FUSION by GLP

Fusion XPAR 12Z

User Manual

Software version 1.0.0.2

-GLP-

GLP® Fusion XPAR 12Z User Manual – Revision A

This document covers fixture software version 1.0.0.2

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1. Safety

Key to symbols

The following symbols are used in the Fusion XPAR 12Z lighting fixture'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 manual for important safety information.

Warning! Fire hazard.

Warning! Risk of eye injury.

Warning! Read the XPAR 12Z Quick Start and Safety Manual supplied with the 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 FS20 fixtures. If you fail to read that information you may create a safety hazard with a risk of injury, death or damage.

General safety information

Read this manual carefully before installing, using or servicing the Fusion XPAR 12Z lighting fixture.

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

The user documentation for GLP Fusion XPAR 12Z lighting fixtures consists of:

- This document, the **XPAR 12Z User Manual**, available for download from www.glp.de. The User Manual contains important safety information and installation instructions that the installer and user must read and explains features and control of XPAR 12Z fixtures.
- The **XPAR 12Z DMX Quick Start and Safety Manual** supplied with XPAR 12Z fixtures and available for download from www.glp.de. The Quick Start and Safety Manual contains important safety information and installation instructions that the installer and user must read. It also contains dimensions drawings and technical specifications for the fixture.
- The **XPAR 12Z DMX Channel Index**, available for download from www.glp.de. The Channel Index is a separate guide to the DMX control channel layout and DMX commands available.

All documents are available for download from www.glp.de.

The Fusion XPAR 12Z 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 or in the User 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 or using 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 version of this manual. Check the fixture software version indicated on page 2 of this manual and then use the fixture's control panel to check the version installed in the fixture. If the versions are not the same, this manual may still cover the fixture, because software updates do not always affect the way you use the fixture. However, it is possible that this manual does not match the fixture perfectly. Software release notes can help clarify this question. You can consult software release notes and download the correct version of this manual on the GLP website if necessary.
- Make all user documentation available to all installers and operators. Save this document 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.
- Refer all repairs and any service operation not described in this manual to a technician authorized by GLP.
- The light source in this fixture must not be changed by the end user.
- Read and follow the user documentation for all additional equipment.

Electrical safety

- Do not allow the fixture to become immersed. Do not expose the fixture to high-pressure water projections.
- Keep any unused connectors on the fixture sealed with their protective caps at all times, both when the fixture is in use and when not in use.
- Use only a source of AC mains power that complies with local building and electrical codes and has both overload and ground fault (earth fault) protection.
- Ensure that the fixture is electrically connected to ground (earth).
- Disconnect the fixture from AC mains power before carrying out any installation or maintenance work and when the fixture is not in use.
- Disconnect the fixture from power immediately if any seal, cover, cable, connector or other component is damaged, defective, deformed or showing signs of overheating. Do

not reapply power until the fixture has been repaired and made safe by a technician authorized by GLP.

- Check that all power distribution equipment, cables and connectors are in perfect condition, rated for the electrical requirements of all connected devices, suitable for their application and suitable for the installation environment.
- Use only TRUE1 compatible cable connectors for AC mains power input at the fixture's Mains IN connector and for relaying AC mains power from one fixture's Mains OUT (Thru) connector to another fixture's Mains IN connector.
- Use minimum 14 AWG or 1.5 mm^2 power input and relay cables that are minimum 16 A-rated and temperature-rated to suit the application. In the USA and Canada the cables must be UL-listed, type SJT or equivalent. In the EU the cables must be type H05VV-F or equivalent.
- Do not connect devices to power in a chain if the total maximum current draw of all the devices in the chain when added together will exceed the current rating of any cable or connector used at any point in the chain. The supplied power input cable is rated as follows:
  - US power cable: 16 A, 14 AWG, UL-listed, E304117, SJT, 4.9 ft.
  - EU power cable: 16 A, 1.5 mm^2, H07RN-F, 1.5 m.

  Do not connect more than twelve (12) Fusion XPAR 12Z fixtures to power in a chain at 100-120 V, 60 Hz.

  Do not connect more than twenty-four (24) Fusion XPAR 12Z fixtures to power in a chain at 200-240 V, 50 Hz.
- The voltage and frequency at the Mains OUT socket are the same as the voltage and frequency applied to the Mains IN socket. Only connect devices to the Mains Out socket that accept this voltage and frequency.
- Fusion XPAR 12Z fixtures do not have a user-replaceable fuse. If you suspect that a fuse has blown, disconnect the fixture from power and send it to a technician authorized by GLP for repair.

Fire safety and protection from burns

- Do not operate the fixture if the ambient temperature (Ta) exceeds 40° C / 104° F.
- The surface of the fixture's casing can reach up to 90° C / 194° F during operation. Avoid contact by persons and materials. Do not install the fixture in a location where there is a risk of accidental contact. Allow the fixture to cool for at least 20 minutes before handling
- Keep the fixture well away from flammable materials.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 0.2 m / 8 in. away from the fixture.
- Ensure that there is free and unobstructed airflow around the fixture.

- Do not illuminate surfaces within 0.2 m / 8 in. of the fixture. The light output from the fixture is powerful enough to cause burns or fire in illuminated objects at very close range.
- Do not place any optical components other than Fusion XPAR 12Z accessories from GLP onto the front of the fixture.
- Do not stick filters, masks or other materials onto the fixture. Do not block the light output in any way. The front surface becomes hot during operation and can melt or ignite objects that are in contact with the surface. Ensure that the front surface Is clean and unobstructed at all times in order to prevent a fire hazard and damage to the fixture.

Eye safety

- The XPAR 12Z is classified as a Risk Group 2 lighting fixture according to EN 62471. Possibly hazardous optical radiation emitted. Do not stare into the light output from the fixture. May be harmful to the eyes.
- Do not look at the fixture's light output with optical instruments or any device that may concentrate the light output.
- Make sure that persons near to or working on the fixture are not looking directly into the light output when the fixture lights up suddenly. This can happen when power is applied, when the fixture receives a DMX signal, or when certain control menu items are selected.
- The warning below is printed on the fixture. If the warning becomes impossible to read, replace it with a label reproduced from this illustration:

Risk Group 2

CAUTION: Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to the eye.

- Provide well-lit conditions to reduce the pupil diameter of anyone working on or near the fixture.

Strobe safety

- Flashing light, particularly at 5 - 30 Hz, may cause seizures in persons with photosensitive epilepsy. Do not use strobe effects for extended periods.

- Comply with local regulations on the use of strobe lighting and notify the public in advance with highly visible warning signs when strobe effects are used.
- If a seizure occurs, stop using strobe effects. Seek professional medical help. Note the time that the seizure starts and finishes. Call emergency medical help urgently if the seizure lasts more than five minutes, if it is the person's first seizure, or if the person is injured. While waiting for help to arrive, protect the affected person from injuring themselves on hard or sharp objects. If necessary, move the person to a safe place. Lay them on their side with their head supported to prevent it from hitting the floor. Loosen any tight clothing around their neck. Do not use force to hold the person or restrict their movements. Do not put anything in their mouth, including your fingers.

Installation safety and protection from personal injury

- Installation must be performed by qualified personnel only and carried out in accordance with all locally applicable regulations such as DIN VDE 0711-217.
- The fixture is not portable when installed.
- Ensure that the supporting structure and installation hardware used can hold at least ten times the weight of the load that they support.
- Fasten the fixture to a structure or surface only as directed in this manual and only with hardware that is specifically designed and rated for its purpose. Do not use a safety cable as the primary means of support. Check that installation hardware is in perfect condition. Fasteners must be steel grade 8.8 strength or better. Rigging clamps must be half-coupler type that completely encircle the rigging truss chord.
- If the fixture is installed in a location where it may cause injury or damage if it falls, install as directed in this manual a safety cable or similar secondary attachment that will hold the fixture if a primary attachment fails. The secondary attachment must be approved by an official body such as TÜV as a safety attachment for the weight that it secures, it must comply with EN 60598-2-17 Section 17.6.6, and it must be able to support a static suspended load that is ten times the weight that it secures.
- If the fixture is installed in a location where it may be exposed to forces such as wind pressure, vibration or movement, make sure that the installation can withstand these forces. Monitor weather forecasts constantly. Take down the installation immediately if there is any risk of weather conditions that could destabilize the installation.
- Check that all covers and items of rigging hardware are secure before using the fixture. Do not operate the fixture with missing or damaged covers, shields or any optical component.
- Restrict access below the work area and work from a stable platform whenever installing, servicing or moving the fixture.
- If the fixture becomes damaged, stop using it immediately and disconnect it from power. Do not attempt to use a fixture that is obviously damaged.
- Do not modify the fixture in any way not described in its user documentation.
- Install genuine GLP parts only.

2. Avoiding damage to the fixture

Important! Follow the directions in this section carefully, or the fixture may suffer damage that is not covered by the product warranty.

General precautions

Do not drop the fixture or expose it to mechanical stress.

Protect the onboard OLED display and control panel from shocks, or they may suffer damage that is not covered by the product warranty.

Do not expose the fixture to heat (from other lighting fixtures for example).

Clean optical components only as directed. Oils, solvents, and other chemicals commonly used for cleaning can damage the lens coatings and surfaces.

Use only original spare parts. Do not make any structural modifications to the fixture or you will void the product warranty.

Avoiding damage from light sources and heat

To avoid problems from strong light sources:

- Do not expose the front of the fixture to sunlight or any other strong light source.
- In outdoor applications during daylight, make sure that the front face of the fixture is shielded or points away from the sun, even when not in use.
- Do not aim other high-powered beam lights directly at the fixture.

Do not operate the fixture in ambient temperatures above 40° C / 104° F. Allow free airflow around the fixture.

IP rating

XPAR 12Z fixtures are IP65-rated:

- **IP** stands for Ingress (entry into the fixture) Protection.
- The first figure **6** in the rating means that fixtures are protected against the entry of dust and airborne particles.
- The second figure **5** in the rating means that fixtures are protected against the entry of rain and water projections from all angles. Fixtures are not protected against immersion in water and they are not protected against high-pressure water jets.

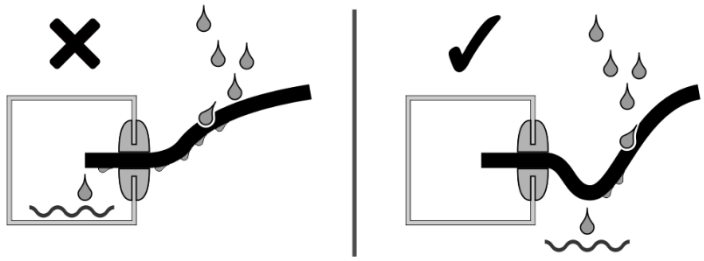
Avoiding damage from water and humidity

- Do not install XPAR 12Z fixtures in a location where water can pool around the fixture or allow XPAR 12Z fixtures to become submerged in any other way. Do not aim low- or high-pressure water jets at fixtures.
- Keep all unused connectors on the fixture sealed with their protective caps, both when the fixture is being used and when it is not in use.
- In outdoor and high-humidity environments, use IP65-rated power and data connectors and cable (an IP65 rating means that the item is protected against the entry of water from rain, projections and low-pressure jets as well as the entry of dust). When assembling connectors and installing them on cable, follow the manufacturer's and ensure that an

IP65 rating is maintained for the complete assembly. Use only the following cable connectors:

- IP65-rated 5-pin XLR connectors for data IN and OUT (THRU)
- IP65-rated TRUE1 compatible connectors for Power IN and Power OUT (THRU).

- Apply a dielectric grease (available from electrical suppliers) to connector terminals and caps to prevent corrosion and/or electrical short circuits.
- Make sure that cables open into dry areas or sealed junction boxes. Moisture can be drawn along cables by capillary action or pressure variations resulting from thermal expansion.
- See drawing on right. Arrange cables so that they arrive at connectors from below. Make sure that it is impossible for water to flow down cables and accumulate at connectors. If necessary, provide extra cable slack and create 'drip loops' before connectors.



- Create loose cable bends only. Do not subject connections to bending forces or allow connections to bear the weight of long lengths of cable.

Avoiding damage from dust and airborne particles

- Carry out regular visual inspections of the fixture to make sure that there is no accumulation of dirt, especially on the front of the fixture.
- If cleaning is necessary, follow the instructions in 'Service' on page 51.

Transportation and storage

- Transport the fixture in its original packaging to protect it from damage caused by shocks during transportation.
- Store the fixture in a dry location when not in use.

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
- GLP N. America: +1 818 767-8899
- GLP UK: +44 1392 690140
- GLP Asia: +852 (3151) 7730
- GLP Nordic: +46 737 57 11 40

3. XPAR 12Z overview

The Fusion XPAR 12Z from GLP is a powerful LED-based lighting fixture which uses a 120W RGBL (red, green, blue and lime) LED emitter. A motorized Fresnel lens provides variable zoom giving a beam angle from 6° – 44°.

The fixture can be controlled by DMX, or by settings on the control panel.

The XPAR 12Z can be used indoors in permanent and temporary installations. Its rugged construction and IP65 rating mean that it can also be used outdoors in temporary installations if precautions are taken to prevent immersion in water and damage from direct sunlight. It can be fixed to any surface or suspended from a suitable structure as described in Section 4.

The XPAR 12Z is not suitable for household use, for use in any location where unattended children have access to it, or for use in permanent outdoor installations.

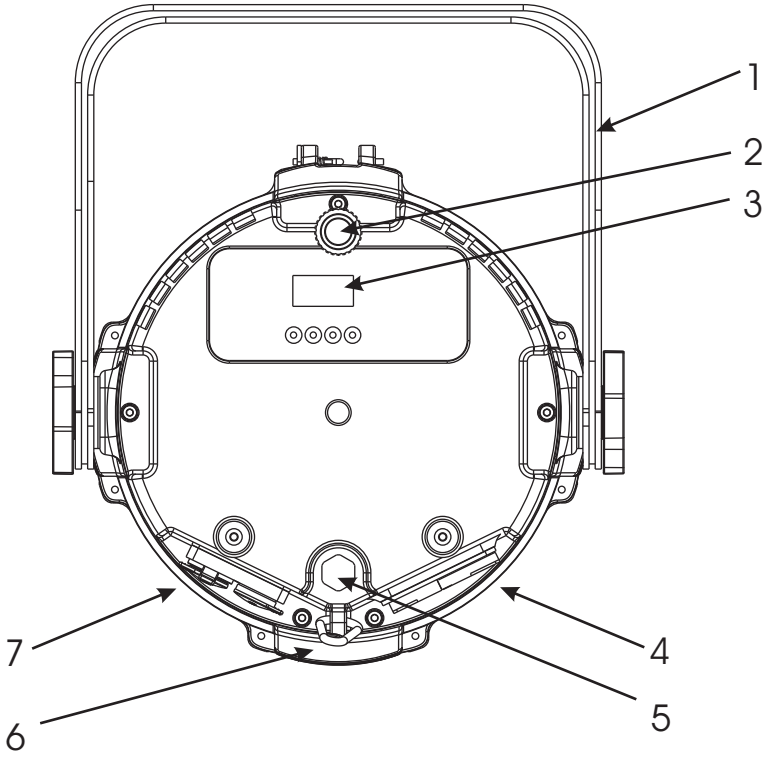


Figure 1. XPAR 12Z overview from rear

1 – Mounting bracket

2 – Adjustable foot

3 – Control panel with OLED display

4 – Power in and loop through connectors

5 – Vent for pressure equalization

6 – Safety cable attachment point

7 – DMX in and loop through connectors

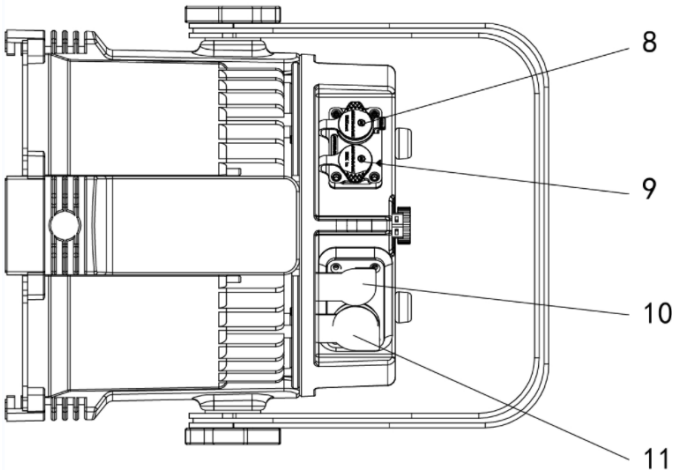


Figure 2. XPAR 12Z connections

8 – DMX through/out (5 pin XLR)

9 – DMX in (5 pin XLR)

10– Power in (TRUE1 compatible)

11– Power loop through (TRUE1 compatible)

4. Installation

Warning! Read 'Safety' starting on page 5 for important safety information that you must understand before you install or operate the fixture. Install XPAR 12Z fixtures only as described in this chapter, or you may create an installation that is unsafe.

Install the fixture at least 0.2 m / 8 in. away from combustible materials (wood, textiles, paper, etc.), 0.2 m / 8 in. away from any surface that will be illuminated, and a safe distance away from any flammable materials (volatile spirits, etc.).

It is the installer's responsibility to provide a stable, secure supporting structure that is suitable for the environment and application and that meets all applicable codes and legal requirements. Note the requirement to secure lighting fixtures with safety cables in temporary installations.

Permitted mounting options

An XPAR 12Z fixture may be installed in one of the following ways:

1. Fastened to a surface at any angle by screwing through the mounting bracket.
2. Fastened to a rigging truss or similar structure at any angle by means of a truss coupler or other clamp fixed to the mounting bracket.
3. Free standing on a flat surface by splitting apart the two sections of the mounting bracket to form two feet.
4. Free standing on a flat surface by standing the fixture on its back pointing upwards.

Securing fixtures with a safety cable

In temporary installations, if a fixture could cause injury or damage by falling you must secure it with a secondary attachment such as a safety cable that will hold it if the primary means of attachment fails. The safety cable must be approved for the weight that it secures.

To secure an XPAR 12Z fixture with a safety cable:

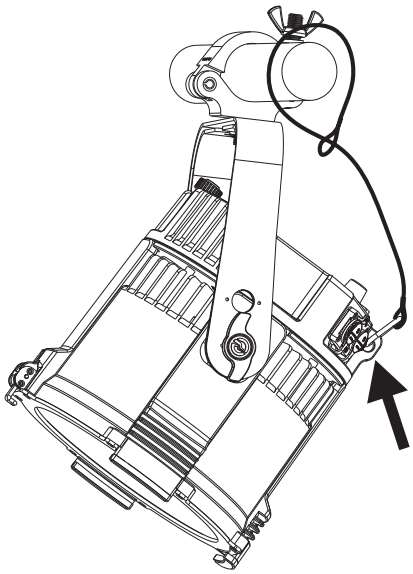


Figure 3. Safety cable attachment point

1. Loop a safety cable around a secure anchoring point such as a truss or fixed structure so that it will catch the fixture if a rigging clamp fails. Take up as much slack as possible in the safety cable (by looping it more than once around the truss, for example).
2. See Figure 3. Fasten the safety cable to the attachment hole on the back of the fixture between the connectors. Check that the fixture is now secured.

Installing on a surface at any angle

To install an XPAR 12Z fixture on a surface at any angle:

1. Check that the surface is secure and can safely hold the weight of the fixture plus all hardware and cables.
2. Loosen the handwheels on the mounting bracket, adjust the bracket to a suitable angle and tighten the handwheels.
3. Hold the fixture in position on the surface and mark the positions of holes for fasteners on the surface. You will need at least two fasteners. Drill holes if necessary.
4. Fasten the mounting bracket to the surface by passing at least two suitable fasteners such as grade 8.8 steel bolts or screws through the holes in the bracket and fastening them to the surface. Fasteners must be suitable for their purpose and the installation environment.
5. In a temporary installation, secure the fixture with a safety cable as described in 'Securing fixtures with a safety cable' on page 14 if there is any risk that the fixture will cause injury or damage if it falls.

Installing on a rigging truss or similar structure

You can suspend an XPAR 12Z fixture from a rigging truss or pipe using a suitable clamp attached to the integral mounting bracket of the XPAR 12Z.

If you are going to install the fixture hanging vertically downwards from a horizontal rigging truss or pipe, you can fasten it to the truss using a G-clamp. If you are going to install the fixture in any other orientation, you must use a half-coupler clamp that completely surrounds the truss chord or pipe.

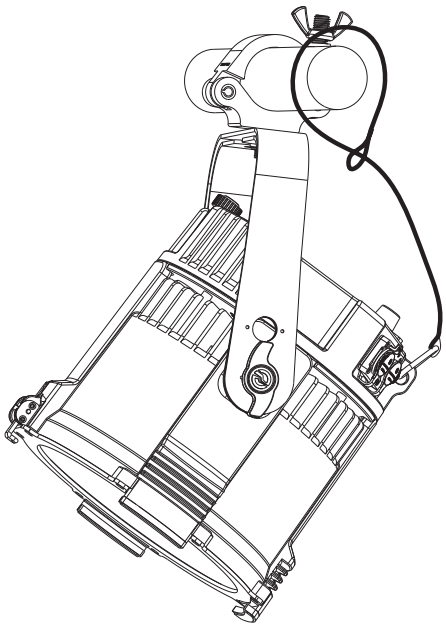


Figure 4. Truss mounting

1. Attach a suitable clamp to the mounting bracket of the XPAR 12Z as shown in Figure 4.
2. Attach the clamp to the truss or structure.
3. Secure the fixture with a safety cable as described in 'Securing fixtures with a safety cable' on page 14.

Free standing on a flat surface using mounting bracket

You can use the XPAR 12Z fixture free standing on the floor or other flat horizontal surface by splitting the mounting bracket into its two sections and positioning them at an angle to form two feet for the fixture to stand on.

The vertical angle of the fixture can be adjusted by varying the mounting bracket position.

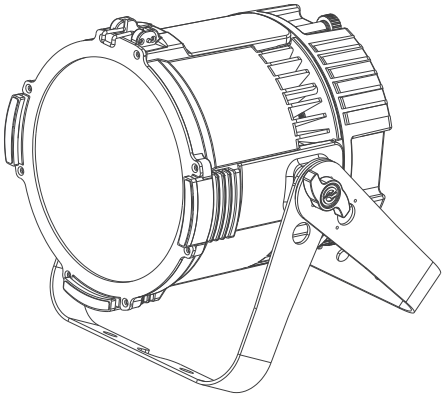


Figure 5. Free standing on a surface

1. Loosen the handwheel bolts either side of the mounting bracket.
2. Split the bracket into its two sections and position them at 90 degrees to each other as shown in Figure 4.
3. Adjust the vertical angle of the fixture by swivelling the fixture within the mounting brackets.
4. Tighten the handwheel bolts.
5. Ensure the fixture is located in a position where it will not form a trip hazard or cause injury if it falls over. If in doubt secure the fixture with a safety cable to an adjacent fixed point.

Free standing as uplighter

The XPAR 12Z fixture can be placed on its back for use as an uplighter. Two fixed feet and one adjustable foot allow you to set the vertical angle of the fixture. The mounting bracket may be removed if required for cleaner appearance by removing the handwheel bolts on either side.

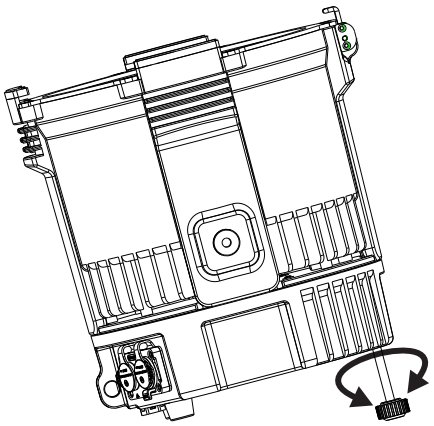


Figure 6. Free standing as uplighter

1. Unscrew the handwheel bolts either side of the mounting bracket and remove the mounting bracket (if required).
2. Stand the fixture on its back as shown in Figure 6 and adjust the angle by screwing the adjustable foot in or out.
3. Ensure the fixture is located in a position where it will not form a trip hazard or cause injury if it falls over. If in doubt secure the fixture with a safety cable to an adjacent fixed point.

5. AC mains power

Warning! Read 'Safety' starting on page 5 for important safety information that you must understand before you install or operate the fixture.

Check that all cables and connectors are suitable for the installation environment and application (see recommendations in 'Avoiding damage to the fixture' on page 10).

Use H07 RN-F 3 x 2.5mm / SJT 12 AWG cables with TRUE1 compatible connectors to supply power to fixtures.

Line up the keyways in connectors carefully. Do not try to insert or twist a connector if it feels excessively stiff. Resistance to insertion or twisting is a sign that connectors may be incorrectly lined up.

Keep connectors sealed with their rubber caps at all times when not in use.

Included items

The XPAR 12Z is supplied with a power cord with a TRUE1 compatible connector.

Connecting to power

The AC mains power supply must include a connection to ground / protective earth. It must be protected against ground / earth leakage and overload. The fixture's internal auto-sensing power supply accepts AC power at 100-240 V, 50/60 Hz. Do not connect the fixture to power at any other voltage or to an external dimmer.

The XPAR 12Z does not have a power ON/OFF switch. Power is applied to the fixture as soon as the power cable becomes live.

The XPAR 12Z has a 3-conductor TRUE1 compatible Mains IN power input socket that accepts AC power from a TRUE1 female cable connector. Although TRUE1 connectors support hot plugging, it is still good practice to shut down power to power cables before connecting them to fixtures.

To connect the fixture to power:

1. If convenient, shut down power to the power input cable.
2. Note the position of the keys and keyways on the TRUE1 power cable connector and Mains IN socket and align them with each other. Insert the cable connector into the socket and twist clockwise to lock. Do not use force. If the connector feels excessively stiff, remove it and check again that it is lined up correctly.
3. Before applying power to the power cable, check that nobody is looking directly into the front of the fixture.

To disconnect the fixture from power, pull the latch on the cable connector outwards to release it, then twist the connector counterclockwise and pull to remove it from the socket.

Installing power connectors

If you intend to draw power from convenience receptacles / consumer mains power sockets, it is possible to install a suitable cord cap / power plug on the supplied power cord / input cable. If you do this, check that the cord cap / plug is rated minimum 250 V, 16 A,

that it has a connection to ground / earth and that it has an integral cable grip. Follow the cord cap / plug manufacturer's assembly instructions.

If you need to install a TRUE1 compatible connector on a power cable, follow the instructions given on the manufacturer's website.

Respect the color coding used in the supplied power cable and in your local mains power wiring system. US and EU systems use the color coding shown below:

	Live or L	Neutral or N	Ground / Earth or ⏚
US system	Black	White	Green
EU system	Brown	Blue	Yellow/green

Connecting multiple fixtures to power in a chain

You can connect fixtures to power in a daisy-chain to simplify your power circuit layout.

XPAR 12Z fixtures have 2.5 mm^2 internal wiring from Power IN to Power THRU connectors.

Warning! Do not connect more than twelve (12) XPAR 12Z fixtures in total to power in one chain at 100-120 V, 60 Hz. Do not connect more than twenty-four (24) XPAR 12Z fixtures in total to power in one chain at 200-240 V, 50 Hz.

The power input cable supplied with the fixture is rated 16 A maximum. Add together the maximum current draw ratings of all the devices that you intend to connect to power in a daisy chain and do not create a chain with a total maximum current draw of more than 16 A, or you will create a risk of fire and electric shock.

To connect fixtures to power in a chain:

1. Obtain power relay cables that have male and female TRUE1 compatible connectors. Cables must be minimum 14 AWG or 1.5mm^2, rated minimum 16 A and suitable for the environment and application.
2. Connect the power input cable to the Mains IN socket of the first fixture as described under 'Connecting to power' on page 19.
3. Connect a relay cable to the Mains OUT / THRU socket of the first fixture and to the Mains IN socket of the second fixture.
4. If you are using 100-120 V, 60 Hz AC mains power you can continue connecting XPAR 12Z fixtures Mains OUT / THRU socket to Mains IN socket until the chain contains a maximum of twelve (12) fixtures in total. If you are using 200-240 V, 50 Hz AC mains power you can continue connecting fixtures Mains OUT to Mains IN until the chain contains a maximum of twenty-four (24) fixtures total.

6. Connecting to DMX data

Check that all cables and connectors are suitable for the installation environment and application (see recommendations in 'Avoiding damage to the fixture' on page 10).

Use digital 110 Ohm DMX cable with IP65 5-pin XLR connectors to supply DMX data to fixtures.

Keep connectors sealed with their rubber caps at all times when not in use.

The XPAR 12Z has two 5-pin XLR connectors for IN and THRU connections to a DMX data link. XPAR 12Z fixtures support the USITT DMX 512A signal protocol. They also support RDM (Remote Device Management).

The 5-pin XLR connectors use standard pin allocations:

1	Signal Ground
2	Data –
3	Data +
4	Not used
5	Not used

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

Installing optional barndoors

An optional barndoor accessory is available for the XPAR 12Z that can be installed on the front of the fixture to control lateral light spill if required.

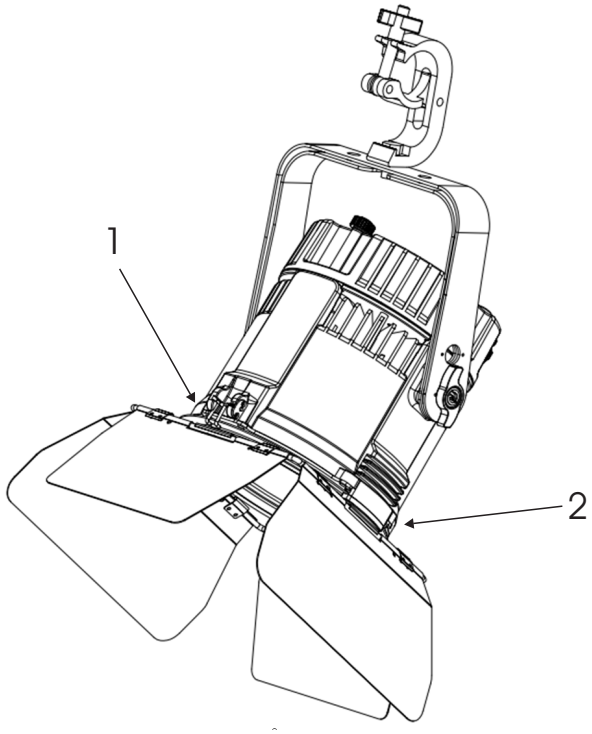


Figure 7. XPAR 12Z with Barndoors

To install barndoors:

1. See Figure 7. Pull back the spring clip (1) on the top of the fixture and slide the barndoor accessory into the channels (2) provided on the left, right and bottom of the fixture lens. Release the spring clip and ensure that all four sides of the barndoors are correctly held in place.
2. Install a safety bond between one of top corners of the barndoors assembly and the main fixture to prevent the barndoors falling if they become detached from the main fixture.

Installing color filter frame

An optional color filter frame accessory is available for the XPAR 12Z that can be installed on the front of the fixture. This would normally be used to hold diffusion or frost media to soften the light beam.

The procedure to install the frame is the same as for the barndoor accessory above.

7. Starting and stopping operation

Warning! Before you apply power to the fixture or operate it after a blackout, make sure that nobody is looking directly into the front of the fixture.

The XPAR 12Z's TRUE1-compatible mains power input connector supports hot-plugging, and connecting and disconnecting a live power cable is an option, especially if you need to shut down power urgently, but it is still good practice to shut down power to the AC mains power circuit before connecting and disconnecting power cables.

To start operation, check that nobody is looking into the front of the fixture, then apply power to the AC mains power circuit.

To stop operation, shut down power to the AC mains power circuit.

8. Features

The XPAR 12Z unit has the following features:

Color – RGB(L)

The fixture uses an LED with RGBL emitters (Red, Green, Blue, Lime). This color combination is used to give improved color rendering with better white light and pastel tints. In RGB HO and RGB HQ color modes, the Lime emitters are automatically controlled and the Lime control channel(s) have no effect; color is set using levels of Red, Green and Blue.

Using the menu option **Fixture Settings → Color Mode** you can change the color control mode:

- RGB HO (Calibrated) sets the fixture to automatically control emitters from the RGB settings for maximum light output.
- RGB HQ (Calibrated) sets the fixture to automatically control emitters from the RGB settings to give maximum color rendering quality.
- RGBL mode allows independent control of the Red, Green, Blue and Lime emitters.

The default setting is **RGB HO (Calibrated)**.

RGB(L) control is not available in "White" and "Easy" DMX control modes.

Color Wheel

Depending on the DMX control mode selected, you can select a color from a preset list of colors. Color Wheel is not available in "RGB(L)", "Basic" and "White" DMX control modes.

Color Temperature / Green-Magenta Shift

Some DMX modes allow control of CTC (color temperature) and Magenta/Green shift. These settings modify the color settings selected on the other controls. Available in "White", "Standard" and "Advanced" DMX control modes.

Dimming

The fixture has 16-bit dimming (only available in "Advanced" DMX control mode).

See Figure 7. You can select from four dimming curves using the **Fixture Settings → Dimmer Curve** option on the control panel:

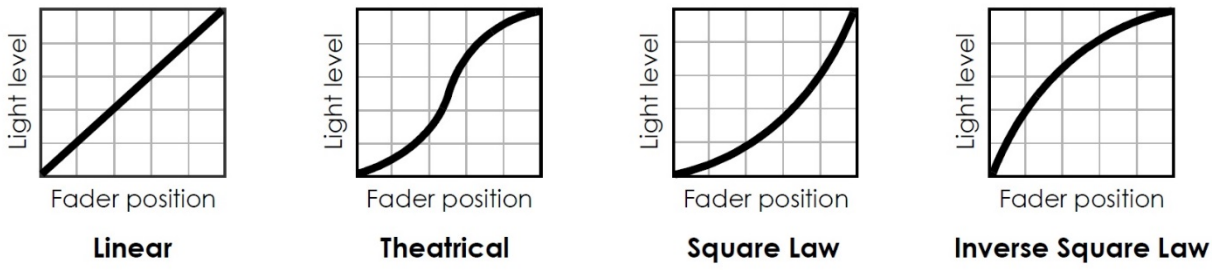


Figure 8. Dimming curves

- **Linear** sets dimming so that it appears to increase and decrease evenly throughout the dimming range.
- **Theatrical** is an S-shaped curve that gives finer control at low and at high light levels.
- **Square Law** gives finer control at low light levels and coarser control at high light levels.
- **Inverse Square Law** gives coarser control at low light levels and finer control at high light levels.

The default setting is **Linear**.

The fixture can be set to snap to dimmer changes or to have a soft-fade change similar to a tungsten fixture. This is set using the **Fixture Settings → Dimmer Speed** option. The default setting is **Fast**.

Shutter

The fixture has a simulated digital shutter with strobe and ramp up/ramp down effects

Zoom

The beam angle can be set between 6 and 44 degrees using the motorized micro-fresnel lens. The Zoom operation can be inverted using the **Fixture Settings → Zoom Invert** menu option.

Control Channel

All settable options from the onboard control panel can also be set remotely by DMX using the Control channel. See DMX tables in the next section for details.

Behavior when the fixture is not receiving a DMX signal

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

- **Hold** sets the fixture to continue obeying the last DMX values it received. If the fixture is powered up with no DMX signal, the fixture will remain in black out. This is the default setting.
- **Blackout** sets the fixture to black out.
- **Run Captured Scene** sets the fixture to output the DMX state stored using the Fixture Settings → Capture Scene option on the user menu.

This can be set using the **Fixture Settings → No Signal** menu option.

Variable PWM frequency

The fixture's LED is controlled using Pulse-Width Modulation (PWM) which can cause visible banding or strobing on video camera pictures. To minimize this effect you can change the frequency of the pulses used for the PWM using the **Fixture Settings → PWM** option on the user menu. As the frequency is increased, the dimming resolution of the fixture may decrease.

OLED Display

The illuminated OLED display lets you change fixture settings when power is applied. See Chapter 9 for more details.

Using the **Fixture Settings → Display Mode** option on the fixture's control panel you can set the display to automatically switch off when no buttons are pressed for a time.

Fixture information

The **Info** menu in the control panel gives access to items of information from the fixture's sensors and memory. You can check temperature sensor readouts, see total operating hours counters, and see software version number, for example.

Save/Recall Preset Settings

The fixture can store three different versions of the fixture setup options to allow fast setup of a particular configuration.

To store current options into a preset setting go to **Service → Save Settings → Preset 1,2 or 3**.

To recall a preset setting go to **Fixture Settings → Load Settings → Preset 1,2 or 3**. Then press ENTER for 3 seconds to confirm.

Factory defaults

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

Using the fixture's control panel option **Service → Default Settings** you can restore the settings to the factory defaults. This reloads all the fixture's factory default settings **except** DMX address, DMX mode, and stored DMX scene.

9. Control menus and onboard display

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

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

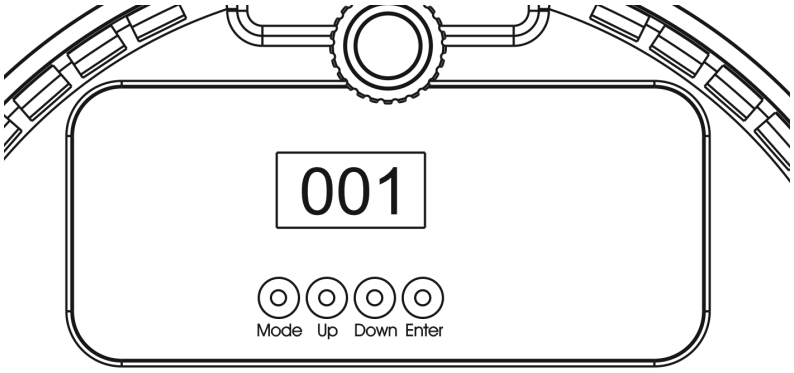


Figure 9. Onboard control panel

The four control buttons have the following functions:

MODE/ESC: Activate the menus or go back one level towards the top of the menu.

UP: Scroll up or increase a number.

DOWN: Scroll down or reduce a number.

ENTER: Activate the control panel if it is in sleep mode. Then enter a menu, select a setting or implement a command.

When you apply power to the fixture, it boots up. After it has booted, the panel displays the default screen showing the fixture's DMX mode and the DMX address that the fixture is using.

In the default screen:

- Hold down the **MODE** button to show the Quick Set Menu.
- Hold down the **UP** or **DOWN** button to show the Settings Overview screen which lets you see all main fixture information and settings. This can be useful if you are troubleshooting or if you are in contact with GLP Service.

You can set the display to go into a blank sleep mode after a time by using the **Display Mode → Auto** control panel option.

DMX control is disabled when the control menus are active.

See also the Display On / Off functions on the *DMX Control / Settings* channel.

Display Locking

You can configure the display to lock after a period of time to prevent accidental changes to the options using the **Fixture Settings → Lock** menu setting. To unlock, enter the passcode – the default passcode is 0000 or you can set your own code using the **Fixture Settings → Lock → Set Passcode** menu setting.

When the display is locked, pressing any button will show a warning message and the button press will have no other effect.

If the passcode is lost, you can reset it to the default by loading Factory Default Settings using the DMX Control channel or by RDM.

Display Rotation

You can rotate the display by holding the "UP" or "DOWN" button for 3 seconds. This can make the display easier to read if the fixture is hanging upside down. The display rotation can also be set from the user menu.

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, press the **ENTER** and **MODE** buttons together while at the top level menu. You can release the buttons as soon as FACTORY MODE appears in the 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.

10. Control menu layout

DMX Address	**001**-508 (maximum address depends on mode)	
Control Mode	M1 - Basic	
	M2 – Standard	
	M3 – Advanced	
	M4 - RGB(L)	
	M5 - White	
	M6 - Easy	
Control Protocol	DMX	
Fixture Settings	Color Mode	**RGB HO (Calibrated) -** only applicable for M1, M2, M3, M4..Gives maximum output intensity. Lime control channel(s) have no effect.
		RGB HQ (Calibrated) **-** only applicable for M1, M2, M3, M4. Sets maximum color quality. Lime control channel(s) have no effect.
		RGBL – independent emitter control. Only applicable for M1, M2, M3, M4)
	Dimmer Curve	**Linear**
		Theatrical (S-Curve)
		Square Law
		Inv. Square Law
	Dimmer Speed	Soft/**Fast**
	Zoom Invert	**Off**/On
	No Signal	**Blackout**
		Hold
		run Captured Scene
	Capture Scene	Press ENTER to Capture Scene
	PWM	600 Hz
		1200 Hz
		2200 Hz
		3000 Hz
		4800 Hz
		9600 Hz
		25 kHz
	Display Mode	**Auto**/On/Off
	Display Orientation	**Normal**/Upside Down
	Max. Temperature	60~**90°C**/140~194°F (90°C)
	RDM	ON*/OFF
	Load Settings	**Preset1 -** Press ENTER(3s) to confirm
		Preset2 - Press ENTER(3s) to confirm
		Preset3 - Press ENTER(3s) to confirm
	Lock	**Off**

		On		
		Set Passcode		
Manual Control	Reboot	Press ENTER(3s) to confirm		
	Manual DMX	Dimmer / Shutter / Zoom / Red / Green / Blue		
		Capture Scene - Press ENTER(3s) to Capture Scene		
Information	Firmware Version	Master.....TEST.12		
	Calibration	State.....VALID/INVALID CC Version…..x.x.x Cal. Version.....x.x.x Serial....23040100448 RDM ID....8912A1E01CC0		
	Fixture Details	XPAR 12Z Serial..... 00448 MAC..... F8912A1E01C0 RDM..... 8912A1E01CC0		
	Device Life	Power Cycles ..... 20 Hours Total .. 10000h Hours User ... 10000h		
	DMX Link Status	Offline Frame Rate..... 0.00 Drop Ratio..... 0.00% Quality..... 0.00%		
	Temperatures	LED ..... 32.0 °C		
	Error Log	xxx		
Service	Test All	Running		
	Test LED only	Running		
	Test Zoom only	Running		
	Default Settings	Sets options to default except: Captured Scene, DMX Address, Control Mode, Preset Values, Offset Values		
	Units	%C/%f		
	Offsets	Enable/Disable		
		Color Offset	Red	-128 - +128
			Green	-128 - +128
			Blue	-128 - +128
			Lime	-128 - +128
		Zoom	-128 - +128	
	Reset Counter	Device Hours	xxx	
		Power Cycles	xxx	
		Max. Temperature	xxx	
		Temperature Unit	xxx	
	Save settings	Preset 1	xxx	
		Preset 2	xxx	
		Preset 3	xxx	
	Factory Backup	As Default Settings but resets everything except User Hour Counter, Temperature Unit		

Factory Menu	Serial Number	xxx		
	LED Calibration	Red		
		Green		
		Blue		
		Lime		
	Motor Calibration	Zoom		
	Calibration Defaults	Load LED Calibration	Manufacturer	
			Custom	
		Save LED Calibration	Manufacturer (PASSCODE LOCKED)	this is for the initial factory LED calibration7
			Custom	
	Reset All Data	xxx		

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

11. DMX control modes overview

The following DMX control modes are available in the XPAR 12Z.
DMX Mode 1: Basic gives raw color control using 8-bit RGB levels, with overall dimmer and shutter controls. The Lime channel has no effect unless the fixture Color Mode is set to RGBL.

A Control / Settings channel lets you configure the fixture remotely via DMX.

Mode 1 Basic	
1	Dimmer
2	Shutter
3	Zoom
4	Control
5	Red
6	Green
7	Blue
8	Lime

DMX Mode 2: Standard provides a selection of fixed colors with overall dimmer and shutter controls. If Channel 9 is set below DMX 10 (3.9%) then the color can be controlled by the RGB(L) channels - the Lime channel has no effect unless the fixture Color Mode is set to RGBL. If Channel 9 is DMX 10 or above, Channels 5-8 have no effect.

The CTC and M/G shift channels modify the color selected by the other channels.

A Control / Settings channel lets you configure the fixture remotely via DMX.

Mode 2 Standard	
1	Dimmer
2	Shutter
3	Zoom
4	Control
5	Red
6	Green
7	Blue
8	Lime
9	Color Wheel
10	CTC
11	M/G shift

DMX Mode 3: Advanced provides a selection of fixed colors with overall 16-bit dimmer and a shutter control. If Channel 14 is set below DMX 10 (3.9%) then the color can be controlled by the 16-bit RGB(L) channels - the Lime channels have no effect unless the fixture Color Mode is set to RGBL. If Channel 14 is DMX 10 or above, Channels 6-13 have no effect.

The CTC and M/G shift channels modify the color selected by the other channels.

A Control / Settings channel lets you configure the fixture remotely via DMX.

Mode 3 Advanced	
1	Dimmer
2	Dimmer Fine
3	Shutter
4	Zoom
5	Control
6	Red
7	Red fine
8	Green
9	Green fine
10	Blue
11	Blue fine
12	Lime
13	Lime fine
14	Color wheel
15	CTC
16	M/G shift

DMX Mode 4: RGB(L) gives raw color control using 8-bit RGB levels. The Lime channel has no effect unless the fixture Color Mode is set to RGBL. There is no master dimmer control.

A Control / Settings channel lets you configure the fixture remotely via DMX.

Mode 4 RGB(L)	
1	Zoom
2	Control
3	Red
4	Green
5	Blue
6	Lime

DMX Mode 5: White operates the fixture as a white light with controllable Color Temperature and Green/magenta shift

A Control / Settings channel lets you configure the fixture remotely via DMX.

Mode 5 White	
1	Dimmer
2	Shutter
3	Zoom
4	Control
5	CTC
6	Green/Magenta shift

DMX Mode 6: Easy provides a simple operating mode with a fixed selection of colors and zoom.

A Control / Settings channel lets you configure the fixture remotely via DMX.

Mode 6 Easy	
1	Dimmer
2	Zoom
3	Control
4	Color Wheel

12. DMX control channel layout

In the following DMX channel layout tables:

- Where commands are marked with an asterisk * you must send that value continuously for 3 seconds (or other duration if indicated in the table) to apply the command.

DMX Mode 1: Basic

8 DMX Channels

Channel		Command	DMX range	Percent	Default DMX	Fade
1	**Master Dimmer**	Intensity 0-100%	0-255	0-100%	0	Fade
2	**Shutter**	Closed	0-4	0-1.6%	255	Snap
		Single Flash (when value changes)	5-9	1.9-3.5%		Snap
		Sync Ramp-Up (slow→fast)	10-39	3.9-15.3%		Fade
		Sync Ramp-down (slow→fast)	40-69	15.7-27%		Fade
		Sync Ramp up-down (slow→fast)	70-99	27.4-38.9%		Fade
		Sync Double Flash (slow→fast)	100-129	39.2-50.6%		Fade
		Random Strobe (slow→fast)	130-359	51-62%		Fade
		Sync Strobe (1Hz-10Hz)	160-239	62.8-93.7%		Fade
		Open	251-255	98.4-100%		Snap
3	**Zoom**	Beam angle 6-43 degrees	0-255	0-100%	0	Fade
4	**Control / Settings**	No function	0-35	0-13.7%	0	Snap
		Color Mode: RGB HO (Calibrated)*	36-40	14.0-15.6%		
		Color Mode: RGB HQ (Calibrated)*	41-45	16.0-17.6%		
		Color Mode: RGBL *	46-50	18.0-19.6%		
		No function	51-55	20.0-21.6%		
		Dimmer speed smooth*	56-60	22.0-23.5%		
		Dimmer speed fast*	61-65	23.9-25.5%		
		No function	66-70	25.9-27.5%		
		Dimming curve Linear*	71-75	27.8-29.4%		
		Dimming curve Theatrical*	76-80	29.8-31.4%		
		Dimming curve Square Law*	81-85	31.8-33.3%		
		Dimming curve Inverse Square Law*	86-90	33.7-35.3%		
		No Function	91-95	35.7-37.3%		
		No DMX = Hold scene*	96-100	37.6-39.2%		
		No DMX = Blackout*	101-105	39.6-41.2%		
		No DMX = Play captured scene*	106-110	41.6-43.1%		
		No Function	111-115	43.5-45.1%		
		Display Backlight Auto*	116-120	45.5-47.1%		
		Display backlight Off*	121-125	47.5-49.0%		
		No Function	126-130	49.4-51.2%		
		DMX Mode: M1-Basic*	131-135	51.4-52.9%		
		DMX Mode: M2-Standard*	136-140	53.3-54.9%		
		DMX Mode: M3-Advanced*	141-145	55.3-56.9%		
		DMX Mode: M4-RGB(L)*	146-150	57.3-58.8%		
		DMX Mode: M5-White*	151-155	59.2-60.8%		
		DMX Mode: M6-Easy*	156-160	61.2-62.7%		
		No Function	161-165	63.1-64.7%		
		Zoom Invert On*	166-170	65.1-66.7%		
		Zoom Invert Off*	171-175	67.1-68.5%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		Zoom Reset*	176-180	69.0-70.5%		
		Fixture reset*	181-185	71.0-72.5%		
		Factory default settings (except DMX address & mode)*	186-190	72.9-74.5%		
		No function	191-195	74.9-76.2%		
		PWM Rate: 600Hz	196-200	76.9-78.4%		
		PWM Rate: 1200Hz	201-205	78.8-80.4%		
		PWM Rate: 2200Hz	206-210	80.8-82.4%		
		PWM Rate: 3000Hz	211-215	82.7-84.3%		
		PWM Rate: 4800Hz	216-220	84.7-86.3%		
		PWM Rate: 9600Hz	221-225	86.7-88.2%		
		PWM Rate: 25KHz	226-230	88.6-90.2%		
		No function	231-252	90.6-100%		
5	**Red**	Intensity 0-100%	0-255	0-100%	0	Fade
6	**Green**	Intensity 0-100%	0-255	0-100%	0	Fade
7	**Blue**	Intensity 0-100%	0-255	0-100%	0	Fade
8	**Lime**	Intensity 0-100%	0-255	0-100%	0	Fade

Note: Channel 8 has no effect unless Fixture Settings → Color Mode is set to RGBL

DMX Mode 2: Standard

11 DMX Channels

Channel		Command	DMX range	Percent	Default DMX	Fade
1	**Master Dimmer**	Intensity 0-100%	0-255	0-100%	0	Fade
2	**Shutter**	Closed	0-4	0-1.6%	255	Snap
		Single Flash (when value changes)	5-9	1.9-3.5%		Snap
		Sync Ramp-Up (slow→fast)	10-39	3.9-15.3%		Fade
		Sync Ramp-down (slow→fast)	40-69	15.7-27%		Fade
		Sync Ramp up-down (slow→fast)	70-99	27.4-38.9%		Fade
		Sync Double Flash (slow→fast)	100-129	39.2-50.6%		Fade
		Random Strobe (slow→fast)	130-359	51-62%		Fade
		Sync Strobe (1Hz-10Hz)	160-239	62.8-93.7%		Fade
		Open	251-255	98.4-100%		Snap
3	**Zoom**	Beam angle 6-43 degrees	0-255	0-100%	0	Fade
4	**Control / Settings**	No function	0-35	0-13.7%	0	Snap
		Color Mode: RGB HO (Calibrated)*	36-40	14.0-15.6%		
		Color Mode: RGB HQ (Calibrated)*	41-45	16.0-17.6%		
		Color Mode: RGBL*	46-50	18.0-19.6%		
		No function	51-55	20.0-21.6%		
		Dimmer speed smooth*	56-60	22.0-23.5%		
		Dimmer speed fast*	61-65	23.9-25.5%		
		No function	66-70	25.9-27.5%		
		Dimming curve Linear*	71-75	27.8-29.4%		
		Dimming curve Theatrical*	76-80	29.8-31.4%		
		Dimming curve Square Law*	81-85	31.8-33.3%		
		Dimming curve Inverse Square Law*	86-90	33.7-35.3%		
		No Function	91-95	35.7-37.3%		
		No DMX = Hold scene*	96-100	37.6-39.2%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		No DMX = Blackout*	101-105	39.6-41.2%		
		No DMX = Play captured scene*	106-110	41.6-43.1%		
		No Function	111-115	43.5-45.1%		
		Display Backlight Auto*	116-120	45.5-47.1%		
		Display backlight Off*	121-125	47.5-49.0%		
		No Function	126-130	49.4-51.2%		
		DMX Mode: M1-Basic*	131-135	51.4-52.9%		
		DMX Mode: M2-Standard*	136-140	53.3-54.9%		
		DMX Mode: M3-Advanced*	141-145	55.3-56.9%		
		DMX Mode: M4-RGB(L)*	146-150	57.3-58.8%		
		DMX Mode: M5-White*	151-155	59.2-60.8%		
		DMX Mode: M6-Easy*	156-160	61.2-62.7%		
		No Function	161-165	63.1-64.7%		
		Zoom Invert On*	166-170	65.1-66.7%		
		Zoom Invert Off*	171-175	67.1-68.5%		
		Zoom Reset*	176-180	69.0-70.5%		
		Fixture reset*	181-185	71.0-72.5%		
		Factory default settings (except DMX address & mode)*	186-190	72.9-74.5%		
		No function	191-195	74.9-76.2%		
		PWM Rate: 600Hz	196-200	76.9-78.4%		
		PWM Rate: 1200Hz	201-205	78.8-80.4%		
		PWM Rate: 2200Hz	206-210	80.8-82.4%		
		PWM Rate: 3000Hz	211-215	82.7-84.3%		
		PWM Rate: 4800Hz	216-220	84.7-86.3%		
		PWM Rate: 9600Hz	221-225	86.7-88.2%		
		PWM Rate: 25KHz	226-230	88.6-90.2%		
		No function	231-252	90.6-100%		
5	**Red**	Intensity 0-100%	0-255	0-100%	0	Fade
6	**Green**	Intensity 0-100%	0-255	0-100%	0	Fade
7	**Blue**	Intensity 0-100%	0-255	0-100%	0	Fade
8	**Lime**	Intensity 0-100%	0-255	0-100%	0	Fade
9	**Colour Wheel**	Open (Color set by ch 5-8)	0-3	0-1.2%	0	Snap
		Preset 3200K	4-6	1.6-2.4%		
		Preset 4200K	7-9	2.7-3.5%		
		Preset 5600K	10-12	3.9-4.7%		
		Preset 6500K	13-15	5.1-5.9%		
		Filter 004 (Medium Bastard Amber)	16-18	6.3-7.1%		
		Filter 019 (Fire)	19-21	7.5-8.2%		
		Filter 025 (Sunset Red)	22-24	8.6-9.4%		
		Filter 026 (Bright Red)	25-27	9.8-10.6%		
		Filter 036 (Medium Pink)	28-30	11-11.8%		
		Filter 049 (Medium Purple)	31-33	12.2-12.9%		
		Filter 058 (Lavender)	34-36	13.3-14.1%		
		Filter 068 (Sky Blue)	37-39	14.5-15.3%		
		Filter 088 (Lime Green)	40-42	15.7-16.5%		
		Filter 089 (Moss Green)	43-45	16.9-17.6%		
		Filter 090 (Dark Yellow Green)	46-48	18-18.8%		
		Filter 102 (Light Amber)	49-51	19.2-20%		
		Filter 103 (Straw)	52-54	20.4-21.2%		
		Filter 106 (Primary Red)	55-57	21.6-22.4%		
		Filter 111 (Dark Pink)	58-60	22.7-23.5%		
		Filter 115 (Peacock Blue)	61-63	23.9-24.7%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		Filter 117 (Steel Blue)	64-66	25.1-25.9%		
		Filter 118 (Light Blue)	67-69	26.3-27.1%		
		Filter 121 (Filter Green)	70-72	27.5-28.2%		
		Filter 122 (Fern Green)	73-75	28.6-29.4%		
		Filter 124 (Dark Green)	76-78	29.8-30.6%		
		Filter 126 (Mauve)	79-81	31-31.8%		
		Filter 128 (Bright Pink)	82-84	32.2-32.9%		
		Filter 131 (Marine Blue)	85-87	33.3-34.1%		
		Filter 132 (Medium Blue)	88-90	34.5-35.3%		
		Filter 134 (Golden Amber)	91-93	35.7-36.5%		
		Filter 135 (Deep Golden Amber)	94-96	36.9-37.6%		
		Filter 136 (Pale Lavender)	97-99	38-38.8%		
		Filter 137 (Special Lavender)	100-102	39.2-40%		
		Filter 138 (Pale Green)	103-105	40.4-41.2%		
		Filter 140 (Summer Blue)	106-108	41.6-42.4%		
		Filter 141 (Bright Blue)	109-111	42.7-43.5%		
		Filter 143 (Pale Navy Blue)	112-114	43.9-44.7%		
		Filter 147 (Apricot)	115-117	45.1-45.9%		
		Filter 148 (Bright Rose)	118-120	46.3-47.1%		
		Filter 152 (Pale Gold)	121-123	47.5-48.2%		
		Filter 154 (Pale Rose)	124-126	48.6-49.4%		
		Filter 157 (Pink)	127-129	49.8-50.6%		
		Filter 162 (Bastard Amber)	130-132	51-51.8%		
		Filter 164 (Flame Red)	133-135	52.2-52.9%		
		Filter 165 (Daylight Blue)	136-138	53.3-54.1%		
		Filter 169 (Lilac Tint)	139-141	54.5-55.3%		
		Filter 170 (Deep Lavender)	142-144	55.7-56.5%		
		Filter 172 (Lagoon Blue)	145-147	56.9-57.6%		
		Filter 180 (Dark Lavender)	148-150	58-58.8%		
		Filter 182 (Light Red)	151-153	59.2-60%		
		Filter 194 (Surprise Pink)	154-156	60.4-61.2%		
		Filter 197 (Alice Blue)	157-159	61.6-62.4%		
		Filter 201 (Full C.T. Blue)	160-162	62.7-63.5%		
		Filter 202 (Half C.T. Blue)	163-165	63.9-64.7%		
		Filter 203 (Quarter C.T. Blue)	166-168	65.1-65.9%		
		Filter 204 (Full C.T. Orange)	169-171	66.3-67.1%		
		Filter 206 (Quarter C.T. Orange)	172-174	67.5-68.2%		
		Filter 219 (Fluorescent Green)	175-177	68.6-69.4%		
		Filter 247 (Filter Minus Green)	178-180	69.8-70.6%		
		Filter 248 (Half Minus Green)	1811-183	71-71.8%		
		Filter 281 (Three Quarter C.T. Blue)	184-186	72.2-72.9%		
		Filter 285 (Three Quarter C.T. Orange)	187-189	73.3-74.1%		
		Filter 352 (Glacier Blue)	190-192	74.5-75.3%		
		Filter 353 (Lighter Blue)	193-195	75.7-76.5%		
		Filter 507 (Madge)	196-198	76.9-77.6%		
		Filter 778 (Millennium Gold)	199-201	78-78.8%		
		Filter 793 (Vanity Fair)	202-204	79.2-80%		
		Filter 798 (Chrysalis Pink)	205-207	80.4-81.2%		
		Rainbwo Stop - at first Color	208-210	81.6-82.4%		
		Rainbow slow→fast	211-252	82.7-98.8%		
		Rainbow Stop - at current Color	253-255	99.2-100%		
10	**CTC**	RAW (RGBL control)	0-15	0-5.9%	0	Snap
		10000K	16-18	6.3-7.1%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		9900K	19-21	7.5-8.2%		
		9800K	22-24	8.6-9.4%		
		9700K	25-27	9.8-10.6%		
		9600K	28-30	11-11.8%		
		9500K	31-33	12.2-12.9%		
		9400K	34-36	13.3-14.1%		
		9300K	37-39	14.5-15.3%		
		9200K	40-42	15.7-16.5%		
		9100K	43-45	16.9-17.6%		
		9000K	46-48	18-18.8%		
		8900K	49-51	19.2-20%		
		8800K	52-54	20.4-21.2%		
		8700K	55-57	21.6-22.4%		
		8600K	58-60	22.7-23.5%		
		8500K	61-63	23.9-24.7%		
		8400K	64-66	25.1-25.9%		
		8300K	67-69	26.3-27.1%		
		8200K	70-72	27.5-28.2%		
		8100K	73-75	28.6-29.4%		
		8000K	76-78	29.8-30.6%		
		7900K	79-81	31-31.8%		
		7800K	82-84	32.2-32.9%		
		7700K	85-87	33.3-34.1%		
		7600K	88-90	34.5-35.3%		
		7500K	91-93	35.7-36.5%		
		7400K	94-96	36.9-37.6%		
		7300K	97-99	38-38.8%		
		7200K	100-102	39.2-40%		
		7100K	103-105	40.4-41.2%		
		7000K	106-108	41.6-42.4%		
		6900K	109-111	42.7-43.5%		
		6800K	112-114	43.9-44.7%		
		6700K	115-117	45.1-45.9%		
		6600K	118-120	46.3-47.1%		
		6500K	121-123	47.5-48.2%		
		6400K	124-126	48.6-49.4%		
		6300K	127-129	49.8-50.6%		
		6200K	130-132	51-51.8%		
		6100K	133-135	52.2-52.9%		
		6000K	136-138	53.3-54.1%		
		5900K	139-141	54.5-55.3%		
		5800K	142-144	55.7-56.5%		
		5700K	145-147	56.9-57.6%		
		5600K	148-150	58-58.8%		
		5500K	151-153	59.2-60%		
		5400K	154-156	60.4-61.2%		
		5300K	157-159	61.6-62.4%		
		5200K	160-162	62.7-63.5%		
		5100K	163-165	63.9-64.7%		
		5000K	166-168	65.1-65.9%		
		4900K	169-171	66.3-67.1%		
		4800K	172-174	67.5-68.2%		
		4700K	175-177	68.6-69.4%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		4600K	178-180	69.8-70.6%		
		4500K	181-183	71-71.8%		
		4400K	184-186	72.2-72.9%		
		4300K	187-189	73.3-74.1%		
		4200K	190-192	74.5-75.3%		
		4100K	193-195	75.7-76.5%		
		4000K	196-198	76.9-77.6%		
		3900K	199-201	78-78.8%		
		3800K	202-204	79.2-80%		
		3700K	205-207	80.4-81.2%		
		3600K	208-210	81.6-82.4%		
		3500K	211-213	82.7-83.5%		
		3400K	214-216	83.9-84.7%		
		3300K	217-219	85.1-85.9%		
		3200K	220-222	86.3-87.1%		
		3100K	223-225	87.5-88.2%		
		3000K	226-228	88.6-89.4%		
		2900K	229-231	89.8-90.6%		
		2800K	232-234	91-91.8%		
		2700K	235-237	92.2-92.9%		
		2600K	238-240	93.3-94.1%		
		2500K	241-255	94.5-100%		
11	**M/G Shift**	Off - (no correction)	0-9	0-3.5%	0	snap
		full plus Magenta +100% (-0,1 Duv)	10-10	3.9-3.9%		
		plus Magenta +99% → + 1%	11-124	4.3-48.6%		fade
		neutral / no effect	125-140	49-54.9%		snap
		plus green +1% → +99%	141-254	55.3-99.6%		fade
		full plus green +100% (+ 0,1 Duv)	255-255	100-100%		

Notes: Channels 5-8 have no effect unless Channel 9 is set between 0-3.
Channel 8 has no effect unless Fixture Settings → Color Mode is set to RGBL

DMX Mode 3: Advanced

16 DMX Channels

Channel		Command	DMX range	Percent	Default DMX	Fade
1	**Master Dimmer**	Intensity 0-100% (16-bit)	0-655355	0-100%	0	Fade
2	**Dimmer Fine**					
3	**Shutter**	Closed	0-4	0-1.6%	255	Snap
		Single Flash (when value changes)	5-9	1.9-3.5%		Snap
		Sync Ramp-Up (slow→fast)	10-39	3.9-15.3%		Fade
		Sync Ramp-down (slow→fast)	40-69	15.7-27%		Fade
		Sync Ramp up-down (slow→fast)	70-99	27.4-38.9%		Fade
		Sync Double Flash (slow→fast)	100-129	39.2-50.6%		Fade
		Random Strobe (slow→fast)	130-359	51-62%		Fade
		Sync Strobe (1Hz-10Hz)	160-239	62.8-93.7%		Fade
		Open	251-255	98.4-100%		Snap
4	**Zoom**	Beam angle 6-43 degrees	0-255	0-100%	0	Fade
5	**Control / Settings**	No function	0-35	0-13.7%	0	Snap

Channel		Command	DMX range	Percent	Default DMX	Fade
		Color Mode: RGB HO (Calibrated)*	36-40	14.0-15.6%		
		Color Mode: RGB HQ (Calibrated)*	41-45	16.0-17.6%		
		Color Mode: RGBL*	46-50	18.0-19.6%		
		No function	51-55	20.0-21.6%		
		Dimmer speed smooth*	56-60	22.0-23.5%		
		Dimmer speed fast*	61-65	23.9-25.5%		
		No function	66-70	25.9-27.5%		
		Dimming curve Linear*	71-75	27.8-29.4%		
		Dimming curve Theatrical*	76-80	29.8-31.4%		
		Dimming curve Square Law*	81-85	31.8-33.3%		
		Dimming curve Inverse Square Law*	86-90	33.7-35.3%		
		No Function	91-95	35.7-37.3%		
		No DMX = Hold scene*	96-100	37.6-39.2%		
		No DMX = Blackout*	101-105	39.6-41.2%		
		No DMX = Play captured scene*	106-110	41.6-43.1%		
		No Function	111-115	43.5-45.1%		
		Display Backlight Auto*	116-120	45.5-47.1%		
		Display backlight Off*	121-125	47.5-49.0%		
		No Function	126-130	49.4-51.2%		
		DMX Mode: M1-Basic*	131-135	51.4-52.9%		
		DMX Mode: M2-Standard*	136-140	53.3-54.9%		
		DMX Mode: M3-Advanced*	141-145	55.3-56.9%		
		DMX Mode: M4-RGB(L)*	146-150	57.3-58.8%		
		DMX Mode: M5-White*	151-155	59.2-60.8%		
		DMX Mode: M6-Easy*	156-160	61.2-62.7%		
		No Function	161-165	63.1-64.7%		
		Zoom Invert On*	166-170	65.1-66.7%		
		Zoom Invert Off*	171-175	67.1-68.5%		
		Zoom Reset*	176-180	69.0-70.5%		
		Fixture reset*	181-185	71.0-72.5%		
		Factory default settings (except DMX address & mode)*	186-190	72.9-74.5%		
		No function	191-195	74.9-76.2%		
		PWM Rate: 600Hz	196-200	76.9-78.4%		
		PWM Rate: 1200Hz	201-205	78.8-80.4%		
		PWM Rate: 2200Hz	206-210	80.8-82.4%		
		PWM Rate: 3000Hz	211-215	82.7-84.3%		
		PWM Rate: 4800Hz	216-220	84.7-86.3%		
		PWM Rate: 9600Hz	221-225	86.7-88.2%		
		PWM Rate: 25KHz	226-230	88.6-90.2%		
		No function	231-252	90.6-100%		
6	**Red**	Intensity 0-100% (16-bit)	0-65535	0-100%	0	Fade
7	**Red Fine**					
8	**Green**	Intensity 0-100% (16-bit)	0-65535	0-100%	0	Fade
9	**Green fine**					
10	**Blue**	Intensity 0-100% (16-bit)	0-65535	0-100%	0	Fade
11	**Blue fine**					
12	**Lime**	Intensity 0-100% (16-bit)	0-65535	0-100%	0	Fade
13	**Lime fine**					
14	**Colour Wheel**	Open (Color set by ch 5-8)	0-3	0-1.2%	0	Snap
		Preset 3200K	4-6	1.6-2.4%		
		Preset 4200K	7-9	2.7-3.5%		
		Preset 5600K	10-12	3.9-4.7%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		Preset 6500K	13-15	5.1-5.9%		
		Filter 004 (Medium Bastard Amber)	16-18	6.3-7.1%		
		Filter 019 (Fire)	19-21	7.5-8.2%		
		Filter 025 (Sunset Red)	22-24	8.6-9.4%		
		Filter 026 (Bright Red)	25-27	9.8-10.6%		
		Filter 036 (Medium Pink)	28-30	11-11.8%		
		Filter 049 (Medium Purple)	31-33	12.2-12.9%		
		Filter 058 (Lavender)	34-36	13.3-14.1%		
		Filter 068 (Sky Blue)	37-39	14.5-15.3%		
		Filter 088 (Lime Green)	40-42	15.7-16.5%		
		Filter 089 (Moss Green)	43-45	16.9-17.6%		
		Filter 090 (Dark Yellow Green)	46-48	18-18.8%		
		Filter 102 (Light Amber)	49-51	19.2-20%		
		Filter 103 (Straw)	52-54	20.4-21.2%		
		Filter 106 (Primary Red)	55-57	21.6-22.4%		
		Filter 111 (Dark Pink)	58-60	22.7-23.5%		
		Filter 115 (Peacock Blue)	61-63	23.9-24.7%		
		Filter 117 (Steel Blue)	64-66	25.1-25.9%		
		Filter 118 (Light Blue)	67-69	26.3-27.1%		
		Filter 121 (Filter Green)	70-72	27.5-28.2%		
		Filter 122 (Fern Green)	73-75	28.6-29.4%		
		Filter 124 (Dark Green)	76-78	29.8-30.6%		
		Filter 126 (Mauve)	79-81	31-31.8%		
		Filter 128 (Bright Pink)	82-84	32.2-32.9%		
		Filter 131 (Marine Blue)	85-87	33.3-34.1%		
		Filter 132 (Medium Blue)	88-90	34.5-35.3%		
		Filter 134 (Golden Amber)	91-93	35.7-36.5%		
		Filter 135 (Deep Golden Amber)	94-96	36.9-37.6%		
		Filter 136 (Pale Lavender)	97-99	38-38.8%		
		Filter 137 (Special Lavender)	100-102	39.2-40%		
		Filter 138 (Pale Green)	103-105	40.4-41.2%		
		Filter 140 (Summer Blue)	106-108	41.6-42.4%		
		Filter 141 (Bright Blue)	109-111	42.7-43.5%		
		Filter 143 (Pale Navy Blue)	112-114	43.9-44.7%		
		Filter 147 (Apricot)	115-117	45.1-45.9%		
		Filter 148 (Bright Rose)	118-120	46.3-47.1%		
		Filter 152 (Pale Gold)	121-123	47.5-48.2%		
		Filter 154 (Pale Rose)	124-126	48.6-49.4%		
		Filter 157 (Pink)	127-129	49.8-50.6%		
		Filter 162 (Bastard Amber)	130-132	51-51.8%		
		Filter 164 (Flame Red)	133-135	52.2-52.9%		
		Filter 165 (Daylight Blue)	136-138	53.3-54.1%		
		Filter 169 (Lilac Tint)	139-141	54.5-55.3%		
		Filter 170 (Deep Lavender)	142-144	55.7-56.5%		
		Filter 172 (Lagoon Blue)	145-147	56.9-57.6%		
		Filter 180 (Dark Lavender)	148-150	58-58.8%		
		Filter 182 (Light Red)	151-153	59.2-60%		
		Filter 194 (Surprise Pink)	154-156	60.4-61.2%		
		Filter 197 (Alice Blue)	157-159	61.6-62.4%		
		Filter 201 (Full C.T. Blue)	160-162	62.7-63.5%		
		Filter 202 (Half C.T. Blue)	163-165	63.9-64.7%		
		Filter 203 (Quarter C.T. Blue)	166-168	65.1-65.9%		
		Filter 204 (Full C.T. Orange)	169-171	66.3-67.1%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		Filter 206 (Quarter C.T. Orange)	172-174	67.5-68.2%		
		Filter 219 (Fluorescent Green)	175-177	68.6-69.4%		
		Filter 247 (Filter Minus Green)	178-180	69.8-70.6%		
		Filter 248 (Half Minus Green)	1811-183	71-71.8%		
		Filter 281 (Three Quarter C.T. Blue)	184-186	72.2-72.9%		
		Filter 285 (Three Quarter C.T. Orange)	187-189	73.3-74.1%		
		Filter 352 (Glacier Blue)	190-192	74.5-75.3%		
		Filter 353 (Lighter Blue)	193-195	75.7-76.5%		
		Filter 507 (Madge)	196-198	76.9-77.6%		
		Filter 778 (Millennium Gold)	199-201	78-78.8%		
		Filter 793 (Vanity Fair)	202-204	79.2-80%		
		Filter 798 (Chrysalis Pink)	205-207	80.4-81.2%		
		Rainbwo Stop - at first Color	208-210	81.6-82.4%		
		Rainbow slow→fast	211-252	82.7-98.8%		
		Rainbow Stop - at current Color	253-255	99.2-100%		
15	**CTC**	RAW (RGBL control)	0-15	0-5.9%	0	Snap
		10000K	16-18	6.3-7.1%		
		9900K	19-21	7.5-8.2%		
		9800K	22-24	8.6-9.4%		
		9700K	25-27	9.8-10.6%		
		9600K	28-30	11-11.8%		
		9500K	31-33	12.2-12.9%		
		9400K	34-36	13.3-14.1%		
		9300K	37-39	14.5-15.3%		
		9200K	40-42	15.7-16.5%		
		9100K	43-45	16.9-17.6%		
		9000K	46-48	18-18.8%		
		8900K	49-51	19.2-20%		
		8800K	52-54	20.4-21.2%		
		8700K	55-57	21.6-22.4%		
		8600K	58-60	22.7-23.5%		
		8500K	61-63	23.9-24.7%		
		8400K	64-66	25.1-25.9%		
		8300K	67-69	26.3-27.1%		
		8200K	70-72	27.5-28.2%		
		8100K	73-75	28.6-29.4%		
		8000K	76-78	29.8-30.6%		
		7900K	79-81	31-31.8%		
		7800K	82-84	32.2-32.9%		
		7700K	85-87	33.3-34.1%		
		7600K	88-90	34.5-35.3%		
		7500K	91-93	35.7-36.5%		
		7400K	94-96	36.9-37.6%		
		7300K	97-99	38-38.8%		
		7200K	100-102	39.2-40%		
		7100K	103-105	40.4-41.2%		
		7000K	106-108	41.6-42.4%		
		6900K	109-111	42.7-43.5%		
		6800K	112-114	43.9-44.7%		
		6700K	115-117	45.1-45.9%		
		6600K	118-120	46.3-47.1%		
		6500K	121-123	47.5-48.2%		
		6400K	124-126	48.6-49.4%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		6300K	127-129	49.8-50.6%		
		6200K	130-132	51-51.8%		
		6100K	133-135	52.2-52.9%		
		6000K	136-138	53.3-54.1%		
		5900K	139-141	54.5-55.3%		
		5800K	142-144	55.7-56.5%		
		5700K	145-147	56.9-57.6%		
		5600K	148-150	58-58.8%		
		5500K	151-153	59.2-60%		
		5400K	154-156	60.4-61.2%		
		5300K	157-159	61.6-62.4%		
		5200K	160-162	62.7-63.5%		
		5100K	163-165	63.9-64.7%		
		5000K	166-168	65.1-65.9%		
		4900K	169-171	66.3-67.1%		
		4800K	172-174	67.5-68.2%		
		4700K	175-177	68.6-69.4%		
		4600K	178-180	69.8-70.6%		
		4500K	181-183	71-71.8%		
		4400K	184-186	72.2-72.9%		
		4300K	187-189	73.3-74.1%		
		4200K	190-192	74.5-75.3%		
		4100K	193-195	75.7-76.5%		
		4000K	196-198	76.9-77.6%		
		3900K	199-201	78-78.8%		
		3800K	202-204	79.2-80%		
		3700K	205-207	80.4-81.2%		
		3600K	208-210	81.6-82.4%		
		3500K	211-213	82.7-83.5%		
		3400K	214-216	83.9-84.7%		
		3300K	217-219	85.1-85.9%		
		3200K	220-222	86.3-87.1%		
		3100K	223-225	87.5-88.2%		
		3000K	226-228	88.6-89.4%		
		2900K	229-231	89.8-90.6%		
		2800K	232-234	91-91.8%		
		2700K	235-237	92.2-92.9%		
		2600K	238-240	93.3-94.1%		
		2500K	241-255	94.5-100%		
16	**M/G Shift**	Off - (no correction)	0-9	0-3.5%	0	snap
		full plus Magenta +100% (-0,1 Duv)	10-10	3.9-3.9%		
		plus Magenta +99% → + 1%	11-124	4.3-48.6%		fade
		neutral / no effect	125-140	49-54.9%		snap
		plus green +1% → +99%	141-254	55.3-99.6%		fade
		full plus green +100% (+ 0,1 Duv)	255-255	100-100%		

Notes: Channels 6-13 have no effect unless Channel 14 is set between 0-3.
Channels 12-13 have no effect unless Fixture Settings → Color Mode is set to RGBL

DMX Mode 4: RGB(L)

6 DMX Channels

Channel		Command	DMX range	Percent	Default DMX	Fade
1	**Zoom**	Beam angle 6-43 degrees	0-255	0-100%	0	Fade
2	**Control / Settings**	No function	0-35	0-13.7%	0	Snap
		Color Mode: RGB HO (Calibrated)*	36-40	14.0-15.6%		
		Color Mode: RGB HQ (Calibrated)*	41-45	16.0-17.6%		
		Color Mode: RGBL*	46-50	18.0-19.6%		
		No function	51-55	20.0-21.6%		
		Dimmer speed smooth*	56-60	22.0-23.5%		
		Dimmer speed fast*	61-65	23.9-25.5%		
		No function	66-70	25.9-27.5%		
		Dimming curve Linear*	71-75	27.8-29.4%		
		Dimming curve Theatrical*	76-80	29.8-31.4%		
		Dimming curve Square Law*	81-85	31.8-33.3%		
		Dimming curve Inverse Square Law*	86-90	33.7-35.3%		
		No Function	91-95	35.7-37.3%		
		No DMX = Hold scene*	96-100	37.6-39.2%		
		No DMX = Blackout*	101-105	39.6-41.2%		
		No DMX = Play captured scene*	106-110	41.6-43.1%		
		No Function	111-115	43.5-45.1%		
		Display Backlight Auto*	116-120	45.5-47.1%		
		Display backlight Off*	121-125	47.5-49.0%		
		No Function	126-130	49.4-51.2%		
		DMX Mode: M1-Basic*	131-135	51.4-52.9%		
		DMX Mode: M2-Standard*	136-140	53.3-54.9%		
		DMX Mode: M3-Advanced*	141-145	55.3-56.9%		
		DMX Mode: M4-RGB(L)*	146-150	57.3-58.8%		
		DMX Mode: M5-White*	151-155	59.2-60.8%		
		DMX Mode: M6-Easy*	156-160	61.2-62.7%		
		No Function	161-165	63.1-64.7%		
		Zoom Invert On*	166-170	65.1-66.7%		
		Zoom Invert Off*	171-175	67.1-68.5%		
		Zoom Reset*	176-180	69.0-70.5%		
		Fixture reset*	181-185	71.0-72.5%		
		Factory default settings (except DMX address & mode)*	186-190	72.9-74.5%		
		No function	191-195	74.9-76.2%		
		PWM Rate: 600Hz	196-200	76.9-78.4%		
		PWM Rate: 1200Hz	201-205	78.8-80.4%		
		PWM Rate: 2200Hz	206-210	80.8-82.4%		
		PWM Rate: 3000Hz	211-215	82.7-84.3%		
		PWM Rate: 4800Hz	216-220	84.7-86.3%		
		PWM Rate: 9600Hz	221-225	86.7-88.2%		
		PWM Rate: 25KHz	226-230	88.6-90.2%		
		No function	231-252	90.6-100%		
3	**Red**	Intensity 0-100%	0-255	0-100%	0	Fade
4	**Green**	Intensity 0-100%	0-255	0-100%	0	Fade
5	**Blue**	Intensity 0-100%	0-255	0-100%	0	Fade
6	**Lime**	Intensity 0-100%	0-255	0-100%	0	Fade

Note: Channel 6 has no effect unless Fixture Settings → Color Mode is set to RGBL

DMX Mode 5: White

6 DMX Channels

Channel		Command	DMX range	Percent	Default DMX	Fade
1	**Master Dimmer**	Intensity 0-100%	0-255	0-100%	0	Fade
2	**Shutter**	Closed	0-4	0-1.6%	255	Snap
		Single Flash (when value changes)	5-9	1.9-3.5%		Snap
		Sync Ramp-Up (slow→fast)	10-39	3.9-15.3%		Fade
		Sync Ramp-down (slow→fast)	40-69	15.7-27%		Fade
		Sync Ramp up-down (slow→fast)	70-99	27.4-38.9%		Fade
		Sync Double Flash (slow→fast)	100-129	39.2-50.6%		Fade
		Random Strobe (slow→fast)	130-359	51-62%		Fade
		Sync Strobe (1Hz-10Hz)	160-239	62.8-93.7%		Fade
		Open	251-255	98.4-100%		Snap
3	**Zoom**	Beam angle 6-43 degrees	0-255	0-100%	0	Fade
4	**Control / Settings**	No function	0-35	0-13.7%	0	Snap
		Color Mode: RGB HO (Calibrated)*	36-40	14.0-15.6%		
		Color Mode: RGB HQ (Calibrated)*	41-45	16.0-17.6%		
		Color Mode: RGBL*	46-50	18.0-19.6%		
		No function	51-55	20.0-21.6%		
		Dimmer speed smooth*	56-60	22.0-23.5%		
		Dimmer speed fast*	61-65	23.9-25.5%		
		No function	66-70	25.9-27.5%		
		Dimming curve Linear*	71-75	27.8-29.4%		
		Dimming curve Theatrical*	76-80	29.8-31.4%		
		Dimming curve Square Law*	81-85	31.8-33.3%		
		Dimming curve Inverse Square Law*	86-90	33.7-35.3%		
		No Function	91-95	35.7-37.3%		
		No DMX = Hold scene*	96-100	37.6-39.2%		
		No DMX = Blackout*	101-105	39.6-41.2%		
		No DMX = Play captured scene*	106-110	41.6-43.1%		
		No Function	111-115	43.5-45.1%		
		Display Backlight Auto*	116-120	45.5-47.1%		
		Display backlight Off*	121-125	47.5-49.0%		
		No Function	126-130	49.4-51.2%		
		DMX Mode: M1-Basic*	131-135	51.4-52.9%		
		DMX Mode: M2-Standard*	136-140	53.3-54.9%		
		DMX Mode: M3-Advanced*	141-145	55.3-56.9%		
		DMX Mode: M4-RGB(L)*	146-150	57.3-58.8%		
		DMX Mode: M5-White*	151-155	59.2-60.8%		
		DMX Mode: M6-Easy*	156-160	61.2-62.7%		
		No Function	161-165	63.1-64.7%		
		Zoom Invert On*	166-170	65.1-66.7%		
		Zoom Invert Off*	171-175	67.1-68.5%		
		Zoom Reset*	176-180	69.0-70.5%		
		Fixture reset*	181-185	71.0-72.5%		
		Factory default settings (except DMX address & mode)*	186-190	72.9-74.5%		
		No function	191-195	74.9-76.2%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		PWM Rate: 600Hz	196-200	76.9-78.4%		
		PWM Rate: 1200Hz	201-205	78.8-80.4%		
		PWM Rate: 2200Hz	206-210	80.8-82.4%		
		PWM Rate: 3000Hz	211-215	82.7-84.3%		
		PWM Rate: 4800Hz	216-220	84.7-86.3%		
		PWM Rate: 9600Hz	221-225	86.7-88.2%		
		PWM Rate: 25KHz	226-230	88.6-90.2%		
		No function	231-252	90.6-100%		
5	**CTC**	Default 6500K	0-15	0-5.9%	0	Snap
		10000K	16-18	6.3-7.1%		
		9900K	19-21	7.5-8.2%		
		9800K	22-24	8.6-9.4%		
		9700K	25-27	9.8-10.6%		
		9600K	28-30	11-11.8%		
		9500K	31-33	12.2-12.9%		
		9400K	34-36	13.3-14.1%		
		9300K	37-39	14.5-15.3%		
		9200K	40-42	15.7-16.5%		
		9100K	43-45	16.9-17.6%		
		9000K	46-48	18-18.8%		
		8900K	49-51	19.2-20%		
		8800K	52-54	20.4-21.2%		
		8700K	55-57	21.6-22.4%		
		8600K	58-60	22.7-23.5%		
		8500K	61-63	23.9-24.7%		
		8400K	64-66	25.1-25.9%		
		8300K	67-69	26.3-27.1%		
		8200K	70-72	27.5-28.2%		
		8100K	73-75	28.6-29.4%		
		8000K	76-78	29.8-30.6%		
		7900K	79-81	31-31.8%		
		7800K	82-84	32.2-32.9%		
		7700K	85-87	33.3-34.1%		
		7600K	88-90	34.5-35.3%		
		7500K	91-93	35.7-36.5%		
		7400K	94-96	36.9-37.6%		
		7300K	97-99	38-38.8%		
		7200K	100-102	39.2-40%		
		7100K	103-105	40.4-41.2%		
		7000K	106-108	41.6-42.4%		
		6900K	109-111	42.7-43.5%		
		6800K	112-114	43.9-44.7%		
		6700K	115-117	45.1-45.9%		
		6600K	118-120	46.3-47.1%		
		6500K	121-123	47.5-48.2%		
		6400K	124-126	48.6-49.4%		
		6300K	127-129	49.8-50.6%		
		6200K	130-132	51-51.8%		
		6100K	133-135	52.2-52.9%		
		6000K	136-138	53.3-54.1%		
		5900K	139-141	54.5-55.3%		
		5800K	142-144	55.7-56.5%		
		5700K	145-147	56.9-57.6%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		5600K	148-150	58-58.8%		
		5500K	151-153	59.2-60%		
		5400K	154-156	60.4-61.2%		
		5300K	157-159	61.6-62.4%		
		5200K	160-162	62.7-63.5%		
		5100K	163-165	63.9-64.7%		
		5000K	166-168	65.1-65.9%		
		4900K	169-171	66.3-67.1%		
		4800K	172-174	67.5-68.2%		
		4700K	175-177	68.6-69.4%		
		4600K	178-180	69.8-70.6%		
		4500K	181-183	71-71.8%		
		4400K	184-186	72.2-72.9%		
		4300K	187-189	73.3-74.1%		
		4200K	190-192	74.5-75.3%		
		4100K	193-195	75.7-76.5%		
		4000K	196-198	76.9-77.6%		
		3900K	199-201	78-78.8%		
		3800K	202-204	79.2-80%		
		3700K	205-207	80.4-81.2%		
		3600K	208-210	81.6-82.4%		
		3500K	211-213	82.7-83.5%		
		3400K	214-216	83.9-84.7%		
		3300K	217-219	85.1-85.9%		
		3200K	220-222	86.3-87.1%		
		3100K	223-225	87.5-88.2%		
		3000K	226-228	88.6-89.4%		
		2900K	229-231	89.8-90.6%		
		2800K	232-234	91-91.8%		
		2700K	235-237	92.2-92.9%		
		2600K	238-240	93.3-94.1%		
		2500K	241-255	94.5-100%		
6	**M/G Shift**	Off - (no correction)	0-9	0-3.5%	0	snap
		full plus Magenta +100% (-0,1 Duv)	10-10	3.9-3.9%		
		plus Magenta +99% → + 1%	11-124	4.3-48.6%		fade
		neutral / no effect	125-140	49-54.9%		snap
		plus green +1% → +99%	141-254	55.3-99.6%		fade
		full plus green +100% (+ 0,1 Duv)	255-255	100-100%		

DMX Mode 6: Easy

4 DMX Channels

Channel		Command	DMX range	Percent	Default DMX	Fade
1	**Master Dimmer**	Intensity 0-100%	0-255	0-100%	0	Fade
2	**Zoom**	Beam angle 6-43 degrees	0-255	0-100%	0	Fade
3	**Control / Settings**	No function	0-35	0-13.7%	0	Snap
		Color Mode: RGB HO (Calibrated)*	36-40	14.0-15.6%		
		Color Mode: RGB HQ (Calibrated)*	41-45	16.0-17.6%		
		Color Mode: RGBL*	46-50	18.0-19.6%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		No function	51-55	20.0-21.6%		
		Dimmer speed smooth*	56-60	22.0-23.5%		
		Dimmer speed fast*	61-65	23.9-25.5%		
		No function	66-70	25.9-27.5%		
		Dimming curve Linear*	71-75	27.8-29.4%		
		Dimming curve Theatrical*	76-80	29.8-31.4%		
		Dimming curve Square Law*	81-85	31.8-33.3%		
		Dimming curve Inverse Square Law*	86-90	33.7-35.3%		
		No Function	91-95	35.7-37.3%		
		No DMX = Hold scene*	96-100	37.6-39.2%		
		No DMX = Blackout*	101-105	39.6-41.2%		
		No DMX = Play captured scene*	106-110	41.6-43.1%		
		No Function	111-115	43.5-45.1%		
		Display Backlight Auto*	116-120	45.5-47.1%		
		Display backlight Off*	121-125	47.5-49.0%		
		No Function	126-130	49.4-51.2%		
		DMX Mode: M1-Basic*	131-135	51.4-52.9%		
		DMX Mode: M2-Standard*	136-140	53.3-54.9%		
		DMX Mode: M3-Advanced*	141-145	55.3-56.9%		
		DMX Mode: M4-RGB(L)*	146-150	57.3-58.8%		
		DMX Mode: M5-White*	151-155	59.2-60.8%		
		DMX Mode: M6-Easy*	156-160	61.2-62.7%		
		No Function	161-165	63.1-64.7%		
		Zoom Invert On*	166-170	65.1-66.7%		
		Zoom Invert Off*	171-175	67.1-68.5%		
		Zoom Reset*	176-180	69.0-70.5%		
		Fixture reset*	181-185	71.0-72.5%		
		Factory default settings (except DMX address & mode)*	186-190	72.9-74.5%		
		No function	191-195	74.9-76.2%		
		PWM Rate: 600Hz	196-200	76.9-78.4%		
		PWM Rate: 1200Hz	201-205	78.8-80.4%		
		PWM Rate: 2200Hz	206-210	80.8-82.4%		
		PWM Rate: 3000Hz	211-215	82.7-84.3%		
		PWM Rate: 4800Hz	216-220	84.7-86.3%		
		PWM Rate: 9600Hz	221-225	86.7-88.2%		
		PWM Rate: 25KHz	226-230	88.6-90.2%		
		No function	231-252	90.6-100%		
4	**Colour Wheel**	Default white 6500K	0-3	0-1.2%	0	Snap
		Preset 3200K	4-6	1.6-2.4%		
		Preset 4200K	7-9	2.7-3.5%		
		Preset 5600K	10-12	3.9-4.7%		
		Preset 6500K	13-15	5.1-5.9%		
		Filter 004 (Medium Bastard Amber)	16-18	6.3-7.1%		
		Filter 019 (Fire)	19-21	7.5-8.2%		
		Filter 025 (Sunset Red)	22-24	8.6-9.4%		
		Filter 026 (Bright Red)	25-27	9.8-10.6%		
		Filter 036 (Medium Pink)	28-30	11-11.8%		
		Filter 049 (Medium Purple)	31-33	12.2-12.9%		
		Filter 058 (Lavender)	34-36	13.3-14.1%		
		Filter 068 (Sky Blue)	37-39	14.5-15.3%		
		Filter 088 (Lime Green)	40-42	15.7-16.5%		
		Filter 089 (Moss Green)	43-45	16.9-17.6%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		Filter 090 (Dark Yellow Green)	46-48	18-18.8%		
		Filter 102 (Light Amber)	49-51	19.2-20%		
		Filter 103 (Straw)	52-54	20.4-21.2%		
		Filter 106 (Primary Red)	55-57	21.6-22.4%		
		Filter 111 (Dark Pink)	58-60	22.7-23.5%		
		Filter 115 (Peacock Blue)	61-63	23.9-24.7%		
		Filter 117 (Steel Blue)	64-66	25.1-25.9%		
		Filter 118 (Light Blue)	67-69	26.3-27.1%		
		Filter 121 (Filter Green)	70-72	27.5-28.2%		
		Filter 122 (Fern Green)	73-75	28.6-29.4%		
		Filter 124 (Dark Green)	76-78	29.8-30.6%		
		Filter 126 (Mauve)	79-81	31-31.8%		
		Filter 128 (Bright Pink)	82-84	32.2-32.9%		
		Filter 131 (Marine Blue)	85-87	33.3-34.1%		
		Filter 132 (Medium Blue)	88-90	34.5-35.3%		
		Filter 134 (Golden Amber)	91-93	35.7-36.5%		
		Filter 135 (Deep Golden Amber)	94-96	36.9-37.6%		
		Filter 136 (Pale Lavender)	97-99	38-38.8%		
		Filter 137 (Special Lavender)	100-102	39.2-40%		
		Filter 138 (Pale Green)	103-105	40.4-41.2%		
		Filter 140 (Summer Blue)	106-108	41.6-42.4%		
		Filter 141 (Bright Blue)	109-111	42.7-43.5%		
		Filter 143 (Pale Navy Blue)	112-114	43.9-44.7%		
		Filter 147 (Apricot)	115-117	45.1-45.9%		
		Filter 148 (Bright Rose)	118-120	46.3-47.1%		
		Filter 152 (Pale Gold)	121-123	47.5-48.2%		
		Filter 154 (Pale Rose)	124-126	48.6-49.4%		
		Filter 157 (Pink)	127-129	49.8-50.6%		
		Filter 162 (Bastard Amber)	130-132	51-51.8%		
		Filter 164 (Flame Red)	133-135	52.2-52.9%		
		Filter 165 (Daylight Blue)	136-138	53.3-54.1%		
		Filter 169 (Lilac Tint)	139-141	54.5-55.3%		
		Filter 170 (Deep Lavender)	142-144	55.7-56.5%		
		Filter 172 (Lagoon Blue)	145-147	56.9-57.6%		
		Filter 180 (Dark Lavender)	148-150	58-58.8%		
		Filter 182 (Light Red)	151-153	59.2-60%		
		Filter 194 (Surprise Pink)	154-156	60.4-61.2%		
		Filter 197 (Alice Blue)	157-159	61.6-62.4%		
		Filter 201 (Full C.T. Blue)	160-162	62.7-63.5%		
		Filter 202 (Half C.T. Blue)	163-165	63.9-64.7%		
		Filter 203 (Quarter C.T. Blue)	166-168	65.1-65.9%		
		Filter 204 (Full C.T. Orange)	169-171	66.3-67.1%		
		Filter 206 (Quarter C.T. Orange)	172-174	67.5-68.2%		
		Filter 219 (Fluorescent Green)	175-177	68.6-69.4%		
		Filter 247 (Filter Minus Green)	178-180	69.8-70.6%		
		Filter 248 (Half Minus Green)	1811-183	71-71.8%		
		Filter 281 (Three Quarter C.T. Blue)	184-186	72.2-72.9%		
		Filter 285 (Three Quarter C.T. Orange)	187-189	73.3-74.1%		
		Filter 352 (Glacier Blue)	190-192	74.5-75.3%		
		Filter 353 (Lighter Blue)	193-195	75.7-76.5%		
		Filter 507 (Madge)	196-198	76.9-77.6%		
		Filter 778 (Millennium Gold)	199-201	78-78.8%		
		Filter 793 (Vanity Fair)	202-204	79.2-80%		

Channel		Command	DMX range	Percent	Default DMX	Fade
		Filter 798 (Chrysalis Pink)	205-207	80.4-81.2%		
		Rainbwo Stop - at first Color	208-210	81.6-82.4%		
		Rainbow slow→fast	211-252	82.7-98.8%		
		Rainbow Stop - at current Color	253-255	99.2-100%		

13. Service

Warning! There are no user-serviceable parts inside the fixture. Opening the fixture can compromise its IP65 rating and cause damage that is not covered by the product warranty. Any service operation that requires removal of a cover must be performed by a professional service technician with the tools, skills, and personal protective equipment to maintain high-powered lighting equipment safely and efficiently.

Cleaning

XPAR 12Z fixtures require occasional cleaning to prevent the buildup of dust, dirt, and residue from atmospheric effects. Failure to keep the fixture clean will significantly reduce light output and may cause heat buildup and damage that is not covered by the product warranty. Regular cleaning will ensure maximum performance and reliable operation.

The cleaning schedule depends on the operating environment. Check fixtures regularly for signs of dirt buildup.

You can clean the fixture using a soft cloth slightly dampened with a household or automotive glass cleaning product. Do not apply pressure to the lens or to the display on the back of the fixture, as you may scratch these surfaces.

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
- GLP N. America: +1 818 767-8899
- GLP UK: +44 1392 690140
- GLP Asia: +852 (3151) 7730
- GLP Nordic: +46 737 57 11 40

14. Technical specifications

Optics

Light source: 1x 120W RGBL LED
Lens: 190mm Fresnel
Lifetime: 20 000 hrs. approx. to > 70% luminous output
Output: 2520lm / 101000cd
Intensity: 3600lx @ 5m (6° zoom, Full ON)
CRI (Ra): 85+
TLCI: 84 @ 6000K
Beam angle (half peak): Motorized 6° - 44°

Control

Control systems: DMX, RDM, Manual setting, Master/Slave
DMX channel footprint: 4 / 6 / 8 / 11 / 16 depending on mode
Setting and addressing: Onboard control panel with OLED display, RDM
DMX compliance: USITT DMX512
RDM compliance: ANSI/ESTA E1.20

Installation

Options: Fixed to surface at any angle, suspended using truss mount bracket, floor standing using split yoke bracket
Operating position: Any
Minimum distance to combustible materials: 0.2 m (8 in.)
Minimum distance to illuminated surfaces: 0.2 m (8 in.)
Installation environment: Temporary or permanent indoor installation, temporary outdoor installation
Secondary attachment: eyelet for safety cable attachment

Electrical

AC mains power: 100-240 V nominal, 50/60 Hz
Power supply unit: Auto-ranging electronic switch mode
Maximum power consumption, all LEDs at 100% output: 135 W

Maximum permitted number of fixtures daisy-chained to power
12 x XPAR 12Z total @ 100-120 V, 60 Hz
24 x XPAR 12Z total @ 200-240 V, 50 Hz

Connections

AC mains power in and thru (out): TRUE1 compatible with sealing caps
Control data in and thru (out): 5-pin XLR with sealing caps

Construction

Ingress protection rating: IP65
Fixture housing: Extruded aluminum
Color: Black

Thermal

Cooling: Convection
Minimum ambient temperature: -10° C (14° F)
Maximum ambient temperature: 40° C (104° F)

Included items

Power cable with TRUE1 compatible mains input plug

Accessories (optional)

Filter frame
Barn Door attachment

Dimensions and weight

Length: 245mm / 9.6 ins.
Width: 245 mm / 9.6 ins.
Height: 341 mm / 13.4 ins. (including bracket)
Weight: 7 kg (15.4 lbs.)

15. Dimensions

All dimensions are in millimeters