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User Manual







Software Version 23



GLP® KNV Dot and Line User Manual – Revision A

This manual covers fixture software version 23

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



Warning! See user documentation for important safety information.



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



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

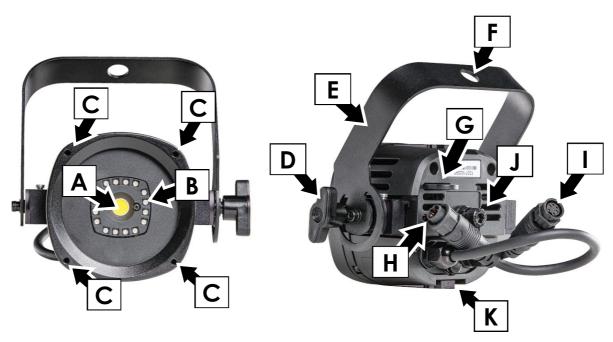


Figure 1. KNV Dot overview

- 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

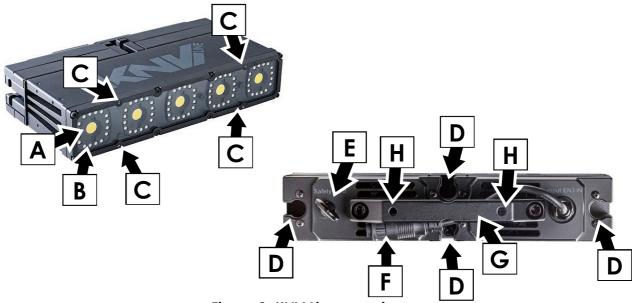


Figure 2. KNV Line overview

- 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

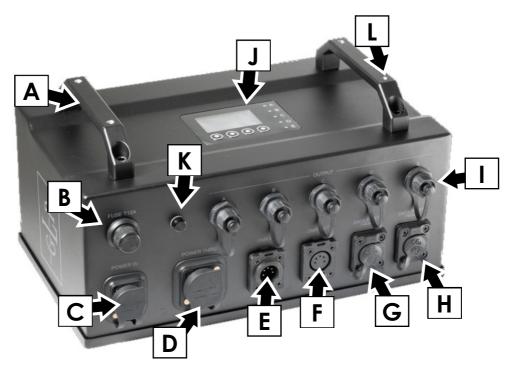


Figure 3. KNV PSU overview

- 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)



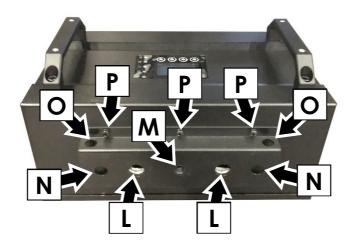


Figure 4. PSU mounting points

- 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.



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



- 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.

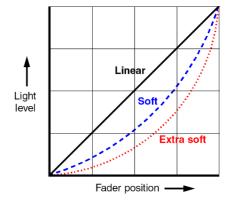


Figure 5. Dimming curves

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. The default screen displays the PSU's:

- DMX address
- DMX mode and channels occupied (in Figure 6, the fixture occupies DMX channels 178-279. Channel 280 is available for the next fixture on the DMX link)
- Firmware version

When the default screen is active, pressing the button marked **Shortcut** opens the Shortcuts menu, and pressing the button marked **MENU** opens the main control menus.

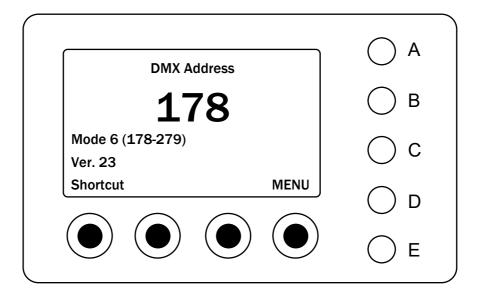


Figure 6. Default screen



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.

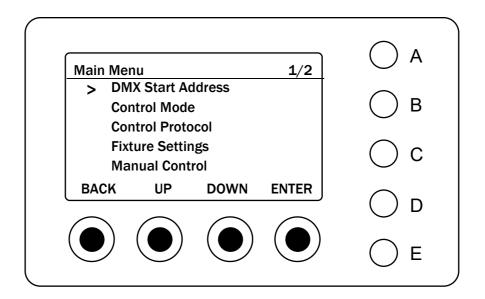


Figure 7. Control panel display

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.

Status LEDs

The five LEDs **A** to **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:

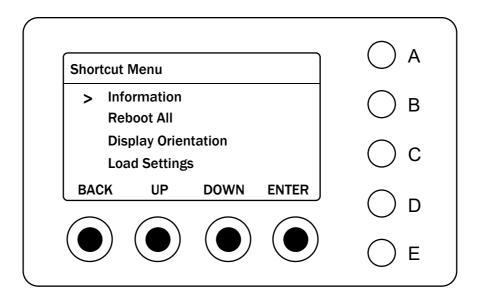


Figure 8. Shortcut menu

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 → 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 → 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 → 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
	Addressing Mode	Auto 2.X.X.X	Auto addressing in the range 2.X.X.X
		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	Enter custom IP address
	Custom IP Subnet	XXX.XXX.XXX	Enter custom subnet mask
	ArtNet Port	0 - 32768	Set Art-Net port
	sACN Universe	1 - 63999	Set sACN universe
Fixture Settings			
	Normal		
Pixel	90°		Set pixel orientation: normal or rotated
Orientation	180°		clockwise
	270°		
Pixel Mirror	Off		Flip pixels right-to-left
1 1/01 / 1/11/01	On		The pixels right to left
Dimmer	Linear		
Curve	Soft		Select dimming curve
	ESoft		
Dimmer Flash	Off		Set fixture to flash when dimmer channel value is
DITHITIEL FIUSTI	On		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%		-	
Output Limit	60%		Set maximum output for	
W	40%		White LEDs	
	20%		1	
	10%			
	Off			
	80%			
Output Limit	60%		Set maximum output for	
RGB	40%		RGB LEDs	
	20%			
	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	
Tarrwood	Medium		Fan speed constant medium	
	Low		Fan speed constant low	
Effect Sync	Internal		Invert display	
LITOCI SYTIC	Immediately		iiiveii dispidy	
	Preset 1	Confirm (hold for 3 seconds to activate)	Load custom fixture	
	Preset 2	Confirm (hold for 3 seconds to activate)	Load custom fixture setting Preset 1 - 3	
Load Settings	Preset 3	Confirm (hold for 3 seconds to activate)	_	
2344 50111193	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
3110W LITOTIIST			stored in memory
Show Serial Nu	mber		Show PSU's serial number
Show SW Versi	on		Show PSU's currently
			installed firmware version
Show device in	nfo		Shows general information for the PSU
			Show total number of
Show device h	OOLIFS		hours powered on
3110W device i	10013		(resettable and non-
			resettable)
Davida a payrar	avalas		Show total number of
Device power	Cycles		power cycles (resettable and non-resettable)
			Show quality of DMX signal
Show signal qu	vality		being received
			Shows current
Show tempero	iture		temperatures of the PSU's
			sensors
Manual Contro	ol		
Reset All	No		Reboot all of the PSU's
1103017111	Yes	functions	
	Red	000 255	
	Green	000 255	Manually set effects
	Blue	000 255	(values correspond to
	White	000 255	DMX values)
	Shutter	000 255	
Manual DMX	Load No-Signal Scene	Confirm	Load stored Stand-Alone scene
			Store current manually set
	Save as No-Signal Scene	Confirm	values as Stand-Alone scene
			Store current DMX values
	Capture DMX values	Confirm	as Stand-Alone scene
	Reset Manual values	Confirm	Reset all manually set
		COMMITT	values to zero



Service	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 second	S					
		Device hours	Confirm (hold for 3 s. to activate)	Reset PSU's internal			
	Reset Counters	Device power cycles	Confirm (hold for 3 s. to activate)	counters			
		Max. temperatures	Confirm (hold for 3 s. to activate)	Reset PSU's internal maximum temperature log			
	Save Settings	Preset 1	Confirm (hold for 3 s. to activate)	Load current PSU settings			
Advanced		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 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
 O6. 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.

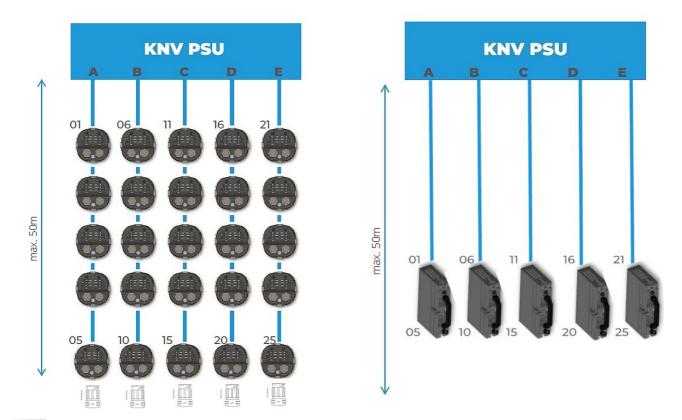


Figure 9. Pixel mapping – KNV Dot only and KNV Line only



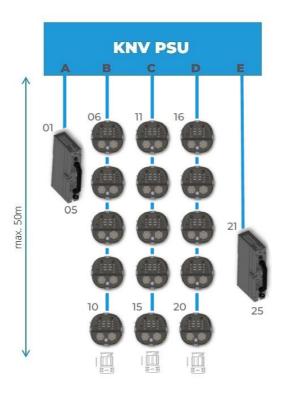


Figure 10. Pixel mapping – KNV Dot and Line mixed

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	80	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	80	09	10
С	\rightarrow	11	12	13	14	15
D	\rightarrow	16	17	18	19	20
Е	\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	80	13	18	23
04	09	14	19	24
05	10	23	20	25

Configuration B:
KNV Dots / Lines suspended
in vertical columns

Α	В	C D		E
Ψ	\	\	\	\
01	06	11	16	21
02	07	12	17	22
03	80	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% intens	
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 ramp-up/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 ramp-up/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.



- **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 affects 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.

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.

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						
1	Red coarse	Red intensity 0-100%	0-65535	0-100%	0	Fade
2	Red fine	Red Intensity 6 16676	0 00000	0 10070		1 440
3	Green coarse	Green intensity 0-100%	0-65535	0-100%	0	Fade
4	Green fine	,				
5	Blue coarse Blue fine	Blue intensity 0-100%	0-65535	0-100%	0	Fade
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
	Shutter	Sync double flash slow >fast	110-144	43.1-56.5%		Fade
9	Snutter	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%	1	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*	60-62	23.5-24.3%		
		(Modes 1/6/7)				
		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%	1	
		No function	81-83	31.8-32.5%	1	
		Display On*	84-86	32.9-33.7%	1	
		Display Off*	87-89	34.1-34.9%	1	
	J	Display OII	0/-07	J4.1-J4.7 /0	l	l



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	177-251	69.4-98.4%	
Reboot fixture*	252-255	98.8-100%	



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

23 DMX Channels

Cho	annel	Command	DMX range	Percent	Default DMX	Fade
	annel group A: White				2.0.5	
	White LEDs					
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
		No flash	0-1	0-0.4%	0	Snap
	White LEDs flash	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%		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%	0	Snap
		Off	0-9	0-3.5%	0	Snap
		Slow > fast	10-49	3.9-19.2%	1	Fade
4	White LEDs Flare	Off Random slow > fast	50-59	19.6-23.1% 23.5-42.7%	4	Snap
4	effect	Off	60-109		-	Fade
		Random pixel slow > fast	120-169	43.1-46.7% 47.1-66.3%	-	Snap Fade
		Off	170-255	66.7-100%		Snap
				0-0.8%	0	
		Sync strobe - all	0-2		1	Snap
		Sync strobe - circle mask	3-5	1.2-2.0%	_	
		Sync strobe - 4 dot mask	6-8	2.4-3.1%	1	
		Sync strobe - 1 dot mask	9-11	3.5-4.3%	1	
		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%	1	
		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%		
	White LEDs FX selection	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%		
5		Raindrops	39-41	15.3-16.1%		
o		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%	1	
		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%	1	
		Corner to corner (L = 5)	75-77	29.4-30.2%	1	
		Arrow (L = 7)	78-80	30.6-31.4%	-	
		Wave (L = 8)	81-83	31.8-32.5%		



	Т				ı	1
		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%		
-					_	_
	White LEDs FX	Off	0-1	0-0.4%	0	Snap
6	White LEDs FX crossfade time	Off Crossfade fast > slow	0-1 2-127	0-0.4% 0.8-49.8%	0	Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast	0-1 2-127 128-255	0-0.4% 0.8-49.8% 50.2-100%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off	0-1 2-127 128-255 0-4	0-0.4% 0.8-49.8% 50.2-100% 0-1.6%	0	Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90°	0-1 2-127 128-255 0-4 5-9	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180°	0-1 2-127 128-255 0-4 5-9 10-14	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270°	0-1 2-127 128-255 0-4 5-9 10-14 15-19	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 270° & vertical flip Rotate 270° & vertical flip Off	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3%		Fade Fade
6		Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & flip Rotate 270° & vertical flip	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2%		Fade Fade
6	crossfade time	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & flip Rotate 270° & vertical flip	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 19.6-21.2%		Fade Fade
6	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 19.6-21.2% 21.6-23.1%		Fade Fade
	crossfade time	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 21.6-23.1% 23.5-25.1%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 180° & random position Rotate 180° & random position Rotate 270° & random position	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 19.6-21.2% 21.6-23.1% 23.5-25.1%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position Rotate 270° & random position Off	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 19.6-21.2% 21.6-23.1% 23.5-25.1% 25.5-27.1%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 19.6-21.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 180° & random position Rotate 90° & random position Rotate 180° & random position Rotate 180° & random position Rotate 270° & bounce	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0% 31.4-32.9%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position Rotate 270° & random position Rotate 270° & bounce Rotate 90° & bounce	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0% 31.4-32.9% 33.3-34.9%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position Rotate 270° & random position Rotate 270° & bounce Rotate 180° & bounce Rotate 270° & bounce	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 19.6-21.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0% 31.4-32.9% 33.3-34.9% 35.3-36.9%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 180° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position Rotate 270° & bounce Rotate 180° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate 270° & bounce	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94 95-99	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 17.7-19.2% 19.6-21.2% 21.6-23.1% 23.5-25.1% 27.5-29.0% 29.4-31.0% 31.4-32.9% 35.3-36.9% 37.3-38.8%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & vertical flip Off Random rotate & flip Random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position Rotate 270° & bounce Rotate 180° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate CCW at end	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94 95-99 100-104	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0% 31.4-32.9% 33.3-34.9% 35.3-36.9% 37.3-38.8% 39.2-40.8%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & random position Rotate 90° & random position Rotate 180° & random position Rotate 180° & random position Rotate 270° & random position Off Bounce Rotate 90° & bounce Rotate 180° & bounce Rotate 270° & bounce Rotate 270° & bounce Off Rotate CCW at end Rotate CW at end	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94 95-99 100-104 105-109	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0% 31.4-32.9% 33.3-34.9% 35.3-36.9% 37.3-38.8% 39.2-40.8% 41.2-42.7%		Fade Fade
	crossfade time White LEDs	Off Crossfade fast > slow Crossfade and tail slow > fast Off Rotate 90° Rotate 180° Rotate 270° Horizontal flip Rotate 90° & vertical flip Rotate 180° & horizontal flip Rotate 270° & vertical flip Rotate 270° & vertical flip Rotate 270° & vertical flip Off Random rotate & flip Random position Rotate 90° & random position Rotate 180° & random position Rotate 270° & random position Rotate 270° & bounce Rotate 180° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate 270° & bounce Rotate CCW at end	0-1 2-127 128-255 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94 95-99 100-104	0-0.4% 0.8-49.8% 50.2-100% 0-1.6% 2.0-3.5% 3.9-5.5% 5.9-7.5% 7.8-9.4% 9.8-11.4% 11.8-13.3% 13.7-15.3% 15.7-17.3% 17.7-19.2% 21.6-23.1% 23.5-25.1% 25.5-27.1% 27.5-29.0% 29.4-31.0% 31.4-32.9% 33.3-34.9% 35.3-36.9% 37.3-38.8% 39.2-40.8%		Fade Fade



		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 ** Off	165-169	64.7-66.3%		
			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%		
8	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
Cha	nnel group B: RGB s	trobe with FX				
10	RGB LEDs dimmer	Intensity 0-100%	0-255	0-100%	0	Fade
11	RGB LEDs flash duration	Flash duration 7-650 ms	0-255	0-100%	0	Fade
	DCD LEDa flerab	No flash	0-1	0-0.4%	0	Snap
	RGB LEDs flash 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
	-	FX speed = stop	254-255	99.2-100%		Snap
13	Red	Red intensity 0-100%	0-255	0-100%	255	Fade
14	Green	Green intensity 0-100%	0-255	0-100%	255	Fade
15	Blue	Blue intensity 0-100%	0-255	0-100%	255	Fade
		Off	0-9	0-3.5%	0	Snap
	RGB LEDs Flare	Slow > fast	10-49	3.9-19.2%		Fade
16		Off Random slow > fast	50-59 60-109	19.6-23.1%		Snap
10	effect	Off	110-119	23.5-42.7% 43.1-46.7%		Fade
		Random pixel slow > fast	120-169	47.1-66.3%		Snap Fade
		Off	170-255	66.7-100%		Snap
		OII .	170-200	00.7-100/0		JIIUP



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		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%		
		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%		
17	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)	105-107	41.2-42.0%		
		Spinning 2x1 dots (L = 8)	108-110	42.4-43.1%		
		Asymmetrical 4 dats (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%		
		Off	0-1	0-0.4%	0	Snap
18	RGB LEDs FX	Crossfade fast > slow	2-127	0.8-49.8%	O	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%		
	onemanon	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%		



20	RGB LEDs FX offset	0-100%	0-255	0-100%	0	Fade
21	RGB LEDs 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
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 / Magenta / Cyan	150-159	58.8%-62.4%		Snap
		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
		Off	250-255	98.0-100%		Snap
Con	trol / Settings					
		Idle	0-11	0-4.3%	0	Snap
		Idle Effect sync – Immediate (1 sec.)	0-11 12-15	0-4.3% 4.7-5.9%	0	Snap
					0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.)	12-15 16-29	4.7-5.9% 6.3-11.4%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.)	12-15 16-29 30-32	4.7-5.9% 6.3-11.4% 11.8-12.5%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function	12-15 16-29 30-32 33-38	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off*	12-15 16-29 30-32 33-38 39-41	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 15.3-16.1%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On*	12-15 16-29 30-32 33-38 39-41 42-44	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 15.3-16.1% 16.5-17.3%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoft*	12-15 16-29 30-32 33-38 39-41 42-44 45-47	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 15.3-16.1% 16.5-17.3% 17.6-18.4%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear*	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50 51-53	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8%	0	Snap
		Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoft* Dimming curve Soft* Dimming curve Linear* No function Fan mode regulated* Fan mode medium*	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50 51-53 54-68 69-71	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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*	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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*	12-15 16-29 30-32 33-38 39-41 42-44 45-47 48-50 51-53 54-68 69-71 72-74 75-77 78-80 81-83 84-86	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoff* Dimming curve Soff* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On* Display Auto*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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 Auto* Display invert Off*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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* Display Auto* Display invert Off* Display invert On*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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 On* Display Auto* Display invert Off* Display invert On* No DMX = Capture scene*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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* Display Auto* Display invert Off* Display invert On* No DMX = Capture scene* No DMX = Stand-alone*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoff* Dimming curve Soff* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On* Display Off* Display Auto* Display invert Off* No DMX = Capture scene* No DMX = Blackout*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function 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 Off* Display Auto* Display invert Off* No DMX = Capture scene* No DMX = Hold*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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% 41.2-42.0% 42.4-43.1%	0	Snap
23	Control / Settings	Effect sync – Immediate (1 sec.) Effect sync – Power line (3 sec.) Effect sync – Internal (3 sec.) No function Dimmer flash Off* Dimmer flash On* Dimming curve ESoff* Dimming curve Soff* Dimming curve Linear* No function Fan mode regulated* Fan mode high* Fan mode low* No function Display On* Display Off* Display Auto* Display invert Off* No DMX = Capture scene* No DMX = Blackout*	12-15 16-29 30-32 33-38 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	4.7-5.9% 6.3-11.4% 11.8-12.5% 12.9-14.9% 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%	0	Snap



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	177-251	69.4-98.4%	
Reboot fixture*	252-255	98.8-100%	



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

Cho	nnel	Command	DMX range	Percent	Default DMX	Fade
Cho	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
3	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
	(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
	RGB LEDs 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
4	Red	Red intensity 0-100%	0-255	0-100%	255	Fade
5	Green	Green intensity 0-100%	0-255	0-100%	255	Fade
6	Blue	Blue intensity 0-100%	0-255	0-100%	255	Fade
		Off	0-9	0-3.5%	0	Snap
7	DCB LEDa Elava	Slow > fast Off	10-49 50-59	3.9-19.2% 19.6-23.1%		Fade Snap
	RGB LEDs Flare effect	Random slow > fast Off	60-109 110-119	23.5-42.7% 43.1-46.7%		Fade Snap
		Random pixel slow > fast Off	120-169 170-255	47.1-66.3% 66.7-100%		Fade Snap
		Sync strobe - all Sync strobe - circle mask	0-2 3-5	0-0.8% 1.2-2.0%	0	Snap
		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%		
8	RGB LEDs FX	Snake	36-38	14.1-14.9%		
	selection	Raindrops	39-41	15.3-16.1%		
		Random pixel	42-44	16.5-17.3%	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%		
		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%	1	
		Tilted double lines in to out (L = 3)	63-65	24.7-25.5%	1	
		Center line running dot (L = 5)	66-68	25.9-26.7%	1	
		Middle line running dot (L = 5)	69-71	27.1-27.8%	1	
		Outer line running dot (L = 5)	72-74	28.2-29.0%	1	



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) 93-95 36.5-37.3% Inner circle (L = 4) 96-98 37.6-38.4% Outer circle (L = 4) 99-101 38.8-39.6% Outer single dot (L = 16) 102-104 40.0-40.9% 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) 111-119 45.9-46.7% Inside out 2 (L = 3) 117-119 45.9-46.7% Inside out 2 (L = 3) 120-122 47.1-48.8% Inside out 2 (L = 3) 129-131 50.6-51.4% Abstract 2 (L = 3) 129-131 50.6-51.4% Abstract 3 (L = 3) 132-134 51.8-52.5% Hash tag (L = 2) 133-137 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 pins (L = 12) 147-149 57.6-56.4% Fat dot (L = 4) 150-152 58.8-59.9% Bars (L = 2) 153-155 60.0-60.8% Spiral (L = 28) 162-164 63.5-64.3% Off -No Strobe or FX 165-255 50.2-100% Prosstade filme Crossfade fat 90° 5-9 2.0-3.5% Off O-4 0-1.6%
Wave (L = 8)
Wheel (L = 8)
Half wheel (L = 16)
Circling dof (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 dof (L = 16) 102-104 40.0-40.8% Middle single dof (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) 111-119 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) 132-134 51.8-52.5% Hash tag (L = 2) 138-140 54.1-54.9% Jumping slash (L = 13) 141-143 55.3-56.1% Jumping pins (L = 12) 144-144 56.5-57.3% Jumping pins (L = 12) 147-149 57.6-58.4% Fat dof (L = 4) 150-152 58.8-59.6% Bars (L = 2) 153-155 60.0-60.9% 3 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 162-164 63.5-64.3% Off No Strobe or FX 165-255 54.7-100% Off O-1 0-0.4% Crossfade fast > slow 2-127 0.8-49.8% Crossfade fast > slow 2-127 0.8-49.8% Crossfade and tail slow > fast 128-255 50.2-100% Off O-4 0-1.6% 0 Snap Fadde (Pade to the fade to the
Outer circle (L = 8)
Inner circle (L = 4)
Outer 4 dots (L = 4) Outer single dot (L = 16) Outer single dot (L = 16) Middle single dot (L = 8) Spinning 2x1 dots (L = 8) Spinning 2x1 dots (L = 8) Spinning 2x1 dots (L = 8) Asymmetrical 4 dots (L = 8) Symmetrical 4 dots (L = 8) Symmetrical 4 dots (L = 8) I11-113 Asymmetrical 4 dots (L = 8) I11-119 45.9-46.7% Inside out (L = 6) I120-122 47.1-48.8% Inside out 2 (L = 3) I17-119 Abstract 1 (L = 3) Abstract 2 (L = 3) I129-131 So.6-51.4% Abstract 3 (L = 3) I129-131 So.6-51.4% Abstract 3 (L = 3) Abstract 3 (L = 3) I132-134 So.9-53.7% Flip flop (L = 2) I338-140 Jumping slash (L = 13) Jumping giash (L = 13) I141-143 So.5-55.3-56.1% Jumping pins (L = 12) I44-146 So.5-57.3% Jumping pins (L = 12) I47-149 So.6-58.4% Fat dot (L = 4) Bars (L = 2) I53-155 60.0-60.8% 3 x lines (L = 5) Spiral (L = 28) Off - No Strobe or FX Off O-1 O-0.4% Crossfade time Off O-4 O-1.6% Off Rotate 90° S-9 2.0-3.5% Otherwise Augusta
Outer single dot (L = 16)
Middle single dof (L = 8)
Spinning 2x1 dots (L = 8)
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) 138-140 54.1-54.9% Jumping slash (L = 13) 141-143 55.3-56.1% 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) 0ff - No Strobe or FX 0ff 0-1 0-0.4% Off 0-1 0-0.4% Crossfade fime RGB LEDs FX crossfade fime RGB LEDs FX crossfade fast > slow 2-127 0.8-49.8% Fade Crossfade and tail slow > fast 128-255 50.2-100% Fade Fade Off 0-4 0-1.6% 0 Snap Rotate 90° 5-9 2.0-3.5%
Symmetrical 4 dots (L = 8)
Square (L = 3)
Inside out (L = 6)
Inside out 2 (L = 3)
Abstract 1 (L = 3)
Abstract 2 (L = 3)
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 y'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% Off O-1 0-0.4% 0-0.4% Crossfade fast > slow 2-127 0.8-49.8% Crossfade and tail slow > fast 128-255 50.2-100% Off O-4 0-1.6% 0 Snap Rotate 90° 5-9 2.0-3.5%
Flip flop (L = 2) Jumping slash (L = 13) Jumping slash (L = 12) Jumping blash (L = 12) Jumping pins (L = 2) Jumping pins (L = 3) Jumping pins (L = 2) Jumping pins (L = 3) Jumping pins (L = 12) Ju
Jumping slash (L = 13)
Jumping 'L' (L = 12)
Jumping pins (L = 12)
Fat dot (L = 4) Bars (L = 2) 3 x lines (L = 5) 2 x lines (L = 5) 156-158 61.2-62.0% 2 x lines (L = 5) 159-161 62.4-63.1% Spiral (L = 28) Off - No Strobe or FX 165-255 64.7-100% Processfade time RGB LEDs FX crossfade time Off Crossfade and tail slow > fast Off O-1 O-0.4% Crossfade and tail slow > fast 128-255 50.2-100% Off Rotate 90° Snap Fade Fade Fade
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%
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% Off
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% Off Crossfade fast > slow Crossfade fast > slow Crossfade and tail slow > fast 2-127 0.8-49.8% 0 Snap Fade Fade Fade Fade Fade Fade Fade Fade
Spiral (L = 28) 162-164 63.5-64.3% Off - No Strobe or FX 165-255 64.7-100% RGB LEDs FX crossfade time
PRGB LEDs FX crossfade time Off Crossfade fast > slow (Crossfade and tail slow > fast) 165-255 (64.7-100%) 64.7-100% (0-0.4%) 0 Snap Fade (0-0.4%) Snap Fade (0-0.4%) Fade (0-0.4%) Fade (0-0.4%) Fade (0-0.4%) Fade (0-0.4%) Fade (0-0.4%) O Snap (0-0.4%) Snap (0-0.4%) O Snap (0-0.4%)
RGB LEDs FX crossfade time Off Occupant Off Occupant
Process RGB LEDs FX 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% 0 Snap
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% 0 Snap
Crosstade and fail slow > fast 128-255 50.2-100% Fade
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%
70 77 07.0 00.070



		Datata CW at and	105 100	41 0 40 707		
		Rotate CW at end	105-109	41.2-42.7%		
		Random rotate at end	110-114	43.1-44.7%		
		Off Rotate 90° **	115-134	45.1-52.5%		
			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	0-100%	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
13	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 /	150-159	58.8%-62.4%		Snap
		Magenta / Cyan				
		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
ĺ				07 2 00 007	ı	LEADO
		Color scroll, slow -> fast	220-229	86.3-89.8%		Fade
		Lite in	230-239	90.2-93.7%		Snap



		Shutter closed	0-4	0-1.6%	255	Snap
		Sync ramp up slow > fast	5-39	2.0-15.3%	200	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
	White LEDs shutter	Sync double flash slow > fast	110-144	43.1-56.5%		Fade
14		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	1 - 1 - 2 - 2	1			1 2
		Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	Ü	0.10.0
		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 / Senings	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	177-251	69.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
Cha	nnel group B: White	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

Cho	nnel	Command	DMX range	Percent	Default DMX	Fade
Cho	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%		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	White LFDs Flare	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
4		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%		Snap Fade Snap
5	White LEDs FX selection	Sync strobe - all Sync strobe - circle mask Sync strobe - 4 dot mask Sync strobe - 1 dot mask Random strobe - all Random strobe - circle mask Random strobe - 1 dot mask Random strobe - 1 dot mask Random strobe - 1 dot mask Lite in/out - all Lite in/out - all Lite in/out - 1 dot mask Lite in/out - 1 dot mask Snake Random pixel Random fake x 2 (L = 13) Random fake x 4 (L = 7) Line (L = 5) Double line (L = 3) Corner to corner line (L = 9) Tilted double lines (L = 5) Tilted double lines in to out (L = 3) Center line running dot (L = 5) Middle line running dot (L = 5) Outer line running dot (L = 5) Corner to corner (L = 5)	0-2 3-5 6-8 9-11 12-14 15-17 18-20 21-23 24-26 27-29 30-32 33-35 36-38 39-41 42-44 45-47 48-50 51-53 54-56 57-59 60-62 63-65 66-68 69-71 72-74 75-77	0-0.8% 1.2-2.0% 2.4-3.1% 3.5-4.3% 4.7-5.5% 5.9-6.7% 7.1-7.8% 8.2-9.0% 9.4-10.2% 10.6-11.4% 11.8-12.6% 12.9-13.7% 14.1-14.9% 15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-22.0% 22.4-23.1% 23.5-24.3% 24.7-25.5% 25.9-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2%	0	Snap



		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	04.07	20.0.22.707		
		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 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%		
		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%		
7	White LEDs	Rotate 90° & random position	55-59	21.6-23.1%		
	orientation	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 Off	110-114 115-134	43.1-44.7% 45.1-52.5%		



		Detete 000 **	125 120	FO O F A F 97		1 1
		Rotate 90° **	135-139	52.9-54.5% 54.9-56.5%		
		Rotate 180° ** Rotate 270° **	140-144 145-149	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	74.5-74.1%		
		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%		
8	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	KGPM SHOHEI	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
		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%		
11	Control / Settings	Dimming curve ESoft*	45-47	17.6-18.4%		
''	Comoi / Semings	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			1
		Display Off*	90-92	34.1-34.9%		
		Display Auto* Display invert Off*	90-92	35.3-36.1% 36.5-37.3%		1
		Display invertion*	96-98	37.6-38.4%		
		No DMX = Capture scene*	99-101	38.8-39.6%		
l		No DMX = Stand-alone*	102-104	40.0-40.8%		
		No DMX = Blackout*	102-104	41.2-42.0%		
1		No DMX = Hold*	103-107	42.4-43.1%		
		Test pattern On*	111-113	43.5-44.3%		
1		Test pattern Off*	114-116	44.7-45.5%		
1		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%		
1		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%		
Ì		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%		
Ì		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%		
1		No function	177-251	69.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
Cha	nnel group B: RGB 25		202 200	70.0 10070		
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
•••	RGB Pixels 2 24	Green	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		Blue	0-100%	0-255	255	Fade
-		5.00	0 100/0	0 200	200	1 440

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 $\bf A-\bf E$.



DMX Mode 5: Multi-layer RGBW with FX

Cho	ınnel	Command	DMX range	Percent	Defaul † DMX	Fade
Cho	innel group A: Base la	ayer 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
Cho	ınnel group B: Layer 2	RGBW strobe with FX (medium prior	ity, true colo	or)		
5	Layer 2 master	Layer 2 = transparent	0-1	0-0.4%		Snap
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
	Layer 2 flash rate (if	No flash Single flash if Dimmer Flash = ON and value is changed on Ch 5	0-1	0-0.4%	0	Snap
	FX not active)	Flash rate 0.289-16.67 Hz	2-250	0.8-98%		Fade
8		Hyperspeed	251-252	98.4-98.8%		Snap
		Continuously on	253-255	99.2-100%	1	Snap
	Layer 2 FX speed	FX speed = stop	0-1	0-0.4%		Snap
	(If FX active)	FX speed = slow > fast	2-253	0.8-98.8%		Fade
	,	FX speed = stop	254-255	99.2-100%		Snap
		Off Slaves foot	0-9 10-49	0-3.5%	0	Snap
		Slow > fast Off	50-59	3.9-19.2% 19.6-23.1%	-	Fade
9	Layer 2 Flare effect	Random slow > fast	60-109	23.5-42.7%	-	Snap Fade
7	Layer 2 Flare 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
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
		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%	1	
		Random strobe - 1 dot mask	21-23	8.2-9.0%	1	
		Lite in/out - all	24-26	9.4-10.2%		
14	Layer 2 FX	Lite in/out - circle mask	27-29	10.6-11.4%		
	selection	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%	1	
		Raindrops	39-41	15.3-16.1%	1	
		Random pixel	42-44	16.5-17.3%	1	
		Random fake x 2 (L = 13)	45-47	17.6-18.4%	1	
		Random fake x 4 (L = 7)	48-50	18.8-19.6%	1	
		Line (L = 5)	51-53	20.0-20.8%	+	
		, ,			+	
<u> </u>		Double line (L = 3)	54-56	21.2-22.0%	1	



		C	F7 F0	00 4 00 107		
		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%		
		•	141-143			
		Jumping slash (L = 13)	141-143	55.3-56.1%		
		Jumping 'L' (L = 12)	+	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	C 100
15	Layer 2 FX	Off Crossfade fast > slow	0-1 2-127	0-0.4% 0.8-49.8%	0	Snap
13	crossfade time	Crossfade last > slow Crossfade and tail slow > fast	128-255	50.2-100%		Fade Fade
<u> </u>		Off	0-4	0-1.6%	0	Snap
		Rotate 90°	5-9	2.0-3.5%	U	σιαρ
		Rotate 180°	10-14			
		Rotate 270°	15-19	3.9-5.5%		
				5.9-7.5%		
		Horizontal flip	20-24	7.8-9.4%		
		Rotate 90° & vertical flip	25-29	9.8-11.4%		
١,,		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
16	Layer 2 orientation	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%		



		Paumaa	75 70	20 4 21 007		
		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%		
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
	Layer 2 FX color	Yellow / Cyan	90-99	35.3-38.8%		Snap
19	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 /	150 150	E0 007 (0 107		Snap
		Magenta / Cyan	150-159	58.8%-62.4%		C 1
		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



		114 - 1-	020 020	00 0 00 707		C
		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
Cha	nnel group C: Layer	3 RGBW strobe with FX (high priority, t	rue color)			
20 21	Layer 3 master	Layer 3 = transparent Layer 3 intensity 0-100%	0-1 2-65535	0-0.4% 0.8-100%	0	Snap Fade
22	Layer 3 flash duration	7-650 ms	0-255	0-100%	0	Fade
	Layer 3 flash rate (if FX are not	No flash Single flash if Dimmer Flash = ON and value is changed on Ch 20	0-1	0-0.4%	0	Snap
23	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%	-	Snap Snap
	Layer 3 FX speed (If FX are active)	FX speed = stop FX speed = slow > fast	0-1 2-253 254-255	0-0.4% 0.8-98.8%	-	Snap Fade
		FX speed = stop Off Slow > fast	0-9 10-49	99.2-100% 0-3.5% 3.9-19.2%	0	Snap Snap Fade
24	Layer 3 Flare effect	Off Random slow > fast Off Random pixel slow > fast	50-59 60-109 110-119 120-169	19.6-23.1% 23.5-42.7% 43.1-46.7% 47.1-66.3%		Snap Fade Snap Fade
25	Lever 2 De d	Off	170-255	66.7-100%		Snap
25 26	Layer 3 Red Layer 3 Green	Intensity 0-100% Intensity 0-100%	0-255 0-255	0-100% 0-100%	0	Fade Fade
27	Layer 3 Blue	Intensity 0-100%	0-255	0-100%	0	Fade
28	Layer 3 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 Random strobe - all Random strobe - circle mask Random strobe - 4 dot mask Random strobe - 1 dot mask Lite in/out - all Lite in/out - 4 dot mask Lite in/out - 1 dot mask Lite in/out - 1 dot mask	0-2 3-5 6-8 9-11 12-14 15-17 18-20 21-23 24-26 27-29 30-32 33-35	0-0.8% 1.2-2.0% 2.4-3.1% 3.5-4.3% 4.7-5.5% 5.9-6.7% 7.1-7.8% 8.2-9.0% 9.4-10.2% 10.6-11.4% 11.8-12.6% 12.9-13.7%	0	Snap
29	Layer 3 FX selection	Snake Raindrops Random pixel Random fake x 2 (L = 13) Random fake x 4 (L = 7) Line (L = 5) Double line (L = 3) Corner to corner line (L = 9) Tilted double lines (L = 5) Tilted double lines in to out (L = 3) Center line running dot (L = 5) Middle line running dot (L = 5) Outer line running dot (L = 5) Corner to corner (L = 5) Arrow (L = 7)	36-38 39-41 42-44 45-47 48-50 51-53 54-56 57-59 60-62 63-65 66-68 69-71 72-74 75-77 78-80	14.1-14.9% 15.3-16.1% 16.5-17.3% 17.6-18.4% 18.8-19.6% 20.0-20.8% 21.2-22.0% 22.4-23.1% 23.5-24.3% 24.7-25.5% 25.9-26.7% 27.1-27.8% 28.2-29.0% 29.4-30.2% 30.6-31.4%		



		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	04.07	20.0.22.707		
		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%		
	Leven 2 EV	Off	0-1	0-0.4%	0	Snap
30	Layer 3 FX crossfade time	Crossfade fast > slow	2-127	0.8-49.8%		Fade
	Clossidde iiille	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%		
21	Lavar 2 ariantation	Rotate 90° & random position	55-59	21.6-23.1%		
31	Layer 3 orientation	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%		



	1	D-1-1- 000 **	105 100	FO O F 4 F 67		
		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%		
	1 O F.V . ff l	Off	245-255	96.1-100%	0	F
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%	U	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 80-89	27.5-31.0%		Snap
		Yellow / Magenta	80-89	31.4-34.9%		Snap
		Vollay, / Cyan	00.00	25 2 20 007		Cn an
		Yellow / Cyan	90-99	35.3-38.8%		Snap
	Laurer 2 EV color	Cyan / Magenta	100-109	39.2-42.7%		Snap
34	Layer 3 FX color	Cyan / Magenta Yellow / Blue	100-109 110-119	39.2-42.7% 43.1-46.7%		Snap Snap
34	Layer 3 FX color generator	Cyan / Magenta Yellow / Blue Green / Magenta	100-109 110-119 120-129	39.2-42.7% 43.1-46.7% 47.1-50.6%		Snap Snap Snap
34		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue	100-109 110-119 120-129 130-139	39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5%		Snap Snap Snap Snap
34		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue	100-109 110-119 120-129	39.2-42.7% 43.1-46.7% 47.1-50.6%		Snap Snap Snap Snap Snap
34		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow /	100-109 110-119 120-129 130-139 140-149	39.2-42.7% 43.1-46.7% 47.1-50.6% 51.0-54.5% 54.9-58.4%		Snap Snap Snap Snap
34		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan	100-109 110-119 120-129 130-139 140-149	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
34		Cyan / Magenta Yellow / Blue Green / Magenta Red / Green / Blue Red / Yellow / Blue Red / Green / Blue / Yellow / Magenta / Cyan Red / Green / Blue - Horizontal line	100-109 110-119 120-129 130-139 140-149 150-159 160-169	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
34		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	100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179	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
34		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	100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179 180-219	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
34		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	100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179 180-219 220-229	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 Snap
34		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 Lite in	100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179 180-219 220-229 230-239	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% 90.2-93.7%		Snap Snap Snap Snap Snap Snap Snap Snap
34		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	100-109 110-119 120-129 130-139 140-149 150-159 160-169 170-179 180-219 220-229	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 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	54-68	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%		
25	C	No DMX = Blackout*	105-107	41.2-42.0%		
35	Control / Settings	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	177-251	69.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		



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

			DMX		Default	
Char	nnel	Command	range	Percent	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
		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%	ŭ	06
		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%		
		(Modes 1/6/7)	37-37	22.4-25.1/0		
2	Control / Settings	Extra Shutter RGB only* (Modes 1/6/7)	60-62	23.5-24.3%		
_	comor, semigs	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 Off*	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%		
		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	177-251	69.4-98.4%		
		Reboot fixture*	252-255	98.8-100%		
RGBV	V 25-pixel 8-bit					
3		Red intensity 0-100%	0-255	0-100%	0	Fade
4	Diver 1 DCDW	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		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

Channe	al .	Command	DMX range	Percent	Default DMX	Fade
	Shutter / Strobe	Communic	runge	T CTCCTIII	Divin	rade
		Shutter closed	0-4	0-1.6%	255	Snap
		Sync ramp up slow > fast	5-39	2.0-15.3%	200	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 S	Shutter, all pixels	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
Control	/ Settings	1000.	1200 200	77.2 10070		опар
	<u>,</u>	Idle	0-11	0-4.3%	0	Snap
		Effect sync – Immediate (1 sec.)	12-15	4.7-5.9%	Ü	06
		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%		
		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%		



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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	nnel group A: RGBW	strobe with FX				
1	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
	Layer 1 flash rate (if FX not active)	No flash Single flash if Dimmer Flash = ON and value is changed on Ch 1 Flash rate 0.289-16.67 Hz	0-1 2-250	0-0.4% 0.8-98%	0	Snap Fade
4	Lever 1 EV and d	Hyperspeed Continuously on FX speed = stop	251-254 255 0-1	98.4-99.6% 100% 0-0.4%		Snap Snap Snap
	Layer 1 FX speed (if FX active)	FX speed = slow > fast FX speed = stop Off	2-253 254-255 0-9	0.8-98.8% 99.2-100% 0-3.5%	0	Fade Snap Snap
5	Layer 1 Flare effect	Slow > fast Off Random slow > fast Off	10-49 50-59 60-109 110-119	3.9-19.2% 19.6-23.1% 23.5-42.7% 43.1-46.7%		Fade Snap Fade Snap
6	Red	Random pixel slow > fast Off Layer 1 red intensity 0-100%	120-169 170-255 0-255	47.1-66.3% 66.7-100% 0-100%	0	Fade Snap 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 Random strobe - 4 dot mask	12-14 15-17 18-20	4.7-5.5% 5.9-6.7% 7.1-7.8%		
1.0	Layer 1 FX	Random strobe - 1 dot mask Lite in/out - all Lite in/out - circle mask	21-23 24-26 27-29	8.2-9.0% 9.4-10.2% 10.6-11.4%		
10	selection	Lite in/out - 4 dot mask Lite in/out - 1 dot mask Snake	30-32 33-35 36-38	11.8-12.6% 12.9-13.7% 14.1-14.9%		
		Raindrops Random pixel Random fake x 2 (L = 13)	39-41 42-44 45-47	15.3-16.1% 16.5-17.3% 17.6-18.4%		
		Random fake x 4 (L = 7) Line (L = 5) Double line (L = 3)	48-50 51-53 54-56	18.8-19.6% 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%		



			1			
		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%		
	Layer 1 FX	Off	0-1	0-0.4%	0	Snap
11	crossfade time	Crossfade and tail slove fast	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 25-29	7.8-9.4%		
	Layer 1 FX orientation	Rotate 90° & vertical flip		9.8-11.4%		
		Rotate 180° & horizontal flip	30-34	11.8-13.3%		
10		Rotate 270° & vertical flip	35-39	13.7-15.3%		
12		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%		



		Potato 100° % houses	05.00	22 2 2 4 007		
		Rotate 180° & bounce Rotate 270° & bounce	85-89 90-94	33.3-34.9% 35.3-36.9%		
		Off	90-94	37.3-38.8%		
		Rotate CCW at end	100-104	39.2-40.8%		
		Rotate CW at end	105-104	41.2-42.7%		
		Random rotate at end	110-114	43.1-44.7%		
		Off	115-134	45.1-44.7%		
		Rotate 90° **	135-134	52.9-54.5%		
		Rotate 180° **				
		Rotate 270° **	140-144	54.9-56.5% 56.9-58.4%		
		Horizontal flip **	145-149			
			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
	Layer 1 FX color generator	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		Yellow / Cyan	90-99	35.3-38.8%		Snap
	generalor	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 line	160-169	62.7-66.3%		Snap
		Red / Green / Blue - Vertical line	170-179	66.7-70.2%		Snap



		T	T			1 - 1
		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
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%		
16	Control / Settings	No DMX = Blackout*	105-107	41.2-42.0%		
10	Common / Semings	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	177-251	69.4-98.4%		
		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
•••	Pixel 2 24 RGBW	Red intensity 0-100%	0-255	0-100%	0	Fade
•••		Green intensity 0-100%	0-255	0-100%	0	Fade
•••		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 $\mathbf{A} - \mathbf{E}$.

