impression X5

User Manual

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Fixture software version 1.1.3

GLP

Document revisions

Revision number	Notes	Date released
20240207-01	Added pan/tilt disable to DMX Control/Settings channel (correction). Covers firmware v. 1.1.3	February 2024
20230928-01	Added DMX Mode 6, improved feature descriptions. Covers firmware v. 1.1.3	October 2023
20230402-01	Updated with improved description of features. Covers firmware v. 1.0.0	April 2023
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GLP® impression X5 User Manual

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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 severe 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!** Hot surface. Risk of burn injury.

Warning! Read the Quick Start and Safety Manual supplied with the impression X5 lighting fixture and available for download from www.glp.de before installing, operating or servicing the fixture. The Quick Start and Safety Manual contains important information for the safe use of impression X5 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, please contact your GLP® supplier, who will be happy to help.

The user documentation for GLP impression X5 lighting fixtures consists of:

- The **impression X5 Quick Start and Safety Manual**, supplied with impression X5 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 a detailed product overview, dimensions drawings and technical specifications for the product.
- The **impression X5 User Manual**, available for download from www.glp.de. The User Manual explains features and control of impression X5 fixtures.
- The **impression X5 DMX Channel Index**, containing the DMX control channel layout and DMX commands available in the fixture. This information is also included in the User Manual.

The impression X5 is 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 fixture's user documentation and on the fixture. Read the user documentation and familiarize yourself with the safety precautions it contains before installing, using or servicing the fixture. 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 fixture s user documentation.
- Check the fixture software version indicated on page 2 of this User Manual and then use the fixture's control panel 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 User 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 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 fixture. Save both documents for future reference.
- If you have any questions about the safe operation of the fixture, please contact an authorized GLP distributor (see list of distributors at www.glp.de).
- Use the fixture only as directed in this manual. Observe all markings in this manual and on the fixture.

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:

- GLP Germany: +49 (7248) 927 19-55
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Avoiding damage to the fixture

The Quick Start and Safety Manual contains important information that is intended to help you avoid possible damage to the fixture from other light sources, during transportation, etc. Read that information before storing, transporting or using the fixture.

2. Features

Light source

The impression X5 features a powerful light engine containing 19 x 40 W RGBL LEDs.

Control options

The impression X5 is compatible with DMX 512 and RDM control protocols. Other control options via Ethernet are currently in preparation for inclusion in a future firmware release.

The fixture also features GLP iQ.Mesh and GLP's FPO (Flexible Protocol Option) Port. The GLP iQ.Mesh Module allows easy configuration, control, service and maintenance via the GLP iQ.Service App. The FPO port allows you to use control options such as LumenRadio CRMX if a CRMX module accessory is installed. The CRMX module and other FPO modules can be supplied on request – GLP Service can give details.

Powering on

When power is applied to the fixture and no valid DMX signal is present, the head moves automatically to its home position (pan center/tilt center).

Pan and tilt

The impression X5 has motorized pan and tilt movement with coarse and fine control channels.

Pan and tilt range

For details of pan and tilt angles, see the technical specifications in the impression X5 Quick Start and Safety Manual supplied with the fixture and available for download from www.glp.de.

It is possible to change the pan range from the standard angle to the maximum possible angle using the **Fixture Settings → Pan range** setting (see 'Pan Range' on page 22).

Tilt range can be limited using the **Fixture Settings → Accessory** setting (see 'Accessories and tilt range' on page 22) to avoid damage if an external accessory is installed on the head

Direction of pan and tilt movement

With the fixture standing on the ground, increasing the pan DMX value moves the yoke clockwise from its home position. Pan direction can be reversed using the **Fixture Settings → Pan Invert** setting (see 'Pan invert' on page 21) or via DMX on the Special/Control channel.

With the fixture standing on the ground, increasing the tilt DMX value moves the head towards the front from its home position. Tilt direction can be reversed using the **Fixture Settings → Tilt Invert** setting (see 'Tilt invert' on page 21) or via DMX on the Special/Control channel.

Pan and tilt position feedback and self-correction

The fixture has a pan/tilt position feedback and self-correction system that brings the head back to its correct position if it was unintentionally moved. When correcting pan and/or tilt, the fixture at first tries twice to move to the correct position. If it cannot move to this position, it waits for a short period and then tries again. Position feedback is automatically disabled for a short time if you press one of the control panel buttons on the yoke. This feature lets an operator move the yoke manually for more convenient use of the control panel and display. Pan and tilt remain automatically disabled while you are using the fixture's control panel.

Position feedback can also be set to constantly disabled using the **Fixture Settings → Position Feedback** setting (see Pan/Tilt disable' on page 21 or via DMX on the Special/Control channel.

Fixture performance and speed options

You can adjust the speed (and noise level) of pan and tilt movement, as well as the speed of all other mechanical effects, by selecting from three different performance options (see 'Performance modes' on page 19).

Zoom

The impression X5 has motorized zoom control. Control on the Zoom DMX channel moves from spot to flood as the DMX value increases.

You can adjust the speed (and noise level) of zoom movement, as well as the speed of all other mechanical effects, by selecting from three different performance options (see 'Performance modes' on page 19).

Main and Sub modules

Some control modes divide the fixture into two or more modules or layers (Main module and Sub modules). For example, Control Modes 2-4 divide the Washlight into:

- Main module (Layer 1 = one RGB(L) Wash fixture)
- Sub module (Layer 2 = pattern engine with segment or individual pixel control).

The Sub module has its own intensity and shutter channels. Professional controllers will handle this setup in a smart multi-fixture profile.

The **Sub module mode** setting lets you decide whether the Sub module should be subordinate to or independent of the Main module (see 'Sub module mode / Sub fixture mode' on page 19).

Individual Segment or Pixel Control

The impression X5 provides nineteen individually controllable pixels. Each pixel cell houses a 40 W RGBL LED that can be controlled individually in intensity and color to create dynamic effects and pixel mapping.

The fixture's different DMX control modes offer different options for working with the individual segments or pixels.

In nearly all DMX modes, the Main module gives color mixing control of all pixels together as one segment.

- **Mode 1 (Basic)** gives control of all the fixture's main functions, with color mixing control of all nineteen pixels together as one segment.
- **Mode 2 (Normal)** adds a Sub module as a second layer with pattern effects and color mixing control of all nineteen pixels together as one segment.
- **Mode 3 (Segment)** adds Sub module(s) as a second layer with pattern effects and color mixing of three segments: the inner, middle and outer rings.
- **Mode 4 (Multipixel Advanced)** adds Sub module(s) as a second layer with pattern effects and RGB color mixing of each individual pixel.
- **Mode 5 (Multipix Compressed RGB)** is a **pixel mapping** mode which offers the main overall control options plus RGB color mixing of each individual pixel.
- **Mode 6 (Multipix Compressed RGBL)** is a **pixel mapping** mode which offers the main overall control options plus RGBL color mixing of each individual pixel.

Color mixing

The fixture's Main module features 16-bit color mixing with RGB, RGBL or x;y (CIE 1931) Color Mix control options. See 'Color Mix modes' on page 15.

Note: The Color Mix mode of the Sub module(s) is always RGB. For more details, see 'Color Mix modes' on page 15.

iQ.Gamut

iQ.Gamut is a new LED calibration technology from GLP that defines the color gamut for the color mix channels. You can select one of a range of calibrated iQ.Gamuts for the fixture to work within. This feature can be useful if you want to reproduce correct colors or avoid TV camera clipping. See 'iQ.Gamut' on page 17.

Mix Priority

The Mix Priority channel defines how the color mixing output of the Main module (Layer 1) and the color mixing output of the Sub module(s) (Layer 2) are merged together – or which value has higher priority. This lets you switch between the layers or create special effects using both layers.

The Mix Priority channel gives the following options:

- **Main + Sub (HTP)** – The fixture takes whichever color value of the Main module or Sub module is highest and uses that value to determine the output color (Highest Takes Priority).
- **Main Only** – The Sub module color value is ignored. The fixture uses the color value of the Main module.
- **Sub Only** – The Main module color value is ignored. The fixture uses the color value of the Sub module.
- **Main + Sub additive** – The Sub module color value is added to the Main module color value. The fixture uses the sum of both values.

- **Main - Sub subtractive** – The Sub module color value is subtracted from the Main module color value.
- **Sub - Main subtractive** – The Main module color value is subtracted from the Sub module color value.
- **TrueColor Main over Sub Snap** – Sub module color stays in the background. Main module color has higher priority and will not mix with Sub module color. As soon the Main module color value is greater than zero, Sub module color blacks out and the fixture uses the Main module color.
- **TrueColor Sub over Main Snap** – Main module color stays in the background. Sub module color has higher priority and will not mix with the Main module color. As soon as Sub module color value is greater than zero, Main module color blacks out and the fixture uses Sub module color.
- **TrueColor Main over Sub Crossfade** – Sub module color stays in the background. Main module color has higher priority. If you fade in a Main module color, Sub module color will crossfade to the Main module color.
- **TrueColor Sub over Main Crossfade** – Main module color stays in the background. Sub module color has higher priority. If you fade in a Main module color, Sub module color will crossfade to the Main module color.
- **Main to Sub Crossfade –** Manually crossfading from Main module color only → Main and Sub module color (HTP) → Sub module color only.

White point

The white point is the default white that is obtained when the shutter is opened. The impression X5 offers a choice of fixed white points in RGB Color Mix Mode, allowing convenient use in different environments. For details of setting the white point, see 'White point' on page 17.

Color temperature control (CTC)

In addition to the *choice* of default fix*ed* white point*,* the fixture offers Color Temperature Correction (CTC) in all three color mixing control modes (RGB, RGBL and x;y). The CTC Channel allows *a* temporary change of white point and offers a smooth shift between whites from 10 000 K to 2 500 K following the black body line.

Depending on the selected Color Mix Mode (RGB, RGBL or x;y), if you select a color temperature on the CTC channel, the fixture will no longer use the specific open color and will instead use the selected color temperature.

If you select a color temperature on the CTC channel, it is still possible to manipulate the color temperature using the RGB and RGBL channels.

Note: To obtain the desired color temperature on the CTC channel, you must set all Color Mix channels to 100%. If they are not at 100%, the system will mix color relative to the selected white point of the CTC channel.

The CTC channel affects all the fixture's modules. Setting the CTC channel to a specific color temperature will affect the open white of the Main module and Sub modules.

Color Quality Control (CQC)

The CQC channel lets you modify the spectral mix of the white output in order to achieve a balance between better color rendering or higher output intensity. The following options are available:

- **High Quality (HQ)** deploys multiple LEDs to create a richer light spectrum that gives improved color rendering but also slightly lower output. Color is mixed with priority given to the best white color rendering quality. Saturated colors will have maximum saturation at DMX 000 and will smoothly become unsaturated until they reach 0% saturation (= white) at DMX value 127.
- **High Output (HO)** gives higher output intensity but reduced color rendering performance. Color is mixed with priority given to the highest output in white. Saturated colors will have maximum saturation at DMX 255 and will smoothly become unsaturated until they reach 0% saturation (= white) at DMX value 128.

While using white light, the CQC channel lets you change between white with priority on high-quality color rendering and white with priority on highest output. Additionally, the CQC channel lets you smoothly desaturate colors. If you have set a saturated color in the color mix, the CQC channel lets you smoothly desaturate the color from saturated to fully unsaturated (i.e. white).

Note: The CQC channel affects all the fixture's modules. Setting the CQC channel to a specific value will affect the colors of the Main module and Sub modules.

*Note: The **HO** and **HQ** CQC options only affect the color mix if the fixture is in RGB or x;y Color Mix mode. In all other Color Mix modes this setting has no effect.*

Magenta/Green Shift (M/G Shift)

The Magenta/Green Shift channel lets you move the color coordinate of a white point, a mixed color or a selected CTC color along a vertical line on the color temperature curve in all three Color Mix modes. The corresponding white point is either shifted towards Green or Magenta.

If M/G Shift is enabled, it immediately affects all mixed colors as well as the color temperature that is selected on the CTC channel. It has no effect on the colors of the virtual color wheel.

Note: The M/G Shift channel affects the entire fixture. Setting the M/G Shift channel to a specific value will affect the output of the Main module and Sub modules.

Color wheel

The impression X5 features a virtual color wheel channel that gives quick access to a wide range of LEE-referenced colors in all three Color Mix modes. Color wheel color presets are always mixed with the best available spectrum. Color filter color coordinates are based on a Source C (daylight) light source.

Besides static color presets, the color wheel channel also offers continuous color scrolling through HSI colors. When set to HSI Scroll the fixture runs through HSI colors with speed variable from slow to fast.

The crossfade time of a color change is relative to the speed: at slow speeds colors crossfade smoothly and at fast speeds colors snap.

If a color coordinate is outside the possible color gamut of the light source, the fixture tries to match the target color as closely as possible.

Note: Color wheel color presets have higher priority than the Color Mix, CTO and M/G Shift channels.

The virtual color wheel channel must be set to DMX 000 in order to use normal RGB, RGBL or x:y color mixing.

Tungsten simulation

When a tungsten lamp is dimmed, there is a small delay in intensity changes and there is a color shift along the black body line. The tungsten simulation channel allows the user to select between different tungsten options in all three Color Mix modes.

The first part of the Tungsten channel offers standard tungsten features with fixed color temperature, red shift and delayed intensity changes. The color temperature as well as the color shift and inertia of the selected light source are fully simulated. Tungsten mode has higher priority than the color wheel or CTC.

The second part of the Tungsten channel lets you apply one of the corresponding tungsten effects (inertia and intensity) to the currently set mixed color or currently selected color temperature on the CTC channel.

Note: The Tungsten simulation channel affects the entire fixture. Setting the Tungsten channel to a specific value will affect the output of the Main module and Sub module.

Shutter

The fixture's shutter channel offers continuous blackout, continuous open and a range of intensity effects.

Depending on the selected Sub Module Mode, the shutter channel of the Main module channel group acts as either a master shutter or as the shutter channel of the Main module independently of the Sub module.

The following shutter effects are available:

- **Single flash** performs exactly one single flash with each value change within this DMX value slot.
- **Pulse** dims up and down smoothly with the same fade-in and fade-out times. Speed can be adjusted from slow to fast.
- **Pulse open** fades in and then snaps to blackout. Speed can be adjusted from slow to fast.
- **Pulse close** fades out and then snaps to full. Speed can be adjusted from slow to fast.
- **Strobe double flash** provides a quick double flash. Speed can be adjusted from slow to fast.
- **Strobe pixel random** (only available when the fixture is set to a DMX mode with individual pixel control) strobes individual pixels at random to give a kind of sparkling effect. Speed can be adjusted from slow to fast.

- **Strobe random** strobes all of one fixture's pixels together at random intervals, allowing a random strobe between multiple fixtures. Speed can be adjusted from slow to fast. *Note that the random effect across multiple fixtures really is random!*
- **Strobe** strobes all of one fixture's pixels together and also perfectly synchronizes the strobe in multiple fixtures so that all the fixtures flash at exactly the same time. Speed can be adjusted from slow to fast.

Note: Depending on the selected Sub Module Mode, the dimmer and shutter channels of the Sub modules can operate independently of or subordinately to the dimmer and shutter channels of the Main module.

Dimmer

The electronic dimming effect provides smooth 16-bit dimming of the Main module and Sub module. Three dimming curves with different dimming characteristics are available. See 'Dimming curves' on page 18.

Pattern control

The impression X5 offers a wide range of static and dynamic pre-programmed FX patterns on the Sub modules. The Sub module color control channels define the color of the pattern effects.

A static pattern is a fixed pattern with only one pattern step. This allows you a very quick selection of a non-dynamic effect. It has active and inactive pixels. Each active pixel shows the selected pattern color while each inactive pixel is fully transparent.

A dynamic pattern is a sequence of multiple pattern steps and has active and inactive pixels. Each active pixel shows the selected pattern color while each inactive pixel is fully transparent. You can set pattern steps to automatically change continuously (Pattern Speed) or you can directly select pattern steps (Pattern Index).

Note: The Mix Priority channel lets you decide how the output of the Main module and the Sub module (pattern or pixel mapping) should be merged.

Pattern selection

The pattern selection channel offers a choice of 59 static patterns, 50 dynamic patterns and some special patterns. The dynamic patterns offer multiple pattern steps for individual step selection or continuous pattern step chasers.

Pattern 0 (DMX 000) is the idle pattern and just sets all pixels to active.

The Random Pixel FX pattern at the end of the Pattern Select channel randomly selects pixels to create an attractive sparkle effect.

Pattern speed/index

As a dynamic pattern is a sequence of multiple pattern steps, you can select either:

- an automatic clockwise or counterclockwise continuous run-through of the pattern steps with different speeds (dynamic speed control = DMX values 002 … 127), or
- one of the available specific pattern steps (static indexing = DMX values 128 … 255).

Note: Bear in mind that different patterns can have a different number of pattern steps. This can affect synchronization between fixtures, for example, if you run different patterns in multiple fixtures.

Pattern step crossfading

The Pattern Step Crossfading channel lets you choose how one step in a pattern should change into the next step. This change can be a snap, a normal crossfade or a fade with tail (quick fade in and variable long fade out).

Pattern transition

The Pattern Transition channel lets you choose how Pattern A should change into Pattern B. This change can be a snap, a soft crossfade, a Fade Over Blackout (FOB) or Fade Over Full (FOF).

Special/Control DMX channel

The Special/Control DMX channel lets you change fixture settings and perform a fixture reset from the control desk (a possibility that can be very useful during a show or for a specific scene). To apply a command on the Special/Control channel, you must hold the command for the time indicated in the DMX channel index section at the end of this user manual.

To trigger a reset using the Special/Control channel, you must send the DMX value for this function for 3 seconds. If you want to trigger an additional reset using the Special/Control channel, you must first move away from the Reset DMX value and then return to this value. This requirement to change DMX values eliminates the risk of the fixture entering an unwanted Reset loop if it is patched wrongly.

Note: Most of the fixture settings available in the fixture's control menus or on the Special/Control DMX channel are also available via RDM.

GLP FX.Port / Accessory channels

It is possible to install optional electromechanical effect modules on the front of the impression X5 head. These modules can be supplied with power and control data using the GLP FX.Port on the back of the head. The two accessory channels supply two sets of DMX control data at this connection.

3. Fixture Settings

The settings described in this chapter let you customize the impression X5. Settings can be available in the control panel on the fixture's yoke, via DMX and/or via RDM.

Color Mix modes

The Color Mix Mode setting offers three different options for color mixing:

RGB Mode

RGB Mode mixes color of the main and sub module(s) using Red, Green and Blue channels. The Lime LED is mixed automatically using the fixture's internal GLP iQ.Gamut algorithm.

RGB Mode offers a clean default white light at open which is considered to be the white point (RGB at 100%).

When the **Color Mix Mode** is set to **RGB**, the different DMX Modes have the following functionality:

- Mode 1 – Basic
  - Main Layer: RGB control of all pixels as one group with Lime mixed automatically. Lime Channel has no function.
- Mode 2 – Normal
  - Main Layer: RGB control of all pixels as one group with Lime mixed automatically. Lime Channel has no function.
  - Sub Layer: RGB control of all pixels as one group with Lime mixed automatically.
- Mode 3 – Segment
  - Main Layer: RGB control of all pixels as one group with Lime mixed automatically. Lime Channel has no function.
  - Sub Layer: RGB control of each segment with Lime mixed automatically.
- Mode 4 – Multipix
  - Main Layer: RGB control of all pixels as one group with Lime mixed automatically. Lime Channel is dead.
  - Sub Layer: RGB control of each pixel with Lime mixed automatically.
- Mode 5 – Multipix Compressed RGB
  - RGB control of each pixel with Lime mixed automatically.
- Mode 6 – Multipix Compressed RGBL
  - RGBL control of each pixel.

RGBL Mode

RGBL Mode mixes color of the main module using Red, Green, Blue and Lime channels. The colors of the Sub module(s) are mixed with RGB only - always without Lime. The color gamut is still calibrated to the X5 range, but the white point (open) is not adjusted to the black body line and will show a white that is mixed using 100% RGBL.

*Note: The **HO** and **HQ** CQC options are not available in RGBL Mode.*

When the **Color Mix Mode** is set to **RGBL**, the different DMX Modes have the following functionality:

- Mode 1 – Basic
  - Main Layer: RGBL control of all pixels as one group with individual Lime control.
- Mode 2 – Normal
  - Main Layer: RGBL control of all pixels as one group with individual Lime control.
  - Sub Layer: RGB control of all pixels as one group without automatically mixed Lime. Lime is always 0%.
- Mode 3 – Segment
  - Main Layer: RGBL control of all pixels as one group with individual Lime control.
  - Sub Layer: RGB control of each segment without automatically mixed Lime. Lime is always 0%.
- Mode 4 – Multipix
  - Main Layer: RGBL control of all pixels as one group with individual Lime control.
  - Sub Layer: RGB control of each pixel without automatically mixed Lime. Lime is always 0%.
- Mode 5 – Multipix Compressed RGB
  - RGB control of each pixel with Lime mixed automatically.
- Mode 6 – Multipix Compressed RGBL
  - RGBL control of each pixel.

x:y Mode

x;y Mode lets you send x;y color coordinates to the fixture via DMX. The internal color algorithm mixes the four LED colors perfectly to match the x:y color coordinates.

In x:y Mode, white point setting is disabled. CTC channel values overwrite x;y values.

When the **Color Mix Mode** is set to **x:y**, the different DMX Modes have the following functionality:

- Mode 1 – Basic
  - Main Layer: x;y control of all pixels as one group
- Mode 2 – Normal
  - Main Layer: x;y control of all pixels as one group.
  - Sub Layer: RGB control of all pixels as one group with automatically mixed Lime.
- Mode 3 – Segment
  - Main Layer: x;y control of all pixels as one group.
  - Sub Layer: RGB control of each segment with automatically mixed Lime.
- Mode 4 – Multipix
  - Main Layer: x;y control of all pixels as one group
  - Sub Layer: RGB control of each pixel with automatically mixed Lime.

- Mode 5 – Multipix Compressed RGB
  - RGB control of each pixel with automatically mixed Lime.
- Mode 6 – Multipix Compressed RGBL
  - RGBL control of each pixel.

White point

The white point is the default white that is obtained when the shutter is opened. The impression X5 offers a choice of fixed white points in RGB Color Mix Mode, allowing convenient use in different environments. The following fixed white points (color temperatures) are available:

- **8000 K** (effect light)
- **6500 K** (daylight – default)
- **5600 K** (TV and studio)
- **4200 K** (CDM)
- **3200 K** (tungsten)

If a fixed white point is enabled, the fixture mixes colors with reference to it. GLP iQ.Gamut navigates through the color space using the preferred Color Mode color mixing method.

Note: Fixed white point settings are only valid for RGB mode using the iQ.Gamut FULL. If any of the other defined color gamuts is selected, the defined white point of the selected color gamut is applied.

iQ.Gamut

iQ.Gamut is a new LED calibration technology from GLP that defines the color gamut for the color mixing channels. You can select one of a range of calibrated iQ.Gamuts for the fixture to work within. This feature can be useful if you want to reproduce correct colors or avoid TV camera clipping. The iQ.Gamut setting will only affect the color mix if the fixture is in **RGB** Color Mix Mode. In all other Color Mix modes this setting has no effect.

The following iQ.Gamut settings are available:

- **FULL** (default) – Color mixing is calibrated to the X5 color gamut and referenced to the selected fixed white point. This setting gives the best results with applications where deep saturated colors are needed.
- **Rec.2020** – Color mixing is matched to the defined Rec.2020 gamut including its white point. This setting gives best results for UHD TV applications and avoids color clipping.
- **Rec.709** – Color mixing is matched to the defined Rec.709 gamut including its white point. This setting gives best results for HD TV applications and avoids color clipping.
- **DCI P3.6** – Color mixing is matched to the defined DCI P3.6 gamut including its white
  point.

Dimming curves

The electronic dimming effect provides smooth 16-bit dimming of the Main module and Sub modules. The following three dimming curves are available:

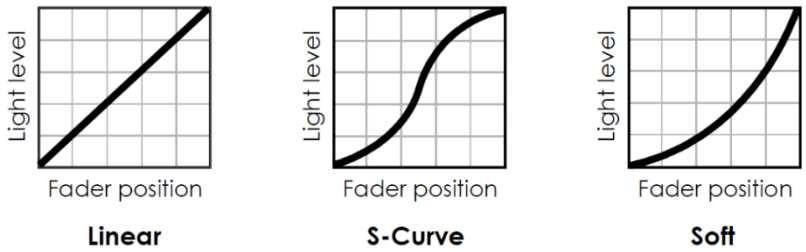


Figure 1. Dimming curves

- The **Linear** setting gives a dimming curve that the eye perceives as linear.
- The **S-Curve** setting gives finer control at lower light levels and at higher light levels, with coarser control at medium light levels.
- The **Soft** setting gives finer control at lower light levels, where the eye is most sensitive to changes in light intensity, and coarser control at higher light levels.

Note: Depending on the selected Sub module Mode, the dimmer and shutter channels of the Sub modules can operate independently of or subordinately to the dimmer and shutter channels of the Main module.

Fan modes

Five cooling fan modes let you give priority to lowest fan noise or most powerful cooling:

- **Regulated** mode gives priority to light output and only operates fans as necessary. If the fixture is blacked out, fans switch off after some seconds. Only the fans that are necessary operate, and they run at minimum speed. When light output intensity is increased, temperature regulation increases fan speed to the level necessary to keep the fixture at optimum temperature.

  If light output is set to maximum intensity but the fans can keep the fixture at optimum temperature, there is no regulation of light intensity. If the fixture begins to exceed optimum temperature and the fans are running at maximum speed, light intensity is limited until optimum temperature can be maintained.

- **High** mode sets the fixture to give maximum light output and suits operation in high ambient temperatures. Fans are set to constant operation at high speed. Light output intensity is limited smoothly if it becomes necessary in order to keep fixture temperature at optimum level.

  You can also use **High** mode to cool down a fixture quickly after a period of operation or to help remove dust from cooling fans.

- **Medium** mode sets fans to constant operation at medium speed. Light output intensity is reduced to a level where it will normally remain constant at ambient temperatures of up to 45° C (113° F). Intensity is smoothly limited further if it becomes necessary in order to keep fixture temperature at optimum level.

- **Low** mode sets fans to constant operation at low speed and is optimized for minimum noise. Light output intensity is reduced to a level where it will normally remain constant at ambient temperatures of up to 30° C (86° F). Intensity is smoothly limited further if it becomes necessary in order to keep fixture temperature at optimum level.
- **Minimum** mode operates as follows:
  - If the fixture is at blackout, all unnecessary fans are shut down completely and only fans that are absolutely necessary remain active. These fans operate at low speed.
  - As soon as the fixture emits light, other necessary fans may start but will stay at minimum speed. Light output is limited.

Note: In all fan modes, if fixture temperature reaches a dangerous level, the LEDs are shut down for a period until the fans have brought the temperature down to a safe level.

Sub module mode / Sub fixture mode

The impression X5 offers two options for controlling the Main module and Sub modules:

- **Normal** – In this mode, all Sub module channels are subordinate to the Main module channel group. This means that the intensity and shutter of the Main module act as master intensity and master shutter for the whole fixture.
- **Independent** – In this mode, the Sub module channel group can be controlled independently of the Main module channel group and acts as an independent fixture.

Note that no matter which Sub module mode setting you select:

- The **Mix Priority** channel is still active and will affect how the two dependent or independent modules are mixed.
- Some of the general color management channels of the Main module such as CTC, CQC, M/G-Shift and Tungsten simulation will still affect the Sub module.

Performance modes

You can select between three different settings for the movement speed of the fixture's mechanical effects (pan/tilt and zoom):

- **Normal** sets mechanical effects movement to give an optimum balance between speed, quietness and smoothness. **Normal** is the default setting.
- **Fast** sets movement to maximum speed. This setting gives very fast effect movement but can result in higher noise levels.
- **Smooth** optimizes the smoothness of the mechanical effects and gives lowest-noise performance. This setting gives extremely low noise and smooth performance, but effect movement will be slower than in **Normal** mode.

PWM frequency

This setting lets you select between different PWM frequencies for different applications and adjust LED frequencies to give the best results at different camera shutter frequencies. Changing the PWM frequency can improve dimming performance or help avoid flicker and beat frequencies in video images.

The following PWM settings are available:

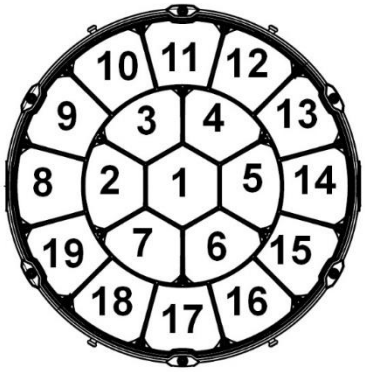
- **Low** – PWM frequency is fixed at a lower level, giving best dimming results.
- **Optimum** (default) – PWM frequency is set to a level which offers a good compromise between best dimming results and avoiding flicker.
- **High1** – PWM frequency is set to a higher level.
- **High2** – PWM frequency is set to a higher level than High 1.
- **Max** – PWM frequency is set to the highest possible level. Use this setting for slow motion video or high speed camera applications. Dimming resolution at this setting is not as good as the other PWM settings.

Note: A higher PWM frequency may affect dimming performance. The PWM frequency setting is stored in the fixture and is not affected by cycling power off and on. However, it will be affected if you use the Factory Defaults command in the control menus. As a rule, you should set all the fixtures in an installation to the same PWM frequency in order to ensure the same performance.

Pixel mirror

The **Pixel mirror** setting lets you flip the fixture's pixel layout on the x-axis, y-axis or both x- and y-axis:

- **Off** gives the standard pixel layout:



  The drawing above shows the pixel layout with the fixture standing on the ground, pan at 50% (home position) and tilt at 50% (front).

- **x-mirror** flips the pixel layout over the x-axis.
- **y-mirror** flips the pixel layout over the y-axis.
- **x:y mirror** flips the pixel layout over the x-axis and the y-axis.

See 'Pixel *layout*' on page 38 for drawings.

Pixel rotation

Lets you rotate the fixture's pixel layout by: **0° – 60° – 120° – 180° – 240° – 300°**.

No signal

The **No signal** settings let you manage how the fixture behaves 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):

- **Blackout** sets the fixture to black out whenever it is not receiving a DMX signal. This is the default setting.
- **Hold** sets the fixture to continue using the last DMX values it received.
- **Scene (Stand-alone)** sets the fixture to play its stored stand-alone scene (see **Capture DMX Values** below) when the fixture is not receiving a DMX signal. If no stand-alone scene is stored in memory, the fixture will black out.

  If the fixture is set to **Scene (Stand-alone)** and if a stand-alone scene has been stored in its memory using the **Capture DMX Values** command, it will display its stand-alone scene at all times when it is powered on but not receiving a DMX signal. You can therefore use this setting if you want fixtures to automatically start stand-alone operation when you apply power to them.
- **Capture DMX Values** takes a snapshot of the DMX values that are currently being received and stores them in the fixture's memory as its captured scene. The fixture will display this scene if it is set to **Scene (Stand-alone)** (see above) and is not receiving a DMX signal.

Pan invert

With the fixture standing on the ground, increasing the pan DMX value normally moves the yoke clockwise from its home position.

Changing the Pan invert setting to ON inverts the pan direction so that increasing the pan value turns the yoke counterclockwise.

Tilt invert

With the fixture standing on the ground, increasing the tilt DMX value moves the head towards the front from its home position.

Changing the Tilt invert setting to ON inverts the tilt direction so that increasing the tilt value turns the head towards the back (towards the gray safety eyelet).

Position feedback

Pan and tilt auto-correction (position feedback) is normally enabled (On). Changing this setting to OFF will disable the position feedback and auto-correction. If you need to return pan and tilt to their correct positions, you must perform a reset.

Pan/Tilt disable

Changing the Pan/Tilt disable setting to "Current disable" de-activates pan and tilt by disabling the pan and tilt motor current.

Note: When changing from ON back to OFF to re-enable pan and tilt movement, you must carry out a reset before you can operate pan and tilt normally.

Pan Range

For normal use and to make swapping fixtures easier, pan is normally limited to a standard 540° maximum pan angle (NORMAL). However, if you wish to use the full pan range between mechanical end positions, it is possible to extend the standard range to the mechanical maximum (EXTENDED).

For details of pan angles, see the technical specifications in the impression X5 Quick Start and Safety Manual supplied with the fixture and available for download from www.glp.de.

Accessories and tilt range

If an external accessory is installed on the head, it may be necessary to limit the fixture's tilt angle. The following settings are available:

- **None** (default) – The tilt angle is not limited: Maximum tilt angle is possible.
- **Egg Crate –** Maximum tilt angle is limited to allow the installation of an optical accessory such as the GLP Egg Crate Extension.

Display Mode

Gives different display behavior options. This can be helpful in case of errors or during service operations. Three settings are available:

- **Auto** (default): the display automatically switches off after a few seconds if the fixture is receiving a valid control signal and has not detected an error. If the fixture is not receiving a valid control signal, the display will flash. If the fixture has detected an error, the display remains constantly on and shows the error.
- **On**: The display stays on constantly. This setting can be useful if you are configuring or servicing the fixture.
- **Off**: The display will automatically switch off after a few seconds even if the fixture is not receiving a valid control signal or if it has detected an error. Pressing any button turns on the display again.

Display Orientation

Lets you select **Normal**, **Upside-down** or **Auto** display orientation.

If **Display Orientation** is set to **Auto**, changing the display orientation by pressing UP and DOWN at the same time will only change the display orientation until the next power cycle.

Hibernation

Lets you put the fixture into energy-saving mode and disables all electronic components apart from the DMX receiving module.

You can take the fixture out of hibernation mode with a power off/on cycle, via RDM or using the Special / Control DMX channel. If you do this, the fixture will perform a fixture reset before returning to normal operation.

Load User Settings

Lets you load different custom fixture configurations or return the fixture to the default fixture settings.

*To save a custom setting preset from 1 to 3, see **Service → Advanced → Save_Settings**.*

- **Load User Settings 1** to **3** loads one of three specific custom fixture settings. You must confirm the function for 3 seconds before the new settings are loaded (see ***Fixture Settings → Load User Settings***).
- **Save User Settings 1** to **3** saves the current fixture settings as a set of user settings. You must confirm the function for 2 seconds in order to save the settings as one of the three custom settings presets (see ***Service → Advanced → Save User Settings***).

*Note: The **Load User Setting Presets** and **Load User Setting Defaults** commands will only affect settings in the **Fixture Settings** group and will not affect DMX Address, Control Mode, Protocol Type, IP Settings, etc. This helps avoid loss of communication with the controller.*

Information

The **Information** submenu provides readouts of all relevant information such as the error list if any errors have been detected, the fixture's serial number, firmware version, device info, device hours counter, power cycles counter, DMX input monitor, signal quality etc.

Manual Control

This submenu gives different options for resetting the fixture manually. It can be helpful for service or stand-alone issues.

- **Reset All**: Performs a full fixture reset to initialize all features and effects.
- **Reset P/T**: Resets pan and tilt only to initialize pan and tilt positions.
- **Reset Head**: Resets all the features in the head.

Manual DMX

Gives individual control of the fixture using the fixture user interface. The menu timeout function is disabled as long this menu is open.

- **Manual Control**: Manually sets a DMX value for each function.
- **Reset Manual values**: Resets all manual control values to default.

External DMX values will always have higher priority than manual control commands. Disconnect the fixture from the data source when using manual control.

Note: When entering manual control, be prepared for the fixture to start moving.

Service

The **Service** menu is split into two levels: **Service** and **Service Advanced**. The **Service Advanced** level is for trained technicians only. Read the information below carefully before entering this level.

The Service menu contains the following items:

- **Live Diagnostic**: Calls up an overview of all main fixture information, signal quality and settings. This can be helpful while troubleshooting or talking to GLP Service.
- **iQ.Service Connect**: Wakes up the integrated GLP iQ.Mesh Module for 5 minutes and enables connectivity to the GLP iQ.Service App.
- **Test All**: Runs a test sequence of all LEDs for a quick test of the fixture. Press BACK to stop the test sequence.
- **Test Pan/Tilt**: Runs a test sequence of tilt movement only. Press BACK to stop the test sequence.
- **Test LED**: Runs a test sequence of the LED pixel only. Press BACK to stop the test sequence.
- **Test Zoom**: Runs a test sequence of Zoom functionality only. Press BACK to stop the test sequence.
- **Test Fans (Auto)**: Starts a fan self-test. Tries to detect fan errors, clears any current errors if successful.
- **Test Fans (Manual)**: Tests fans one by one manually.
- **Test Encoders**: Auto test for all encoders.

Advanced Service

The **Advanced Service** level is for trained technicians only. Read the information below carefully before entering this level. You must confirm by pressing and holding ENTER for 3 seconds before you can enter this level.

The **Advanced Service** level contains the following items:

- **Service Mode**: Disables pan, tilt and all display timeouts to make servicing inside the fixture head easier. This mode is automatically disabled after a power cycle.
- **Job Offset**: Lets you set +/- offsets on mechanical effects. Custom offsets let you adjust fixtures in multiple installations (to compensate for the different positions of fixtures in a rig, for example).

  Any custom offsets that you create here will not affect the fixture's effect calibration.

  All custom offsets created here are deleted if you apply a **Load Factory Defaults** command.
- **Reset Counters**: Resets the different resettable fixture counters.

  Device counters are not reset by a **Load Factory Backup** command.
- **Save Settings**: Lets you save the current fixture settings to one of the three user settings presets. You can load a user settings preset that you have saved with a

Load User Settings command (see **Fixture Settings → Load User Settings**). The default fixture preset cannot be changed.

This command only saves fixture settings (Fan Mode, Color Mix etc.). It does not save fixture configuration information such as DMX address and DMX mode.

- **Firmware Push (Fixture2Fixture)**: Pushes the fixture's firmware (flash storage) to all other fixtures of the same type via the DMX link.

  Important! *The impression X5 series firmware is fully compatible with all X5 series fixtures. This means that a firmware push carried out by an X5 will also push its firmware to other X5 fixtures such as X5 Compact, X5 Bar 1000 and X5 IP Bar 1000 etc.*

Load Factory Defaults

Reloads all factory defaults over the entire fixture and brings the fixture into standard show condition.

You must confirm the function for 3 seconds before the default settings are loaded.

Important! *The factory default settings that are reloaded with this command include all data and network configuration parameters such as DMX start address, IP configuration etc. You may therefore lose communication with your controller.*

*The **Load Factory Defaults** command does not affect device counters and calibration.*

Factory Menu

Important! Do not enter the Factory Menu if you are not a trained service professional with service documentation or clear instructions from GLP Service. Read the user and service documentation carefully before entering this menu. In the Factory Menu you can apply critical settings which can damage the fixture.

The Factory Menu is a hidden menu for the manufacturer or professional service technicians only. This special menu allows fixture calibration and the adjustment of all mechanical features following the manufacturer's instructions.

To enable the Factory Menu, apply power to the fixture and press the ENTER and BACK buttons together while the pre-boot screen is being displayed. You can release the buttons as soon as FACTORY MODE appears in the black display. After doing this, **Factory Menu** is visible as the last item in the main menu. The Factory Menu will remain available until the next power cycle. While the Factory Menu is enabled, all display timeouts are disabled to make working on the fixture easier and a Factory symbol is visible in the main screen.

4. Control panel

Warning! DMX control is disabled when the control menus are active. Be prepared for the head to move as soon as you exit the control menus.

The control panel and backlit graphic LCD display with self-charging battery allow you to change fixture settings, view readouts and use utilities quickly and intuitively, even when the fixture is disconnected from power.

To allow comfortable use of the control panel, pan and tilt are automatically disabled for a few seconds if you turn the yoke manually. Pressing any button on the control panel also disables pan and tilt for a few seconds. Pan and tilt remain disabled for as long you are working in the control panel. If no button is pressed for a few seconds, head movement is re-enabled with pan and tilt correction applied.

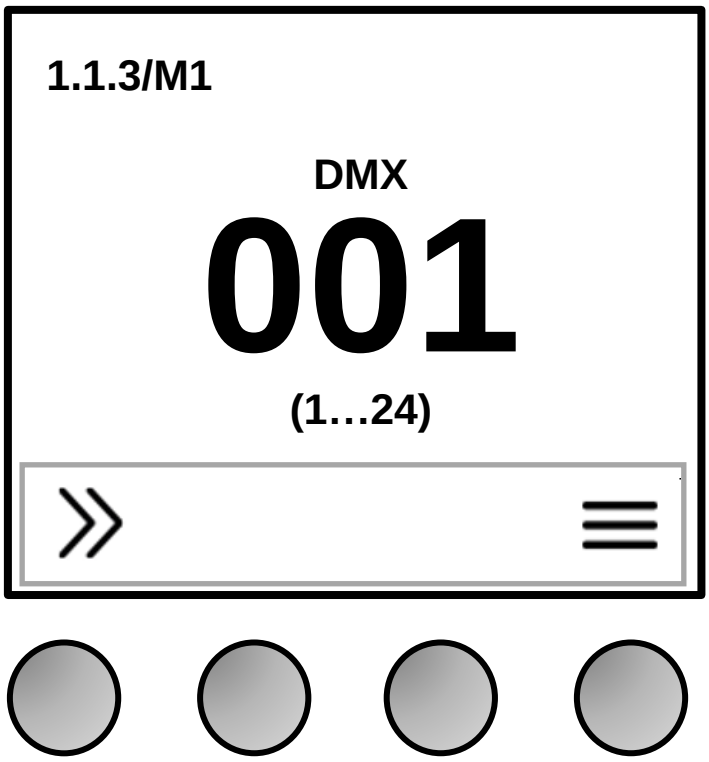


Figure 2. Default information screen

Default information screen

When power is applied, the fixture performs a reset. After the reset has completed, the default information screen appears in the control panel display on the side of the yoke.

At any other time, you can press any key to unlock the control panel. Doing this also calls up the default information screen in the control panel display.

See Figure 2. The top line of the default information screen consists of, from left to right:

- Main CPU firmware version
- DMX Mode

The center of the screen shows the following information:

- Signal source.
- Fixture's current DMX address in large characters. If the fixture's self-diagnosis system detects an error, the fixture will flash the error code alternately with the DMX address. This lets you see the DMX address and error code at a distance from the fixture.
- If the fixture detects a valid, active network at one of the fixture's etherCON ports, the default screen will show a network icon to the left or right of the DMX address:
  - Icon on left = data at Port A (on left of fixture when facing control panel)
  - Icon on right = data at Port B (on right of fixture when facing control panel)

  The fixture displays network speed below the network icon.

  If the fixture does not detect a network at one of the ports, it displays NO LINK instead of the network icon for that port.
- Below the current DMX address, the fixture displays in smaller characters the DMX channels that the fixture is currently using.

In the example shown in Figure 2:

- The fixture is running CPU software version 1.1.3
- The fixture is set to DMX Mode 1
- The fixture is set to receive data via DMX
- The fixture's DMX start address is 001
- The fixture is using DMX channels 1 to 24.

Note: See 'Setting up the control protocol' on page 30 for details of how to configure the fixture's network address.

Using the control panel

The four control panel buttons under the display have the following functions.

In the main screen:

QUICK MENU – Activates the Quick Menu

UP/DOWN – Press three times to open the live diagnostic tool

MENU – Activates the control panel if it is in sleep mode, then opens the main menu

When navigating through the menus:

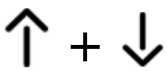
 BACK – Goes back one level towards the top of the menu

 UP – Scrolls up or increments a number

 DOWN – Scrolls down or decreases a number

 ENTER – Confirms a setting or implements a command

At any time:

 UP and DOWN at the same time – Temporarily rotates the display 180°

Control button shortcuts

Battery Eco Mode (available in Battery Mode only)

When the fixture is running on battery power, holding MENU and ENTER together for 10 seconds activates Battery Eco Mode. This switches off the display completely to avoid any unwanted discharge of the battery and can be very useful when a fixture is put into long-term storage.

Live Diagnostics

Pressing UP or DOWN three times calls up an overview of all main fixture information, signal quality and settings. This can be useful if you are troubleshooting or if you are in contact with GLP Service.

Toggle Display Orientation

Pressing and releasing UP and DOWN together rotates the display through 180°.

*Note: If Display Orientation is set to **Auto**, changing the display orientation by pressing UP and DOWN at the same time will only change the display orientation until the next power cycle. To change the display orientation permanently, go to **Fixture Settings → Display Orientation** in the control panel menus.*

Error Messages

If the fixture detects an error, it shows an error message in the display. The message is 'sticky' and will continue to be shown in the display until the next power cycle or reset.

To get details of the error message, follow the information in the display. These details are important if you talk to GLP service.

Loss of DMX signal

The display flashes if the DMX signal is lost (the fixture will then behave according to its No Signal setting – see 'No signal' on page 21).

Service and maintenance

See the separate *impression X5 Quick Start and Safety Manual* supplied with the fixture and available for download from www.glp.de for information on service and maintenance.

5. Setting up the control protocol

The impression X5 can be controlled via:

- USITT512 DMX over a standard DMX cable link using the fixture's 5-pin XLR connectors,
- GLP's wireless iQ.Mesh technology.
- LumenRadio CRMX (optional). The integrated GLP FPO (Flexible Protocol Option) port allows the installation of an optional protocol module. If a CRMX module is installed, the fixture can be controlled via CRMX. Contact your GLP supplier for details.

This section explains how to configure the fixture to use one of these control data protocols.

*Note: The control protocol settings are not affected if you apply a **Fixture Settings → Load User Settings → Setting Defaults** command in the fixture's control panel, but they are returned to factory defaults if you apply a **Load Factory Defaults** command in the main menu.*

DMX

The fixture is set up for control via a standard DMX cable link by default.

If the control data protocol has been changed and you want to return to DMX control over a standard DMX cable link, open the menus in the fixture's control panel and make the following adjustments:

1. In the main menu in the fixture's control panel, open **DMX Address** and give the fixture a suitable DMX address.
2. In the **Protocol Setup → Data In** menu, set the control protocol to **DMX**.

iQ.Mesh

If you want to control the fixture via GLP iQ.Mesh:

1. Open the menus in the fixture's control panel.
2. In the **Protocol Setup → Data In** menu, set the control protocol to **iQ.Mesh**.

LumenRadio CRMX

Note: The CRMX control option is only available if a LumenRadio CRMX module is installed at the fixture's FPO port.

If you want to control the fixture via LumenRadio CRMX, open the menus in the fixture's control panel and make the following adjustments:

1. Open the menus in the fixture's control panel.
2. In the **Protocol Setup → Data In** menu, set the control protocol to **CRMX**.

6. Control menus

Quick menu

The control panel's Quick Menu gives you quick access to the most frequently used commands. To open the Quick Menu, press the left-hand control button marked » when the display is showing the default information screen.

The Quick Menu contains the following items:

Menus			***Notes***
Reset All			*Resets the entire fixture (takes a few seconds).*
Live Diagnostic			*Calls up overview of all main fixture information, signal quality and settings.*
iQ.Service Connect	>>>Connect<<<		*Enables connectivity to the GLP iQ.Service App for 5 minutes.*
Load User Settings	User Setting Preset 1	>>>Confirm<<<	*Loads custom user settings*
	User Setting Preset 2	>>>Confirm<<<	
	User Setting Preset 3	>>>Confirm<<<	
	Setting Defaults	>>>Confirm<<<	*Returns fixture to default settings (not including DMX address, protocol type, Ethernet / CRMX configuration, user offsets, user presets and counters).*
Load Factory Defaults (!)	*Displays Message: Fixture may lose connection to controller* >>>Confirm<<<		*Restores all factory default settings (including DMX address, protocol type, Ethernet / CRMX configuration, user offsets and user presets).* ***Important! The fixture may lose contact with the controller!***

Main menu

The following menus and commands are available in the impression X5 control panel.

Menus		***Notes***
DMX Address		
1-512		*Set fixture's DMX start address. Highest possible address depends on control mode.*
Control Mode		
M1 Basic		*Set fixture's DMX control mode.*
M2 Normal		
M3 Segment		
M4 Multipix Advanced		
M5 Multipix Compressed RGB		
M6 Multipix Compressed RGBL		
Protocol Setup		
Data In	**DMX**	*Control via DMX protocol*
	iQ.Mesh	*Control via GLP iQ.Mesh*
	CRMX	*Control via CRMX (only available if CRMX module is installed at fixture's FPO port)*
Linking options	iQ.Mesh Unlink	*Unlink from GLP iQ.Mesh link*
	CRMX (FPO) Unlink	*Unlink from CRMX (only available if CRMX module is installed at fixture's FPO port)*
Fixture Settings		
Color Mix Mode	**RGB**	*Direct RGB control, Lime added automatically*
	RGBL	*Direct RGBL control*
	x;y	*x:y color co-ordinate control*
White Point	8000 K	*Set fixture white point when RGB is at 100% (RGB Color Mix Mode only)*
	6500 K	
	5600 K	
	4200 K	
	3200 K	
iQ.Gamut	**FULL**	*Maximum color gamut*
	Rec.2020	*Color space defined to Rec.2020 Gamut (RGB Color Mix Mode only)*
	Rec.709	*Color space defined to Rec.709 Gamut (RGB Color Mix Mode only)*
	DCI P3.65	*Color space defined to DCI P3.65 Gamut (RGB Color Mix Mode only)*

Dimmer Curve	Linear	*Linear dimming curve*
	Soft	*Soft (square law) dimming curve*
	S-Curve	*Finer dimming control at low and high intensity*
Fan Mode	**Regulated**	*Fan speed temperature-regulated*
	High	*Fan speed constant high*
	Medium	*Fan speed constant medium*
	Low	*Fan speed constant low*
	Minimum	*All fans off or at minimum speed*
Subfixture Mode	**Normal**	*Main module's dimmer and shutter channels act as global dimmer/shutter and affect Sub module output*
	Independent	*Sub module is independent of Main module*
Performance	Fast	*Mechanical effects speed optimized for speed*
	Normal	*Mechanical effects speed balanced for speed and smoothness*
	Smooth	*Mechanical effects speed limited for optimized smoothness and low noise*
PWM Frequency	Low (L)	*Optimum fixed frequency for best dimming results: approx. 3000Hz*
	Optimal (0)	*Optimum dynamic frequency for best performance*
	High 1 (H1)	*Fixed frequency: approx. 4800 Hz*
	High 2 (H2)	*Fixed frequency: approx. 9600 Hz*
	Max (M)	*Highest possible fixed Frequency: approx. 25 kHz*
Pixel Mirror	**Off**	*Normal pixel layout*
	Mirror X	*Pixels mirrored over x-axis*
	Mirror Y	*Pixels mirrored over y-axis*
	Mirror XY	*Pixels mirrored over x-axis and y-axis*
Pixel rotation	**Off**	*Pixel layout rotated clockwise*
	60°	
	120°	
	180°	
	240°	
	300°	

No Signal	No Signal Mode	Blackout	*Fixture blacks out if no DMX signal received*
		Hold	*Fixture continues to display current effect if no DMX signal received*
		Scene	*Plays the stored captured scene (see next menu item) if no DMX signal received*
	Capture DMX Values	>>>Confirm<<<	*Captures current scene and stores it for use in **No Signal Mode → Scene***
Pan Invert	**OFF**		*Reverse direction of pan movement*
	ON		
Tilt Invert	**OFF**		*Reverse direction of tilt movement*
	ON		
Position feedback	OFF		*Enable/disable pan/tilt position correction*
	ON		
Pan Disable	**OFF**		*Disables pan motor*
	Current Disable		
Tilt Disable	**OFF**		*Disables tilt motor*
	Current Disable		
Pan range	**Normal**		*Pan range limited to 540°*
	Extended		*Pan range = maximum*
Accessory	**None**		*Tilt angle not limited*
	Egg crate		*Tilt angle limited to allow for egg crate*
Display Mode	**Auto**		*Display dims after a short period of inactivity if no errors and valid DMX signal*
	On		*Display constantly on*
	Off		*Display dims even if there are errors / no DMX signal*
Display Orientation	**Auto**		*Display automatically inverts to match installation position*
	Normal		*Display normal (for use when fixture is standing)*
	Flip		*Display inverted (for use when fixture is flown head-down)*
Hibernation	ON		*Fixture enters energy saving mode, all electronics except DMX receiver are disabled. Cycling power off and on exits hibernation.*

Load User Settings	User Setting Preset 1	>>> Confirm<<<	*Apply a user preset to fixture settings*
	User Setting Preset 2	>>> Confirm<<<	
	User Setting Preset 3	>>> Confirm<<<	
	Setting Defaults	>>> Confirm<<<	*Return fixture to default settings (not including DMX address, protocol type, Ethernet / CRMX configuration, user offsets, user presets and counters)*
Information			
Live diagnostic			*Shows overview of fixture information*
Show errors			*Shows any stored errors*
Show temperature			*Shows fixture temperature*
Show fan status			*Shows current cooling fan status*
Show controllers info			*Shows controllers info*
Show iQ.Mesh status			*Shows current GLP iQ.Mesh status*
Show LED calibration			*Shows LED calibration information*
Show fixture counters			*Shows total device hours (non-resettable), resettable device hours, total power cycles (non-resettable), resettable power cycles, resettable air filter hours*
Show DMX input			*Shows DMX values being received*
Show DMX info			*Shows info about any lost DMX packages*
Manual Control			
Reset All			*Reset all effects*
Reset Pan & Tilt			*Reset pan and tilt*
Reset Head			*Reset all effects except pan and tilt*
Manual DMX ***Warning! Fixture will start moving*** Press **Enter**	Pan	< 001. .**128** ..255 >	*Manually control all effects*
	Tilt	< 001. .**128**.. 255 >	
	… scroll through effects		
	Reset Manual Values	Confirm for 3 seconds *(press Enter)*	*Reset all manually entered DMX values to zero*

Service				
Live diagnostic				*Shows overview of fixture information*
iQ.Service Connect		>>> Connect <<<		*Enables connectivity to the GLP iQ.Service app.*
Tests	Test All			*Run test sequence of all effects including pan and tilt. Stop with BACK.*
	Test P/T			*Run test sequence of pan and tilt only. Stop with BACK.*
	Test LED			*Run test sequence of all LEDs. Stop with BACK.*
	Test Zoom			*Run test sequence of zoom effect. Stop with BACK.*
	Test Fans (Auto)			*Run fan self-test. Tries to detect fan errors, clears if successful.*
	Test Fans (Manual)			*Manually test fans one by one*
	Test Encoders			*Auto test for all encoders*
Advanced *(Press and hold for 3 secs.)*	Service Mode	**OFF**		*Normal operation*
		ON		*Disable pan, tilt and display timeouts (exit by cycling power off and on.)*
	Job offsets	Pan Tilt Zoom		*Create custom job offsets in home positions of all effects. Default offset = **0** Note: This function is not fixture calibration!*
	Reset counters	Lamp Hours	Confirm 2 seconds	*Reset to zero*
		Service Timer	Confirm 2 seconds	
		Air filter	Confirm 2 seconds	
	Save User Settings	User Setting Preset 1	Confirm 2 seconds	*Saves current fixture settings as user settings preset*
		User Setting Preset 2	Confirm 2 seconds	
		User Setting Preset 3	Confirm 2 seconds	
	Firmware push (Fixture2fixture)	>>> Confirm <<<		*Push fixture's firmware to all other fixtures of the same type over the DMX link*
Load factory defaults				
>>>Confirm<<<				*Reloads all factory default settings and default fixture configuration settings.*

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

7. Error messages

When restarting the fixture or sending a RESET command, the fixture performs an initialization process to test all functions and sensors. The fixture also continuously checks itself for correct operation.

If an error is detected, the fixture display shows the message **ERROR**.

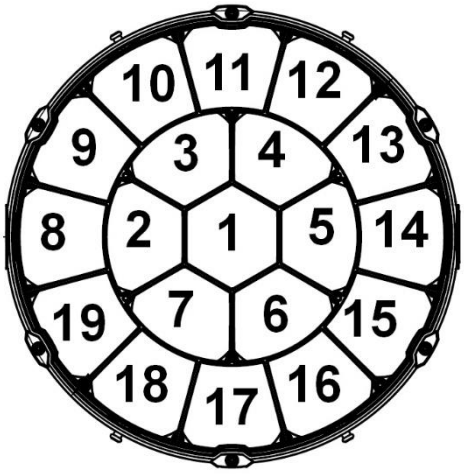
- Pressing ✕ ignores the error message and exits the error display.
- Pressing ✓ shows information about the error.

Note: Make a note of any error message displayed. You may need these details for error diagnosis. Please be ready to give them to GLP Service if necessary.

Certain critical error messages are permanently stored in the display. In this case, please contact your GLP service agent.

8. Pixel layout

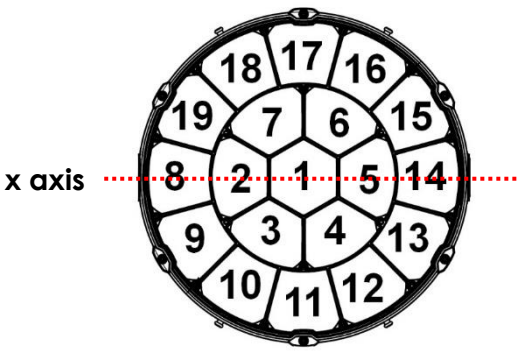
The X5 fixture's standard pixel layout is as shown below:



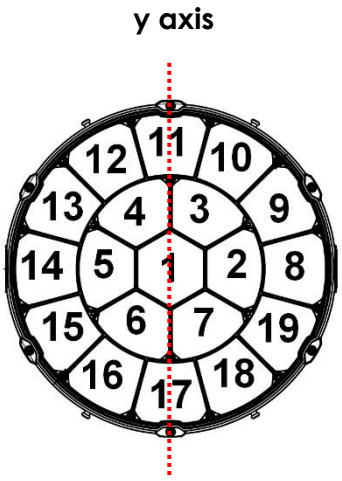
Standard pixel layout

The drawing above shows the standard pixel layout with the fixture standing on the ground, pan at 50% (home position) and tilt at 50% (front).

Pixel rotation, x-mirror (pixels mirrored over the x axis) y-mirror (pixels mirrored over the y axis) and x-y-mirror (pixels mirrored over both the x and y axes) options are available via DMX on the Control / Settings channel and using the menus in the fixture's control panel. See examples below:



x-mirror pixel layout



y-mirror pixel layout

9. DMX control modes overview

The impression X5 offers the following DMX control modes.

DMX Mode 1: Basic

24 DMX Channels

Basic DMX Mode gives control of the fixture's main functions. Pan, tilt, dimming and the color mixing channels are available with 16-bit control resolution. A shutter channel gives direct change between open and blackout plus a range of intensity effects. Zoom is also available with 8-bit resolution. The Control/Settings channel lets you adjust fixture settings via DMX. Two insert accessory channels allow control of an optional GLP accessory mounted on the head of the fixture.

The color control channels in the Main Module offer color mixing using either (a) RGB, (b) RGBL or (c) x;y color gamut coordinates, depending on which of these three methods is active. You can select the color mixing method via DMX on the Control/Settings channel, via RDM or using the fixture's control panel. Additional color options channels include a color wheel with a wide range of color presets, a CTC channel, magenta/green shift adjustment and a tungsten simulation channel. The CQC channel lets you select if the fixture should give priority to color rendering or output intensity in its white output. This channel also offers an easy way of desaturating colors.

Mode 1 Basic			
Main module	1.1	Pan	1
			2
		Tilt	3
			4
		Intensity	5
			6
		Shutter	7
		Zoom	8
		Control / Settings	9
		Accessory 1	10
		Accessory 2	11
		[1] RGB – Red	12
		[2] RGBL – Red [3] x;y – x	13
		[1] RGB – Green	14
		[2] RGBL – Green [3] x;y – y	15
		[1] RGB – Blue	16
		[2] RGBL – Blue [3] x;y – not used	17
		[1] RGB – not used	18
		[2] RGBL – Lime [3] x;y – not used	19
		Color wheel	20
		CTC (Color temperature control)	21
		CQC (Color quality control)	22
		M/G shift	23
		Tungsten simulation	24

DMX Mode 2: Normal (default)

35 DMX channels

Normal DMX Mode is split into a **Main Module** and a **Sub Module**.

The **Main Module** gives control of the main functions, as in **Basic** DMX Mode. Pan, tilt, dimming and the color mixing channels have 16-bit control resolution. A shutter channel gives direct change between open and blackout plus a range of intensity effects. Zoom is also available with 8-bit resolution. The Control/Settings channel lets you adjust fixture settings via DMX. Two insert accessory channels allow control of an optional GLP accessory mounted on the head of the fixture.

The color control channels in the Main Module offer color mixing using either (a) RGB, (b) RGBL or (c) x;y color gamut coordinates, depending on which of these three methods is active. You can select the color mixing method via DMX on the Control/Settings channel, via RDM or using the fixture's control panel. Additional color options channels include a color wheel with a wide range of color presets, a CTC channel, magenta/green shift adjustment and a tungsten simulation channel. The CQC channel lets you select if the fixture should give priority to color rendering or output intensity in its white output. This channel also offers an easy way of desaturating colors.

The Mix Priority channel defines how the output of the Main and Sub Modules is merged or overlayed.

The **Sub Module** forms a second layer. The Sub Module channels provide intensity and shutter control, a powerful static and dynamic pattern effects engine with step crossfading and pattern transition options, plus

Mode 2 Normal			
Main module	1.1	Pan	1
			2
		Tilt	3
			4
		Intensity	5
			6
		Shutter	7
		Zoom	8
		Control / Settings	9
		Accessory 1	10
		Accessory 2	11
		[1] RGB – Red [2] RGBL – Red [3] x;y – x	12
			13
		[1] RGB – Green [2] RGBL – Green [3] x;y – y	14
			15
		[1] RGB – Blue [2] RGBL – Blue [3] x;y – not used	16
			17
		[1] RGB – not used [2] RGBL – Lime [3] x;y – not used	18
			19
		Color wheel	20
		CTC (Color temperature control)	21
		CQC (Color quality control)	22
		M/G shift	23
		Tungsten simulation	24
		Mix priority	25
Sub module	1.2	Intensity Layer 2	26
			27
		Shutter Layer 2	28
		Pattern selection Layer 2	29
		Pattern step / speed Layer 2	30
		Pattern step crossfading Layer 2	31
		Pattern transition Layer 2	32
		Red, pixels 1-19	33
		Green, pixels 1-19	34
		Blue, pixels 1-19	35

RGB color control of all 19 pixels as one group.

DMX Mode 3: Segments

41 DMX channels

Segments DMX Mode is split into a Main Module and a Sub Module.

The **Main Module** gives control of the main functions, as in **Basic** DMX Mode. Pan, tilt, dimming and the color mixing channels have 16-bit control resolution. A shutter channel gives direct change between open and blackout plus a range of intensity effects. Zoom is also available with 8-bit resolution. The Control/Settings channel lets you adjust fixture settings via DMX. Two insert accessory channels allow control of an optional GLP accessory mounted on the head of the fixture.

The color control channels in the Main Module offer color mixing using either (a) RGB, (b) RGBL or (c) x;y color gamut coordinates, depending on which of these three methods is active. You can select the color mixing method via DMX on the Control/Settings channel, via RDM or using the fixture's control panel. Additional color options channels include a color wheel with a wide range of color presets, a CTC channel, magenta/green shift adjustment and a tungsten simulation channel. The CQC channel lets you select if the fixture should give priority to color rendering or output intensity in its white output. This channel also offers an easy way of desaturating colors.

The Mix Priority channel defines how the output of the Main and Sub Modules is merged or overlayed.

The **Sub Module** forms a second layer. The Sub Module channels provide intensity and shutter control, a powerful static and dynamic pattern effects engine with step crossfading and pattern transition options, plus

Mode 3 Segments			
Main module	1.1	Pan	1
			2
		Tilt	3
			4
		Intensity	5
			6
		Shutter	7
		Zoom	8
		Control / Settings	9
		Accessory 1	10
		Accessory 2	11
		[1] RGB – Red	12
		[2] RGBL – Red [3] x;y – x	13
		[1] RGB – Green	14
		[2] RGBL – Green [3] x;y – y	15
		[1] RGB – Blue	16
		[2] RGBL – Blue [3] x;y – not used	17
		[1] RGB – not used	18
		[2] RGBL – Lime [3] x;y – not used	19
		Color wheel	20
		CTC (Color temperature control)	21
		CQC (Color quality control)	22
		M/G shift	23
		Tungsten simulation	24
		Mix priority	25
Sub module	1.2	Intensity Layer 2	26
			27
		Shutter Layer 2	28
		Pattern selection Layer 2	29
		Pattern step / speed Layer 2	30
		Pattern step crossfading Layer 2	31
		Pattern transition Layer 2	32
	1.3	Red, segment 01	33
		Green, segment 01	34
		Blue, segment 01	35
	1.4	Red, segment 02-07	36
		Green, segment 02-07	37
		Blue, segment 02-07	38
	1.5	Red, segment 08-19	39
		Green, segment 08-19	40
		Blue, segment 08-19	41

RGB color control of three pixel groups as segments.

DMX Mode 4: Multipix advanced

89 DMX Channels

Multipix Advanced DMX Mode is split into a Main Module and a Sub Module.

The **Main Module** gives control of the main functions, as in **Basic** DMX Mode. Pan, tilt, dimming and the color mixing channels have 16-bit control resolution. A shutter channel gives direct change between open and blackout plus a range of intensity effects. Zoom is also available with 8-bit resolution. The Control/Settings channel lets you adjust fixture settings via DMX. Two insert accessory channels allow control of an optional GLP accessory mounted on the head of the fixture.

The color control channels in the Main Module offer color mixing using either (a) RGB, (b) RGBL or (c) x;y color gamut coordinates, depending on which of these three methods is active. You can select the color mixing method via DMX on the Control/Settings channel, via RDM or using the fixture's control panel. Additional color options channels include a color wheel with a wide range of color presets, a CTC channel, magenta/green shift adjustment and a tungsten simulation channel. The CQC channel lets you select if the fixture should give priority to color rendering or output intensity in its white output. This channel also offers an easy way of desaturating colors.

The Mix Priority channel defines how the output of the Main and Sub Modules is merged or overlayed.

The **Sub Module** forms a second layer. The Sub Module channels provide intensity and shutter control, a powerful static and dynamic pattern effects engine with step crossfading and pattern transition options, plus RGB color control of each individual pixel.

Mode 4 Multipix Advanced			
Main module	1.1	Pan	1
			2
		Tilt	3
			4
		Intensity	5
			6
		Shutter	7
		Zoom	8
		Control / Settings	9
		Accessory 1	10
		Accessory 2	11
		[1] RGB – Red [2] RGBL – Red [3] x;y – x	12
			13
		[1] RGB – Green [2] RGBL – Green [3] x;y – y	14
			15
		[1] RGB – Blue [2] RGBL – Blue [3] x;y – not used	16
			17
		[1] RGB – not used [2] RGBL – Lime [3] x;y – not used	18
			19
		Color wheel	20
		CTC (Color temperature control)	21
		CQC (Color quality control)	22
		M/G shift	23
		Tungsten simulation	24
		Mix priority	25
Sub module	1.2	Intensity Layer 2	26
			27
		Shutter Layer 2	28
		Pattern selection Layer 2	29
		Pattern step / speed Layer 2	30
		Pattern step crossfading Layer 2	31
		Pattern transition Layer 2	32
	1.3	Red, pixel 01	33
		Green, pixel 01	34
		Blue, pixel 01	35
	1.4 … 1.20	… RGB Pixels 02 – 18 …	…
	1.21	Red, pixel 19	87
		Green, pixel 19	88
		Blue, pixel 19	89

DMX Mode 5: Multipix compressed RGB

70 DMX Channels

MultiPix compressed RGB DMX Mode gives control of the main functions, as in **Basic** DMX Mode, plus RGB color control of each individual pixel with Lime added automatically.

Pan, tilt and dimming have 16-bit control resolution. A shutter channel gives direct change between open and blackout plus a range of intensity effects. Zoom is also available with 8-bit resolution. The Control/Settings channel lets you adjust fixture settings via DMX. Two insert accessory channels allow control of an optional GLP accessory mounted on the head of the fixture.

Color mixing is carried out on the individual pixel control channels.

The CTC Channel lets you temporarily change from the fixed white point to any other color temperature. The CQC channel lets you select whether the fixture should give priority to color rendering or output intensity in its white output. This channel also offers an easy way of desaturating colors.

Mode 5 Multipix Compressed RGB			
Main module	1.1	Pan	1
			2
		Tilt	3
			4
		Intensity	5
			6
		Shutter	7
		Zoom	8
		Control / Settings	9
		Accessory 1	10
		Accessory 2	11
		CTC (Color temperature control)	12
		CQC (Color quality control)	13
	1.2	Red, pixel 01	14
		Green, pixel 01	15
		Blue, pixel 01	16
	1.3 ... 1.19	… RGB Pixels 02 – 18 …	…
	1.20	Red, pixel 19	68
		Green, pixel 19	69
		Blue, pixel 19	70

DMX Mode 6: Multipix compressed RGBL

89 DMX Channels

MultiPix compressed RGBL DMX Mode gives control of the main functions, as in **Basic** DMX Mode, plus RGBL color control of each individual pixel.

Pan, tilt and dimming have 16-bit control resolution. A shutter channel gives direct change between open and blackout plus a range of intensity effects. Zoom is also available with 8-bit resolution. The Control/Settings channel lets you adjust fixture settings via DMX. Two insert accessory channels allow control of an optional GLP accessory mounted on the head of the fixture.

Color mixing is carried out on the individual pixel control channels.

The CTC Channel lets you temporarily change from the fixed white point to any other color temperature. The CQC channel lets you select whether the fixture should give priority to color rendering or output intensity in its white output. This channel also offers an easy way of desaturating colors.

Mode 6 Multipix Compressed RGBL			
Main module	1.1	Pan	1
			2
		Tilt	3
			4
		Intensity	5
			6
		Shutter	7
		Zoom	8
		Control / Settings	9
		Accessory 1	10
		Accessory 2	11
		CTC (Color temperature control)	12
		CQC (Color quality control)	13
	1.2	Red, pixel 01	14
		Green, pixel 01	15
		Blue, pixel 01	16
		Lime, pixel 01	17
	1.3 ... 1.19	… RGBL Pixels 02 – 18 …	…
	1.20	Red, pixel 19	86
		Green, pixel 19	87
		Blue, pixel 19	88
		Lime, pixel 19	89

10. DMX control channel layout

In the following DMX channel layout tables:

- Default settings are indicated with **bold type**.
- Where commands are followed by (3s hold) you must send that value continuously for 3 seconds (or other duration if indicated in the table) to apply the command.
- Some commands on the Control / Settings channel require the DMX value zero to be sent first and then moved directly to the DMX value required by the command concerned.

DMX Mode 1: Basic

24 DMX Channels

Channel	Command	DMX range		Percent %		Default DMX	Fade
Main Module Basic control							
1 **Pan coarse** **2** **Pan fine**	Pan left → right	0	65535	0	100	32768	Fade
3 **Tilt coarse** **4** **Tilt fine**	Tilt back → front	0	65535	0	100	32768	Fade
5 **Intensity coarse** **6** **Intensity fine**	Intensity 0 → 100%	0	65535	0	100	0	Fade
7 **Shutter**	Closed	0	4	0	1.6	0	Snap
	Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
	Pulse slow → fast	10	39	3.9	15.3		Fade
	Pulse opening slow → fast	40	69	15.7	27.1		Fade
	Pulse closing slow → fast	70	99	27.5	38.8		Fade
	Double flash slow → fast	100	129	39.2	50.6		Fade
	Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
	Strobe random all slow → fast	160	199	62.7	78.0		Fade
	Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
	Open	251	255	98.4	100		Snap
8 **Zoom**	Zoom narrow → wide	0	255	0	100	0	Snap
9 **Control/Settings**	*See 'Control / Settings channel' on page 79*						
10 **Accessory 1**	Effect parameter 1	0	255	0	100	0	Snap
11 **Accessory 2**	Effect parameter 2	0	255	0	100	0	Snap
12 **RGB / RGBL / x,y color control** (see 'Key to conversion of x and y coordinates' on page 81)	[1] RGB - Red coarse [2] RGBL - Red coarse [3] x;y - x coarse	0	65535	0	100	65535	Fade
13	[1] RGB - Red fine [2] RGBL - Red fine [3] x;y - x fine						
14	[1] RGB - Green coarse [2] RGBL - Green coarse [3] x;y – y coarse	0	65535	0	100	65535	Fade
15	[1] RGB - Green fine [2] RGBL - Green fine [3] x;y - y fine						
16	[1] RGB – Blue coarse [2] RGBL - Blue coarse [3] x;y – *not used*	0	65535	0	100	65535	Fade
17	[1] RGB - Blue fine [2] RGBL - Blue fine [3] x;y - *not used*						
18	[1] RGB - *not used* [2] RGBL - Lime coarse [3] x;y - *not used*	0	65535	0	100	65535	Fade
19	[1] RGB - *not used* [2] RGBL - Lime fine [3] x;y - *not used*						

Main Module Basic Control (continued)

20	**Color Wheel** (for exact colors see 'Color wheel specifications' on page 82)	Open (Selected white point)	0	9	0	3.5	0	Snap
		Filter 004, Medium Bastard Amber	10	12	3.9	4.7		
		Filter 019, Fire	13	15	5.1	5.9		
		Filter 025, Sunset Red	16	18	6.3	7.1		
		Filter 026, Bright Red	19	21	7.5	8.2		
		Filter 036, Medium Pink	22	24	8.6	9.4		
		Filter 049, Medium Purple	25	27	9.8	10.6		
		Filter 058, Lavender	28	30	11.0	11.8		
		Filter 068, Sky Blue	31	33	12.2	12.9		
		Filter 088, Lime Green	34	36	13.3	14.1		
		Filter 089, Moss Green	37	39	14.5	15.3		
		Filter 090, Dark Yellow Green	40	42	15.7	16.5		
		Filter 102, Light Amber	43	45	16.9	17.6		
		Filter 103, Straw	46	48	18.0	18.8		
		Filter 106, Primary Red	49	51	19.2	20.0		
		Filter 111, Dark Pink	52	54	20.4	21.2		
		Filter 115, Peacock Blue	55	57	21.6	22.4		
		Filter 117, Steel Blue	58	60	22.7	23.5		
		Filter 118, Light Blue	61	63	23.9	24.7		
		Filter 121, Filter Green	64	66	25.1	25.9		
		Filter 122, Fern Green	67	69	26.3	27.1		
		Filter 124, Dark Green	70	72	27.5	28.2		
		Filter 126, Mauve	73	75	28.6	29.4		
		Filter 128, Bright Pink	76	78	29.8	30.6		
		Filter 131, Marine Blue	79	81	31.0	31.8		
		Filter 132, Medium Blue	82	84	32.2	32.9		
		Filter 134, Golden Amber	85	87	33.3	34.1		
		Filter 135, Deep Golden Amber	88	90	34.5	35.3		
		Filter 136, Pale Lavender	91	93	35.7	36.5		
		Filter 137, Special Lavender	94	96	36.9	37.6		
		Filter 138, Pale Green	97	99	38.0	38.8		
		Filter 140, Summer Blue	100	102	39.2	40.0		
		Filter 141, Bright Blue	103	105	40.4	41.2		
		Filter 143, Pale Navy Blue	106	108	41.6	42.4		
		Filter 147, Apricot	109	111	42.7	43.5		
		Filter 148, Bright Rose	112	114	43.9	44.7		
		Filter 152, Pale Gold	115	117	45.1	45.9		
		Filter 154, Pale Rose	118	120	46.3	47.1		
		Filter 157, Pink	121	123	47.5	48.2		
		Filter 162, Bastard Amber	124	126	48.6	49.4		
		Filter 164, Flame Red	127	129	49.8	50.6		
		Filter 165, Daylight Blue	130	132	51.0	51.8		
		Filter 169, Lilac Tint	133	135	52.2	52.9		
		Filter 170, Deep Lavender	136	138	53.3	54.1		
		Filter 172, Lagoon Blue	139	141	54.5	55.3		
		Filter 180, Dark Lavender	142	144	55.7	56.5		
		Filter 182, Light Red	145	147	56.9	57.6		
		Filter 194, Surprise Pink	148	150	58.0	58.8		
		Filter 197, Alice Blue	151	153	59.2	60.0		
		Filter 201, Full C.T. Blue	154	156	60.4	61.2		
		Filter 202, Half C.T. Blue	157	159	61.6	62.4		
		Filter 203, Quarter C.T. Blue	160	162	62.7	63.5		
		Filter 204, Full C.T. Orange	163	165	63.9	64.7		
		Filter 206, Quartet C.T. Orange	166	168	65.1	65.9		

Main Module Basic Control (continued)

		Filter 219, Fluorescent Green	169	171	66.3	67.1		
		Filter 247, Filter Minus Green	172	174	67.5	68.2		
		Filter 248, Half Minus Green	175	177	68.6	69.4		
		Filter 281, Three Quarter C.T. Blue	179	180	69.8	70.6		
		Filter 285, Three Quarter C.T. Orange	181	183	71.0	71.8		
		Filter 352, Glacier Blue	184	186	72.2	72.9		
		Filter 353, Lighter Blue	187	189	73.3	74.1		
		Filter 506, Madge	190	192	74.5	75.3		
		Filter 778, Millennium Gold	193	195	75.7	76.5		
		Filter 793, Vanity Fair	196	198	76.9	77.6		
		Filter 798, Chrysalis Pink	199	201	78.0	78.8		
		HSI scroll, stop at first color	202	204	79.2	80.0		
		HSI scroll slow → fast	205	252	80.4	98.8		Fade
		HSI scroll, stop at current color	253	255	99.2	100		Snap
21	**CTC (Color Temperature Control)**	Open, selected white point	0	9	0	3.5	0	Snap
		Fade through color temperatures of 10 000 K to 2 500 K stepless (interpolation)	11	11	4.3	45.9		
			12	254	4.7	49.8		Fade
			255	255	100	53.7		Snap
22	**CQC (Color Quality Control) / Saturation**	HQ (high quality), saturated color	0	9	0	3.5	0	Snap
		Crossfade	10	117	3.9	45.9		Fade
		HQ (high quality), unsaturated color	118	127	46.3	49.8		Snap
		HO (high output), unsaturated color	128	137	50.2	53.7		
		Crossfade	138	245	54.1	96.1		Fade
		HO (high output), saturated color	246	255	96.5	100		Snap
23	**M/G shift**	Off (no correction)	0	9	0	3.5	0	Snap
		Full plus magenta +100%	10	10	3.9	3.9		
		Plus magenta +99% → +1%	11	124	4.3	48.6		Fade
		Neutral / no effect	125	140	49.0	54.9		Snap
		Plus green +1% → +99%	141	254	55.3	99.6		Fade
		Full plus green +100%	255	255	100	100		Snap
24	**Tungsten simulation**	Off (selected white point, no red shift or delay when dimming)	0	9	0	3.5	0	Snap
		Tungsten ACL 250W/28V	10	19	3.9	7.5		
		Tungsten Blinder 650W/120V	20	29	7.8	11.4		
		Tungsten 750W/80V	30	39	11.8	15.3		
		Tungsten 1000W/240V	40	49	15.7	19.2		
		Tungsten 1200W/240V	50	59	19.6	23.1		
		Tungsten 2000W/230V	60	69	23.5	27.1		
		Tungsten 2500W/230V	70	79	27.5	31.0		
		Tungsten 5000W/230V	80	89	31.4	34.9		
		No function (off)	90	120	35.3	47.1		
		Off (selected white point, no red shift or delay when dimming)	120	139	47.1	54.5		
		FX Tungsten ACL 250W/28V	140	149	54.9	58.4		
		FX Tungsten Blinder 650W/120V	150	159	58.8	62.4		
		FX Tungsten 750W/80V	160	169	62.7	66.3		
		FX Tungsten 1000W/240V	170	179	66.7	70.2		
		FX Tungsten 1200W/240V	180	189	70.6	74.1		
		FX Tungsten 2000W/230V	190	199	74.5	78.0		
		FX Tungsten 2500W/230V	200	209	78.4	82.0		
		FX Tungsten 5000W/230V	210	219	82.4	85.9		
		No function (off)	220	255	86.3	100		

DMX Mode 2: Normal (default)

35 DMX Channels

Channel	Command	DMX range		Percent %		Default DMX	Fade
Main Module Basic Control							
1 **Pan coarse** **2** **Pan fine**	Pan left → right	0	65535	0	100	32768	Fade
3 **Tilt coarse** **4** **Tilt fine**	Tilt back → front	0	65535	0	100	32768	Fade
5 **Intensity coarse** **6** **Intensity fine**	Intensity 0 → 100%	0	65535	0	100	0	Fade
7 **Shutter**	Closed	0	4	0	1.6	0	Snap
	Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
	Pulse slow → fast	10	39	3.9	15.3		Fade
	Pulse opening slow → fast	40	69	15.7	27.1		Fade
	Pulse closing slow → fast	70	99	27.5	38.8		Fade
	Double flash slow → fast	100	129	39.2	50.6		Fade
	Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
	Strobe random all slow → fast	160	199	62.7	78.0		Fade
	Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
	Open	251	255	98.4	100		Snap
8 **Zoom**	Zoom narrow → wide	0	255	0	100	0	Snap
9 **Control/Settings**	*See 'Control / Settings channel' on page 79*						
10 **Accessory 1**	Effect parameter 1	0	255	0	100	0	Snap
11 **Accessory 2**	Effect parameter 2	0	255	0	100	0	Snap
12 **RGB / RGBL / x,y color control** (see 'Key to conversion of x and y coordinates' on page 81)	[1] RGB - Red coarse [2] RGBL - Red coarse [3] x;y - x coarse	0	65535	0	100	65535	Fade
13	[1] RGB - Red fine [2] RGBL - Red fine [3] x;y - x fine						
14	[1] RGB - Green coarse [2] RGBL - Green coarse [3] x;y – y coarse	0	65535	0	100	65535	Fade
15	[1] RGB - Green fine [2] RGBL - Green fine [3] x;y - y fine						
16	[1] RGB – Blue coarse [2] RGBL - Blue coarse [3] x;y – *not used*	0	65535	0	100	65535	Fade
17	[1] RGB - Blue fine [2] RGBL - Blue fine [3] x;y - *not used*						
18	[1] RGB - *not used* [2] RGBL - Lime coarse [3] x;y - *not used*	0	65535	0	100	65535	Fade
19	[1] RGB - *not used* [2] RGBL - Lime fine [3] x;y - *not used*						

Main Module Basic Control (continued)

20	**Color Wheel** (for exact colors see 'Color wheel specifications' on page 82)	Open (Selected white point)	0	9	0	3.5	0	Snap
		Filter 004, Medium Bastard Amber	10	12	3.9	4.7		
		Filter 019, Fire	13	15	5.1	5.9		
		Filter 025, Sunset Red	16	18	6.3	7.1		
		Filter 026, Bright Red	19	21	7.5	8.2		
		Filter 036, Medium Pink	22	24	8.6	9.4		
		Filter 049, Medium Purple	25	27	9.8	10.6		
		Filter 058, Lavender	28	30	11.0	11.8		
		Filter 068, Sky Blue	31	33	12.2	12.9		
		Filter 088, Lime Green	34	36	13.3	14.1		
		Filter 089, Moss Green	37	39	14.5	15.3		
		Filter 090, Dark Yellow Green	40	42	15.7	16.5		
		Filter 102, Light Amber	43	45	16.9	17.6		
		Filter 103, Straw	46	48	18.0	18.8		
		Filter 106, Primary Red	49	51	19.2	20.0		
		Filter 111, Dark Pink	52	54	20.4	21.2		
		Filter 115, Peacock Blue	55	57	21.6	22.4		
		Filter 117, Steel Blue	58	60	22.7	23.5		
		Filter 118, Light Blue	61	63	23.9	24.7		
		Filter 121, Filter Green	64	66	25.1	25.9		
		Filter 122, Fern Green	67	69	26.3	27.1		
		Filter 124, Dark Green	70	72	27.5	28.2		
		Filter 126, Mauve	73	75	28.6	29.4		
		Filter 128, Bright Pink	76	78	29.8	30.6		
		Filter 131, Marine Blue	79	81	31.0	31.8		
		Filter 132, Medium Blue	82	84	32.2	32.9		
		Filter 134, Golden Amber	85	87	33.3	34.1		
		Filter 135, Deep Golden Amber	88	90	34.5	35.3		
		Filter 136, Pale Lavender	91	93	35.7	36.5		
		Filter 137, Special Lavender	94	96	36.9	37.6		
		Filter 138, Pale Green	97	99	38.0	38.8		
		Filter 140, Summer Blue	100	102	39.2	40.0		
		Filter 141, Bright Blue	103	105	40.4	41.2		
		Filter 143, Pale Navy Blue	106	108	41.6	42.4		
		Filter 147, Apricot	109	111	42.7	43.5		
		Filter 148, Bright Rose	112	114	43.9	44.7		
		Filter 152, Pale Gold	115	117	45.1	45.9		
		Filter 154, Pale Rose	118	120	46.3	47.1		
		Filter 157, Pink	121	123	47.5	48.2		
		Filter 162, Bastard Amber	124	126	48.6	49.4		
		Filter 164, Flame Red	127	129	49.8	50.6		
		Filter 165, Daylight Blue	130	132	51.0	51.8		
		Filter 169, Lilac Tint	133	135	52.2	52.9		
		Filter 170, Deep Lavender	136	138	53.3	54.1		
		Filter 172, Lagoon Blue	139	141	54.5	55.3		
		Filter 180, Dark Lavender	142	144	55.7	56.5		
		Filter 182, Light Red	145	147	56.9	57.6		
		Filter 194, Surprise Pink	148	150	58.0	58.8		
		Filter 197, Alice Blue	151	153	59.2	60.0		
		Filter 201, Full C.T. Blue	154	156	60.4	61.2		
		Filter 202, Half C.T. Blue	157	159	61.6	62.4		
		Filter 203, Quarter C.T. Blue	160	162	62.7	63.5		
		Filter 204, Full C.T. Orange	163	165	63.9	64.7		

Main Module Basic Control (continued)

		Filter 206, Quartet C.T. Orange	166	168	65.1	65.9		
		Filter 219, Fluorescent Green	169	171	66.3	67.1		
		Filter 247, Filter Minus Green	172	174	67.5	68.2		
		Filter 248, Half Minus Green	175	177	68.6	69.4		
		Filter 281, Three Quarter C.T. Blue	179	180	69.8	70.6		
		Filter 285, Three Quarter C.T. Orange	181	183	71.0	71.8		
		Filter 352, Glacier Blue	184	186	72.2	72.9		
		Filter 353, Lighter Blue	187	189	73.3	74.1		
		Filter 506, Madge	190	192	74.5	75.3		
		Filter 778, Millennium Gold	193	195	75.7	76.5		
		Filter 793, Vanity Fair	196	198	76.9	77.6		
		Filter 798, Chrysalis Pink	199	201	78.0	78.8		
		HSI scroll, stop at first color	202	204	79.2	80.0		
		HSI scroll slow → fast	205	252	80.4	98.8		Fade
		HSI scroll, stop at current color	253	255	99.2	100		Snap
21	**CTC (Color Temperature Control)**	Open, selected white point	0	9	0	3.5	0	Snap
		Fade through color temperatures of 10 000 K to 2 500 K stepless (interpolation)	11	11	4.3	45.9		
			12	254	4.7	49.8		Fade
			255	255	100	53.7		Snap
22	**CQC (Color Quality Control) / Saturation**	HQ (high quality), saturated color	0	9	0	3.5	0	Snap
		Crossfade	10	117	3.9	45.9		Fade
		HQ (high quality), unsaturated color	118	127	46.3	49.8		Snap
		HO (high output), unsaturated color	128	137	50.2	53.7		
		Crossfade	138	245	54.1	96.1		Fade
		HO (high output), saturated color	246	255	96.5	100		Snap
23	**M/G shift**	Off (no correction)	0	9	0	3.5	0	Snap
		Full plus magenta +100%	10	10	3.9	3.9		
		Plus magenta +99% → +1%	11	124	4.3	48.6		Fade
		Neutral / no effect	125	140	49.0	54.9		Snap
		Plus green +1% → +99%	141	254	55.3	99.6		Fade
		Full plus green +100%	255	255	100	100		Snap
24	**Tungsten simulation**	Off (selected white point, no red shift or delay when dimming)	0	9	0	3.5	0	Snap
		Tungsten ACL 250W/28V	10	19	3.9	7.5		
		Tungsten Blinder 650W/120V	20	29	7.8	11.4		
		Tungsten 750W/80V	30	39	11.8	15.3		
		Tungsten 1000W/240V	40	49	15.7	19.2		
		Tungsten 1200W/240V	50	59	19.6	23.1		
		Tungsten 2000W/230V	60	69	23.5	27.1		
		Tungsten 2500W/230V	70	79	27.5	31.0		
		Tungsten 5000W/230V	80	89	31.4	34.9		
		No function (off)	90	120	35.3	47.1		
		Off (selected white point, no red shift or delay when dimming)	120	139	47.1	54.5		
		FX Tungsten ACL 250W/28V	140	149	54.9	58.4		
		FX Tungsten Blinder 650W/120V	150	159	58.8	62.4		
		FX Tungsten 750W/80V	160	169	62.7	66.3		
		FX Tungsten 1000W/240V	170	179	66.7	70.2		
		FX Tungsten 1200W/240V	180	189	70.6	74.1		
		FX Tungsten 2000W/230V	190	199	74.5	78.0		
		FX Tungsten 2500W/230V	200	209	78.4	82.0		
		FX Tungsten 5000W/230V	210	219	82.4	85.9		
		No function (off)	220	255	86.3	100		

Main Module Basic Control (continued)

25	**Mix priority**	Main Module and Sub Module HTP (highest value takes priority)	0	9	0	3.5	0	Snap
		Main only (Main Module color takes priority)	10	19	3.9	7.5		
		Sub only (Sub Module color takes priority)	20	29	7.8	11.4		
		Main and Sub additive (Sub Module color value added to Main Module color value)	30	39	11.8	15.3		
		Main minus Sub Module subtractive (Sub Module color value subtracted from Main)	40	49	15.7	19.2		
		Sub Module minus main subtractive (Main Module color value subtracted from Sub Module)	50	59	19.6	23.1		
		TrueColor 1: Main over Sub – snap	60	69	23.5	27.1		
		TrueColor 2: Sub over Main – snap	70	79	27.5	31.0		
		TrueColor 3: Main over Sub – crossfade	80	89	31.4	34.9		Fade
		TrueColor 4: Sub over Main – crossfade	90	99	35.3	38.8		Fade
		No function	100	127	39.2	49.8		
		Main Module only	128	130	50.2	51.0		Snap
		Crossfading Main → HTP	131	190	51.4	74.5		Fade
		Main and Sub Modules (HTP)	191	192	74.9	75.3		Snap
		Crossfading HTP → Sub	193	252	75.7	98.8		Fade
		Sub Module only	253	255	99.2	100		Snap

Sub Module: Second Layer Control

26	**Intensity coarse**	Intensity 0 → 100%	0	65535	0	100	0	Fade
27	**Intensity fine**							
28	**Shutter**	Closed	0	4	0	1.6	0	Snap
		Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
		Pulse slow → fast	10	39	3.9	15.3		Fade
		Pulse opening slow → fast	40	69	15.7	27.1		Fade
		Pulse closing slow → fast	70	99	27.5	38.8		Fade
		Double flash slow → fast	100	129	39.2	50.6		Fade
		Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
		Strobe random all slow → fast	160	199	62.7	78.0		Fade
		Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
		Open	251	255	98.4	100		Snap
29*	**Pattern selection**	Off (all pixels active)	0	9	0	3.5	0	Snap
		Static Pattern 01	10	11	3.9	4.3		
		Static Pattern 02	12	13	4.7	5.1		
		Static Pattern 03	14	15	5.5	5.9		
		Static Pattern 04	16	17	6.3	6.7		
		Static Pattern 05	18	19	7.1	7.5		
		Static Pattern 06	20	21	7.8	8.2		
		Static Pattern 07	22	23	8.6	9.0		
		Static Pattern 08	24	25	9.4	9.8		
		Static Pattern 09	26	27	10.2	10.6		
		Static Pattern 10	28	29	11.0	11.4		
		Static Pattern 11	30	31	11.8	12.2		

Sub Module: Second Layer Control (continued)

		Static Pattern 12	32	33	12.5	12.9		
		Static Pattern 13	34	35	13.3	13.7		
		Static Pattern 14	36	37	14.1	14.5		
		Static Pattern 15	38	39	14.9	15.3		
		Static Pattern 16	40	41	15.7	16.1		
		Static Pattern 17	52	43	20.4	16.9		
		Static Pattern 18	44	45	17.3	17.6		
		Static Pattern 19	46	47	18.0	18.4		
		Static Pattern 20	48	49	18.8	19.2		
		Static Pattern 21	50	51	19.6	20.0		
		Static Pattern 22	52	53	20.4	20.8		
		Static Pattern 23	54	55	21.2	21.6		
		Static Pattern 24	56	57	22.0	22.4		
		Static Pattern 25	58	59	22.7	23.1		
		Static Pattern 26	60	61	23.5	23.9		
		Static Pattern 27	62	63	24.3	24.7		
		Static Pattern 28	64	65	25.1	25.5		
		Static Pattern 29	66	67	25.9	26.3		
		Static Pattern 30	68	69	26.7	27.1		
		Static Pattern 31	70	71	27.5	27.8		
		Static Pattern 32	72	73	28.2	28.6		
		Static Pattern 33	74	75	29.0	29.4		
		Static Pattern 34	76	77	29.8	30.2		
		Static Pattern 35	78	79	30.6	31.0		
		Static Pattern 36	80	81	31.4	31.8		
		Static Pattern 37	82	83	32.2	32.5		
		Static Pattern 38	84	85	32.9	33.3		
		Static Pattern 39	86	87	33.7	34.1		
		Static Pattern 40	88	89	34.5	34.9		
		Static Pattern 41	90	91	35.3	35.7		
		Static Pattern 42	92	93	36.1	36.5		
		Static Pattern 43	94	95	36.9	37.3		
		Static Pattern 44	96	97	37.6	38.0		
		Static Pattern 45	98	99	38.4	38.8		
		Static Pattern 46	100	101	39.2	39.6		
		Static Pattern 47	102	103	40.0	40.4		
		Static Pattern 48	104	105	40.8	41.2		
		Static Pattern 49	106	107	41.6	42.0		
		Static Pattern 50	108	109	42.4	42.7		
		Static Pattern 51	110	111	43.1	43.5		
		Static Pattern 52	112	113	43.9	44.3		
		Static Pattern 53	114	115	44.7	45.1		
		Static Pattern 54	116	117	45.5	45.9		
		Static Pattern 55	118	119	46.3	46.7		
		Static Pattern 56	120	121	47.1	47.5		
		Static Pattern 57	122	123	47.8	48.2		
		Static Pattern 58	124	125	48.6	49.0		
		Static Pattern 59	126	127	49.4	49.8		
		Dynamic Pattern 01	128	129	50.2	50.6		
		Dynamic Pattern 02	130	131	51.0	51.4		
		Dynamic Pattern 03	132	133	51.8	52.2		
		Dynamic Pattern 04	134	135	52.5	52.9		
		Dynamic Pattern 05	136	137	53.3	53.7		
		Dynamic Pattern 06	138	139	54.1	54.5		

Sub Module: Second Layer Control (continued)

		Dynamic Pattern 07	140	141	54.9	55.3		
		Dynamic Pattern 08	142	143	55.7	56.1		
		Dynamic Pattern 09	144	145	56.5	56.9		
		Dynamic Pattern 10	146	147	57.3	57.6		
		Dynamic Pattern 11	148	149	58.0	58.4		
		Dynamic Pattern 12	150	151	58.8	59.2		
		Dynamic Pattern 13	152	153	59.6	60.0		
		Dynamic Pattern 14	154	155	60.4	60.8		
		Dynamic Pattern 15	156	157	61.2	61.6		
		Dynamic Pattern 16	158	159	62.0	62.4		
		Dynamic Pattern 17	160	161	62.7	63.1		
		Dynamic Pattern 18	162	163	63.5	63.9		
		Dynamic Pattern 19	164	165	64.3	64.7		
		Dynamic Pattern 20	166	167	65.1	65.5		
		Dynamic Pattern 21	168	169	65.9	66.3		
		Dynamic Pattern 22	170	171	66.7	67.1		
		Dynamic Pattern 23	172	173	67.5	67.8		
		Dynamic Pattern 24	174	175	68.2	68.6		
		Dynamic Pattern 25	176	177	69.0	69.4		
		Dynamic Pattern 26	178	179	69.8	70.2		
		Dynamic Pattern 27	180	181	70.6	71.0		
		Dynamic Pattern 28	182	183	71.4	71.8		
		Dynamic Pattern 29	184	185	72.2	72.5		
		Dynamic Pattern 30	186	187	72.9	73.3		
		Dynamic Pattern 31	188	189	73.7	74.1		
		Dynamic Pattern 32	190	191	74.5	74.9		
		Dynamic Pattern 33	192	193	75.3	75.7		
		Dynamic Pattern 34	194	195	76.1	76.5		
		Dynamic Pattern 35	196	197	76.9	77.3		
		Dynamic Pattern 36	198	199	77.6	78.0		
		Dynamic Pattern 37	200	201	78.4	78.8		
		Dynamic Pattern 38	202	203	79.2	79.6		
		Dynamic Pattern 39	204	205	80.0	80.4		
		Dynamic Pattern 40	206	207	80.8	81.2		
		Dynamic Pattern 41	208	209	81.6	82.0		
		Dynamic Pattern 42	210	211	82.4	82.7		
		Dynamic Pattern 43	212	213	83.1	83.5		
		Dynamic Pattern 44	214	215	83.9	84.3		
		Dynamic Pattern 45	216	217	84.7	85.1		
		Dynamic Pattern 46	218	219	85.5	85.9		
		Dynamic Pattern 47	220	221	86.3	86.7		
		Dynamic Pattern 48	222	223	87.1	87.5		
		Dynamic Pattern 49	224	225	87.8	88.2		
		Dynamic Pattern 50	226	227	88.6	89.0		
		Special Pattern 01	228	229	89.4	89.8		
		Special Pattern 02	230	231	90.2	90.6		
		Special Pattern 03	232	233	91.0	91.4		
		Special Pattern 04	234	235	91.8	92.2		
		Special Pattern 05	236	237	92.5	92.9		
		Special Pattern 06	238	239	93.3	93.7		
		Special Pattern 07	240	241	94.1	94.5		
		Special Pattern 08	242	243	94.9	95.3		
		Special Pattern 09	244	245	95.7	96.1		
		Special Pattern 10	246	247	96.5	96.9		
		Special Pattern 11	248	249	97.3	97.6		
		Random Pixel	250	255	98.0	100		

Sub Module: Second Layer Control (continued)

30	**Pattern step / speed**	Stop (first pattern step)	0	2	0.0	0.8	0	Snap
		CW fast → slow (run pattern step 1 → n)	3	63	1.2	24.7		
		Stop at current position	64	66	25.1	25.9		
		CCW slow → fast (run pattern step n → 1)	67	127	26.3	49.8		
		Pattern Step 01	128	129	50.2	50.6		
		Pattern Step 02	130	131	51.0	51.4		
		Pattern Step 03	132	133	51.8	52.2		
		Pattern Step 04	134	135	52.5	52.9		
		Pattern Step 05	136	137	53.3	53.7		
		Pattern Step 06	138	139	54.1	54.5		
		Pattern Step 07	140	141	54.9	55.3		
		Pattern Step 08	142	143	55.7	56.1		
		Pattern Step 09	144	145	56.5	56.9		
		Pattern Step 10	146	147	57.3	57.6		
		Pattern Step 11	148	149	58.0	58.4		
		Pattern Step 12	150	151	58.8	59.2		
		Pattern Step 13	152	153	59.6	60.0		
		Pattern Step 14	154	155	60.4	60.8		
		Pattern Step 15	156	157	61.2	61.6		
		Pattern Step 16	158	159	62.0	62.4		
		Pattern Step 17	160	161	62.7	63.1		
		Pattern Step 18	162	163	63.5	63.9		
		Pattern Step 19	164	165	64.3	64.7		
		Pattern Step 20	166	167	65.1	65.5		
		Pattern Step 21	168	169	65.9	66.3		
		Pattern Step 22	170	171	66.7	67.1		
		Pattern Step 23	172	173	67.5	67.8		
		Pattern Step 24	174	175	68.2	68.6		
		Pattern Step 25	176	177	69.0	69.4		
		Pattern Step 26	178	179	69.8	70.2		
		Pattern Step 27	180	181	70.6	71.0		
		Pattern Step 28	182	183	71.4	71.8		
		Pattern Step 29	184	185	72.2	72.5		
		Pattern Step 30	186	187	72.9	73.3		
		Pattern Step 31	188	189	73.7	74.1		
		Pattern Step 32	190	191	74.5	74.9		
		Pattern Step 33	192	193	75.3	75.7		
		Pattern Step 34	194	195	76.1	76.5		
		Pattern Step 35	196	197	76.9	77.3		
		Pattern Step 36	198	199	77.6	78.0		
		Pattern Step 37	200	201	78.4	78.8		
		Pattern Step 41	208	209	81.6	82.0		
		Pattern Step 42	210	211	82.4	82.7		
		Pattern Step 43	212	213	83.1	83.5		
		Pattern Step 41	208	209	81.6	82.0		
		Pattern Step 42	210	211	82.4	82.7		
		Pattern Step 43	212	213	83.1	83.5		
		Pattern Step 44	214	215	83.9	84.3		
		Pattern Step 45	216	217	84.7	85.1		
		Pattern Step 46	218	219	85.5	85.9		
		Pattern Step 47	220	221	86.3	86.7		

Sub Module: Second Layer Control (continued)

		Pattern Step 48	222	223	87.1	87.5		
		Pattern Step 49	224	225	87.8	88.2		
		Pattern Step 50	226	227	88.6	89.0		
		Pattern Step 51	228	229	89.4	89.8		
		Pattern Step 52	230	231	90.2	90.6		
		Pattern Step 53	232	233	91.0	91.4		
		Pattern Step 54	234	235	91.8	92.2		
		Pattern Step 55	236	237	92.5	92.9		
		Pattern Step 56	238	239	93.3	93.7		
		Pattern Step 57	240	241	94.1	94.5		
		Pattern Step 58	242	243	94.9	95.3		
		Pattern Step 59	244	245	95.7	96.1		
		Pattern Step 60	246	247	96.5	96.9		
		Pattern Step 61	248	249	97.3	97.6		
		Pattern Step 62	250	251	98.0	98.4		
		Pattern Step 63	252	253	98.8	99.2		
		Pattern Step 64	254	255	99.6	100.0		
31	**Pattern step crossfading (from one step to next)**	Off (no crossfading, Snap)	0	9	0	3.5	0	Snap
		Crossfading: Snap → min. Xfade → max. Xfade (fade in and fade out times are identical)	10	127	3.9	49.8		Fade
		Off (no crossfading, Snap)	128	137	50.2	53.7		Snap
		Crossfading with tail: Snap → min. Xfade with tail → max. Xfade with tail (fade in time is shorter than fade out time)	138	255	54.1	100		Fade
32	**Pattern transition (from one pattern to next)**	Off (snap from one pattern to next)	0	9	0	3.5	0	Snap
		Normal transition (snap → fade 5s)	10	63	3.9	24.7		Fade
		Off (snap from one pattern to next)	64	73	25.1	28.6		Snap
		FOB (Fade Over Blackout) transition (snap → fade 5s)	74	127	29.0	49.8		Fade
		Off (snap from one pattern to next)	128	137	50.2	53.7		Snap
		FOF (Fade Over Full) transition (snap → fade 5s)	138	191	54.1	74.9		Fade
		No function	192	201	75.3	78.8		
		No transition time - reserved for future use	202	255	79.2	100.0		
33	**Red intensity**	Intensity 0 → 100%, Pixels 1 – 19, Second Layer	0	255	0	100	0	Fade
34	**Green intensity**	Intensity 0 → 100%, Pixels 1 – 19, Second Layer	0	255	0	100	0	Fade
35	**Blue intensity**	Intensity 0 → 100%, Pixels 1 – 19, Second Layer	0	255	0	100	0	Fade

DMX Mode 3: Segments

41 DMX Channels

Channel	Command	DMX range		Percent %		Default DMX	Fade
Main Module Basic control							
1 **Pan coarse** **2** **Pan fine**	Pan left → right	0	65535	0	100	32768	Fade
3 **Tilt coarse** **4** **Tilt fine**	Tilt front → back	0	65535	0	100	32768	Fade
5 **Intensity coarse** **6** **Intensity fine**	Intensity 0 → 100%	0	65535	0	100	0	Fade
7 **Shutter**	Closed	0	4	0	1.6	0	Snap
	Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
	Pulse slow → fast	10	39	3.9	15.3		Fade
	Pulse opening slow → fast	40	69	15.7	27.1		Fade
	Pulse closing slow → fast	70	99	27.5	38.8		Fade
	Double flash slow → fast	100	129	39.2	50.6		Fade
	Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
	Strobe random all slow → fast	160	199	62.7	78.0		Fade
	Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
	Open	251	255	98.4	100		Snap
8 **Zoom**	Zoom narrow → wide	0	255	0	100	0	Snap
9 **Control/Settings**	*See 'Control / Settings channel' on page 79*						
10 **Accessory 1**	Effect parameter 1	0	255	0	100	0	Snap
11 **Accessory 2**	Effect parameter 2	0	255	0	100	0	Snap
12 **RGB / RGBL / x,y color control** (see 'Key to conversion of x and y coordinates' on page 81)	[1] RGB - Red coarse [2] RGBL - Red coarse [3] x;y - x coarse	0	65535	0	100	65535	Fade
13	[1] RGB - Red fine [2] RGBL - Red fine [3] x;y - x fine						
14	[1] RGB - Green coarse [2] RGBL - Green coarse [3] x;y – y coarse	0	65535	0	100	65535	Fade
15	[1] RGB - Green fine [2] RGBL - Green fine [3] x;y - y fine						
16	[1] RGB – Blue coarse [2] RGBL - Blue coarse [3] x;y – *not used*	0	65535	0	100	65535	Fade
17	[1] RGB - Blue fine [2] RGBL - Blue fine [3] x;y - *not used*						
18	[1] RGB - *not used* [2] RGBL - Lime coarse [3] x;y - *not used*	0	65535	0	100	65535	Fade
19	[1] RGB - *not used* [2] RGBL - Lime fine [3] x;y - *not used*						

Main Module Basic Control (continued)

20	**Color Wheel** (for exact colors see 'Color wheel specifications' on page 82)	Open (Selected white point)	0	9	0	3.5	0	Snap
		Filter 004, Medium Bastard Amber	10	12	3.9	4.7		
		Filter 019, Fire	13	15	5.1	5.9		
		Filter 025, Sunset Red	16	18	6.3	7.1		
		Filter 026, Bright Red	19	21	7.5	8.2		
		Filter 036, Medium Pink	22	24	8.6	9.4		
		Filter 049, Medium Purple	25	27	9.8	10.6		
		Filter 058, Lavender	28	30	11.0	11.8		
		Filter 068, Sky Blue	31	33	12.2	12.9		
		Filter 088, Lime Green	34	36	13.3	14.1		
		Filter 089, Moss Green	37	39	14.5	15.3		
		Filter 090, Dark Yellow Green	40	42	15.7	16.5		
		Filter 102, Light Amber	43	45	16.9	17.6		
		Filter 103, Straw	46	48	18.0	18.8		
		Filter 106, Primary Red	49	51	19.2	20.0		
		Filter 111, Dark Pink	52	54	20.4	21.2		
		Filter 115, Peacock Blue	55	57	21.6	22.4		
		Filter 117, Steel Blue	58	60	22.7	23.5		
		Filter 118, Light Blue	61	63	23.9	24.7		
		Filter 121, Filter Green	64	66	25.1	25.9		
		Filter 122, Fern Green	67	69	26.3	27.1		
		Filter 124, Dark Green	70	72	27.5	28.2		
		Filter 126, Mauve	73	75	28.6	29.4		
		Filter 128, Bright Pink	76	78	29.8	30.6		
		Filter 131, Marine Blue	79	81	31.0	31.8		
		Filter 132, Medium Blue	82	84	32.2	32.9		
		Filter 134, Golden Amber	85	87	33.3	34.1		
		Filter 135, Deep Golden Amber	88	90	34.5	35.3		
		Filter 136, Pale Lavender	91	93	35.7	36.5		
		Filter 137, Special Lavender	94	96	36.9	37.6		
		Filter 138, Pale Green	97	99	38.0	38.8		
		Filter 140, Summer Blue	100	102	39.2	40.0		
		Filter 141, Bright Blue	103	105	40.4	41.2		
		Filter 143, Pale Navy Blue	106	108	41.6	42.4		
		Filter 147, Apricot	109	111	42.7	43.5		
		Filter 148, Bright Rose	112	114	43.9	44.7		
		Filter 152, Pale Gold	115	117	45.1	45.9		
		Filter 154, Pale Rose	118	120	46.3	47.1		
		Filter 157, Pink	121	123	47.5	48.2		
		Filter 162, Bastard Amber	124	126	48.6	49.4		
		Filter 164, Flame Red	127	129	49.8	50.6		
		Filter 165, Daylight Blue	130	132	51.0	51.8		
		Filter 169, Lilac Tint	133	135	52.2	52.9		
		Filter 170, Deep Lavender	136	138	53.3	54.1		
		Filter 172, Lagoon Blue	139	141	54.5	55.3		
		Filter 180, Dark Lavender	142	144	55.7	56.5		
		Filter 182, Light Red	145	147	56.9	57.6		
		Filter 194, Surprise Pink	148	150	58.0	58.8		
		Filter 197, Alice Blue	151	153	59.2	60		
		Filter 201, Full C.T. Blue	154	156	60.4	61.2		
		Filter 202, Half C.T. Blue	157	159	61.6	62.4		
		Filter 203, Quarter C.T. Blue	160	162	62.7	63.5		
		Filter 204, Full C.T. Orange	163	165	63.9	64.7		

Main Module Basic Control (continued)

		Filter 206, Quartet C.T. Orange	166	168	65.1	65.9		
		Filter 219, Fluorescent Green	169	171	66.3	67.1		
		Filter 247, Filter Minus Green	172	174	67.5	68.2		
		Filter 248, Half Minus Green	175	177	68.6	69.4		
		Filter 281, Three Quarter C.T. Blue	179	180	69.8	70.6		
		Filter 285, Three Quarter C.T. Orange	181	183	71.0	71.8		
		Filter 352, Glacier Blue	184	186	72.2	72.9		
		Filter 353, Lighter Blue	187	189	73.3	74.1		
		Filter 506, Madge	190	192	74.5	75.3		
		Filter 778, Millennium Gold	193	195	75.7	76.5		
		Filter 793, Vanity Fair	196	198	76.9	77.6		
		Filter 798, Chrysalis Pink	199	201	78.0	78.8		
		HSI scroll, stop at first color	202	204	79.2	80.0		
		HSI scroll slow → fast	205	252	80.4	98.8		Fade
		HSI scroll, stop at current color	253	255	99.2	100		Snap
21	**CTC (Color Temperature Control)**	Open, selected white point	0	9	0	3.5	0	Snap
		Fade through color temperatures of 10 000 K to 2 500 K stepless (interpolation)	11	11	4.3	45.9		
			12	254	4.7	49.8		Fade
			255	255	100	53.7		Snap
22	**CQC (Color Quality Control) / Saturation**	HQ (high quality), saturated color	0	9	0	3.5	0	Snap
		Crossfade	10	117	3.9	45.9		Fade
		HQ (high quality), unsaturated color	118	127	46.3	49.8		Snap
		HO (high output), unsaturated color	128	137	50.2	53.7		
		Crossfade	138	245	54.1	96.1		Fade
		HO (high output), saturated color	246	255	96.5	100		Snap
23	**M/G shift**	Off (no correction)	0	9	0	3.5	0	Snap
		Full plus magenta +100%	10	10	3.9	3.9		
		Plus magenta +99% → +1%	11	124	4.3	48.6		Fade
		Neutral / no effect	125	140	49.0	54.9		Snap
		Plus green +1% → +99%	141	254	55.3	99.6		Fade
		Full plus green +100%	255	255	100	100		Snap
24	**Tungsten simulation**	Off (selected white point, no red shift or delay when dimming)	0	9	0	3.5	0	Snap
		Tungsten ACL 250W/28V	10	19	3.9	7.5		
		Tungsten Blinder 650W/120V	20	29	7.8	11.4		
		Tungsten 750W/80V	30	39	11.8	15.3		
		Tungsten 1000W/240V	40	49	15.7	19.2		
		Tungsten 1200W/240V	50	59	19.6	23.1		
		Tungsten 2000W/230V	60	69	23.5	27.1		
		Tungsten 2500W/230V	70	79	27.5	31.0		
		Tungsten 5000W/230V	80	89	31.4	34.9		
		No function (off)	90	120	35.3	47.1		
		Off (selected white point, no red shift or delay when dimming)	120	139	47.1	54.5		
		FX Tungsten ACL 250W/28V	140	149	54.9	58.4		
		FX Tungsten Blinder 650W/120V	150	159	58.8	62.4		
		FX Tungsten 750W/80V	160	169	62.7	66.3		
		FX Tungsten 1000W/240V	170	179	66.7	70.2		
		FX Tungsten 1200W/240V	180	189	70.6	74.1		
		FX Tungsten 2000W/230V	190	199	74.5	78.0		
		FX Tungsten 2500W/230V	200	209	78.4	82.0		
		FX Tungsten 5000W/230V	210	219	82.4	85.9		
		No function (off)	220	255	86.3	100		

Main Module Basic Control (continued)

25	**Mix priority**	Main Module and Sub Module HTP (highest value takes priority)	0	9	0	3.5	0	Snap
		Main only (Main Module color takes priority)	10	19	3.9	7.5		
		Sub only (Sub Module color takes priority)	20	29	7.8	11.4		
		Main and Sub additive (Sub Module color value added to Main Module color value)	30	39	11.8	15.3		
		Main minus Sub Module subtractive (Sub Module color value subtracted from Main)	40	49	15.7	19.2		
		Sub Module minus main subtractive (Main Module color value subtracted from Sub Module)	50	59	19.6	23.1		
		TrueColor 1: Main over Sub – snap	60	69	23.5	27.1		
		TrueColor 2: Sub over Main – snap	70	79	27.5	31.0		
		TrueColor 3: Main over Sub – crossfade	80	89	31.4	34.9		Fade
		TrueColor 4: Sub over Main – crossfade	90	99	35.3	38.8		Fade
		No function	100	127	39.2	49.8		
		Main Module only	128	130	50.2	51.0		Snap
		Crossfading Main → HTP	131	190	51.4	74.5		Fade
		Main and Sub Modules (HTP)	191	192	74.9	75.3		Snap
		Crossfading HTP → Sub	193	252	75.7	98.8		Fade
		Sub Module only	253	255	99.2	100		Snap

Sub Module: Second Layer Control

26	**Intensity coarse**	Intensity 0 → 100%	0	65535	0	100	0	Fade
27	**Intensity fine**							
28	**Shutter**	Closed	0	4	0	1.6	0	Snap
		Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
		Pulse slow → fast	10	39	3.9	15.3		Fade
		Pulse opening slow → fast	40	69	15.7	27.1		Fade
		Pulse closing slow → fast	70	99	27.5	38.8		Fade
		Double flash slow → fast	100	129	39.2	50.6		Fade
		Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
		Strobe random all slow → fast	160	199	62.7	78.0		Fade
		Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
		Open	251	255	98.4	100		Snap
29*	**Pattern selection**	Off (all pixels active)	0	9	0	3.5	0	Snap
		Static Pattern 01	10	11	3.9	4.3		
		Static Pattern 02	12	13	4.7	5.1		
		Static Pattern 03	14	15	5.5	5.9		
		Static Pattern 04	16	17	6.3	6.7		
		Static Pattern 05	18	19	7.1	7.5		
		Static Pattern 06	20	21	7.8	8.2		
		Static Pattern 07	22	23	8.6	9.0		
		Static Pattern 08	24	25	9.4	9.8		
		Static Pattern 09	26	27	10.2	10.6		
		Static Pattern 10	28	29	11.0	11.4		
		Static Pattern 11	30	31	11.8	12.2		

Sub Module: Second Layer Control (continued)

		Static Pattern 12	32	33	12.5	12.9		
		Static Pattern 13	34	35	13.3	13.7		
		Static Pattern 14	36	37	14.1	14.5		
		Static Pattern 15	38	39	14.9	15.3		
		Static Pattern 16	40	41	15.7	16.1		
		Static Pattern 17	52	43	20.4	16.9		
		Static Pattern 18	44	45	17.3	17.6		
		Static Pattern 19	46	47	18.0	18.4		
		Static Pattern 20	48	49	18.8	19.2		
		Static Pattern 21	50	51	19.6	20.0		
		Static Pattern 22	52	53	20.4	20.8		
		Static Pattern 23	54	55	21.2	21.6		
		Static Pattern 24	56	57	22.0	22.4		
		Static Pattern 25	58	59	22.7	23.1		
		Static Pattern 26	60	61	23.5	23.9		
		Static Pattern 27	62	63	24.3	24.7		
		Static Pattern 28	64	65	25.1	25.5		
		Static Pattern 29	66	67	25.9	26.3		
		Static Pattern 30	68	69	26.7	27.1		
		Static Pattern 31	70	71	27.5	27.8		
		Static Pattern 32	72	73	28.2	28.6		
		Static Pattern 33	74	75	29.0	29.4		
		Static Pattern 34	76	77	29.8	30.2		
		Static Pattern 35	78	79	30.6	31.0		
		Static Pattern 36	80	81	31.4	31.8		
		Static Pattern 37	82	83	32.2	32.5		
		Static Pattern 38	84	85	32.9	33.3		
		Static Pattern 39	86	87	33.7	34.1		
		Static Pattern 40	88	89	34.5	34.9		
		Static Pattern 41	90	91	35.3	35.7		
		Static Pattern 42	92	93	36.1	36.5		
		Static Pattern 43	94	95	36.9	37.3		
		Static Pattern 44	96	97	37.6	38.0		
		Static Pattern 45	98	99	38.4	38.8		
		Static Pattern 46	100	101	39.2	39.6		
		Static Pattern 47	102	103	40.0	40.4		
		Static Pattern 48	104	105	40.8	41.2		
		Static Pattern 49	106	107	41.6	42.0		
		Static Pattern 50	108	109	42.4	42.7		
		Static Pattern 51	110	111	43.1	43.5		
		Static Pattern 52	112	113	43.9	44.3		
		Static Pattern 53	114	115	44.7	45.1		
		Static Pattern 54	116	117	45.5	45.9		
		Static Pattern 55	118	119	46.3	46.7		
		Static Pattern 56	120	121	47.1	47.5		
		Static Pattern 57	122	123	47.8	48.2		
		Static Pattern 58	124	125	48.6	49.0		
		Static Pattern 59	126	127	49.4	49.8		
		Dynamic Pattern 01	128	129	50.2	50.6		
		Dynamic Pattern 02	130	131	51.0	51.4		
		Dynamic Pattern 03	132	133	51.8	52.2		
		Dynamic Pattern 04	134	135	52.5	52.9		
		Dynamic Pattern 05	136	137	53.3	53.7		
		Dynamic Pattern 06	138	139	54.1	54.5		

Sub Module: Second Layer Control (continued)

		Dynamic Pattern 07	140	141	54.9	55.3		
		Dynamic Pattern 08	142	143	55.7	56.1		
		Dynamic Pattern 09	144	145	56.5	56.9		
		Dynamic Pattern 10	146	147	57.3	57.6		
		Dynamic Pattern 11	148	149	58.0	58.4		
		Dynamic Pattern 12	150	151	58.8	59.2		
		Dynamic Pattern 13	152	153	59.6	60.0		
		Dynamic Pattern 14	154	155	60.4	60.8		
		Dynamic Pattern 15	156	157	61.2	61.6		
		Dynamic Pattern 16	158	159	62.0	62.4		
		Dynamic Pattern 17	160	161	62.7	63.1		
		Dynamic Pattern 18	162	163	63.5	63.9		
		Dynamic Pattern 19	164	165	64.3	64.7		
		Dynamic Pattern 20	166	167	65.1	65.5		
		Dynamic Pattern 21	168	169	65.9	66.3		
		Dynamic Pattern 22	170	171	66.7	67.1		
		Dynamic Pattern 23	172	173	67.5	67.8		
		Dynamic Pattern 24	174	175	68.2	68.6		
		Dynamic Pattern 25	176	177	69.0	69.4		
		Dynamic Pattern 26	178	179	69.8	70.2		
		Dynamic Pattern 27	180	181	70.6	71.0		
		Dynamic Pattern 28	182	183	71.4	71.8		
		Dynamic Pattern 29	184	185	72.2	72.5		
		Dynamic Pattern 30	186	187	72.9	73.3		
		Dynamic Pattern 31	188	189	73.7	74.1		
		Dynamic Pattern 32	190	191	74.5	74.9		
		Dynamic Pattern 33	192	193	75.3	75.7		
		Dynamic Pattern 34	194	195	76.1	76.5		
		Dynamic Pattern 35	196	197	76.9	77.3		
		Dynamic Pattern 36	198	199	77.6	78.0		
		Dynamic Pattern 37	200	201	78.4	78.8		
		Dynamic Pattern 38	202	203	79.2	79.6		
		Dynamic Pattern 39	204	205	80.0	80.4		
		Dynamic Pattern 40	206	207	80.8	81.2		
		Dynamic Pattern 41	208	209	81.6	82.0		
		Dynamic Pattern 42	210	211	82.4	82.7		
		Dynamic Pattern 43	212	213	83.1	83.5		
		Dynamic Pattern 44	214	215	83.9	84.3		
		Dynamic Pattern 45	216	217	84.7	85.1		
		Dynamic Pattern 46	218	219	85.5	85.9		
		Dynamic Pattern 47	220	221	86.3	86.7		
		Dynamic Pattern 48	222	223	87.1	87.5		
		Dynamic Pattern 49	224	225	87.8	88.2		
		Dynamic Pattern 50	226	227	88.6	89.0		
		Special Pattern 01	228	229	89.4	89.8		
		Special Pattern 02	230	231	90.2	90.6		
		Special Pattern 03	232	233	91.0	91.4		
		Special Pattern 04	234	235	91.8	92.2		
		Special Pattern 05	236	237	92.5	92.9		
		Special Pattern 06	238	239	93.3	93.7		
		Special Pattern 07	240	241	94.1	94.5		
		Special Pattern 08	242	243	94.9	95.3		
		Special Pattern 09	244	245	95.7	96.1		
		Special Pattern 10	246	247	96.5	96.9		
		Special Pattern 11	248	249	97.3	97.6		
		Random Pixel	250	255	98.0	100		

Sub Module: Second Layer Control (continued)

30	**Pattern step / speed**	Stop (first pattern step)	0	2	0.0	0.8	0	Snap
		CW fast → slow (run pattern step 1 → n)	3	63	1.2	24.7		
		Stop at current position	64	66	25.1	25.9		
		CCW slow → fast (run pattern step n → 1)	67	127	26.3	49.8		
		Pattern Step 01	128	129	50.2	50.6		
		Pattern Step 02	130	131	51.0	51.4		
		Pattern Step 03	132	133	51.8	52.2		
		Pattern Step 04	134	135	52.5	52.9		
		Pattern Step 05	136	137	53.3	53.7		
		Pattern Step 06	138	139	54.1	54.5		
		Pattern Step 07	140	141	54.9	55.3		
		Pattern Step 08	142	143	55.7	56.1		
		Pattern Step 09	144	145	56.5	56.9		
		Pattern Step 10	146	147	57.3	57.6		
		Pattern Step 11	148	149	58.0	58.4		
		Pattern Step 12	150	151	58.8	59.2		
		Pattern Step 13	152	153	59.6	60.0		
		Pattern Step 14	154	155	60.4	60.8		
		Pattern Step 15	156	157	61.2	61.6		
		Pattern Step 16	158	159	62.0	62.4		
		Pattern Step 17	160	161	62.7	63.1		
		Pattern Step 18	162	163	63.5	63.9		
		Pattern Step 19	164	165	64.3	64.7		
		Pattern Step 20	166	167	65.1	65.5		
		Pattern Step 21	168	169	65.9	66.3		
		Pattern Step 22	170	171	66.7	67.1		
		Pattern Step 23	172	173	67.5	67.8		
		Pattern Step 24	174	175	68.2	68.6		
		Pattern Step 25	176	177	69.0	69.4		
		Pattern Step 26	178	179	69.8	70.2		
		Pattern Step 27	180	181	70.6	71.0		
		Pattern Step 28	182	183	71.4	71.8		
		Pattern Step 29	184	185	72.2	72.5		
		Pattern Step 30	186	187	72.9	73.3		
		Pattern Step 31	188	189	73.7	74.1		
		Pattern Step 32	190	191	74.5	74.9		
		Pattern Step 33	192	193	75.3	75.7		
		Pattern Step 34	194	195	76.1	76.5		
		Pattern Step 35	196	197	76.9	77.3		
		Pattern Step 36	198	199	77.6	78.0		
		Pattern Step 37	200	201	78.4	78.8		
		Pattern Step 41	208	209	81.6	82.0		
		Pattern Step 42	210	211	82.4	82.7		
		Pattern Step 43	212	213	83.1	83.5		
		Pattern Step 41	208	209	81.6	82.0		
		Pattern Step 42	210	211	82.4	82.7		
		Pattern Step 43	212	213	83.1	83.5		
		Pattern Step 44	214	215	83.9	84.3		
		Pattern Step 45	216	217	84.7	85.1		
		Pattern Step 46	218	219	85.5	85.9		
		Pattern Step 47	220	221	86.3	86.7		
		Pattern Step 48	222	223	87.1	87.5		

Sub Module: Second Layer Control (continued)

		Pattern Step 49	224	225	87.8	88.2		
		Pattern Step 50	226	227	88.6	89.0		
		Pattern Step 51	228	229	89.4	89.8		
		Pattern Step 52	230	231	90.2	90.6		
		Pattern Step 53	232	233	91.0	91.4		
		Pattern Step 54	234	235	91.8	92.2		
		Pattern Step 55	236	237	92.5	92.9		
		Pattern Step 56	238	239	93.3	93.7		
		Pattern Step 57	240	241	94.1	94.5		
		Pattern Step 58	242	243	94.9	95.3		
		Pattern Step 59	244	245	95.7	96.1		
		Pattern Step 60	246	247	96.5	96.9		
		Pattern Step 61	248	249	97.3	97.6		
		Pattern Step 62	250	251	98.0	98.4		
		Pattern Step 63	252	253	98.8	99.2		
		Pattern Step 64	254	255	99.6	100.0		
31	**Pattern step crossfading (from one step to next)**	Off (no crossfading, Snap)	0	9	0	3.5		Snap
		Crossfading: Snap → min. Xfade → max. Xfade (fade in and fade out times are identical)	10	127	3.9	49.8		Fade
		Off (no crossfading, Snap)	128	137	50.2	53.7	0	Snap
		Crossfading with tail: Snap → min. Xfade with tail → max. Xfade with tail (fade in time is shorter than fade out time)	138	255	54.1	100		Fade
32	**Pattern transition (from one pattern to next)**	Off (snap from one pattern to next)	0	9	0	3.5		Snap
		Normal transition (snap → fade 5s)	10	63	3.9	24.7		Fade
		Off (snap from one pattern to next)	64	73	25.1	28.6		Snap
		FOB (Fade Over Blackout) transition (snap → fade 5s)	74	127	29.0	49.8		Fade
		Off (snap from one pattern to next)	128	137	50.2	53.7	0	Snap
		FOF (Fade Over Full) transition (snap → fade 5s)	138	191	54.1	74.9		Fade
		No function	192	201	75.3	78.8		
		No transition time - reserved for future use	202	255	79.2	100.0		
33	**Red, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
34	**Green, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
35	**Blue, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
36	**Red, pixels 02 – 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
37	**Green, pixels 02 – 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
38	**Blue, pixels 02 – 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
39	**Red, pixels 08 – 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
40	**Green, pixels 08 – 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
41	**Blue, pixels 08 - 19**	Intensity 0 → 100%	0	255	0	100	0	Fade

DMX Mode 4: Multipix advanced

89 DMX Channels

Channel		Command	DMX range		Percent %		Default DMX	Fade
Main Module Basic control								
1	**Pan coarse**	Pan left → right	0	65535	0	100	32768	Fade
2	**Pan fine**							
3	**Tilt coarse**	Tilt front → back	0	65535	0	100	32768	Fade
4	**Tilt fine**							
5	**Intensity coarse**	Intensity 0 → 100%	0	65535	0	100	0	Fade
6	**Intensity fine**							
7	**Shutter**	Closed	0	4	0	1.6	0	Snap
		Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
		Pulse slow → fast	10	39	3.9	15.3		Fade
		Pulse opening slow → fast	40	69	15.7	27.1		Fade
		Pulse closing slow → fast	70	99	27.5	38.8		Fade
		Double flash slow → fast	100	129	39.2	50.6		Fade
		Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
		Strobe random all slow → fast	160	199	62.7	78.0		Fade
		Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
		Open	251	255	98.4	100		Snap
8	**Zoom**	Zoom narrow → wide	0	255	0	100	0	Snap
9	**Control/Settings**	*See 'Control / Settings channel' on page 79*						
10	**Accessory 1**	Effect parameter 1	0	255	0	100	0	Snap
11	**Accessory 2**	Effect parameter 2	0	255	0	100	0	Snap
12	**RGB / RGBL / x,y color control** (see 'Key to conversion of x and y coordinates' on page 81)	[1] RGB - Red coarse [2] RGBL - Red coarse [3] x;y - x coarse	0	65535	0	100	65535	Fade
13		[1] RGB - Red fine [2] RGBL - Red fine [3] x;y - x fine						
14		[1] RGB - Green coarse [2] RGBL - Green coarse [3] x;y – y coarse	0	65535	0	100	65535	Fade
15		[1] RGB - Green fine [2] RGBL - Green fine [3] x;y - y fine						
16		[1] RGB – Blue coarse [2] RGBL - Blue coarse [3] x;y – *not used*	0	65535	0	100	65535	Fade
17		[1] RGB - Blue fine [2] RGBL - Blue fine [3] x;y - *not used*						
18		[1] RGB - *not used* [2] RGBL - Lime coarse [3] x;y - *not used*	0	65535	0	100	65535	Fade
19		[1] RGB - *not used* [2] RGBL - Lime fine [3] x;y - *not used*						

Main Module Basic Control (continued)

20	**Color Wheel** (for exact colors see 'Color wheel specifications' on page 82)	Open (Selected white point)	0	9	0	3.5	0	Snap
		Filter 004, Medium Bastard Amber	10	12	3.9	4.7		
		Filter 019, Fire	13	15	5.1	5.9		
		Filter 025, Sunset Red	16	18	6.3	7.1		
		Filter 026, Bright Red	19	21	7.5	8.2		
		Filter 036, Medium Pink	22	24	8.6	9.4		
		Filter 049, Medium Purple	25	27	9.8	10.6		
		Filter 058, Lavender	28	30	11.0	11.8		
		Filter 068, Sky Blue	31	33	12.2	12.9		
		Filter 088, Lime Green	34	36	13.3	14.1		
		Filter 089, Moss Green	37	39	14.5	15.3		
		Filter 090, Dark Yellow Green	40	42	15.7	16.5		
		Filter 102, Light Amber	43	45	16.9	17.6		
		Filter 103, Straw	46	48	18.0	18.8		
		Filter 106, Primary Red	49	51	19.2	20.0		
		Filter 111, Dark Pink	52	54	20.4	21.2		
		Filter 115, Peacock Blue	55	57	21.6	22.4		
		Filter 117, Steel Blue	58	60	22.7	23.5		
		Filter 118, Light Blue	61	63	23.9	24.7		
		Filter 121, Filter Green	64	66	25.1	25.9		
		Filter 122, Fern Green	67	69	26.3	27.1		
		Filter 124, Dark Green	70	72	27.5	28.2		
		Filter 126, Mauve	73	75	28.6	29.4		
		Filter 128, Bright Pink	76	78	29.8	30.6		
		Filter 131, Marine Blue	79	81	31.0	31.8		
		Filter 132, Medium Blue	82	84	32.2	32.9		
		Filter 134, Golden Amber	85	87	33.3	34.1		
		Filter 135, Deep Golden Amber	88	90	34.5	35.3		
		Filter 136, Pale Lavender	91	93	35.7	36.5		
		Filter 137, Special Lavender	94	96	36.9	37.6		
		Filter 138, Pale Green	97	99	38.0	38.8		
		Filter 140, Summer Blue	100	102	39.2	40.0		
		Filter 141, Bright Blue	103	105	40.4	41.2		
		Filter 143, Pale Navy Blue	106	108	41.6	42.4		
		Filter 147, Apricot	109	111	42.7	43.5		
		Filter 148, Bright Rose	112	114	43.9	44.7		
		Filter 152, Pale Gold	115	117	45.1	45.9		
		Filter 154, Pale Rose	118	120	46.3	47.1		
		Filter 157, Pink	121	123	47.5	48.2		
		Filter 162, Bastard Amber	124	126	48.6	49.4		
		Filter 164, Flame Red	127	129	49.8	50.6		
		Filter 165, Daylight Blue	130	132	51.0	51.8		
		Filter 169, Lilac Tint	133	135	52.2	52.9		
		Filter 170, Deep Lavender	136	138	53.3	54.1		
		Filter 172, Lagoon Blue	139	141	54.5	55.3		
		Filter 180, Dark Lavender	142	144	55.7	56.5		
		Filter 182, Light Red	145	147	56.9	57.6		
		Filter 194, Surprise Pink	148	150	58.0	58.8		
		Filter 197, Alice Blue	151	153	59.2	60		
		Filter 201, Full C.T. Blue	154	156	60.4	61.2		
		Filter 202, Half C.T. Blue	157	159	61.6	62.4		
		Filter 203, Quarter C.T. Blue	160	162	62.7	63.5		
		Filter 204, Full C.T. Orange	163	165	63.9	64.7		
		Filter 206, Quartet C.T. Orange	166	168	65.1	65.9		
		Filter 219, Fluorescent Green	169	171	66.3	67.1		

Main Module Basic Control (continued)

		Filter 247, Filter Minus Green	172	174	67.5	68.2		
		Filter 248, Half Minus Green	175	177	68.6	69.4		
		Filter 281, Three Quarter C.T. Blue	179	180	69.8	70.6		
		Filter 285, Three Quarter C.T. Orange	181	183	71.0	71.8		
		Filter 352, Glacier Blue	184	186	72.2	72.9		
		Filter 353, Lighter Blue	187	189	73.3	74.1		
		Filter 506, Madge	190	192	74.5	75.3		
		Filter 778, Millennium Gold	193	195	75.7	76.5		
		Filter 793, Vanity Fair	196	198	76.9	77.6		
		Filter 798, Chrysalis Pink	199	201	78.0	78.8		
		HSI scroll, stop at first color	202	204	79.2	80.0		
		HSI scroll slow → fast	205	252	80.4	98.8		Fade
		HSI scroll, stop at current color	253	255	99.2	100		Snap
21	**CTC (Color Temperature Control)**	Open, selected white point	0	9	0	3.5	0	Snap
		Fade through color temperatures of 10 000 K to 2 500 K stepless (interpolation)	11	11	4.3	45.9		
			12	254	4.7	49.8		Fade
			255	255	100	53.7		Snap
22	**CQC (Color Quality Control) / Saturation**	HQ (high quality), saturated color	0	9	0	3.5	0	Snap
		Crossfade	10	117	3.9	45.9		Fade
		HQ (high quality), unsaturated color	118	127	46.3	49.8		Snap
		HO (high output), unsaturated color	128	137	50.2	53.7		
		Crossfade	138	245	54.1	96.1		Fade
		HO (high output), saturated color	246	255	96.5	100		Snap
23	**M/G shift**	Off (no correction)	0	9	0	3.5	0	Snap
		Full plus magenta +100%	10	10	3.9	3.9		
		Plus magenta +99% → +1%	11	124	4.3	48.6		Fade
		Neutral / no effect	125	140	49.0	54.9		Snap
		Plus green +1% → +99%	141	254	55.3	99.6		Fade
		Full plus green +100%	255	255	100	100		Snap
24	**Tungsten simulation**	Off (selected white point, no red shift or delay when dimming)	0	9	0	3.5	0	Snap
		Tungsten ACL 250W/28V	10	19	3.9	7.5		
		Tungsten Blinder 650W/120V	20	29	7.8	11.4		
		Tungsten 750W/80V	30	39	11.8	15.3		
		Tungsten 1000W/240V	40	49	15.7	19.2		
		Tungsten 1200W/240V	50	59	19.6	23.1		
		Tungsten 2000W/230V	60	69	23.5	27.1		
		Tungsten 2500W/230V	70	79	27.5	31.0		
		Tungsten 5000W/230V	80	89	31.4	34.9		
		No function (off)	90	120	35.3	47.1		
		Off (selected white point, no red shift or delay when dimming)	120	139	47.1	54.5		
		FX Tungsten ACL 250W/28V	140	149	54.9	58.4		
		FX Tungsten Blinder 650W/120V	150	159	58.8	62.4		
		FX Tungsten 750W/80V	160	169	62.7	66.3		
		FX Tungsten 1000W/240V	170	179	66.7	70.2		
		FX Tungsten 1200W/240V	180	189	70.6	74.1		
		FX Tungsten 2000W/230V	190	199	74.5	78.0		
		FX Tungsten 2500W/230V	200	209	78.4	82.0		
		FX Tungsten 5000W/230V	210	219	82.4	85.9		
		No function (off)	220	255	86.3	100		

Main Module Basic Control (continued)

25	**Mix priority**	Main Module and Sub Module HTP (highest value takes priority)	0	9	0	3.5	0	Snap
		Main only (Main Module color takes priority)	10	19	3.9	7.5		
		Sub only (Sub Module color takes priority)	20	29	7.8	11.4		
		Main and Sub additive (Sub Module color value added to Main Module color value)	30	39	11.8	15.3		
		Main minus Sub Module subtractive (Sub Module color value subtracted from Main)	40	49	15.7	19.2		
		Sub Module minus main subtractive (Main Module color value subtracted from Sub Module)	50	59	19.6	23.1		
		TrueColor 1: Main over Sub – snap	60	69	23.5	27.1		
		TrueColor 2: Sub over Main – snap	70	79	27.5	31.0		
		TrueColor 3: Main over Sub – crossfade	80	89	31.4	34.9		Fade
		TrueColor 4: Sub over Main – crossfade	90	99	35.3	38.8		Fade
		No function	100	127	39.2	49.8		
		Main Module only	128	130	50.2	51.0		Snap
		Crossfading Main → HTP	131	190	51.4	74.5		Fade
		Main and Sub Modules (HTP)	191	192	74.9	75.3		Snap
		Crossfading HTP → Sub	193	252	75.7	98.8		Fade
		Sub Module only	253	255	99.2	100		Snap

Sub Module: Second Layer Control

26	**Intensity coarse**	Intensity 0 → 100%	0	65535	0	100	0	Fade
27	**Intensity fine**							
28	**Shutter**	Closed	0	4	0	1.6	0	Snap
		Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
		Pulse slow → fast	10	39	3.9	15.3		Fade
		Pulse opening slow → fast	40	69	15.7	27.1		Fade
		Pulse closing slow → fast	70	99	27.5	38.8		Fade
		Double flash slow → fast	100	129	39.2	50.6		Fade
		Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
		Strobe random all slow → fast	160	199	62.7	78.0		Fade
		Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
		Open	251	255	98.4	100		Snap
29*	**Pattern selection**	Off (all pixels active)	0	9	0	3.5	0	Snap
		Static Pattern 01	10	11	3.9	4.3		
		Static Pattern 02	12	13	4.7	5.1		
		Static Pattern 03	14	15	5.5	5.9		
		Static Pattern 04	16	17	6.3	6.7		
		Static Pattern 05	18	19	7.1	7.5		
		Static Pattern 06	20	21	7.8	8.2		
		Static Pattern 07	22	23	8.6	9.0		
		Static Pattern 08	24	25	9.4	9.8		
		Static Pattern 09	26	27	10.2	10.6		
		Static Pattern 10	28	29	11.0	11.4		
		Static Pattern 11	30	31	11.8	12.2		

Sub Module: Second Layer Control (continued)

		Static Pattern 12	32	33	12.5	12.9		
		Static Pattern 13	34	35	13.3	13.7		
		Static Pattern 14	36	37	14.1	14.5		
		Static Pattern 15	38	39	14.9	15.3		
		Static Pattern 16	40	41	15.7	16.1		
		Static Pattern 17	52	43	20.4	16.9		
		Static Pattern 18	44	45	17.3	17.6		
		Static Pattern 19	46	47	18.0	18.4		
		Static Pattern 20	48	49	18.8	19.2		
		Static Pattern 21	50	51	19.6	20.0		
		Static Pattern 22	52	53	20.4	20.8		
		Static Pattern 23	54	55	21.2	21.6		
		Static Pattern 24	56	57	22.0	22.4		
		Static Pattern 25	58	59	22.7	23.1		
		Static Pattern 26	60	61	23.5	23.9		
		Static Pattern 27	62	63	24.3	24.7		
		Static Pattern 28	64	65	25.1	25.5		
		Static Pattern 29	66	67	25.9	26.3		
		Static Pattern 30	68	69	26.7	27.1		
		Static Pattern 31	70	71	27.5	27.8		
		Static Pattern 32	72	73	28.2	28.6		
		Static Pattern 33	74	75	29.0	29.4		
		Static Pattern 34	76	77	29.8	30.2		
		Static Pattern 35	78	79	30.6	31.0		
		Static Pattern 36	80	81	31.4	31.8		
		Static Pattern 37	82	83	32.2	32.5		
		Static Pattern 38	84	85	32.9	33.3		
		Static Pattern 39	86	87	33.7	34.1		
		Static Pattern 40	88	89	34.5	34.9		
		Static Pattern 41	90	91	35.3	35.7		
		Static Pattern 42	92	93	36.1	36.5		
		Static Pattern 43	94	95	36.9	37.3		
		Static Pattern 44	96	97	37.6	38.0		
		Static Pattern 45	98	99	38.4	38.8		
		Static Pattern 46	100	101	39.2	39.6		
		Static Pattern 47	102	103	40.0	40.4		
		Static Pattern 48	104	105	40.8	41.2		
		Static Pattern 49	106	107	41.6	42.0		
		Static Pattern 50	108	109	42.4	42.7		
		Static Pattern 51	110	111	43.1	43.5		
		Static Pattern 52	112	113	43.9	44.3		
		Static Pattern 53	114	115	44.7	45.1		
		Static Pattern 54	116	117	45.5	45.9		
		Static Pattern 55	118	119	46.3	46.7		
		Static Pattern 56	120	121	47.1	47.5		
		Static Pattern 57	122	123	47.8	48.2		
		Static Pattern 58	124	125	48.6	49.0		
		Static Pattern 59	126	127	49.4	49.8		
		Dynamic Pattern 01	128	129	50.2	50.6		
		Dynamic Pattern 02	130	131	51.0	51.4		
		Dynamic Pattern 03	132	133	51.8	52.2		
		Dynamic Pattern 04	134	135	52.5	52.9		
		Dynamic Pattern 05	136	137	53.3	53.7		
		Dynamic Pattern 06	138	139	54.1	54.5		

Sub Module: Second Layer Control (continued)

		Dynamic Pattern 07	140	141	54.9	55.3		
		Dynamic Pattern 08	142	143	55.7	56.1		
		Dynamic Pattern 09	144	145	56.5	56.9		
		Dynamic Pattern 10	146	147	57.3	57.6		
		Dynamic Pattern 11	148	149	58.0	58.4		
		Dynamic Pattern 12	150	151	58.8	59.2		
		Dynamic Pattern 13	152	153	59.6	60.0		
		Dynamic Pattern 14	154	155	60.4	60.8		
		Dynamic Pattern 15	156	157	61.2	61.6		
		Dynamic Pattern 16	158	159	62.0	62.4		
		Dynamic Pattern 17	160	161	62.7	63.1		
		Dynamic Pattern 18	162	163	63.5	63.9		
		Dynamic Pattern 19	164	165	64.3	64.7		
		Dynamic Pattern 20	166	167	65.1	65.5		
		Dynamic Pattern 21	168	169	65.9	66.3		
		Dynamic Pattern 22	170	171	66.7	67.1		
		Dynamic Pattern 23	172	173	67.5	67.8		
		Dynamic Pattern 24	174	175	68.2	68.6		
		Dynamic Pattern 25	176	177	69.0	69.4		
		Dynamic Pattern 26	178	179	69.8	70.2		
		Dynamic Pattern 27	180	181	70.6	71.0		
		Dynamic Pattern 28	182	183	71.4	71.8		
		Dynamic Pattern 29	184	185	72.2	72.5		
		Dynamic Pattern 30	186	187	72.9	73.3		
		Dynamic Pattern 31	188	189	73.7	74.1		
		Dynamic Pattern 32	190	191	74.5	74.9		
		Dynamic Pattern 33	192	193	75.3	75.7		
		Dynamic Pattern 34	194	195	76.1	76.5		
		Dynamic Pattern 35	196	197	76.9	77.3		
		Dynamic Pattern 36	198	199	77.6	78.0		
		Dynamic Pattern 37	200	201	78.4	78.8		
		Dynamic Pattern 38	202	203	79.2	79.6		
		Dynamic Pattern 39	204	205	80.0	80.4		
		Dynamic Pattern 40	206	207	80.8	81.2		
		Dynamic Pattern 41	208	209	81.6	82.0		
		Dynamic Pattern 42	210	211	82.4	82.7		
		Dynamic Pattern 43	212	213	83.1	83.5		
		Dynamic Pattern 44	214	215	83.9	84.3		
		Dynamic Pattern 45	216	217	84.7	85.1		
		Dynamic Pattern 46	218	219	85.5	85.9		
		Dynamic Pattern 47	220	221	86.3	86.7		
		Dynamic Pattern 48	222	223	87.1	87.5		
		Dynamic Pattern 49	224	225	87.8	88.2		
		Dynamic Pattern 50	226	227	88.6	89.0		
		Special Pattern 01	228	229	89.4	89.8		
		Special Pattern 02	230	231	90.2	90.6		
		Special Pattern 03	232	233	91.0	91.4		
		Special Pattern 04	234	235	91.8	92.2		
		Special Pattern 05	236	237	92.5	92.9		
		Special Pattern 06	238	239	93.3	93.7		
		Special Pattern 07	240	241	94.1	94.5		
		Special Pattern 08	242	243	94.9	95.3		
		Special Pattern 09	244	245	95.7	96.1		
		Special Pattern 10	246	247	96.5	96.9		
		Special Pattern 11	248	249	97.3	97.6		
		Random Pixel	250	255	98.0	100		

Sub Module: Second Layer Control (continued)

30	**Pattern step / speed**	Stop (first pattern step)	0	2	0.0	0.8	0	Snap
		CW fast → slow (run pattern step 1 → n)	3	63	1.2	24.7		
		Stop at current position	64	66	25.1	25.9		
		CCW slow → fast (run pattern step n → 1)	67	127	26.3	49.8		
		Pattern Step 01	128	129	50.2	50.6		
		Pattern Step 02	130	131	51.0	51.4		
		Pattern Step 03	132	133	51.8	52.2		
		Pattern Step 04	134	135	52.5	52.9		
		Pattern Step 05	136	137	53.3	53.7		
		Pattern Step 06	138	139	54.1	54.5		
		Pattern Step 07	140	141	54.9	55.3		
		Pattern Step 08	142	143	55.7	56.1		
		Pattern Step 09	144	145	56.5	56.9		
		Pattern Step 10	146	147	57.3	57.6		
		Pattern Step 11	148	149	58.0	58.4		
		Pattern Step 12	150	151	58.8	59.2		
		Pattern Step 13	152	153	59.6	60.0		
		Pattern Step 14	154	155	60.4	60.8		
		Pattern Step 15	156	157	61.2	61.6		
		Pattern Step 16	158	159	62.0	62.4		
		Pattern Step 17	160	161	62.7	63.1		
		Pattern Step 18	162	163	63.5	63.9		
		Pattern Step 19	164	165	64.3	64.7		
		Pattern Step 20	166	167	65.1	65.5		
		Pattern Step 21	168	169	65.9	66.3		
		Pattern Step 22	170	171	66.7	67.1		
		Pattern Step 23	172	173	67.5	67.8		
		Pattern Step 24	174	175	68.2	68.6		
		Pattern Step 25	176	177	69.0	69.4		
		Pattern Step 26	178	179	69.8	70.2		
		Pattern Step 27	180	181	70.6	71.0		
		Pattern Step 28	182	183	71.4	71.8		
		Pattern Step 29	184	185	72.2	72.5		
		Pattern Step 30	186	187	72.9	73.3		
		Pattern Step 31	188	189	73.7	74.1		
		Pattern Step 32	190	191	74.5	74.9		
		Pattern Step 33	192	193	75.3	75.7		
		Pattern Step 34	194	195	76.1	76.5		
		Pattern Step 35	196	197	76.9	77.3		
		Pattern Step 36	198	199	77.6	78.0		
		Pattern Step 37	200	201	78.4	78.8		
		Pattern Step 41	208	209	81.6	82.0		
		Pattern Step 42	210	211	82.4	82.7		
		Pattern Step 43	212	213	83.1	83.5		
		Pattern Step 41	208	209	81.6	82.0		
		Pattern Step 42	210	211	82.4	82.7		
		Pattern Step 43	212	213	83.1	83.5		
		Pattern Step 44	214	215	83.9	84.3		
		Pattern Step 45	216	217	84.7	85.1		
		Pattern Step 46	218	219	85.5	85.9		
		Pattern Step 47	220	221	86.3	86.7		
		Pattern Step 48	222	223	87.1	87.5		
		Pattern Step 49	224	225	87.8	88.2		

Sub Module: Second Layer Control (continued)

		Pattern Step 50	226	227	88.6	89.0		
		Pattern Step 51	228	229	89.4	89.8		
		Pattern Step 52	230	231	90.2	90.6		
		Pattern Step 53	232	233	91.0	91.4		
		Pattern Step 54	234	235	91.8	92.2		
		Pattern Step 55	236	237	92.5	92.9		
		Pattern Step 56	238	239	93.3	93.7		
		Pattern Step 57	240	241	94.1	94.5		
		Pattern Step 58	242	243	94.9	95.3		
		Pattern Step 59	244	245	95.7	96.1		
		Pattern Step 60	246	247	96.5	96.9		
		Pattern Step 61	248	249	97.3	97.6		
		Pattern Step 62	250	251	98.0	98.4		
		Pattern Step 63	252	253	98.8	99.2		
		Pattern Step 64	254	255	99.6	100.0		
31	**Pattern step crossfading (from one step to next)**	Off (no crossfading, Snap)	0	9	0	3.5	0	Snap
		Crossfading: Snap → min. Xfade → max. Xfade (fade in and fade out times are identical)	10	127	3.9	49.8		Fade
		Off (no crossfading, Snap)	128	137	50.2	53.7		Snap
		Crossfading with tail: Snap → min. Xfade with tail → max. Xfade with tail (fade in time is shorter than fade out time)	138	255	54.1	100		Fade
32	**Pattern transition (from one pattern to next)**	Off (snap from one pattern to next)	0	9	0	3.5	0	Snap
		Normal transition (snap → fade 5s)	10	63	3.9	24.7		Fade
		Off (snap from one pattern to next)	64	73	25.1	28.6		Snap
		FOB (Fade Over Blackout) transition (snap → fade 5s)	74	127	29.0	49.8		Fade
		Off (snap from one pattern to next)	128	137	50.2	53.7		Snap
		FOF (Fade Over Full) transition (snap → fade 5s)	138	191	54.1	74.9		Fade
		No function	192	201	75.3	78.8		
		No transition time - reserved for future use	202	255	79.2	100.0		
33	**Red, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
34	**Green, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
35	**Blue, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
36	**Red, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
37	**Green, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
38	**Blue, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
39	**Red, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
40	**Green, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
41	**Blue, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
42	**Red, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
43	**Green, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
44	**Blue, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
45	**Red, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
46	**Green, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
47	**Blue, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
48	**Red, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
49	**Green, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
50	**Blue, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade

Sub Module: Second Layer Control (continued)

51	**Red, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
52	**Green, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
53	**Blue, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
54	**Red, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
55	**Green, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
56	**Blue, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
57	**Red, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
58	**Green, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
59	**Blue, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
60	**Red, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
61	**Green, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
62	**Blue, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
63	**Red, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
64	**Green, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
65	**Blue, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
66	**Red, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
67	**Green, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
68	**Blue, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
69	**Red, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
70	**Green, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
71	**Blue, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
72	**Red, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
73	**Green, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
74	**Blue, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
75	**Red, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
76	**Green, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
77	**Blue, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
78	**Red, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
79	**Green, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
80	**Blue, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
81	**Red, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
82	**Green, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
83	**Blue, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
84	**Red, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
85	**Green, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
86	**Blue, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
87	**Red, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
88	**Green, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
89	**Blue, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade

DMX Mode 5: Multipix compressed RGB

70 DMX Channels

Channel	Command	DMX range		Percent %		Default DMX	Fade
Main Module Basic control							
1 **Pan coarse** **2** **Pan fine**	Pan left → right	0	65535	0	100	32768	Fade
3 **Tilt coarse** **4** **Tilt fine**	Tilt front → back	0	65535	0	100	32768	Fade
5 **Intensity coarse** **6** **Intensity fine**	Intensity 0 → 100%	0	65535	0	100	0	Fade
7 **Shutter**	Closed	0	4	0	1.6	0	Snap
	Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
	Pulse slow → fast	10	39	3.9	15.3		Fade
	Pulse opening slow → fast	40	69	15.7	27.1		Fade
	Pulse closing slow → fast	70	99	27.5	38.8		Fade
	Double flash slow → fast	100	129	39.2	50.6		Fade
	Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
	Strobe random all slow → fast	160	199	62.7	78.0		Fade
	Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
	Open	251	255	98.4	100		Snap
8 **Zoom**	Zoom narrow → wide	0	255	0	100	0	Snap
9 **Control/Settings**	*See 'Control / Settings channel' on page 79*						
10 **Accessory 1**	Effect parameter 1	0	255	0	100	0	Snap
11 **Accessory 2**	Effect parameter 2	0	255	0	100	0	Snap
12 **CTC (Color Temperature Control)**	Open, selected white point	0	9	0	3.5	0	Snap
	Fade through color temperatures of 10 000 K to 2 500 K stepless (interpolation)	11	11	4.3	45.9		
		12	254	4.7	49.8		Fade
		255	255	100	53.7		Snap
13 **CQC (Color Quality Control) / Saturation**	HQ (high quality), saturated color	0	9	0	3.5	0	Snap
	Crossfade	10	117	3.9	45.9		Fade
	HQ (high quality), unsaturated color	118	127	46.3	49.8		Snap
	HO (high output), unsaturated color	128	137	50.2	53.7		
	Crossfade	138	245	54.1	96.1		Fade
	HO (high output), saturated color	246	255	96.5	100		Snap
14 **Red, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
15 **Green, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
16 **Blue, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
17 **Red, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
18 **Green, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
19 **Blue, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
20 **Red, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
21 **Green, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
22 **Blue, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
23 **Red, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
24 **Green, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
25 **Blue, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
26 **Red, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
27 **Green, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
28 **Blue, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade

Main Module Basic Control (continued)

29	**Red, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
30	**Green, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
31	**Blue, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
32	**Red, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
33	**Green, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
34	**Blue, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
35	**Red, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
36	**Green, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
37	**Blue, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
38	**Red, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
39	**Green, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
40	**Blue, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
41	**Red, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
42	**Green, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
43	**Blue, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
44	**Red, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
45	**Green, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
46	**Blue, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
47	**Red, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
48	**Green, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
49	**Blue, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
50	**Red, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
51	**Green, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
52	**Blue, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
53	**Red, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
54	**Green, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
55	**Blue, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
56	**Red, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
57	**Green, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
58	**Blue, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
59	**Red, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
60	**Green, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
61	**Blue, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
62	**Red, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
63	**Green, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
64	**Blue, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
65	**Red, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
66	**Green, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
67	**Blue, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
68	**Red, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
69	**Green, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
70	**Blue, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade

DMX Mode 6: Multipix compressed RGBL

89 DMX Channels

Channel	Command	DMX range		Percent %		Default DMX	Fade
Main Module Basic control							
1 **Pan coarse** **2** **Pan fine**	Pan left → right	0	65535	0	100	32768	Fade
3 **Tilt coarse** **4** **Tilt fine**	Tilt front → back	0	65535	0	100	32768	Fade
5 **Intensity coarse** **6** **Intensity fine**	Intensity 0 → 100%	0	65535	0	100	0	Fade
7 **Shutter**	Closed	0	4	0	1.6	0	Snap
	Single flash if value changed within the range 005 → 009	5	9	2.0	3.5		Fade
	Pulse slow → fast	10	39	3.9	15.3		Fade
	Pulse opening slow → fast	40	69	15.7	27.1		Fade
	Pulse closing slow → fast	70	99	27.5	38.8		Fade
	Double flash slow → fast	100	129	39.2	50.6		Fade
	Strobe random pixel slow → fast	130	159	51.0	62.4		Fade
	Strobe random all slow → fast	160	199	62.7	78.0		Fade
	Strobe sync all pixels slow → fast	200	250	78.4	98.0		Fade
	Open	251	255	98.4	100		Snap
8 **Zoom**	Zoom narrow → wide	0	255	0	100	0	Snap
9 **Control/Settings**	*See 'Control / Settings channel' on page 79*						
10 **Accessory 1**	Effect parameter 1	0	255	0	100	0	Snap
11 **Accessory 2**	Effect parameter 2	0	255	0	100	0	Snap
12 **CTC (Color Temperature Control)**	Open, selected white point	0	9	0	3.5	0	Snap
	Fade through color temperatures of 10 000 K to 2 500 K stepless (interpolation)	11	11	4.3	45.9		
		12	254	4.7	49.8		Fade
		255	255	100	53.7		Snap
13 **CQC (Color Quality Control) / Saturation**	HQ (high quality), saturated color	0	9	0	3.5	0	Snap
	Crossfade	10	117	3.9	45.9		Fade
	HQ (high quality), unsaturated color	118	127	46.3	49.8		Snap
	HO (high output), unsaturated color	128	137	50.2	53.7		
	Crossfade	138	245	54.1	96.1		Fade
	HO (high output), saturated color	246	255	96.5	100		Snap
14 **Red, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
15 **Green, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
16 **Blue, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
17 **Lime, pixel 01**	Intensity 0 → 100%	0	255	0	100	0	Fade
18 **Red, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
19 **Green, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
20 **Blue, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
21 **Lime, pixel 02**	Intensity 0 → 100%	0	255	0	100	0	Fade
22 **Red, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
23 **Green, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
24 **Blue, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
25 **Lime, pixel 03**	Intensity 0 → 100%	0	255	0	100	0	Fade
26 **Red, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
27 **Green, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
28 **Blue, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade
29 **Lime, pixel 04**	Intensity 0 → 100%	0	255	0	100	0	Fade

Main Module Basic Control (continued)

30	**Red, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
31	**Green, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
32	**Blue, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
33	**Lime, pixel 05**	Intensity 0 → 100%	0	255	0	100	0	Fade
34	**Red, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
35	**Green, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
36	**Blue, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
37	**Lime, pixel 06**	Intensity 0 → 100%	0	255	0	100	0	Fade
38	**Red, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
39	**Green, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
40	**Blue, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
41	**Lime, pixel 07**	Intensity 0 → 100%	0	255	0	100	0	Fade
42	**Red, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
43	**Green, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
44	**Blue, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
45	**Lime, pixel 08**	Intensity 0 → 100%	0	255	0	100	0	Fade
46	**Red, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
47	**Green, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
48	**Blue, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
49	**Lime, pixel 09**	Intensity 0 → 100%	0	255	0	100	0	Fade
50	**Red, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
51	**Green, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
52	**Blue, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
53	**Lime, pixel 10**	Intensity 0 → 100%	0	255	0	100	0	Fade
54	**Red, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
55	**Green, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
56	**Blue, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
57	**Lime, pixel 11**	Intensity 0 → 100%	0	255	0	100	0	Fade
58	**Red, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
59	**Green, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
60	**Blue, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
61	**Lime, pixel 12**	Intensity 0 → 100%	0	255	0	100	0	Fade
62	**Red, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
63	**Green, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
64	**Blue, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
65	**Lime, pixel 13**	Intensity 0 → 100%	0	255	0	100	0	Fade
66	**Red, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
67	**Green, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
68	**Blue, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
69	**Lime, pixel 14**	Intensity 0 → 100%	0	255	0	100	0	Fade
70	**Red, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
71	**Green, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
72	**Blue, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
73	**Lime, pixel 15**	Intensity 0 → 100%	0	255	0	100	0	Fade
74	**Red, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
75	**Green, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
76	**Blue, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
77	**Lime, pixel 16**	Intensity 0 → 100%	0	255	0	100	0	Fade
78	**Red, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
79	**Green, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
80	**Blue, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade
81	**Lime, pixel 17**	Intensity 0 → 100%	0	255	0	100	0	Fade

Main Module Basic Control (continued)

82	**Red, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
83	**Green, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
84	**Blue, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
85	**Lime, pixel 18**	Intensity 0 → 100%	0	255	0	100	0	Fade
86	**Red, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
87	**Green, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
88	**Blue, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade
89	**Lime, pixel 19**	Intensity 0 → 100%	0	255	0	100	0	Fade

Control / Settings channel

The Control / Settings commands listed below are available on Channel 9 in every DMX mode.

Channel		Command	DMX range		Percent %		Default DMX	Fade
9	**Control / Settings**	Idle	0	9	0.0	3.5	0	Snap
		No function	10	11	3.9	4.3		
		IQ.Service connect	12	13	4.7	5.1		
		No function	14	19	5.5	7.5		
		Dimming curve Soft / Square, (3 sec.)	20	21	7.8	8.2		
		Dimming curve Linear, 3 sec.	22	23	8.6	9.0		
		Dimming curve S-curve, 3 sec.	24	25	9.4	9.8		
		No function	26	29	10.2	11.4		
		Display mode: Off (3 sec.)	30	31	11.8	12.2		
		Display mode: Auto (3 sec.)	32	33	12.5	12.9		
		Display mode: On (3 sec.)	34	35	13.3	13.7		
		No function	36	37	14.1	14.5		
		Display orientation: Auto (3 sec.)	38	39	14.9	15.3		
		Display orientation: Normal (3 sec.)	40	41	15.7	16.1		
		Display orientation: Inverted (3 sec.)	42	43	16.5	16.9		
		No function	44	45	17.3	17.6		
		No signal: Blackout (3 sec.)	46	47	18.0	18.4		
		No signal: Hold (3 sec.)	48	49	18.8	19.2		
		No signal: Play captured scene (3 sec.)	50	51	19.6	20.0		
		No signal: Capture current scene (3 sec.)	52	53	20.4	20.8		
		No function	54	55	21.2	21.6		
		Fan mode: Off (3 sec.)	56	57	22.0	22.4		
		Fan mode: Regulated (3 sec.)	58	59	22.7	23.1		
		Fan mode: High (3 sec.)	60	61	23.5	23.9		
		Fan mode: Medium (3 sec.)	62	63	24.3	24.7		
		Fan mode: Low (3 sec.)	64	65	25.1	25.5		
		No function	66	69	25.9	27.1		
		Pixel mirror: Off (3 sec.)	70	71	27.5	27.8		
		Pixel mirror: x-mirror (3 sec.)	72	73	28.2	28.6		
		Pixel mirror: y-mirror (3 sec.)	74	75	29.0	29.4		
		Pixel mirror: x-y-mirror (3 sec.)	76	77	29.8	30.2		
		Pixel rotation: off (3 sec.)	78	79	30.6	31.0		
		Pixel rotation: 60° (3 sec.)	80	81	31.4	31.8		
		Pixel rotation 120° (3 sec.)	82	83	32.2	32.5		
		Pixel rotation 180° (3 sec.)	84	85	32.9	33.3		
		Pixel rotation 240° (3 sec.)	86	87	33.7	34.1		
		Pixel rotation 300° (3 sec.)	88	89	34.5	34.9		
		No function	90	91	35.3	35.7		
		Position feedback: Off (3 sec.)	92	93	36.1	36.5		
		Position feedback: On (3 sec.)	94	95	36.9	37.3		
		No function	96	97	37.6	38.0		
		Tilt invert Off (3 sec.)	98	99	38.4	38.8		
		Tilt invert On (3 sec.)	100	101	39.2	39.6		
		Pan invert Off (3 sec.)	102	103	40.0	40.4		
		Pan invert On (3 sec.)	104	105	40.8	41.2		
		Tilt disable: Off (3 sec.)	106	107	41.6	42.0		
		No function	108	109	42.4	42.7		
		Tilt motor current disabled (3 sec.)	110	111	43.1	43.5		
		Pan disable: Off (3 sec.)	112	113	43.9	44.3		
		No function	114	115	44.7	45.1		
		Pan motor current disabled (3 sec.)	116	117	45.5	45.9		

		No function	118	129	46.3	50.6		
		Performance: Fast (3 sec.)	130	131	51.0	51.4		
		Performance: Normal (3 sec.)	132	133	51.8	52.2		
		Performance: Smooth (3 sec.)	134	135	52.5	52.9		
		No function	136	137	53.3	53.7		
		White Point: 8000K (3 sec.)	138	139	54.1	54.5		
		White Point: 6500K (3 sec.)	140	141	54.9	55.3		
		White Point: 5600K (3 sec.)	142	143	55.7	56.1		
		White Point: 4200K (3 sec.)	144	145	56.5	56.9		
		White Point: 3200K (3 sec.)	146	147	57.3	57.6		
		No function	148	149	58.0	58.4		
		Sub Module mode Normal (3 sec.)	150	151	58.8	59.2		
		Sub Module mode Independent (3 sec.)	152	153	59.6	60.0		
		No function	154	165	60.4	64.7		
		Color Mode: RGB [1] (3 sec.)	166	167	65.1	65.5		
		Color Mode: RGBL [2] (3 sec.)	168	169	65.9	66.3		
		Color Mode: x;y [3] (3 sec.)	170	171	66.7	67.1		
		No function	172	181	67.5	71.0		
		iQ. Gamut: FULL (3 sec.)	182	183	71.4	71.8		
		iQ. Gamut: Rec. 2020 (3 sec.)	184	185	72.2	72.5		
		iQ. Gamut: Rec. 706 (3 sec.)	186	187	72.9	73.3		
		No function	188	191	73.7	74.9		
		Hibernation Off (3 sec., fixture will reset)	192	192	75.3	75.3		
		Hibernation On (3 sec.)	193	193	75.7	75.7		
		No function	194	195	76.1	76.5		
		Pan range: Normal (3 sec.)	196	197	76.9	77.3		
		Pan range : Extended (3 sec.)	198	199	77.6	78.0		
		No function	200	201	78.4	78.8		
		Accessory: None	202	203	79.2	79.6		
		Accessory: Egg crate	204	205	80.0	80.4		
		Accessory: Snoot	206	207	80.8	81.2		
		No function	208	215	81.6	84.3		
		PWM Optimal (3 sec.)	216	217	84.7	85.1		
		PWM High 1 (3 sec.)	218	219	85.5	85.9		
		PWM High 2 (3 sec.)	220	221	86.3	86.7		
		PWM Max. (3 sec.)	222	223	87.1	87.5		
		No function	224	229	87.8	89.8		
		Save as User Settings Preset 1 (3 sec.)	230	231	90.2	90.6		
		Save as User Settings Preset 2 (3 sec.)	232	233	91.0	91.4		
		Save as User Settings Preset 3 (3 sec.)	234	235	91.8	92.2		
		No function	236	237	92.5	92.9		
		Load User Settings Preset 1 (3 sec.)	238	239	93.3	93.7		
		Load User Settings Preset 2 (3 sec.)	240	241	94.1	94.5		
		Load User Settings Preset 3 (3 sec.)	242	243	94.9	95.3		
		Load Settings Default	244	245	95.7	96.1		
		No function	246	249	96.5	97.6		
		Reset pan/tilt (3 sec.)	250	251	98.0	98.4		
		Reset head (3 sec.)	252	253	98.8	99.2		
		Reset ALL (3 sec.)	254	255	99.6	100		

To reduce the risk of accidentally changing settings, the commands on the Control / Settings channel must be held for a certain time before they are executed. The above table indicates the number of seconds that you must hold a command.

11. Key to conversion of x and y coordinates

The following formulas are used when converting DMX values to x/y coordinates on the RGB and RGBL color mixing channels:

8-bit

$$\text{DMX}\,x = \frac{x \text{ co-ordinate x } 255}{0.8}$$

$$\text{DMX}\,y = \frac{y \text{ co-ordinate x } 255}{0.8}$$

16-bit

$$\text{DMX}\,x = \frac{x \text{ co-ordinate x } 65535}{0.8}$$

$$\text{DMX}\,y = \frac{y \text{ co-ordinate x } 65535}{0.8}$$

12. Color wheel specifications

The following table gives the color gamut co-ordinates of the color presets available on the color wheel effect.

Filter 004, Medium Bastard Amber	0.37;0.335
Filter 019, Fire	0.664;0.31
Filter 025, Sunset Red	0.566;0.359
Filter 026, Bright Red	0.712;0.281
Filter 036, Medium Pink	0.36;0.268
Filter 049, Medium Purple	0.283;0.101
Filter 058, Lavender	0.212;0.099
Filter 068, Sky Blue	0.151;0.128
Filter 088, Lime Green	0.356;0.511
Filter 089, Moss Green	0.259;0.547
Filter 090, Dark Yellow Green	0.184;0.641
Filter 102, Light Amber	0.434;0.44
Filter 103, Straw	0.336;0.359
Filter 106, Primary Red	0.699;0.285
Filter 111, Dark Pink	0.389;0.215
Filter 115, Peacock Blue	0.134;0.296
Filter 117, Steel Blue	0.223;0.278
Filter 118, Light Blue	0.149;0.113
Filter 121, Filter Green	0.302;0.534
Filter 122, Fern Green	0.234;0.543
Filter 124, Dark Green	0.123;0.586
Filter 126, Mauve	0.287;0.082
Filter 128, Bright Pink	0.401;0.151
Filter 131, Marine Blue	0.199;0.305
Filter 132, Medium Blue	0.137;0.11
Filter 134, Golden Amber	0.501;0.371
Filter 135, Deep Golden Amber	0.667;0.326
Filter 136, Pale Lavender	0.288;0.254
Filter 137, Special Lavender	0.231;0.175
Filter 138, Pale Green	0.331;0.433
Filter 140, Summer Blue	0.201;0.245
Filter 141, Bright Blue	0.129;0.159
Filter 143, Pale Navy Blue	0.17;0.205
Filter 147, Apricot	0.446;0.381
Filter 148, Bright Rose	0.482;0.238
Filter 152, Pale Gold	0.37;0.332
Filter 154, Pale Rose	0.35;0.318

Filter 157, Pink	0.457;0.272
Filter 162, Bastard Amber	0.348;0.328
Filter 164, Flame Red	0.659;0.302
Filter 165, Daylight Blue	0.159;0.158
Filter 169, Lilac Tint	0.294;0.281
Filter 170, Deep Lavender	0.278;0.211
Filter 172, Lagoon Blue	0.141;0.22
Filter 180, Dark Lavender	0.191;0.072
Filter 182, Light Red	0.67;0.313
Filter 194, Surprise Pink	0.24;0.183
Filter 197, Alice Blue	0.164;0.118
Filter 201, Full C.T. Blue	0.228;0.233
Filter 202, Half C.T. Blue	0.261;0.273
Filter 203, Quarter C.T. Blue	0.285;0.294
Filter 204, Full C.T. Orange	0.437;0.392
Filter 206, Quartet C.T. Orange	0.346;0.34
Filter 219, Fluorescent Green	0.219;0.334
Filter 247, Filter Minus Green	0.325;0.279
Filter 248, Half Minus Green	0.317;0.297
Filter 281, Three Quarter C.T. Blue	0.239;0.258
Filter 285, Three Quarter C.T. Orange	0.4;0.387
Filter 352, Glacier Blue	0.171;0.19
Filter 353, Lighter Blue	0.193;0.246
Filter 506, Madge	0.662;0.337
Filter 778, Millennium Gold	0.606;0.382
Filter 793, Vanity Fair	0.419;0.17
Filter 798, Chrysalis Pink	0.191;0.061


GLP