52.9-53.7%		
		White output limitation 80%*	138-140	54.1-54.9%		
		White output limitation 60%*	141-143	55.3-56.1%		
		White output limitation 40%*	144-146	56.5-57.3%		
		White output limitation 20%*	147-149	57.6-58.4%		
		White output limitation 10%*	150-152	55.8-59.6%		
		No function	153-158	60.0-62.0%		



		RGB output limitation Off%*	159-161	62.4-63.1%		
		RGB output limitation 80%*	162-164	63.5-64.3%		
		RGB output limitation 60%*	165-167	64.7-65.5%		
		RGB output limitation 40%*	168-170	65.9-66.7%		
		RGB output limitation 20%*	171-173	67.1-67.8%		
		RGB output limitation 10%*	174-176	68.2-69.0%		
		No function	177-191	69.4-74.9%		
		Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%		
		Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%		
		Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%		
		Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%		
		No function	204-206	80.0-80.8%		
		Main LED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%		
		No function	210-251	82.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
Cha	nnel group B: White i	individual pixels				
16	White pixel 1	Intensity 0-100%	0-255	0-100%	0	fade
17	White pixel 2	Intensity 0-100%	0-255	0-100%	0	fade
18	White pixel 3	Intensity 0-100%	0-255	0-100%	0	fade
19	White pixel 4	Intensity 0-100%	0-255	0-100%	0	fade
20	White pixel 5	Intensity 0-100%	0-255	0-100%	0	fade
21	White pixel 6	Intensity 0-100%	0-255	0-100%	0	fade
22	White pixel 7	Intensity 0-100%	0-255	0-100%	0	fade
23	White pixel 8	Intensity 0-100%	0-255	0-100%	0	fade
24	White pixel 9	Intensity 0-100%	0-255	0-100%	0	fade
25	White pixel 10	Intensity 0-100%	0-255	0-100%	0	fade
26	White pixel 11	Intensity 0-100%	0-255	0-100%	0	fade
27	White pixel 12	Intensity 0-100%	0-255	0-100%	0	fade
28	White pixel 13	Intensity 0-100%	0-255	0-100%	0	fade
29	White pixel 14	Intensity 0-100%	0-255	0-100%	0	fade
30	White pixel 15	Intensity 0-100%	0-255	0-100%	0	fade
31	White pixel 16	Intensity 0-100%	0-255	0-100%	0	fade
32	White pixel 17	Intensity 0-100%	0-255	0-100%	0	fade
33	White pixel 18	Intensity 0-100%	0-255	0-100%	0	fade
34	White pixel 19	Intensity 0-100%	0-255	0-100%	0	fade
35	White pixel 20	Intensity 0-100%	0-255	0-100%	0	fade
36	White pixel 21	Intensity 0-100%	0-255	0-100%	0	fade
37	White pixel 22	Intensity 0-100%	0-255	0-100%	0	fade
38	White pixel 23	Intensity 0-100%	0-255	0-100%	0	fade
39	White pixel 24	Intensity 0-100%	0-255	0-100%	0	fade
40	White pixel 25	Intensity 0-100%	0-255	0-100%	0	fade

Individual white pixel control on channels 16-40 can be mapped independently at the controller depending on how many pixels are connected to the KNV PSU outputs $\mathbf{A} - \mathbf{E}$.



DMX Mode 4: White strobe with FX, RGB 25-pixel

Ch	annel	Command	DMX range	Percent	Default DMX	Fade
Ch	annel group A: White	strobe with FX				
1	White LEDs dimmer	Intensity 0-100%	0-255	0-100%	0	Fade
2	White LEDs flash duration	Flash duration 7-650 ms	0-255	0-100%	0	Fade
	White LEDs flash rate (if FX are not	No flash Single flash if Dimmer Flash = ON and value is changed on Ch 1	0-1	0-0.4%	0	Snap
3	active)	Flash rate 0.289-16.67 Hz Hyperspeed Continuously on	2-250 251-252 253-255	0.8-98% 98.4-98.8% 99.2-100%	•	Fade Snap Snap
	FX speed (If FX are active)	FX speed = stop FX speed = slow > fast FX speed = stop	0-1 2-253 254-255	0-0.4% 0.8-98.8% 99.2-100%	•	Snap Fade Snap
4		Off Slow > fast Off	0-9 10-49 50-59	0-3.5% 3.9-19.2% 19.6-23.1%	0	Snap Fade Snap
	White LEDs Flare effect	Random slow > fast Off Random pixel slow > fast	60-109 110-119 120-169	23.5-42.7% 43.1-46.7% 47.1-66.3%		Fade Snap Fade
		Off Sync strobe - all Sync strobe - circle mask	170-255 0-2 3-5	66.7-100% 0-0.8% 1.2-2.0%	0	<u>Snap</u> Snap
		Sync strobe - 4 dot mask Sync strobe - 1 dot mask Random strobe - all	6-8 9-11 12-14	2.4-3.1% 3.5-4.3% 4.7-5.5%	-	
		Random strobe - circle mask Random strobe - 4 dot mask	12-14 15-17 18-20	5.9-6.7% 7.1-7.8%		
		Random strobe - 1 dot mask Lite in/out - all	21-23 24-26	8.2-9.0% 9.4-10.2%		
		Lite in/out - circle mask Lite in/out - 4 dot mask Lite in/out - 1 dot mask	27-29 30-32 33-35	10.6-11.4% 11.8-12.6% 12.9-13.7%		
5	White LEDs FX	Snake Raindrops	36-38 39-41	14.1-14.9% 15.3-16.1%	-	
-	selection	Random pixel Random fake x 2 (L = 13) Random fake x 4 (L = 7)	42-44 45-47 48-50	16.5-17.3% 17.6-18.4% 18.8-19.6%		
		Line (L = 5) Double line (L = 3)	51-53 54-56	20.0-20.8% 21.2-22.0%	•	
		Corner to corner line (L = 9) Tilted double lines (L = 5)	57-59 60-62	22.4-23.1% 23.5-24.3%		
		Tilted double lines in to out $(L = 3)$ Center line running dot $(L = 5)$	63-65 66-68	24.7-25.5% 25.9-26.7%		
		Middle line running dot $(L = 5)$ Outer line running dot $(L = 5)$ Corner to corner $(L = 5)$	69-71 72-74 75-77	27.1-27.8% 28.2-29.0% 29.4-30.2%		
		Arrow (L = 7) Wave (L = 8)	78-80 81-83	30.6-31.4% 31.8-32.5%		



7 While LEDs FX crossfade filme 101 101 102 104 0.048 0.048 7 While LEDs FX crossfade filme 001 101 102 104 0.048 0.048 7 While LEDs FX crossfade filme 001 101 102 104 103 0.048 6 While LEDs FX crossfade filme 001 102 104 103				0.4.0.4	00 0 00 777		
Circling dof [L = 8] 90-92 35.3.36.1% Outer circle (L = 4) 92-95 36.5.37.3% Inner circle (L = 4) 92-96 36.5.37.3% Outer single dof [L = 1] 102-104 40.0.488.4% Outer single dof [L = 8] 105-107 41.2-42.0% Spinning 2x1 dots [L = 8] 106-107 41.2-42.0% Symmetrical 4 dots (L = 8) 111111 43.5-44.3% Symmetrical 4 dots (L = 8) 111111 43.5-44.3% Symmetrical 4 dots (L = 8) 111111 43.5-44.3% Symmetrical 4 dots (L = 13) 122-122 47.1-48.8% Inside out (L = 3) 122-128 49.2-49.0% Abstract 1 (L = 3) 122-131 50.6-51.4% Abstract 2 (L = 3) 122-131 50.6-51.4% Abstract 1 (L = 12) 144-144 56.5-57.3% Jumping bins (L = 12) 144-144 55.5-56.4% Jumping bins (L = 12) 144-144 55.5-56.4% Jumping bins (L = 5) 159-161 62.4-63.1% Spirol (L = 28) 162-164 63.5-64.3% Off 0-			Wheel $(L = 8)$	84-86	32.9-33.7%		
Outer circle (L = 8) 93-95 36.5-37.3% Inner circle (L = 4) 96-98 37.6-38.4% Outer 4 dots (L = 4) 99-101 38.8-36.6% Outer ingle dot (L = 16) 102-104 40.0-40.8% Middle single dot (L = 8) 105-107 41.2-42.0% Spinning 2x1 dots (L = 8) 108-110 42.4-43.1% Asymmetrical 4 dots (L = 8) 114-116 44.7-45.5% Square (L = 3) 112-112 45.9-46.7% Inside out (L = 6) 120-122 47.1-48.8% Inside out (L = 3) 122.125 48.2-49.0% Abstract 2 (L = 3) 122.121 44.6-56.1.4% Abstract 3 (L = 3) 123.135 51.8-51.4% Abstract 3 (L = 3) 132.134 51.8-52.5% Hip flop (L = 12) 147.140 55.5-53.3% Jumping vis (L = 12) 147.140 55.5-53.3% Jumping vis (L = 12) 147.140 56.5-53.3% Jumping vis (L = 12) 151.55 6060.6% 3 x lines (L = 5) 159-161 62.4-63.1% Spirol (L = 28) 162-164			1 <i>1</i>				
while LEDs FX crossfacte time Off Off 0.10 38.75-38.4% Outer 4 dots (L = 4) 09-101 38.839.6% Outer 30,6% Outer 4 dots (L = 8) 4 Outer 30,60 of (L = 18) 105-107 41.2-42.0% 41.2-42.0% Spinning 241 dots (L = 8) 101-1113 43.5-44.3% Asymmetrical 4 dots (L = 8) 111-113 43.5-44.3% Symmetrical 4 dots (L = 8) 111-113 43.5-44.3% Symmetrical 4 dots (L = 3) 122-111 50.6-51.4% Abstract 1 (L = 3) 122-128 49.4-50.2% Abstract 1 (L = 3) 122-121 454.457.8 Abstract 2 (L = 3) 123-134 51.8-52.5% Hash tag (L = 2) 135-137 52.9-53.7% Fip flop (L = 2) 135-137 52.9-53.7% Jumping us (L = 12) 147-149 57.6-58.4% Jumping us (L = 12) 147-149 57.6-58.4% Bors (L = 2) 155-158 61.2-62.0% 2 x lines (L = 5) 159-161 62.4-63.1% Spirat (I = -28) 162-164 63.5-64.3% Off 0-1 0-4.4% 7.7-70.8-49.8%							
7 White LEDs FX crossfade final Outer 4 dots [L = 4] (Duter 4 dots [L = 4] (Duter 3 ingle dot [L = 8] (Duter 3 ingle dot [L = 8] (Duter 4 dots (L = 8] (Duter 4 dots (L = 8) (Duter 4 dots (Duter 4) (Duter 4) (Duter 4 dots (Duter 4) (Duter 4) (Duter 4 dots (Duter 4) (Duter 4 dots (Duter 4) (Duter 4) (Duter 4) (Duter 4 dots (Duter 4) (Duter 4							
White LEDs FX crossfode time Outer single dot [L = 8] Middle value single dot single single value single val							
7 White LEDs FX crossfade time 0.05-107 41.2-42.0% 4.05 (L = 8) 108-110 42.44.31% 4.3.5-44.3% 5.3 (unce (L = 8) 114-114 44.7-45.5% 4.3.5-44.3% 5.3 (unce (L = 3) 117-119 45.9-46.7% 4.3.5-44.3% 5.3 (unce (L = 3) 117-119 45.9-46.7% 4.3.5-44.3% 5.3 (unce (L = 3) 112-123 48.2-49.0% 4.3.5-44.3% 5.3 (unce (L = 3) 122-123 48.2-49.0% 4.3.5-37 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.3.5-32.57 48.2-49.0% 4.5-3.5% 4.5-22.0% 0 59.02 59.2-2.3.5% 4.5-22.1% 7.5-29.2% 0 59.02 59.2-2.3.5% 7.5-29.2% 7.5-29.2			· · · · ·				
7 White LEDs FX crossfade films Spinning 2x1 dots (L = 8) 108-110 42.4-43.1% Asymmetrical 4 dots (L = 8) 111-113 43.5-44.3% Symmetrical 4 dots (L = 8) 111-114 43.7-45.5% Square (L = 3) 117-119 45.9-46.7% Inside out (L = 6) 120-122 47.1-48.8% Inside out (L = 1) 120-122 47.1-48.8% Abstract 1 (L = 3) 129-131 50.6-51.4% Abstract 1 (L = 3) 129-131 50.6-51.4% Abstract 3 (L = 3) 132-124 48.2-40.0% Abstract 1 (L = 3) 129-131 50.6-51.4% Abstract 3 (L = 3) 132-134 51.8-52.5% Hash tog (L = 2) 138-140 54.1-53.46 53.5-61.7% Jumping jash (L = 13) 141-143 55.5-57.3% Jumping jash (L = 12) 147-149 57.6-58.4% Fdt dot (L = 4) 150-152 58.8-57.6% Bars (L = 2) 145-146 63.5-44.3% Off Ode of FX 165-255 64.7-100% Off No Strobe or FX 165-255 64.7-100% Fdde Fdde Off No Strobe or FX							
7 White LEDs FX crossfade time Asymmetrical 4 dots (L = 8) 111-113 43.5-44.3% 8 Symmetrical 4 dots (L = 8) 111-114 44.7-45.5% Symmetrical 4 dots (L = 3) 112-112 47.1-48.8% Inside out 2 (L = 3) 123-125 48.2-49.0% Abstract 1 (L = 3) 123-125 48.2-49.0% Abstract 2 (L = 3) 123-135 50.6-51.4% Hash tog (L = 13) 114-143 55.3-56.1% Jumping losh (L = 12) 144-144 56.3-56.1% Jumping pirs (L = 12) 147-149 57.6-58.4% Fid dot (L = 4) 150-152 58.8-56.9% Bars (L = 2) 153-155 60.0-60.8% 3 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 155-161 62.4-63.1% Crossfade fime Off 0-1 0-0.4% Crossfade fime Off 0-1 0.4-89.8% Rotate 180° 10-14 3.7-5.5% Fade Rotate 180° 10-14 3.7-5.5% Fade Off 0-1 <							
7 White LEDs FX crossfade time orientation Off Off Off Over Source 0 114-116 19.0-122 44.7-45.5% 45.2-42.7% 1172-119 45.9-46.7% 45.9-46.7% 1102-122 1 Inside out 2 (L = 3) 1120-122 45.9-46.7% 40.5-61.4% Abstract 1 (L = 3) 1120-122 44.5-0.2% 40.2-57.3% Abstract 3 (L = 3) 1122-131 50.6-51.4% 50.6-51.4% Abstract 3 (L = 2) 135-137 52.9-53.7% Filp flop (L = 2) 138-140 55.3-56.1% Jumping slash (L = 12) 144-143 55.3-56.1% Jumping pins (L = 12) 144-146 56.3-57.3% Jumping pins (L = 12) 144-146 56.3-57.3% Jumping pins (L = 2) 153-155 60.0-60.8% 8.3 x lines (L = 5) 159-161 62.4-63.1% 6.12-62.0% 2 x lines (L = 5) 159-161 62.4-63.1% 6.12-62.0% 2 x lines (L = 5) 159-161 62.4-63.1% 6.12-62.0% 50.2-100% 7.2 x lines (L = 28) 162-164 63.3-64.3% 0 6 White LEDs FX crossfade time Off 0.1 0.0-4% 7.2 0.8-49.8% Crossfade and tail slow > fast 128-255 50.2-100% 7.2 0.8-49.8% Crossfade filip 0 Fade 7 White LEDs orientation Off 0.4 0.2-1.4% 7.2 0.8-48.8% Crossfade filip 0 Fade 7 White LEDs orientation Off 0.4							
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7 White LEDs FX crossfade time Off Off 0.12 123-122 47.1-48.8% H3:125 48.2-49.0% 48.2-49.0% Abstract 1 (L = 3) 4 Abstract 1 (L = 3) 126-128 49.4-50.2% 48.2-49.0% Abstract 3 (L = 3) 132-134 51.8-52.3% Filp flop (L = 2) 4 Abstract 3 (L = 3) 132-134 51.8-52.3% Filp flop (L = 2) 133-137 52.9-53.7% Filp flop (L = 2) 3 Jumping slash (L = 13) 141-143 55.3-56.1% Jumping pins (L = 12) 144-146 56.3-57.3% Jumping pins (L = 12) 3 X lines (L = 5) 156-158 60.2-60.0% Sa x lines (L = 5) 156-158 60.2-60.0% Sa x lines (L = 5) 159-161 62.4-63.1% Crossfade fast > slow 2-127 0.8-49.8% Crossfade fast > slow 0 Snapp 6 White LEDs FX crossfade fast > slow 2-127 0.8-49.8% Crossfade fast > slow 0.2-100% Fade 7 White LEDs fX crossfade fast > slow 2-127 0.8-49.8% Crossfade fast > slow 0.1 -0.4.4% 5.7-7.5% Fade 6 Off 0-4 0-1.6% 0 Snap 7 White LEDs fX crossfade fime Crossfade fast > slow <t< td=""><td></td><th></th><td></td><td></td><td></td><td></td><td></td></t<>							
Mile LEDs FX Off 0 0 Snap 6 While LEDs FX Off 0.1143 0.252.97 0.85.97 0.126 0.45.97 7 While LEDs FX Off 0.97.97 0.1143 0.05.14.77 0.97.97 8 While LEDs fN Off 0.97.97.97 0.1143 0.12.97.17 0.84.97 7 While LEDs fN Off 0.1141 0.35.97.97 0.1147 0.1147.149 0.1147 7 While LEDs fN Construct fillip 0.1147 0.1147 0.1147 0.1147 7 While LEDs fN Construct fillip 0.1147							
Abstract 1 (L = 3) 126-128 49.4-50.2% Abstract 2 (L = 3) 129-131 50.6-51.4% Abstract 3 (L = 3) 132-134 51.8-52.5% Hash tag (L = 2) 135-137 52.9-53.7% Filip flop (L = 2) 138-140 54.1-54.9% Jumping sidsh (L = 13) 141-143 55.5-56.1% Jumping pins (L = 12) 144-144 56.5-57.3% Jumping pins (L = 12) 144-144 56.5-57.3% Jumping pins (L = 5) 156-158 61.2-62.0% 3 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 156-158 64.7-100% Off 0-1 00-0.4% Crossfade fime Off 0-1 00-0.4% Crossfade fime Off 0-4 0.1-6% Crossfade fime Off 0-4 0.1-6% Rotate 180° 10-14 3.9-5.5% Rotate 270° Rotate 180° 10-14 3.9-5.5% Rotate 270° Rotate 180° A condom position 50-54 19.6-21.2% Off<							
Momental Lenses Abstract 2 (L = 3) 129-131 50.6-51.4% Abstract 3 (L = 3) 132-134 51.8-52.5% Hash tog (L = 2) 133-133 52.9-53.7% Hip flop (L = 2) 138-140 54.1-54.9% Jumping slash (L = 13) 141-143 55.3-56.1% Jumping vic (L = 12) 144-144 56.5-57.3% Jumping pins (L = 12) 144-144 56.5-57.3% Jumping vic (L = 12) 144-144 56.5-57.3% Jumping vic (L = 5) 156-156 60.0-60.8% 3 x lines (L = 5) 159-161 62.4-63.1% Spiral (L = 28) 162-164 63.5-64.3% Off - No Strobe or FX 165-255 64.7-100% 0 Snap Crossfade time Off 0-4 0-1.6% 0 Snap Crossfade time Off 0-4 0-1.6% 0 Snap Rotate 90° 5-9 2.0-3.5% Rotate 180° No1-14 3.9-5.5% Rotate 90° & vertical flip 25-29 9.8-11.4% Rotate 20° Fode Rotate 90° & vertical flip 25-29 9.8-11.4%							
7 White LEDs FX orientation Off Off 0 Snap 0 Snap 7 White LEDs orientation Off 00% & vertical flip 2024.75% 0 Snap 7 White LEDs orientation Off 0.0 8.0 0.0 Snap 0 Snap 7 White LEDs orientation Off 0.0 8.0 0.0 Snap 0 Snap 7 White LEDs FX orientation Off 0.0 5.9 2.0-3.7% 0 Snap 7 White LEDs FX crossface time Off 0.0 0.1 0.0-4.8% 0 Snap 7 White LEDs FX crossface time Off 0.4 0.1.8% 0 Snap 7 White LEDs FX crossface time Off 0.4 0.1.8% 0 Snap 7 White LEDs fX crossface time Off 0.4 0.1.7 0.84.8% Snap 7 White LEDs Face 0.7 0.7 0.7.89.4% Snap <t< td=""><td></td><th></th><td></td><td></td><td></td><td></td><td></td></t<>							
7 White LEDs FX orientation Off No Strobe or FX 165-255 0.4.7.5.3% Number 20° 5.9 2.0.8.49.8% 0 Snap. 7 White LEDs fx orientation Off No Strobe or FX 165-255 0.2.7.3% 0 8 Multic LEDs fX orientation Off No Strobe or FX 165-255 0.4.7.100% Fade 6 White LEDs fX orientation Off No Strobe or FX 165-255 0.4.7.100% Fade 7 White LEDs fX orientation Off No Strobe or FX 165-255 0.2.100% Fade 7 White LEDs fX orientation Off Orientation orientation 0 Snap. Snap. 7 Off Costade and tail slow > fast 128-255 0.2.100% Fade 7 Off Rotate 90° 5-9 2.0-3.5% Nap. Nap. 8 Rotate 90° 5-9 2.0-3.5% Nap. Nap. 9 Rotate 90° & vertical flip 2.5-27 9.8-11.4% Nap. 10-14 3.9-5.5% Rotate 90° & vertical flip 3.5-3.9 Nap.							
Flip flop (L = 2) 138-140 54.1-54.9% Jumping slosh (L = 13) 141-143 55.3-56.1% Jumping 'L' (L = 12) 144-146 56.3-57.3% Jumping pins (L = 12) 147-149 57.6-58.4% Fat dot (L = 4) 150-152 58.8-59.6% Bars (L = 2) 153-155 60.0-60.8% 3 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 159-161 62.4-63.1% Spiral (L = 28) 162-164 63.5-64.3% Off 0-1 0-0.4% 64.7-100% Off 0-1 0-0.4% 65.2-55.0% 64.7-100% Crossfade time Off 0-4 0-1.6% 76.44 Crossfade time Off 0-4 0-1.6% 76.42 Rotate 90° 5-9 2.0.3.5% 7.8-9.4% 7.8-9.4% Rotate 90° 8-9 2.0.3.5% 7.8-9.4% 7.8-9.4% Rotate 90° & vertical flip 30-34 11.8-13.3% 7.8-9.4% Rotate 180° & vandom position 50-54 12.5-2.1%							
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Rotate CCW at end 100-104 39.2-40.8%	1						
	1		Rotate CW at end	105-109	41.2-42.7%		
Random rotate at end 110-114 43.1-44.7%							
Off 115-134 45.1-52.5%			Random rotate at end	110-114	43.1-44.7%		



		D-+-+- 000 **	105 100			
		Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° ** Horizontal flip **	145-149	56.9-58.4%		
		•	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **		60.8-62.4%		
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%		
		Rotate 270° & vertical flip **	165-169	64.7-66.3%		
		Off	170-174	66.7-68.2%		
		Random rotate & flip **	175-179	68.6-70.2%		
		Random position **	180-184	70.6-72.2%		
		Rotate 90° & random position **	185-189	72.5-74.1%		
		Rotate 180° & random position **	190-194	74.5-76.1%		
		Rotate 270° & random position **	195-199	76.5-78.0%		
		Off	200-204	78.4-80.0%		
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-219	84.3-85.9%		
		Rotate 270° & bounce ** Off	220-224 225-229	86.3-87.8% 88.2-89.8%		
		Rotate CCW at end ** Rotate CW at end **	230-234	90.2-91.8%		
			235-239	92.2-93.7%		
		Random rotate at end **	240-244	94.1-95.7%		
8		Off	245-255	96.1-100%		
ð	White LEDs FX offset	0-100%	0-255	0-100%	0	Fade
9	White LEDs FX length	0-100%	0-255	0-100%	0	Fade
		Shutter closed	0-4	0-1.6%	255	Snap
		Sync ramp up slow > fast	5-39	2.0-15.3%		Fade
		Sync ramp down slow > fast	40-74	15.7-29.0%		Fade
		Sync ramp up-down slow > fast	75-109	29.4-%42.7		Fade
10	RGBW shutter	Sync double flash slow > fast	110-144	43.1-56.5%		Fade
10	KGBW SHUILEI	Pixel flare effect slow > fast	145-179	56.9-70.2%		Fade
		Random strobe slow > fast	180-214	70.6-83.9%		Fade
		Sync strobe 0.289 > 16.67 Hz	215-249	84.3-97.6%		Fade
		Hyperspeed	250-252	98.0-98.8%		Snap
		Open	253-255	99.2-100%		Snap
Con	trol / Settings					
		Idle	0-11	0-4.3%	0	Snap
1		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	v	
1		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
1		Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
1		No function	33-38	12.9-14.9%		
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash On*	42-44	16.5-17.3%		
		Dimming curve ESoft*	45-47	17.6-18.4%		
11	Control / Settings	Dimming curve Soft*	48-50	18.8-19.6%		
		Dimming curve Linear*	51-53	20.0-20.8%		
		No function	54-68	21.2-26.7%		
		Fan mode regulated*	69-71	27.1-27.8%		
		Fan mode high*	72-74	28.2-29.0%		
1		Fan mode medium*	75-77	29.4-30.2%		
		Fan mode low*	78-80	30.6-31.4%		
		No function	81-83	31.8-32.5%		
			1 01-00	UI.U-UZ.J/0		1



	Display Op*	0101	20022707		
	Display On*	84-86	32.9-33.7%		
	Display Off*	87-89	34.1-34.9%		
	Display Auto*	90-92	35.3-36.1%		
	Display invert Off*	93-95	36.5-37.3%		
	Display invert On*	96-98	37.6-38.4%		
	No DMX = Capture scene*	99-101	38.8-39.6%		
	No DMX = Stand-alone*	102-104	40.0-40.8%		
	No DMX = Blackout*	105-107	41.2-42.0%		
	No DMX = Hold*	108-110	42.4-43.1%		
	Test pattern On*	111-113	43.5-44.3%		
	Test pattern Off*	114-116	44.7-45.5%		
	Rotation Off*	117-119	45.9-46.7%		
	Rotate 90° *	120-122	47.1-47.8%		
	Rotate 180° *	123-125	48.2-49.0%		
	Rotate 270° *	126-128	49.4-50.2%		
	Pixel mirror Off*	129-131	50.6-51.4%		
	Pixel mirror On*	132-134	51.8-52.5%		
	White output limitation Off*	135-137	52.9-53.7%		
	White output limitation 80%*	138-140	54.1-54.9%		
	White output limitation 60%*	141-143	55.3-56.1%		
	White output limitation 40%*	144-146	56.5-57.3%		
	White output limitation 20%*	147-149	57.6-58.4%		
	White output limitation 10%*	150-152	55.8-59.6%		
	No function	153-158	60.0-62.0%		
	RGB output limitation Off%*	159-161	62.4-63.1%		
	RGB output limitation 80%*	162-164	63.5-64.3%		
	RGB output limitation 60%*	165-167	64.7-65.5%		
	RGB output limitation 40%*	168-170	65.9-66.7%		
	RGB output limitation 20%*	171-173	67.1-67.8%		
	RGB output limitation 10%*	174-176	68.2-69.0%		
	No function	177-191	69.4-74.9%		
	Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%		
	Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%		
	Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%		
	Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%		
	No function	204-206	80.0-80.8%		
	Main LED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%		
	No function	210-251	82.4-98.4%		
	Reboot fixture*	252-255	98.8-100%		
Channel group B:					
12	Red	0-100%	0-255	255	Fade
13 RGB Pixel 1	Green	0-100%	0-255	255	Fade
14	Blue	0-100%	0-255	255	Fade
	Red	0-100%	0-255	255	Fade
		0-100%	0-255	255	Fade
	Blue	0-100%	0-255	255	Fade
 84	Red	0-100%	0-255	255	Fade
85 RGB Pixel 25	Green	0-100%	0-255	255	Fade
86 KGB FIXel 25		0-100%	0-255	255	
00	Blue	0-100%	0-200	200	Fade

Individual RGB pixel control on channels 12-86 be mapped independently at the controller depending on how many pixels are connected to the KNV PSU outputs $\mathbf{A} - \mathbf{E}$.



DMX Mode 5: Multi-layer RGBW with FX

Channel group A: Base layer RGBW (low priority) 1 Red Intensity 0-100% 0-255 0-100% 0 Fade 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 3 Blue Intensity 0-100% 0-255 0-100% 0 Fade 4 White Intensity 0-100% 0-255 0-100% 0 Fade 5 Layer 2 master Layer 2 RGBW stobe with FX (medium priority, twe color) 0 Fade 6 (16-bit) Layer 2 Intensity 0-100% 2-65535 0.8-100% 0 Fade 7 Layer 2 flosh duratifi 7-650 ms 0-215 0-0.4% 0 Fade 8 Iayer 2 flosh rate (if path if Dimmer Flash = 0/N and value is changed on Ch 5 0-1 0-0.4% 0 Snap 8 Iayer 2 FX speed (if FX active) FX speed = stop 0-1 0-0.4% Fade 9 Layer 2 Flare effect Random pixel slow > fast 0251 9.2100% Snap 10 Layer 2 Fl	Chc	Innel	Command	DMX range	Percent	Defaul † DMX	Fade
2 Green Intensity 0-100% 0-255 0-100% 0 Fode 3 Blue Intensity 0-100% 0-255 0-100% 0 Fode 4 White Intensity 0-100% 0-255 0-100% 0 Fode 5 Layer 2 master Layer 2 RGBW strobe with FX (medium priority, true color) 0 Fode 6 (16-bit) Layer 2 master Layer 2 intensity 0-100% 0-255 0-100% 0 Fode 7 Layer 2 flash 7-650 ms 0-255 0-100% 0 Fode 8 Iayer 2 flash rate (if and value is changed on Ch 5 0-1 0-0.4% 0 Snap 8 Iayer 2 FX speed (if FX active) FX speed = stop 0-1 0-0.4% Snap 7 Kaped = stop 0.5 10-49 3.9.19.2% Snap Snap 9 Layer 2 Flare effect Random skel stox > fast 10-119 43.144.7% Snap 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0			ayer RGBW (low priority)				
2 Green Intensity 0-100% 0-255 0-100% 0 Fode 3 Blue Intensity 0-100% 0-255 0-100% 0 Fode 4 White Intensity 0-100% 0-255 0-100% 0 Fode 5 Layer 2 master Layer 2 RGBW strobe with FX (medium priority, true color) 0 Fode 6 (16-bit) Layer 2 master Layer 2 intensity 0-100% 0-255 0-100% 0 Fode 7 Layer 2 flash 7-650 ms 0-255 0-100% 0 Fode 8 Iayer 2 flash rate (if and value is changed on Ch 5 0-1 0-0.4% 0 Snap 8 Iayer 2 FX speed (if FX active) FX speed = stop 0-1 0-0.4% Snap 7 Kaped = stop 0.5 10-49 3.9.19.2% Snap Snap 9 Layer 2 Flare effect Random skel stox > fast 10-119 43.144.7% Snap 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0				0-255	0-100%	0	Fade
3 Blue Intensity 0-100% 0-255 0-100% 0 Fade 4 White Intensity 0-100% 0-255 0-100% 0 Fade 5 Layer 2 master Layer 2 intensity 0-100% 0-255 0-100% 0 Fade 6 (16-bit) Layer 2 intensity 0-100% 2-65533 0.8-100% 0 Fade 7 Layer 2 flosh duration 7-650 ms 0-255 0-100% 0 Fade 8 Iayer 2 flosh rate (ff FX not active) 7-650 ms 0-255 0-100% 0 Fade 1ayer 2 FX speed (If FX active) Faspeed = slop 0-1 0-0.4% Snap 7 Kapeed = slow > fast 2.230 0.8-98.% No Snap 7 Layer 2 Fix speed (If FX active) FX speed = slow > fast 2.253 0.8-98.% O 8 Continuously on 2.53 2.92.100% O Snap 9 Layer 2 Fix speed (If FX active) FX speed = slow > fast 0.0-1 00.4% Snap	2						
Channel group B: Layer 2 RGBW strobe with FX (medium priority, true color) 5 Layer 2 master (16-bit) Layer 2 intensity 0-100% 2-65535 0.8-100% 0 Fade 7 Layer 2 flash duration 7-650 ms 0-255 0-100% 0 Fade 8 Layer 2 flash rdte (if FX not active) No flash Single flash if Dimmer Flash = ON and value is changed on Ch 5 0-1 0-0.4% 0 Snap 8 Eaver 2 flash rdte (if FX not active) Flash rdte 0.289-16.67 Hz 2-250 0.8-98% Fade 8 Fx peed = stop 0-1 0-0.4% 0 Snap 1ayer 2 FX speed (If FX active) FX speed = stop 253-255 99.2-100% Snap 9 Layer 2 Flare effect Random slow > fast 0-10 9.4.8.8% Snap 10 Layer 2 Red Intensity 0-100% 0-255 0-100% Snap 11 Layer 2 Red Intensity 0-100% 0-255 0-100% Snap 11 Layer 2 Red Intensity 0-100% 0-255 0-100% Fade		Blue				0	Fade
5 Layer 2 master (16-bit) Layer 2 intensity 0-100% 2-45535 0.8-100% 0 Fade Fade 7 Layer 2 flash duration 7-650 ms 0-255 0-100% 0 Fade 8 No flash single flash if Dimmer Flash = ON and value is changed on Ch 5 0-1 0-0.4% 0 Snap 7 Layer 2 flash rate (if FX not active) Fash rate 0.67 Hz 2-250 0.8-98% 0 Snap 8 Ager 2 flash rate (if FX not active) Faspeed = slop 0-1 0-0.4% 0 Snap 8 Layer 2 FX speed (If FX active) FX speed = slop 0-1 0-0.4% Snap Snap 9 Layer 2 Flare effect Random slow > fast 0-10 0.25.42.7% 0 Snap 10 Layer 2 flare effect Random pixel slow > fast 100-100% 0 Fade 11 Layer 2 flare effect Intensity 0-100% 0-255 0-100% 0 Fade 9 Layer 2 flare effect Intensity 0-100% 0-255 0-100% 0 Fade	4	White	Intensity 0-100%	0-255	0-100%	0	Fade
6 (14-bit) Loyer 2 intensity 0-100% 2-65535 0.8-100% 0 Fade 7 Layer 2 flosh duration 7-650 ms 0-255 0-100% 0 Fade 8 Iayer 2 flosh rate (if FX not active) No flosh 0-1 0-0.4% 0 Fade 1ayer 2 flosh rate (if FX not active) No flosh 0.1 0-0.4% 0 Fade 1ayer 2 fX speed (If FX active) Faspeed = slop 0-1 0-0.4% 0 Snap FX speed = slop 0-1 0-0.4% Fade Snap Snap FX speed = slop 0-1 0-0.4% Snap Snap FX speed = slop 0-1 0-0.4% Snap Snap Slow > fast 0.255 0.8-98.% Gr Snap Slow > fast 10.49 3.9-19.2% Gr Snap Grf 0.50 × fast 10.219 47.1-66.3% Gr Snap Off 0.075 0.255 0-100% Fade Snap 1a Layer 2 Red<	Cho	innel group B: Layer 2	RGBW strobe with FX (medium prior	ity, true colo	or)		
6 (16-bit) Layer 2 intensity 0-100% 2-65535 0.8-100% 0 Fade 7 Layer 2 flash duration 7-650 ms 0-255 0-100% 0 Fade 8 No flash 0.01 0-0.4% 0 Fade Layer 2 flash rate (if FX not active) No flash 0.1 0-0.4% 0 Fade Layer 2 FX speed (if FX active) Faspeed = 5kop 0.1 0-0.4% 0.5.98% Snap FX speed = slop 0.1 0.04% 0.1 0.04% Snap FX speed = slop 0.1 0.04% 3.9-19.2% Snap Slow > fast 10.49 3.9-19.2% Snap Snap Off 0.09 0.3.5% 0.50% Snap Off 0.01 0.255 0.100% Fade 10 Layer 2 Fice effect Intensity 0-100% 0.255 0.100% Fade 11 Layer 2 Fice effect Intensity 0-100% 0.255 0.100% Fade 12 Layer 2 Red <td>5</td> <td>Layer 2 master</td> <td>Layer 2 = transparent</td> <td>0-1</td> <td>0-0.4%</td> <td>0</td> <td>Snap</td>	5	Layer 2 master	Layer 2 = transparent	0-1	0-0.4%	0	Snap
7 duration 7-530 ms 0-253 0-100% 0 Fade 8 No flash 0-1 0-0.1 0-0.4% 0 Snap 8 Index class rate (if FX not active) Flash rate 0.289-16.67 Hz 2.250 0.8-98% Snap 1 FX speed Fash rate 0.289-16.67 Hz 2.250 0.8-98% Snap 1 FX speed = stop 0-1 0-0.4% Fase Snap 1 FX speed = stop 0-1 0-0.4% Fase Snap 1 FX speed = stop 2-253 0.8-98% Snap Snap 1 FX speed = stop 2-253 0.8-98.8% Snap Snap 1 FX speed = stop 2-253 0.8-98.8% Snap Snap 1 Layer 2 Flare effect Random slow > fast 10-49 3.3-19.2% Snap 1 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 1 Layer 2 Green Intensity 0-100% 0-255 <td< td=""><td>6</td><td>(16-bit)</td><td>Layer 2 intensity 0-100%</td><td>2-65535</td><td>0.8-100%</td><td>0</td><td></td></td<>	6	(16-bit)	Layer 2 intensity 0-100%	2-65535	0.8-100%	0	
I cayer 2 flash rate (ff FX not active) Single flash if Dimmer Flash = ON and value is changed on Ch 5 F 8 Flash rate 0.289-16.67 Hz 2-250 0.8-98% Hyperspeed 251-252 98.4-98.8% Continuously on 253-255 0.0-0.4% fX speed = stop 0-1 0-0.4% fX speed = stop 254-255 99.2-100% fX speed = stop 254-255 9.8-98.8% fX speed = stop 254-255 9.2-100% fX speed = stop 254-255 9.2-100% fT Speed = stop 254-255 fX speed = stop 254-255 9.2-100% fGf 0-9 0.3.5% fGr 10-19 43.1-46.7% Random pixel slow > fast 120-169 47.1-66.3% Off 170-255 6-7100% 0 f1a layer 2 Green Intensity 0-100% 0-255 0-100% layer 2 Red Intensity 0-100% 0-255 0-100% 0 layer 2 Red Intensity 0-100% 0-255 0-100% <td< td=""><td>7</td><td></td><td>7-650 ms</td><td>0-255</td><td>0-100%</td><td>0</td><td>Fade</td></td<>	7		7-650 ms	0-255	0-100%	0	Fade
8 Hyperspeed Continuously on 251-252 98.4+98.8% (253-255 Snap Layer 2 FX speed (If FX active) FX speed = stop 0-1 0-0.4% (FX speed = stop 50.3-98.8% (FX speed = stop 50.3-99.2-100% (FX active) 50.3-99.2-100% (FX speed = stop 50.3-99.2-100% (FX speed = stop 50.3-99.2-100% (FA 50.3-10% (FA 50.3-10% (FA 0 Fade 50.3-10% (FA 50.3-10% (FA 50.3-10% (FA 50.3-10% (FA 0 Fade 50.3-10% (FA 0 Fade 50.3-10% (FA 0 Fade 50.3-10% (FA 0 Fade 50.2-10% (FA 0 Fade 50.2-10% (FA 50.2-10% (FA 0 F		Layer 2 flash rate (if	Single flash if Dimmer Flash = ON and value is changed on Ch 5			0	Snap
Layer 2 FX speed (If FX active) Continuously on FX speed = stop 0-1 0-0.4% Snap P Layer 2 FX speed (If FX active) FX speed = stop 254-255 99.2-100% Snap P Layer 2 Flare effect Off 0-9 0-3.5% 99.2-100% Snap P Layer 2 Flare effect Off 0-9 0-3.5% 99.2-100% Snap P Layer 2 Flare effect Off 0-9 0-3.5% 99.2-100% Snap Off 0-9 0-3.5% 99.2-100% Snap Fade Snap Off 0-9 0-3.5% 10-49 3.9-19.2% Snap Fade Off 10-19 43.1-46.7% Snap Fade Snap Fade Off 170-255 66.7-100% 0 Fade Snap Fade 11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade <td></td> <td>FX not active)</td> <td></td> <td></td> <td></td> <td></td> <td></td>		FX not active)					
Layer 2 FX speed (If FX active) FX speed = stop FX speed = slow > fast 0.1 0.0.4% 2.253 Snap 9.2.100% 9 Layer 2 Flare effect Gff 0.9 0.3.5% 0 Snap Fade 9 Layer 2 Flare effect Random slow > fast 10.49 3.9-19.2% Fade 0ff 50.59 19.6-23.1% 0 Snap Fade 0ff 10.49 3.9-19.2% Fade 0ff 10.119 43.1-46.7% Snap 0ff 110.119 43.1-46.7% Snap 0ff 100% 0-255 0-100% Fade 11 Layer 2 Red Intensity 0-100% 0-255 0-100% Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% Fade 14 Layer 2 FX selection Sync strobe - all 0-2 0-0.8% Snap Sync strobe - 1 dot mask 3-5 1.2-2.0% Sync strobe - 4 dot mask 6-8	8						
Layer 2 FX speed (If FX active) FX speed = slow > fast FX speed = stop 22-253 0.8-98.8% (9 Fade Sinap 9 Layer 2 Flare effect Off 0-9 0-3.5% (0ff 0-9 0-3.5% (0.47%) 0 Fade Sinap 9 Layer 2 Flare effect Random slow > fast 60-109 23.5-42.7% (0ff 0 Fade Sinap 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade Sinap 11 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade Sinap 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade Sinap 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade Sinap Sync strobe - all 0-2 0-0.8% Sync strobe - all 0 Fade 14 Layer 2 FX selection Intensity 0-100% 0-225 0-100% 0 Fade 14 Layer 2 FX selection Intensity 0-100% 0-225 0-100% 0 Fade 12							
(f FX active) PX speed = slow > fast 2-233 0.3-98.8% Pade FX speed = stop 254-255 99.2-100% 3nap g Off 0-9 0-3.5% 0.5-98.8% 0 Snap Slow > fast 10-49 3.9-19.2% 0 Snap Fade Andom slow > fast 60-109 23.5-42.7% 76.42.31% Fade Snap Random pixel slow > fast 120-169 47.1-66.3% Snap Fade Off 110-119 43.1-46.7% Snap Fade Random pixel slow > fast 120-169 47.1-66.3% Snap Off 110-119 43.1-46.7% Snap Iaver 2 Red Intensity 0-100% 0-255 0-100% Fade Iaver 2 Green Intensity 0-100% 0-255 0-100% Fade Sync strobe - all 0-2 0.08% 0 Fade Sync strobe - all 0-2 0.08% 0 Fade Iaver 2 Red Intensity 0-100% 0-255 0-100%		Layer 2 FX speed		-		_	
9 Layer 2 Flore effect Off 0-9 0-3.5% 0 Snap 9 Layer 2 Flore effect Random slow > fast 60-109 23.5-42.7% 0 Fade 0ff 110-119 43.1-46.7% 0 60-109 23.5-42.7% 7 0ff 110-119 43.1-46.7% 0 7 66.7100% 7 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-22 0-0.8% 0 Fade 14 Layer 2 FX Intensity 0-100% 0-22 0-0.8% 0 Snap Sync strobe - 1 dot mask 9-11 3.5-4.3% Random strobe - circle mask						_	
Slow > fast 10-49 3.9-19.2% Fade 0ff 50-59 19.6-23.1% Snap Random slow > fast 60-109 23.5-42.7% Fade 0ff 110-119 43.1-46.7% Fade Random pixel slow > fast 120-169 47.1-66.3% Fade 0ff 170-255 66.7-100% 0 Fade 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 11 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-22 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 0 Snap Snap Sync strobe - all 0-2 0-0.8% 0 Snap Sync strobe - all </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>0</td> <td></td>						0	
9 Layer 2 Flare effect Name Off Random slow > fast Off 50-59 19.6-23.1% 23.5-42.7% Off Snap Fade Snap 10 Layer 2 Red Intensity 0.100% 0-109 23.5-42.7% 43.1-46.3% Fade Snap 10 Layer 2 Red Intensity 0.100% 0-255 0.100% 0 Fade 11 Layer 2 Green Intensity 0.100% 0-255 0.100% 0 Fade 12 Layer 2 Blue Intensity 0.100% 0-255 0.100% 0 Fade 13 Layer 2 White Intensity 0.100% 0-255 0.100% 0 Fade 14 Layer 2 White Intensity 0.100% 0-255 0.100% 0 Fade Sync strobe - all 0.12 0.08% 0.12.20% 0 Snap Sync strobe - all 0.2 0.0.8% 0 Fade Sync strobe - all 0.2 0.0.8% 0 Snap Sync strobe - all 0.2 0.0.8% 0 Snap Sync strobe - all 0.21 0.2						0	
9 Layer 2 Flare effect Off Random slow > fast 60-109 23.5-42.7% 01 Fade Snap 01 Layer 2 Red Intensity 0.100% 120-169 47.1-66.3% 0ff Snap 10 Layer 2 Red Intensity 0.100% 0-255 0-100% 0 Fade 11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Kayer 2 FX selection Intensity 0-100% 0-22 0-0.8% 0 Snap 14 Layer 2 FX selection Intensity 0-100% 0-22 0-0.8% 0 Snap 14 Layer 2 FX selection Sync strobe - all 0-21 0-0.8% 0 Snap 14 Layer 2 FX selection Lite in/out - all 12-14 4.7-5.5% Random strobe - 4 dot mask 15-17 5.9-6.7% Random strobe - 1 dot mask <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>						-	
Off 110-119 43.1-46.7% Snap Random pixel slow > fast 120-169 47.1-66.3% Fade Off 170-255 66.7-100% 0 Fade 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade Sync strobe - all 0-2 0-0.8% 0 Fade Sync strobe - all 0-2 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 0 Snap Sync strobe - all 12-14 4.7-5.5% Random strobe - all 12-14 4.7-5.5% Random strobe - 1 dot mask 13-2 13.5-4.3% Random strobe - 1 dot mask	9	Layer 2 Flare effect				-	
Random pixel slow > fast 120-169 47.1-66.3% Fade Off 170-255 66.7-100% 0 Fade I1 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-225 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-22 0-0.8% 0 Snap Sync strobe - all 0.2 0.0.8% 0 Fade Sync strobe - 4 dot mask 3-5 1.2-2.0% 0 Snap Sync strobe - 1 dot mask 15-17 5.9-6.7% 0 Snap Random strobe - 1 dot mask 18-20 7.1-7.8% 0 Snap Layer 2 FX Lite in/out - all 24-26 9.4-10.2% 11.6-11.4% Lite in/out - 1 dot mask 30-	'						
Off 170-255 66.7-100% Snap 10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-2 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 0 Fade Sync strobe - all 0-2 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 0 Snap Sync strobe - 1 dot mask 3-5 1.2-2.0% Sync strobe - 1 dot mask 8.2-80% Random strobe - all 12-14 4.7-5.5% Random strobe - 1 dot mask 18-20 7.1-7.8% Random strobe - 1 dot mask 18-20 7.1-7.8% Random strobe - 1 dot mask 30-32 <td< td=""><td></td><td></td><td></td><td></td><td>1</td><td></td></td<>						1	
10 Layer 2 Red Intensity 0-100% 0-255 0-100% 0 Fade 11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-2 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 3-5 1.2-2.0% Sync strobe - 4 dot mask 6-8 2.4-3.1% Sync strobe - 1 dot mask 9-11 3.5-4.3% Random strobe - all 12-14 4.7-5.5% Random strobe - all 12-14 4.7-5.5% Random strobe - 1 dot mask 13-17 5.9-6.7% Random strobe - 1 dot mask 13-12-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - 1 dot mask 30-32 11.8-12.6% Lite in/out							
11 Layer 2 Green Intensity 0-100% 0-255 0-100% 0 Fade 12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-2 0-0.8% 0 Snap Sync strobe - all 0-2 0-0.8% 0 Snap Snap Sync strobe - 1 dot mask 3-5 1.2-2.0% Snap Snap Sync strobe - 1 dot mask 9-11 3.5-4.3% Random strobe - all 12-14 4.7-5.5% Random strobe - 1 dot mask 15-17 5.9-6.7% Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - 1 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake Snake 36-38	10	Layer 2 Red	Intensity 0-100%			0	
12 Layer 2 Blue Intensity 0-100% 0-255 0-100% 0 Fade 13 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 White Intensity 0-100% 0-255 0-100% 0 Fade 14 Layer 2 FX Sync strobe - all 0-2 0-0.8% 0 Snap 14 Layer 2 FX Sync strobe - 4 dot mask 6-8 2.4-3.1% Sync strobe - 1 dot mask 9-11 3.5-4.3% Random strobe - all 12-14 4.7-5.5% Random strobe - all 7.1-7.8% Random strobe - all 12-14 4.7-5.5% Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - 1 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 2 (L = 13) 45-47						0	
14 Sync strobe - all 0-2 0-0.8% 0 Snap 14 Layer 2 FX selection Sync strobe - all 12-14 4.7-5.5% Name Name<	12			0-255	0-100%	0	Fade
I4 Sync strobe - circle mask 3-5 1.2-2.0% Sync strobe - 4 dot mask 6-8 2.4-3.1% Sync strobe - 1 dot mask 9-11 3.5-4.3% Random strobe - all 12-14 4.7-5.5% Random strobe - circle mask 15-17 5.9-6.7% Random strobe - 4 dot mask 18-20 7.1-7.8% Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 1 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 30-32 11.8-12.6% Raindrops 39-41 15.3-16.1% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%	13	Layer 2 White	Intensity 0-100%	0-255	0-100%	0	Fade
I4 Layer 2 FX selection Lite in/out - all 24-26 9.410 3.5-4.3% Lite in/out - all 24-26 9.4-10.2% 11.8-12.6% Lite in/out - 1 dot mask 30-32 11.8-12.6% 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% 15.3-16.1% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6% 18.8-19.6% 18.8-19.6%			Sync strobe - all	0-2	0-0.8%	0	Snap
Image:			Sync strobe - circle mask	3-5	1.2-2.0%		
14 Random strobe - all 12-14 4.7-5.5% Random strobe - circle mask 15-17 5.9-6.7% Random strobe - 4 dot mask 18-20 7.1-7.8% Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Raindrops 39-41 15.3-16.1% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Sync strobe - 4 dot mask	6-8	2.4-3.1%		
Random strobe - circle mask 15-17 5.9-6.7% Random strobe - 4 dot mask 18-20 7.1-7.8% Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Sync strobe - 1 dot mask	9-11	3.5-4.3%		
I4 Random strobe - 4 dot mask 18-20 7.1-7.8% Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Random strobe - all	12-14	4.7-5.5%		
Random strobe - 1 dot mask 21-23 8.2-9.0% Lite in/out - all 24-26 9.4-10.2% Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Raindrops 39-41 15.3-16.1% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Random strobe - circle mask	15-17	5.9-6.7%		
Layer 2 FX selection Lite in/out - all 24-26 9.4-10.2% Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Raindrops 39-41 15.3-16.1% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Random strobe - 4 dot mask	18-20	7.1-7.8%		
14 selection Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Raindrops 39-41 15.3-16.1% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Random strobe - 1 dot mask	21-23	8.2-9.0%		
Lite in/out - circle mask 27-29 10.6-11.4% Lite in/out - 4 dot mask 30-32 11.8-12.6% Lite in/out - 1 dot mask 33-35 12.9-13.7% Snake 36-38 14.1-14.9% Raindrops 39-41 15.3-16.1% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%		Layer 2 FX	Lite in/out - all	24-26	9.4-10.2%		
Lite in/out - 1 dot mask33-3512.9-13.7%Snake36-3814.1-14.9%Raindrops39-4115.3-16.1%Random pixel42-4416.5-17.3%Random fake x 2 (L = 13)45-4717.6-18.4%Random fake x 4 (L = 7)48-5018.8-19.6%	14		Lite in/out - circle mask	27-29	10.6-11.4%		
Lite in/out - 1 dot mask33-3512.9-13.7%Snake36-3814.1-14.9%Raindrops39-4115.3-16.1%Random pixel42-4416.5-17.3%Random fake x 2 (L = 13)45-4717.6-18.4%Random fake x 4 (L = 7)48-5018.8-19.6%			Lite in/out - 4 dot mask	30-32	11.8-12.6%		
Snake 36-38 14.1-14.9% Raindrops 39-41 15.3-16.1% Random pixel 42-44 16.5-17.3% Random fake x 2 (L = 13) 45-47 17.6-18.4% Random fake x 4 (L = 7) 48-50 18.8-19.6%			Lite in/out - 1 dot mask	33-35			
Raindrops39-4115.3-16.1%Random pixel42-4416.5-17.3%Random fake x 2 (L = 13)45-4717.6-18.4%Random fake x 4 (L = 7)48-5018.8-19.6%						1	
Random pixel42-4416.5-17.3%Random fake x 2 (L = 13)45-4717.6-18.4%Random fake x 4 (L = 7)48-5018.8-19.6%						1	
Random fake x 2 (L = 13)45-4717.6-18.4%Random fake x 4 (L = 7)48-5018.8-19.6%			•				
Random fake x 4 (L = 7) 48-50 18.8-19.6%						1	
						1	
			Line (L = 5)	51-53	20.0-20.8%	1	



				01 0 00 07		
		Double line $(L = 3)$	54-56	21.2-22.0%		
		Corner to corner line $(L = 9)$	57-59	22.4-23.1%		
		Tilted double lines (L = 5)	60-62	23.5-24.3%		
		Tilted double lines in to out (L = 3)	63-65	24.7-25.5%		
		Center line running dot $(L = 5)$	66-68	25.9-26.7%		
		Middle line running dot (L = 5)	69-71	27.1-27.8%		
		Outer line running dot (L = 5)	72-74	28.2-29.0%		
		Corner to corner (L = 5)	75-77	29.4-30.2%		
		Arrow (L = 7)	78-80	30.6-31.4%		
		Wave (L = 8)	81-83	31.8-32.5%		
		Wheel (L = 8)	84-86	32.9-33.7%		
		Half wheel (L = 16)	87-89	34.1-34.9%		
		Circling dot (L = 8)	90-92	35.3-36.1%		
		Outer circle (L = 8)	93-95	36.5-37.3%		
		Inner circle (L = 4)	96-98	37.6-38.4%		
		Outer 4 dots (L = 4)	99-101	38.8-39.6%		
		Outer single dot (L = 16)	102-104	40.0-40.8%		
		Middle single dot (L = 8)	105-107	41.2-42.0%		
		Spinning 2x1 dots (L = 8)	108-110	42.4-43.1%		
		Asymmetrical 4 dots (L = 8)	111-113	43.5-44.3%		
		Symmetrical 4 dots (L = 8)	114-116	44.7-45.5%		
		Square (L = 3)	117-119	45.9-46.7%		
		Inside out $(L = 6)$	120-122	47.1-48.8%		
		Inside out 2 (L = 3)	123-125	48.2-49.0%		
		Abstract 1 (L = 3)	126-128	49.4-50.2%		
		Abstract 2 (L = 3)	129-131	50.6-51.4%		
		Abstract 3 (L = 3)	132-134	51.8-52.5%		
		Hash tag (L = 2)	135-137	52.9-53.7%		
		Flip flop (L = 2)	138-140	54.1-54.9%		
		Jumping slash (L = 13)	141-143	55.3-56.1%		
		Jumping 'L' (L = 12)	144-146	56.5-57.3%		
		Jumping pins (L = 12)	147-149	57.6-58.4%		
		Fat dot $(L = 4)$	150-152	58.8-59.6%		
		Bars (L = 2)	153-155	60.0-60.8%		
		3 x lines (L = 5)	156-158	61.2-62.0%		
		2 x lines (L = 5)	159-161	62.4-63.1%		
		Spiral (L = 28)	162-164	63.5-64.3%		
		Off - No Strobe or FX	165-255	64.7-100%		
	* 0 EV	Off	0-1	0-0.4%	0	Snap
	r 2 FX sfade time	Crossfade fast > slow	2-127	0.8-49.8%		Fade
CIOSS		Crossfade and tail slow > fast	128-255	50.2-100%		Fade
		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%		
		Rotate 180°	10-14	3.9-5.5%		
		Rotate 270°	15-19	5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
		Rotate 90° & vertical flip	25-29	9.8-11.4%		
14 1-00-	r 2 oriontation	Rotate 180° & horizontal flip	30-34	11.8-13.3%		
16 Laye	r 2 orientation	Rotate 270° & vertical flip	35-39	13.7-15.3%		
		Off	40-44	15.7-17.3%		
					i	1
		Random rotate & flip	45-49	17.7-19.2%		
		Random rotate & flip Random position	45-49 50-54	<u>17.7-19.2%</u> 19.6-21.2%		
		· · · · · · · · · · · · · · · · · · ·				
		Random position	50-54	19.6-21.2%		



		0#	70.74			
		Off	70-74	27.5-29.0%		
		Bounce	75-79	29.4-31.0%		
		Rotate 90° & bounce	80-84 85-89	31.4-32.9% 33.3-34.9%		
		Rotate 180° & bounce	83-87 90-94			
		Rotate 270° & bounce Off	90-94	35.3-36.9%		
				37.3-38.8%		
		Rotate CCW at end	100-104	39.2-40.8%		
		Rotate CW at end	105-109	41.2-42.7%		
		Random rotate at end	110-114	43.1-44.7%		
		Off	115-134	45.1-52.5%		
		Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° **	145-149	56.9-58.4%		
		Horizontal flip **	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **	155-159	60.8-62.4%		
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%		
		Rotate 270° & vertical flip **	165-169	64.7-66.3%		
		Off	170-174	66.7-68.2%		
		Random rotate & flip **	175-179	68.6-70.2%		
		Random position **	180-184	70.6-72.2%		
		Rotate 90° & random position **	185-189	72.5-74.1%		
		Rotate 180° & random position **	190-194	74.5-76.1%		
		Rotate 270° & random position **	195-199	76.5-78.0%		
		Off	200-204	78.4-80.0%		
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-219	84.3-85.9%		
		Rotate 270° & bounce **	220-224	86.3-87.8%		
		Off	225-229	88.2-89.8%		
		Rotate CCW at end **	230-234	90.2-91.8%		
		Rotate CW at end **	235-239	92.2-93.7%		
		Random rotate at end **	240-244	94.1-95.7%		
		Off	245-255	96.1-100%		
17	Layer 2 FX offset	0-100%	0-255	0-100%	0	Fade
18	Layer 2 FX length	0-100%	0-255	0-100%	0	Fade
		Off	0-9	0-3.5%	0	Snap
		Random all pixels RGBCMY	10-19	3.9-7.5%		Snap
		Random single pixel RGBCMY	20-29	7.8-11.4%		Snap
		Random all pixels bright colors	30-39	11.8-15.3%		Snap
		Random single pixel bright colors	40-49	15.7-19.2%		Snap
		Red / Blue	50-59	19.6-23.1%		Snap
		Red / Green	60-69	23.5-27.1%		Snap
		Blue / Green	70-79	27.5-31.0%		Snap
		Yellow / Magenta	80-89	31.4-34.9%		Snap
19	Layer 2 FX color	Yellow / Cyan	90-99	35.3-38.8%		Snap
	generator	Cyan / Magenta	100-109	39.2-42.7%		Snap
		Yellow / Blue	110-119	43.1-46.7%		Snap
		Green / Magenta	120-129	47.1-50.6%		Snap
		Red / Green / Blue	130-139	51.0-54.5%		Snap
		Red / Yellow / Blue	140-149	54.9-58.4%		Snap
		Red / Green / Blue / Yellow /				Snap
		Magenta / Cyan	150-159	58.8%-62.4%		
		Red / Green / Blue - Horizontal line	160-169	62.7-66.3%		Snap
		Red / Green / Blue - Vertical line	170-179	66.7-70.2%		Snap
		No function	180-219	70.6-85.9%		Snap



Under Strate Under Strate Sinap 20 Life out 240-249 94.197.6% Sinap 20 Loyer 3 master Loyer 3 transporteni 0-1 0-0.4% 0 Frade 20 Loyer 3 master Loyer 3 transporteni 0-1 0-0.4% 0 Frade 21 Loyer 3 flash rote duration 7-650 ms 0-255 0-100% 0 Frade 22 Loyer 3 flash rote duration 7-650 ms 0-255 0-100% 0 Frade 23 Loyer 3 flash rote duration 7-650 ms 0-21 0-0.4% 0 Snap 24 Loyer 3 flash rote duration on Ch20 Frade 289-16.67 Hz 2-250 0.8-98.8% Snap 24 Loyer 3 FX speed = slop 0-21 0-0.4% Snap Snap 24 Loyer 3 Flare effect Random slow > fast 0-255 0-100% Snap 25 Loyer 3 Red Intensity 0-100% 0-255 0-100% 0 Frade 24 Loyer 3 Red In			Colorscroll slow > fast	220-229	86 3 80 80		Fada
Uite out 240-247 74.1-97.6% Snap Off 250-255 98.0-100% Snap 20 Layer 3 master Layer 3 transparent 0-1 0-1.8 0.90.4% 0 Fade 21 Layer 3 flosh 7-450 ms 0-255 0-100% 0 Fade 23 duration 7-450 ms 0-21 0-0.4% 0 Snap 24 layer 3 flosh rote order No flosh 0-1 0-0.4% 0 Snap 23 duration No flosh 0-1 0-0.4% 0 Snap 24 layer 3 flosh rote order No flosh 0-1 0-0.4% 0 Snap 25 Continuously on 253-255 99.2-100% Snap Snap 10yer 3 FX speed fspeed = slop 0-1 0-0.4% Snap Snap 26 Layer 3 Flore effect Rondom slow > fast 60-109 23-325 99.2100% Snap 27 Layer 3 Flare effect Rondom slow > fast 60			Color scroll, slow -> fast		86.3-89.8%		Fade
Off 250-255 98.0-100% Snap Channel group C: Layer 3 RGBW shobe with FX (high priority, fue color) 0.0-4% 0.0-4% 0.0 Snap 21 Layer 3 master Layer 3 intensity 0-100% 2-65535 0.8-100% 0 Fade 22 Layer 3 flosh duration 7-450 ms 0-255 0-100% 0 Fade 23 Layer 3 flosh order (if FX ore not active) No flash 0 Immed Flash = 0N 0 0 Snap 24 Layer 3 FX speed (fFX are active) FX speed = stop 0.1 0-0.4% 0 Snap 24 Layer 3 Flare effect Random slow > fast 0.253 99.2-100% Snap 24 Layer 3 Flare effect Random slow > fast 0.255 0.100% 0 Snap 25 Layer 3 Flare effect Random slow > fast 120-169 47.1-66.3% Snap 26 Layer 3 Flare effect Random slow > fast 120-169 47.1-66.3% Snap 26 Layer 3 Rde Intensity 0-100% 0-255 <t< th=""><th></th><th></th><th></th><th>-</th><th></th><th></th><th></th></t<>				-			
Channel group C: Layer 3 RGBW strobe with FX (high priority, true color) O Snap 20 21 22 Layer 3 master Layer 3 flash duardion Layer 3 intensity 0-100% 2-65535 0.8-100% 0.8-100% 0 Frade 23 Layer 3 flash duardion 7-650 ms 0-255 0-100% 0 Frade 24 Layer 3 flash duardion 7-650 ms 0-225 0.8-98% 0-100% 0 Frade 23 If FX are not active) No flash Dimmer Flash = ON FX speed = 100 p 0-1 0-0.4% 0-0.4% 0 Snap 24 Layer 3 FX speed (fF X are active) FX speed = slop p 0-1 0-0.4% 0-0.4% Snap Snap 24 Layer 3 Flare effect Random slow > fast 10-49 39-19.2% 0-01 0 Snap 25 Layer 3 Flare effect Random slow > fast 60-109 23.542.7% 0-01 0 Frade 26 Layer 3 Red Intensity 0-100% 0-255 0-100% 0 Frade 26 Layer 3 Red Intensity 0-100% 0-255 0-100% 0 Frade <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
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Corner to corner (L = 5) 75-77 29.4-30.2%							
	1		Arrow (L = 7)	78-80	30.6-31.4%		



		$M_{\rm even} (1 - 0)$	01.02	21.0.20.507		
		Wave $(L = 8)$	81-83	31.8-32.5%		
		Wheel $(L = 8)$	84-86	32.9-33.7%		
		Half wheel (L = 16)	87-89	34.1-34.9%		
		Circling dot (L = 8) Outer circle (L = 8)	90-92 93-95	35.3-36.1%		
			96-98	36.5-37.3%		
		Inner circle (L = 4)		37.6-38.4%		
		Outer 4 dots $(L = 4)$	99-101	38.8-39.6%		
		Outer single dot $(L = 16)$	102-104	40.0-40.8%		
		Middle single dot $(L = 8)$	105-107 108-110	41.2-42.0%		
		Spinning $2x1$ dots (L = 8)		42.4-43.1%		
		Asymmetrical 4 dots (L = 8)	111-113	43.5-44.3%		
		Symmetrical 4 dots (L = 8)	114-116	44.7-45.5%		
		Square (L = 3)	117-119	45.9-46.7%		
		Inside out $(L = 6)$	120-122	47.1-48.8%		
		Inside out 2 (L = 3)	123-125	48.2-49.0%		
		Abstract 1 (L = 3)	126-128	49.4-50.2%		
		Abstract 2 (L = 3)	129-131	50.6-51.4%		
		Abstract 3 (L = 3)	132-134	51.8-52.5%		
		Hash tag $(L = 2)$	135-137	52.9-53.7%		
		Flip flop (L = 2)	138-140	54.1-54.9%		
		Jumping slash (L = 13)	141-143	55.3-56.1%		
		Jumping 'L' (L = 12)	144-146	56.5-57.3%		
		Jumping pins (L = 12)	147-149	57.6-58.4%		
		Fat dot $(L = 4)$	150-152	58.8-59.6%		
		Bars $(L = 2)$	153-155	60.0-60.8%		
		$3 \times \text{lines} (L = 5)$	156-158	61.2-62.0%		
		$2 \times \text{lines} (L = 5)$	159-161	62.4-63.1%		
		Spiral (L = 28)	162-164	63.5-64.3%		
		Off - No Strobe or FX Off	165-255 0-1	64.7-100% 0-0.4%	0	Snap
30	Layer 3 FX	Crossfade fast > slow	2-127	0.8-49.8%	0	Fade
50	crossfade time	Crossfade and tail slow > fast	128-255	50.2-100%		Fade
		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%	Ũ	onap
		Rotate 180°	10-14	3.9-5.5%		
		Rotate 270°	15-19	5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
		Rotate 90° & vertical flip	25-29	9.8-11.4%		
		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
		Rotate 270° & vertical flip	35-39	13.7-15.3%		
		Off	40-44	15.7-17.3%		
		Random rotate & flip	45-49	17.7-19.2%		
		Random position	50-54	19.6-21.2%		
31	Layer 3 orientation	Rotate 90° & random position	55-59	21.6-23.1%		
1	,	Rotate 180° & random position	60-64	23.5-25.1%		
		Rotate 270° & random position	65-69	25.5-27.1%		
		Off	70-74	27.5-29.0%		
		Bounce	75-79	29.4-31.0%		
		Rotate 90° & bounce	80-84	31.4-32.9%		
		Rotate 180° & bounce	85-89	33.3-34.9%		
		Rotate 270° & bounce	90-94	35.3-36.9%		
		Off	95-99	37.3-38.8%		
		Rotate CCW at end	100-104	39.2-40.8%		
		Rotate CW at end	105-109	41.2-42.7%		
1		Random rotate at end	110-114	43.1-44.7%		



		Off	115-134	45.1-52.5%		
		Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° **	145-149	56.9-58.4%		
		Horizontal flip **	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **	155-159	60.8-62.4%		
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%		
		Rotate 270° & vertical flip **	165-169	64.7-66.3%		
		Off	170-174	66.7-68.2%		
		Random rotate & flip **	175-179	68.6-70.2%		
		Random position **	180-184	70.6-72.2%		
		Rotate 90° & random position **	185-189	72.5-74.1%		
		Rotate 180° & random position **	190-194	74.5-76.1%		
		Rotate 270° & random position **	195-199	76.5-78.0%		
		Off	200-204	78.4-80.0%		
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-219	84.3-85.9%		
		Rotate 270° & bounce **	220-224	86.3-87.8%		
		Off	225-229	88.2-89.8%		
		Rotate CCW at end **	230-234	90.2-91.8%		
		Rotate CW at end **	235-239	92.2-93.7%		
		Random rotate at end **	240-244	94.1-95.7%		
		Off	245-255	96.1-100%		
32	Layer 3 FX offset	0-100%	0-255	0-100%	0	Fade
33	Layer 3 FX length	0-100%	0-255	0-100%	0	Fade
	, ,	Off	0-9	0-3.5%	0	Snap
		Random all pixels RGBCMY	10-19	3.9-7.5%		Snap
		Random single pixel RGBCMY	20-29	7.8-11.4%		Snap
		Random all pixels bright colors	30-39	11.8-15.3%		Snap
		Random single pixel bright colors	40-49	15.7-19.2%		Snap
		Red / Blue	50-59	19.6-23.1%		Snap
		Red / Green	60-69	23.5-27.1%		Snap
		Blue / Green	70-79	27.5-31.0%		Snap
		Yellow / Magenta	80-89	31.4-34.9%		Snap
		Yellow / Cyan	90-99	35.3-38.8%		Snap
		Cyan / Magenta	100-109	39.2-42.7%		Snap
34	Layer 3 FX color	Yellow / Blue	110-119	43.1-46.7%		Snap
34	generator	Green / Magenta	120-129	47.1-50.6%		Snap
		Red / Green / Blue	130-139	51.0-54.5%		Snap
		Red / Yellow / Blue	140-149	54.9-58.4%		Snap
		Red / Green / Blue / Yellow /				Snap
		Magenta / Cyan	150-159	58.8%-62.4%		
		Red / Green / Blue - Horizontal line	160-169	62.7-66.3%		Snap
		Red / Green / Blue - Vertical line	170-179	66.7-70.2%		Snap
		No function	180-219	70.6-85.9%		Snap
		Color scroll, slow -> fast	220-229	86.3-89.8%		Fade
		Lite in	230-239	90.2-93.7%		Snap
1		1		0 4 1 07 /07		
		Lite out Off	240-249 250-255	94.1-97.6% 98.0-100%		Snap Snap



Control / Settings

Con	trol / Settings					
		Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%		
		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
		Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
		No function	33-38	12.9-14.9%		
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash On*	42-44	16.5-17.3%		
		Dimming curve ESoft*	45-47	17.6-18.4%		
		Dimming curve Soft*	48-50	18.8-19.6%		
		Dimming curve Linear*	51-53	20.0-20.8%		
		No function	54-68	21.2-26.7%		
		Fan mode regulated*	69-71	27.1-27.8%		
		Fan mode high*	72-74	28.2-29.0%		
		Fan mode medium*	75-77	29.4-30.2%		
		Fan mode low*	78-80	30.6-31.4%		
		No function	81-83	31.8-32.5%		
		Display On*	84-86	32.9-33.7%		
		Display Off*	87-89	34.1-34.9%		
		Display Auto*	90-92	35.3-36.1%		
		Display invert Off*	93-95	36.5-37.3%		
		Display invert On*	96-98	37.6-38.4%		
		No DMX = Capture scene*	99-101	38.8-39.6%		
		No DMX = Stand-alone*	102-104	40.0-40.8%		
5	Control / Settings	No DMX = Blackout*	105-107	41.2-42.0%		
		No DMX = Hold*	108-110	42.4-43.1%		
		Test pattern On*	111-113	43.5-44.3%		
		Test pattern Off*	114-116	44.7-45.5%		
		Rotation Off*	117-119	45.9-46.7%		
		Rotate 90° *	120-122	47.1-47.8%		
		Rotate 180° *	123-125	48.2-49.0%		
		Rotate 270° *	126-128	49.4-50.2%		
		Pixel mirror Off*	129-131	50.6-51.4%		
		Pixel mirror On*	132-134	51.8-52.5%		
		White output limitation Off*	135-137	52.9-53.7%		
		White output limitation 80%*	138-140	54.1-54.9%		
		White output limitation 60%*	141-143	55.3-56.1%		
		White output limitation 40%*	144-146	56.5-57.3%		
		White output limitation 20%*	147-149	57.6-58.4%		
		White output limitation 10%*	150-152	55.8-59.6%		
		No function	153-158	60.0-62.0%		
		RGB output limitation Off%*	159-161	62.4-63.1%		
		RGB output limitation 80%*	162-164	63.5-64.3%		
		RGB output limitation 60%*	165-167	64.7-65.5%		
		RGB output limitation 40%*	168-170	65.9-66.7%		
		RGB output limitation 20%*	171-173	67.1-67.8%		
		RGB output limitation 10%*	174-176	68.2-69.0%		
		No function	177-191	69.4-74.9%		

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Main	ED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%	
Main	ED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%	
Main I	ED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%	
Main	ED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%	
No fur	nction	204-206	80.0-80.8%	
Main I	ED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%	
No fur	nction	210-251	82.4-98.4%	
Reboo	ot fixture*	252-255	98.8-100%	



DMX Mode 6: RGBW 25-pixel, 8-bit

Char	nel	Command	DMX range	Percent	Default DMX	Fade
RGBV	V Shutter / Strobe					
		Shutter closed	0-4	0-1.6%	255	Snap
		Sync ramp up slow > fast	5-39	2.0-15.3%		Fade
		Sync ramp down slow > fast	40-74	15.7-29.0%		Fade
		Sync ramp up-down slow > fast	75-109	29.4-%42.7		Fade
		Sync double flash slow > fast	110- 144	43.1-56.5%		Fade
1	Shutter all size	Pixel flare effect slow > fast	145- 179	56.9-70.2%		Fade
1	Shutter, all pixels	Random strobe slow > fast	180- 214	70.6-83.9%		Fade
		Sync strobe 0.289 > 16.67 Hz	215- 249	84.3-97.6%		Fade
		Hyperspeed	250- 252	98.0-98.8%		Snap
		Open	253- 255	99.2-100%		Snap
Cont	rol / Settings					
		Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%		'
		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
		Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
		No function	33-38	12.9-14.9%		
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash On*	42-44	16.5-17.3%		
		Dimming curve ESoft*	45-47	17.6-18.4%		
		Dimming curve Soft*	48-50	18.8-19.6%		
		Dimming curve Linear*	51-53	20.0-20.8%		
		No function	54-56	21.2-22.0%		
		Extra Shutter RGBW* (Modes 1/6/7)	57-59	22.4-23.1%		
2	Control / Settings	Extra Shutter RGB only* (Modes 1/6/7)	60-62	23.5-24.3%		
	•	Extra Shutter White only* (Modes 1/6/7)	63-65	24.7-25.5%		
		No function	66-68	25.9-26.7%		
		Fan mode regulated*	69-71	27.1-27.8%		
		Fan mode high*	72-74	28.2-29.0%		
		Fan mode medium*	75-77	29.4-30.2%		
		Fan mode low*	78-80	30.6-31.4%		
		No function	81-83	31.8-32.5%		
		Display On*	84-86	32.9-33.7%	1	
		Display Off*	87-89	34.1-34.9%		
		Display Auto*	90-92	35.3-36.1%		
		Display invert Off*	93-95	36.5-37.3%		
		Display invert On*	96-98	37.6-38.4%		
		No DMX = Capture scene*	99-101	38.8-39.6%		



		No DMX = Stand-alone*	102-104	40.0-40.8%		
		No DMX = Blackout*	105-107	41.2-42.0%		
		No DMX = Hold*	108-110	42.4-43.1%		
		Test pattern On*	111-113	43.5-44.3%		
		Test pattern Off*	114-116	44.7-45.5%		
		No function	117-134	45.9-52.5%		
		White output limitation Off*	135-137	52.9-53.7%		
		White output limitation 80%*	138-140	54.1-54.9%		
		White output limitation 60%*	141-143	55.3-56.1%		
		White output limitation 40%*	144-146	56.5-57.3%		
		White output limitation 20%*	147-149	57.6-58.4%		
		White output limitation 10%*	150-152	55.8-59.6%		
		No function	153-158	60.0-62.0%		
		RGB output limitation Off%*	159-161	62.4-63.1%		
		RGB output limitation 80%*	162-164	63.5-64.3%		
		RGB output limitation 60%*	165-167	64.7-65.5%		
		RGB output limitation 40%*	168-170	65.9-66.7%		
		RGB output limitation 20%*	171-173	67.1-67.8%		
		RGB output limitation 10%*	174-176	68.2-69.0%		
		No function	177-191	69.4-74.9%		
		Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%		
		Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%		
		Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%		
		Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%		
		No function	204-206	80.0-80.8%		
		Main LED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%		
		No function	210-251	82.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
RGBW	/ 25-pixel 8-bit		202 200	70.0 10070		
3		Red intensity 0-100%	0-255	0-100%	0	Fade
4	1	Green intensity 0-100%	0-255	0-100%	0	Fade
5	Pixel 1 RGBW	Blue intensity 0-100%	0-255	0-100%	0	Fade
6	1	White intensity 0-100%	0-255	0-100%	0	Fade
		Red intensity 0-100%	0-255	0-100%	0	Fade
•••	Pixel 2 24	Green intensity 0-100%	0-255	0-100%	0	Fade
	RGBW	Blue intensity 0-100%	0-255	0-100%	0	Fade
		White intensity 0-100%	0-255	0-100%	0	Fade
99		Red intensity 0-100%	0-255	0-100%	0	Fade
100	Pixel 25 RGBW	Green intensity 0-100%	0-255	0-100%	0	Fade
101		Blue intensity 0-100%	0-255	0-100%	0	Fade
102		White intensity 0-100%	0-255	0-100%	0	Fade

Individual RGBW pixel control on channels 03-102 be mapped independently at the controller depending on how many pixels are connected to the KNV PSU outputs $\mathbf{A} - \mathbf{E}$.



DMX Mode 7: RGBW 25-pixel, 16-bit

Char	nnel	Command	DMX range	Percent	Default DMX	Fade
RGBV	V Shutter / Strobe					
		Shutter closed	0-4	0-1.6%	255	Snap
		Sync ramp up slow > fast	5-39	2.0-15.3%		Fade
		Sync ramp down slow > fast	40-74	15.7-29.0%		Fade
		Sync ramp up-down slow > fast	75-109	29.4-%42.7		Fade
1	Shutter, all pixels	Sync double flash slow > fast	110-144	43.1-56.5%		Fade
1	shuher, dii pixeis	Pixel flare effect slow > fast	145-179	56.9-70.2%		Fade
		Random strobe slow > fast	180-214	70.6-83.9%		Fade
		Sync strobe 0.289 > 16.67 Hz	215-249	84.3-97.6%		Fade
		Hyperspeed	250-252	98.0-98.8%		Snap
		Open	253-255	99.2-100%		Snap
Cont	rol / Settings					
		Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%		
		Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
		Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
	No function	33-38	12.9-14.9%			
		Dimmer flash Off*	39-41	15.3-16.1%		
		Dimmer flash On*	42-44	16.5-17.3%	76 76 76 76	
		Dimming curve ESoft*	45-47	17.6-18.4%		
		Dimming curve Soft*	48-50	18.8-19.6%		
		Dimming curve Linear*	51-53	20.0-20.8%		
		No function	54-56	21.2-22.0%		
		Extra Shutter RGBW*	57-59	22.4-23.1%		
		(Modes 1/6/7)				
		Extra Shutter RGB only* (Modes 1/6/7)	60-62	23.5-24.3%		
_		Extra Shutter White only* (Modes 1/6/7)	63-65	24.7-25.5%		
2	Control / Settings	No function	66-68	25.9-26.7%		
		Fan mode regulated*	69-71	27.1-27.8%		
		Fan mode high*	72-74	28.2-29.0%		
		Fan mode medium*	75-77	29.4-30.2%		
		Fan mode low*	78-80	30.6-31.4%		
		No function	81-83	31.8-32.5%		
		Display On*	84-86	32.9-33.7%		
		Display Off*	87-89	34.1-34.9%		
		Display Auto*	90-92	35.3-36.1%		
		Display invert Off*	93-95	36.5-37.3%		
		Display invert On*	96-98	37.6-38.4%		
		No DMX = Capture scene*	99-101	38.8-39.6%		
		No DMX = Stand-alone*	102-104	40.0-40.8%		
		No DMX = Blackout*	105-107	41.2-42.0%		
		No DMX = Hold*	108-110	42.4-43.1%		
		Test pattern On*	111-113	43.5-44.3%		
		Test pattern Off*	114-116	44.7-45.5%		



		No function	117-134	45.9-52.5%		
		White output limitation Off*	135-137	43.7-52.5% 52.9-53.7%		
		White output limitation 80%*	138-140	54.1-54.9%		
		White output limitation 60%*	141-143	55.3-56.1%		
		White output limitation 40%*				
			144-146	56.5-57.3%		
		White output limitation 20%*	147-149	57.6-58.4%		
		White output limitation 10%*	150-152	55.8-59.6%		
		No function	153-158	60.0-62.0%		
		RGB output limitation Off%*	159-161	62.4-63.1%		
		RGB output limitation 80%*	162-164	63.5-64.3%		
		RGB output limitation 60%*	165-167	64.7-65.5%		
		RGB output limitation 40%*	168-170	65.9-66.7%		
		RGB output limitation 20%*	171-173	67.1-67.8%		
		RGB output limitation 10%*	174-176	68.2-69.0%		
		No function	177-191	69.4-74.9%		
		Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%		
		Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%		
		Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%		
		Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%		
		No function	204-206	80.0-80.8%		
		Main LED PWM 25 kHz (5 sec.)	204-208	81.2-82.0%		
			210-251	82.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
	W 25-pixel 16-bit			-		
3		Red intensity coarse	0-65535	0-100%	0	Fade
4		Red intensity fine	0 00000	0 100/0	Ŭ	ruuc
5		Green intensity coarse	0-65535	0-100%	0	Fade
6	Pixel 1 RGBW	Green intensity fine	0 00000	0 100/0	Ŭ	rudu
7	(16 bit)	Blue intensity coarse	0-65535	0-100%	0	Fade
8		Blue intensity fine		0 100/0	Ŭ	
9		White intensity coarse	0-65535	0-100%	0	Fade
10		White intensity fine			-	
•••		Red intensity coarse	0-65535	0-100%	0	Fade
		Red intensity fine				┝──┤
•••		Green intensity coarse	0-65535	0-100%	0	Fade
•••	Pixel 2 24 RGBW	Green intensity fine				
•••	(16-bit)	Blue intensity coarse Blue intensity fine	0-65535	0-100%	0	Fade
•••		,				
•••		White intensity coarse White intensity fine	0-65535	0-100%	0	Fade
 195		Red intensity coarse		+		
195		Red intensity fine	0-65535	0-100%	0	Fade
197		Green intensity coarse				
198	Pixel 25 RGBW	Green intensity fine	0-65535	0-100%	0	Fade
199	(16-bit)	Blue intensity coarse				
200		Blue intensity course	0-65535	0-100%	0	Fade
200		White intensity coarse				
201		White intensity fine	0-65535	0-100%	0	Fade
202						

Individual RGBW pixel control on channels 03-202 be mapped independently at the controller depending on how many pixels are connected to the KNV PSU outputs $\mathbf{A} - \mathbf{E}$.



DMX Mode 8: RGBW 25-pixel, 8-bit with RGBW FX

Cha	nnel	Command	DMX range	Percent	Default DMX	Fade		
Cha	Channel group A: RGBW strobe with FX							
1 2	Layer 1 master (16- bit)	Layer 1 = transparent Layer 1 intensity 0-100%	0-1 2-65535	0-0.4% 0.8-100%	0	Snap Fade		
3	Layer 1 flash duration	Flash duration 7-650 ms	0-255	0-100%	255	Fade		
4	Layer 1 flash rate	No flash Single flash if Dimmer Flash = ON and value is changed on Ch 1	0-1	0-0.4%	0	Snap		
	(if FX not active)	Flash rate 0.289-16.67 Hz Hyperspeed Continuously on	2-250 251-254 255	0.8-98% 98.4-99.6% 100%		Fade Snap Snap		
	Layer 1 FX speed (if FX active)	FX speed = stop FX speed = slow > fast FX speed = stop	0-1 2-253 254-255	0-0.4% 0.8-98.8% 99.2-100%		Snap Fade Snap		
<i>c</i>		Off Slow > fast Off	0-9 10-49 50-59	0-3.5% 3.9-19.2% 19.6-23.1%	0	Snap Fade Snap		
5	Layer 1 Flare effect	Random slow > fast Off Random pixel slow > fast Off	60-109 110-119 120-169 170-255	23.5-42.7% 43.1-46.7% 47.1-66.3% 66.7-100%		Fade Snap Fade Snap		
6	Red	Layer 1 red intensity 0-100%	0-255	0-100%	0	Fade		
7	Green	Layer 1 green intensity 0-100%	0-255	0-100%	0	Fade		
8	Blue	Layer 1 blue intensity 0-100%	0-255	0-100%	0	Fade		
9	White	Layer 1 white intensity 0-100%	0-255	0-100%	0	Fade		
		Sync strobe - all Sync strobe - circle mask Sync strobe - 4 dot mask Sync strobe - 1 dot mask	0-2 3-5 6-8 9-11	0-0.8% 1.2-2.0% 2.4-3.1% 3.5-4.3%	0	Snap		
		Random strobe - all Random strobe - circle mask	12-14 15-17	4.7-5.5% 5.9-6.7%				
		Random strobe - 4 dot mask Random strobe - 1 dot mask Lite in/out - all	18-20 21-23 24-26	7.1-7.8% 8.2-9.0% 9.4-10.2%				
10	Layer 1 FX selection	Lite in/out - circle mask Lite in/out - 4 dot mask Lite in/out - 1 dot mask	27-29 30-32 33-35	10.6-11.4% 11.8-12.6% 12.9-13.7%				
		Snake Raindrops	36-38 39-41	14.1-14.9% 15.3-16.1%				
		Random pixel Random fake x 2 (L = 13) Random fake x 4 (L = 7)	42-44 45-47 48-50	16.5-17.3% 17.6-18.4% 18.8-19.6%				
		Line (L = 5) Double line (L = 3) Corner to corner line (L = 9)	51-53 54-56 57-59	20.0-20.8% 21.2-22.0% 22.4-23.1%				
		Tilted double lines (L = 5)	60-62	23.5-24.3%				



		Tiltad daubla lipac in to out $(1 - 2)$	63-65	24725507		1
		Tilted double lines in to out $(L = 3)$		24.7-25.5%		
		Center line running dot $(L = 5)$	66-68	25.9-26.7%		
		Middle line running dot $(L = 5)$	69-71	27.1-27.8%		
		Outer line running dot $(L = 5)$	72-74	28.2-29.0%		
		Corner to corner (L = 5)	75-77	29.4-30.2%		
		Arrow $(L = 7)$	78-80	30.6-31.4%		
		Wave (L = 8)	81-83	31.8-32.5%		
		Wheel $(L = 8)$	84-86	32.9-33.7%		
		Half wheel $(L = 16)$	87-89	34.1-34.9%		
		Circling dot $(L = 8)$	90-92	35.3-36.1%		
		Outer circle (L = 8)	93-95	36.5-37.3%		
		Inner circle (L = 4)	96-98	37.6-38.4%		
		Outer 4 dots (L = 4)	99-101	38.8-39.6%		
		Outer single dot (L = 16)	102-104	40.0-40.8%		
		Middle single dot (L = 8)	105-107	41.2-42.0%		
		Spinning 2x1 dots (L = 8)	108-110	42.4-43.1%		
		Asymmetrical 4 dots (L = 8)	111-113	43.5-44.3%		
		Symmetrical 4 dots (L = 8)	114-116	44.7-45.5%		
		Square (L = 3)	117-119	45.9-46.7%		
		Inside out (L = 6)	120-122	47.1-48.8%		
		Inside out 2 (L = 3)	123-125	48.2-49.0%		
		Abstract 1 (L = 3)	126-128	49.4-50.2%		
		Abstract 2 (L = 3)	129-131	50.6-51.4%		
		Abstract 3 (L = 3)	132-134	51.8-52.5%		
		Hash tag (L = 2)	135-137	52.9-53.7%		
		Flip flop $(L = 2)$	138-140	54.1-54.9%		
		Jumping slash (L = 13)	141-143	55.3-56.1%		
		Jumping 'L' (L = 12)	144-146	56.5-57.3%		
		Jumping pins (L = 12)	147-149	57.6-58.4%		
		Fat dot $(L = 4)$	150-152	58.8-59.6%		
		Bars (L = 2)	153-155	60.0-60.8%		
		$3 \times \text{lines} (L = 5)$	156-158	61.2-62.0%		
		$2 \times \text{lines} (L = 5)$	159-161	62.4-63.1%		
		Spiral (L = 28)	162-164	63.5-64.3%		
		Off - No Strobe or FX	165-255	64.7-100%		
	Layer 1 FX	Off	0-1	0-0.4%	0	Snap
11	crossfade time	Crossfade fast > slow	2-127	0.8-49.8%		Fade
		Crossfade and tail slow > fast	128-255	50.2-100%		Fade
		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%		
		Rotate 180°	10-14	3.9-5.5%		
		Rotate 270°	15-19	5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
		Rotate 90° & vertical flip	25-29	9.8-11.4%		
		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
	Layer 1 FX	Rotate 270° & vertical flip	35-39	13.7-15.3%		
12	orientation	Off	40-44	15.7-17.3%		
		Random rotate & flip	45-49	17.7-19.2%		
		Random position	50-54	19.6-21.2%		
		Rotate 90° & random position	55-59	21.6-23.1%		
		Rotate 180° & random position	60-64	23.5-25.1%		
		Rotate 270° & random position	65-69	25.5-27.1%		
		Off	70-74	27.5-29.0%		
		Bounce	75-79	29.4-31.0%		
		Rotate 90° & bounce	80-84	31.4-32.9%		



		Rotate 180° & bounce	85-89	33.3-34.9%		
		Rotate 270° & bounce	90-94	35.3-36.9%		
		Off	95-99	37.3-38.8%		
		Rotate CCW at end	100-104	39.2-40.8%		
		Rotate CW at end	105-109	41.2-42.7%		
		Random rotate at end	110-114	43.1-44.7%		
		Off	115-134	45.1-52.5%		
		Rotate 90° **	135-139	52.9-54.5%		
		Rotate 180° **	140-144	54.9-56.5%		
		Rotate 270° **	145-149	56.9-58.4%		
		Horizontal flip **	150-154	58.8-60.4%		
		Rotate 90° & vertical flip **	155-159	60.8-62.4%		
		Rotate 180° & horizontal flip **	160-164	62.7-64.3%		
		Rotate 270° & vertical flip **	165-169	64.7-66.3%		
		Off	170-174	66.7-68.2%		
		Random rotate & flip **	175-179	68.6-70.2%		
		Random position **	180-184	70.6-72.2%		
		Rotate 90° & random position **	185-189	72.5-74.1%		
		Rotate 180° & random position **	190-194	74.5-76.1%		
		Rotate 270° & random position **	195-199	76.5-78.0%		
		Off	200-204	78.4-80.0%		
		Bounce **	205-209	80.4-82.0%		
		Rotate 90° & bounce **	210-214	82.4-83.9%		
		Rotate 180° & bounce **	215-219	84.3-85.9%		
		Rotate 270° & bounce **	220-224	86.3-87.8%		
		Off	225-229	88.2-89.8%		
		Rotate CCW at end **	230-234	90.2-91.8%		
		Rotate CW at end **	235-239	92.2-93.7%		
		Random rotate at end **	240-244	94.1-95.7%		
		Off	245-255	96.1-100%		
13	Layer 2 FX offset	0-100%	0-255	0-100%	0	Fade
14	Layer 2 FX length	0-100%	0-255	0-100%	0	Fade
		Off	0-9	0-3.5%	0	Snap
		Random all pixels RGBCMY	10-19	3.9-7.5%		Snap
		Random single pixel RGBCMY	20-29	7.8-11.4%		Snap
		Random all pixels bright colors	30-39	11.8-15.3%		Snap
		Random single pixel bright colors	40-49	15.7-19.2%		Snap
		Red / Blue	50-59	19.6-23.1%		Snap
		Red / Green	60-69	23.5-27.1%		Snap
		Blue / Green	70-79	27.5-31.0%		Snap
		Yellow / Magenta	80-89	31.4-34.9%		Snap
15	Layer 1 FX color	Yellow / Cyan	90-99	35.3-38.8%		Snap
15	generator	Cyan / Magenta	100-109	39.2-42.7%		Snap
		Yellow / Blue	110-119	43.1-46.7%		Snap
		Green / Magenta	120-129	47.1-50.6%		Snap
		Red / Green / Blue	130-139	51.0-54.5%		Snap
		Red / Yellow / Blue	140-149	54.9-58.4%		Snap
		Red / Green / Blue / Yellow /				
		Magenta / Cyan	150-159	58.8%-62.4%		Snap
		Red / Green / Blue - Horizontal	160-169	62.7-66.3%		Snap
		line				
		Red / Green / Blue - Vertical line	170-179	66.7-70.2%		Snap



	No function	180-219	70.6-85.9%		Snap
	Color scroll, slow -> fast	220-229	86.3-89.8%		Fade
	Lite in	230-239	90.2-93.7%		Snap
	Lite out	240-249	94.1-97.6%		Snap
	Off	250-255	98.0-100%		Snap
Control / Settings		230-233	70.0-10078		Shup
	Idle	0-11	0-4.3%	0	Snap
	Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	0	Shap
	Effect sync – Power line (3 sec.)	16-29	6.3-11.4%		
	Effect sync – Internal (3 sec.)	30-32	11.8-12.5%		
	No function	33-38	12.9-14.9%		
	Dimmer flash Off*	39-41	15.3-16.1%		
	Dimmer flash On*	42-44	16.5-17.3%		
	Dimming curve ESoft*	45-47	17.6-18.4%		
	Dimming curve Soft*	48-50	18.8-19.6%		
	Dimming curve Linear*	51-53	20.0-20.8%		
	No function	54-68	21.2-26.7%		
	Fan mode regulated*	69-71	27.1-27.8%		
	Fan mode high*	72-74	28.2-29.0%		
	Fan mode medium*	75-77	29.4-30.2%		
	Fan mode low*	78-80	30.6-31.4%		
	No function	81-83	31.8-32.5%		
	Display On*	84-86	32.9-33.7%		
	Display Off*	87-89	34.1-34.9%		
	Display Auto*	90-92	35.3-36.1%		
	Display invert Off*	93-95	36.5-37.3%		
	Display invert On*	96-98	37.6-38.4%		
	No DMX = Capture scene*	99-101	38.8-39.6%		
	No DMX = Stand-alone*	102-104	40.0-40.8%		
6 Control / Settings	No DMX = Blackout*	105-107	41.2-42.0%		
	No DMX = Hold*	108-110	42.4-43.1%		
	Test pattern On*	111-113	43.5-44.3%		
	Test pattern Off*	114-116	44.7-45.5%		
	Rotation Off*	117-119	45.9-46.7%		
	Rotate 90° *	120-122	47.1-47.8%		
	Rotate 180° *	123-125	48.2-49.0%		
	Rotate 270° *	126-128	49.4-50.2%		
	Pixel mirror Off*	129-131	50.6-51.4%		
	Pixel mirror On*	132-134	51.8-52.5%		
	White output limitation Off*	135-137	52.9-53.7%		
	White output limitation 80%*	138-140	54.1-54.9%		
	White output limitation 60%*	141-143	55.3-56.1%		
	White output limitation 40%*	144-146	56.5-57.3%		
	White output limitation 20%*	147-149	57.6-58.4%	ł	
	White output limitation 10%*	150-152	55.8-59.6%		
	No function	153-158	60.0-62.0%		
	RGB output limitation Off%*	159-161	62.4-63.1%		
	RGB output limitation 80%*	162-164	63.5-64.3%		
	RGB output limitation 60%*	165-167	64.7-65.5%		
	RGB output limitation 40%*	168-170	65.9-66.7%		
	RGB output limitation 20%*	171-173	67.1-67.8%		
	RGB output limitation 10%*	174-176	68.2-69.0%		
	No function	177-191	69.4-74.9%		



		Main LED PWM 2400 Hz (5 sec.)	192-194	75.3-76.1%		
		Main LED PWM 3000 Hz (5 sec.)	195-197	76.5-77.3%		
		Main LED PWM 4800 Hz (5 sec.)	198-200	77.6-78.4%		
		Main LED PWM 9600 Hz (5 sec.)	201-203	78.8-79.6%		
		No function	204-206	80.0-80.8%		
		Main LED PWM 25 kHz (5 sec.)	207-209	81.2-82.0%		
		No function	210-251	82.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
Layer 2 RGBW 25-pixel 8-bit						
17	Pixel 1 RGBW	Red intensity 0-100%	0-255	0-100%	0	Fade
18		Green intensity 0-100%	0-255	0-100%	0	Fade
19		Blue intensity 0-100%	0-255	0-100%	0	Fade
20		White intensity 0-100%	0-255	0-100%	0	Fade
		Red intensity 0-100%	0-255	0-100%	0	Fade
•••	Pixel 2 24 RGBW	Green intensity 0-100%	0-255	0-100%	0	Fade
	rixei z 24 KGDW	Blue intensity 0-100%	0-255	0-100%	0	Fade
•••		White intensity 0-100%	0-255	0-100%	0	Fade
113	Pixel 25 RGBW	Red intensity 0-100%	0-255	0-100%	0	Fade
114		Green intensity 0-100%	0-255	0-100%	0	Fade
115		Blue intensity 0-100%	0-255	0-100%	0	Fade
116		White intensity 0-100%	0-255	0-100%	0	Fade

Individual RGBW pixel control on channels 17-116 be mapped independently at the controller depending on how many pixels are connected to the KNV PSU outputs $\mathbf{A} - \mathbf{E}$.

