

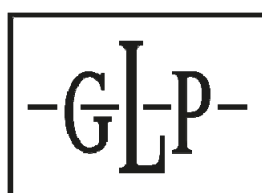
FUSION
by GLP

Fusion MBL20

User Manual



Software version 1.0



GLP® Fusion MBL20 User Manual – Revision A

This document covers fixture software version 1.0

© 2018-2019 German Light Products GmbH. All rights reserved.

The marks 'GLP' and 'German Light Products' are trademarks registered as the property of German Light Products GmbH in Germany, in the United States of America and in other countries.

The information contained in this document is subject to change without notice. German Light Products GmbH and all affiliated companies disclaim liability for any injury, damage, direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information contained in this document.

Manufacturer's head office:

German Light Products GmbH (GLP), Industriestrasse 2, 76307 Karlsbad, Germany
Tel (Germany): +49 7248 92719 - 0

Service & Support EMEA:

GLP, Industriestrasse 2, 76307 Karlsbad, Germany
Tel. (Germany): +49 7248 9271955
Email: support@glp.de
www.glp.de

Service & Support USA:

GLP USA, 1145 Arroyo St., Ste. A, 91340 San Fernando, California
Tel (USA): +1 818 767 8899
Support (US): info@germanlightproducts.com
www.germanlightproducts.com

Table of Contents

1. Safety	5
Key to symbols	5
General safety information	5
Electrical safety	6
Fire safety and protection from burns	7
Eye safety	8
Installation safety and protection from personal injury	8
2. Avoiding damage to the fixture	10
General precautions	10
Avoiding damage from light sources and heat	10
IP rating.....	10
Avoiding damage from water and humidity	10
Avoiding damage from dust and airborne particles.....	11
Transportation and storage.....	11
GLP Service and Support.....	11
3. MBL20 overview.....	13
4. Installation	15
Permitted mounting options	15
Securing fixtures with a safety cable	15
Installing on a surface at any angle	16
Installing on a rigging truss or similar structure	17
5. AC mains power.....	18
Included items.....	18
Connecting to power	18
Installing power connectors.....	18
Connecting multiple fixtures to power in a chain	19
6. Connecting to DMX data.....	20
7. Starting and stopping operation	21
8. Features	22
CCT / Color Temperature	22
Dimming	22
Manual setting using rotary switches.....	22
Behavior when the fixture is not receiving a DMX signal.....	23
Display	23
Fixture information	23
Factory defaults	23
9. Control menus and onboard display.....	24
Display Locking	25
10. Control menu layout.....	26
Calibration menu	27

11. DMX control modes overview.....	28
12. DMX control channel layout	29
DMX Mode 1: Standard	30
DMX Mode 2: Advanced	31
13. Service	33
Cleaning.....	33
Installing optional barndoors	33
GLP Service and Support.....	34
14. Technical specifications.....	35
Optics.....	35
Control.....	35
Installation	35
Electrical.....	35
Connections	35
Construction	35
Thermal	35
Included items.....	36
Dimensions and weight.....	36
15. Dimensions	37

1. Safety

Key to symbols

The following symbols are used in the Fusion MBL20 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.



General safety information

Read this manual carefully before installing, using or servicing the Fusion MBL20 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 MBL20 lighting fixtures consists of:

- This document, the **MBL20 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 MBL20 fixtures.
- The **MBL20 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 MBL20 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 Neutrik PowerCON TRUE1 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 mm² 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 mm², H07RN-F, 1.5 m.

Do not connect more than three (3) Fusion MBL20 fixtures to power in a chain at 100-120 V, 60 Hz.

Do not connect more than six (6) Fusion MBL20 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 MBL20 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 MBL20 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 MBL20 is classified as a Risk Group 3 lighting fixture according to EN 62471. Possibly hazardous 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 3 - WARNING
Possibly hazardous optical radiation from this product.
Do not look at operating lamp.
Eye injury may result!

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



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 LCD 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

MBL20 fixtures are IP65-rated:

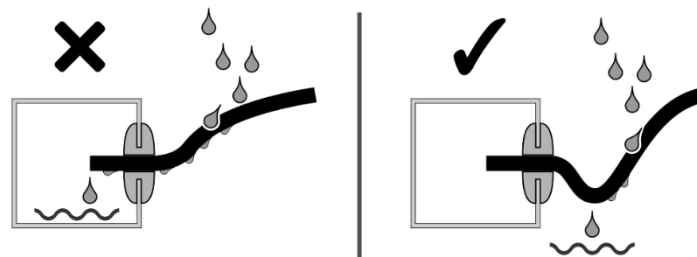
- **IP** stands for Ingress (entry into the fixture) Protection.
- The first figure **6** in the rating means that fixtures are protected against the entry of dust and airborne particles.
- The second figure **5** in the rating means that fixtures are protected against the entry of rain and water projections 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 MBL20 fixtures in a location where water can pool around the fixture or allow MBL20 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 instructions (see

www.neutrik.com) 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)
- Neutrik powerCON TRUE1 NAC3FX-W for Power IN
- Neutrik powerCON TRUE1 NAC3MX-W for 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 33.

Transportation and storage

- If fixtures have been fastened together with locking pins, remove the pins and separate the fixtures before transport. Do not transport fixtures that are fastened together, or shocks during transport will expose fixtures to leverage forces and may cause damage that is not covered by the product warranty.
- 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. MBL20 overview

The Fusion MBL20 from GLP is a powerful LED-based white light flood lighting fixture with controllable color temperature.

The fixture can be controlled by DMX, by using the rotary control switches on the rear, or by settings on the control panel.

The MBL20 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.

Mounting channels are provided on the front of MBL20 fixtures for mounting the Barndoor accessory from GLP.

The MBL20 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.

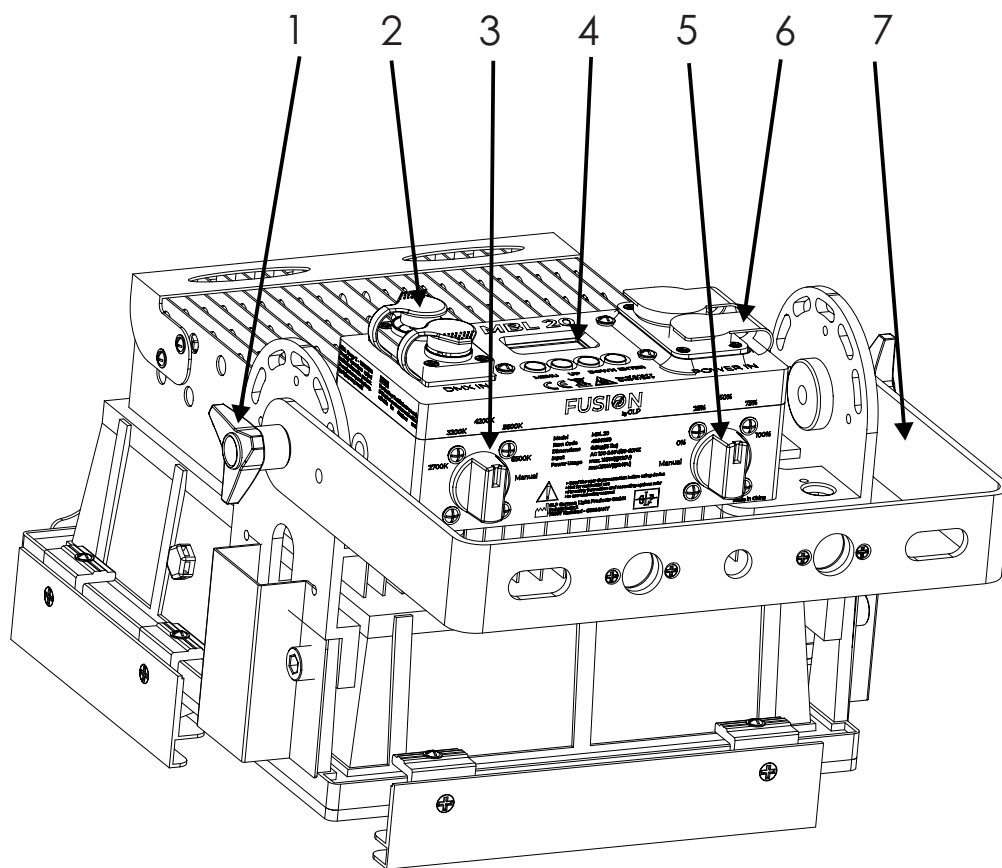


Figure 1. MBL20 overview from rear

- 1 – Clamping handwheel to adjust tilt of mounting bracket**
- 2 – DMX IN / THRU (5-pin XLR)**
- 3 – CCT rotary control knob (see “Rotary switches” in section 8)**
- 4 – Control panel with LCD display (see section 9)**
- 5 – Dimmer level rotary control knob (see “Rotary switches” in section 8)**
- 6 – AC mains power IN and THRU (Neutrik powerCON TRUE1)**
- 7 – Mounting bracket**

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 MBL20 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 MBL20 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 Omega bracket accessory which attaches to the two half-turn couplers on the mounting bracket.

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. In multiple installations, each fixture must have its own safety cable.

To secure an MBL20 fixture with a safety cable:

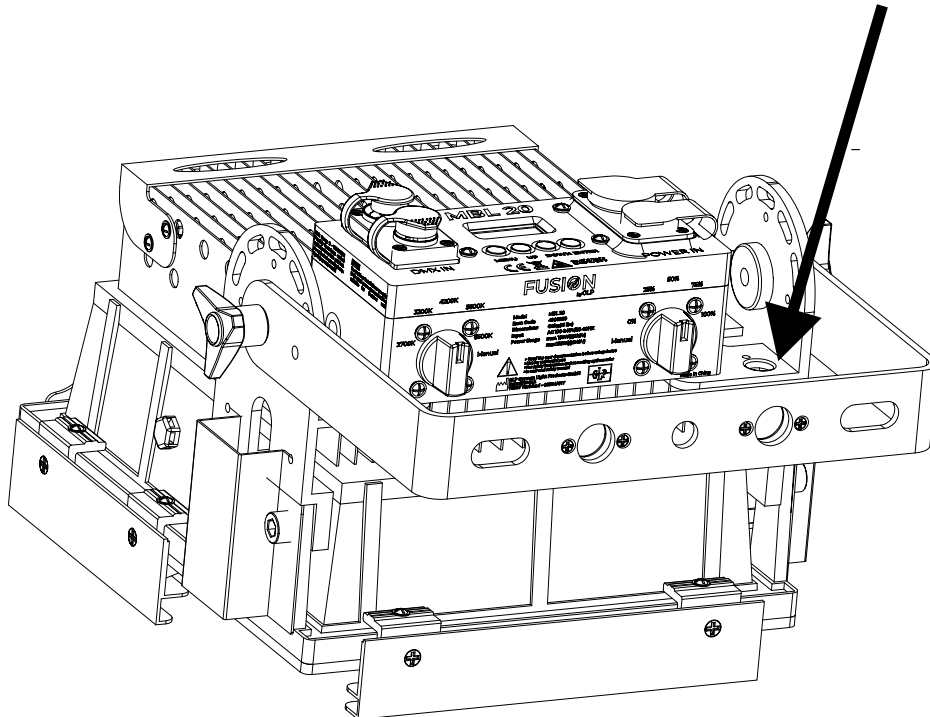


Figure 2. Safety cable attachment point

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 2. Fasten the safety cable to the attachment hole on the back of the fixture. Check that the fixture is now secured.

Installing on a surface at any angle

To install an MBL20 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 15 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 MBL20 fixture from a rigging truss or pipe using a suitable clamp attached to the Omega Bracket that is available from GLP as an optional accessory for the MBL20.

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 G-clamps. If you are going to install the fixture in any other orientation, you must use half-coupler clamps that completely surround the truss chord or pipe.

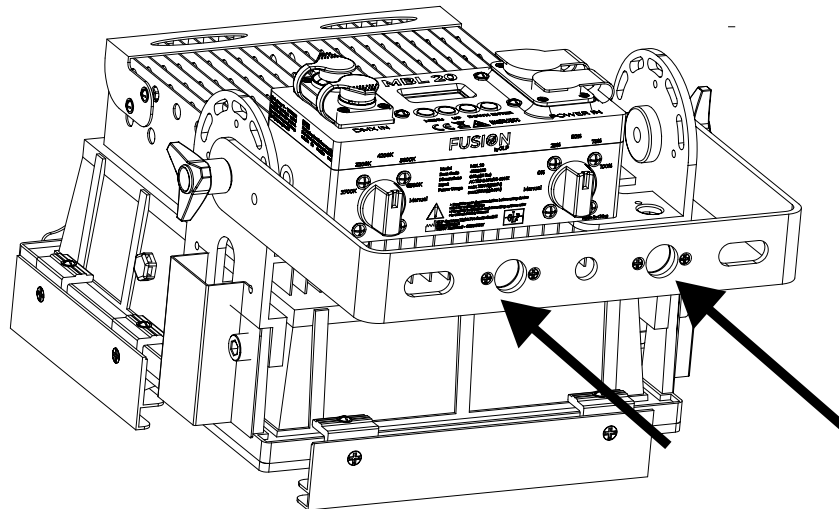


Figure 3. Omega bracket fasteners

1. Attach a suitable clamp to the Omega bracket accessory.
2. Line up the fasteners of the Omega bracket with the holes in the mounting bracket of the MBL20 as shown in Figure 3.
3. Lock the Omega bracket onto the MBL20 by turning the fasteners through 90 degrees.
4. Attach the clamp to the truss or structure.
5. Secure the fixture with a safety cable as described in 'Securing fixtures with a safety cable' on page 15.

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 original Neutrik powerCON TRUE1 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 MBL20 is supplied with a power cord with Neutrik powerCON TRUE1 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 MBL20 does not have a power ON/OFF switch. Power is applied to the fixture as soon as the power cable becomes live.

The MBL20 has a 3-conductor Neutrik powerCON TRUE1 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 Neutrik powerCON TRUE1 connector on a power cable, follow the instructions given in the Support area of the Neutrik website at www.neutrik.com.

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.

MBL20 fixtures have 2.5 mm² internal wiring from Power IN to Power THRU connectors.



Warning! Do not connect more than six (6) MBL20 fixtures in total to power in one chain at 100-120 V, 60 Hz. Do not connect more than twelve (12) MBL20 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 Neutrik powerCON TRUE1 connectors. Cables must be minimum 14 AWG or 1.5mm², 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 18.
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 MBL20 fixtures Mains OUT / THRU socket to Mains IN socket until the chain contains a maximum of six (6) 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 twelve (12) 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 MBL20 has two 5-pin XLR connectors for IN and THRU connections to a DMX data link. MBL20 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.

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 MBL20's TRUE1 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 MBL20 unit has the following features:

CCT / Color Temperature

You can adjust the color temperature of the white light produced by the MBL20 by varying the mix of levels from the warm white / cool white emitters.

Dimming

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

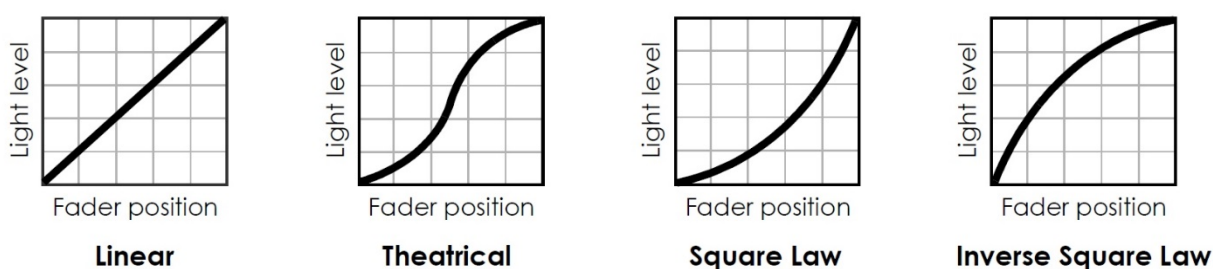


Figure 4. Dimming curves

- **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**.

Manual setting using rotary switches

The fixture has two rotary switches on the rear which allow you to set fixed CCT/Color Temperature and fixed Dimmer levels when DMX is not being received and the *SETTINGS* → *NO DMX* option is set to *MANUAL*.

The CCT switch has the following settings:

- 2700K / 3200K / 4200K / 5600K / 6500K / Manual

The DIM switch has the following settings:

- 20% / 40% / 60% / 80% / 100% / Manual

The “Manual” position of each switch selects the settings programmed using the MANUAL → CCT and MANUAL → BRI menu options. This allows you to set custom output levels if none of the settings on the switches are suitable.

Note: The rotary switches are only effective when no DMX signal is received and the SETTINGS → NO DMX option is set to MANUAL. If DMX is being received, that will always override the settings on the rotary switches.

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.
- **Manual** sets the fixture to output the current settings of the rotary switches, or the MANUAL menu option when the rotary switches are set to “Manual” position.

These settings are available via SETTINGS → NO DMX on the fixture's control panel and using the *Control / Settings* DMX channel.

Display

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

Using the *Control / Settings* DMX channel or the SETTINGS → SCRNTIME option on the fixture's control panel you can set the display to automatically switch off when no buttons are pressed for a time.

The display will flash when no DMX is being received. You can turn this feature off using the SETTINGS → SCRNFLASH option.

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.

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 you can restore the settings to the factory defaults. This reloads all the fixture's factory default settings **except** DMX address and DMX mode

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 LCD display provide access to user settings, readouts and utilities. See previous page for operation of the rotary switches.

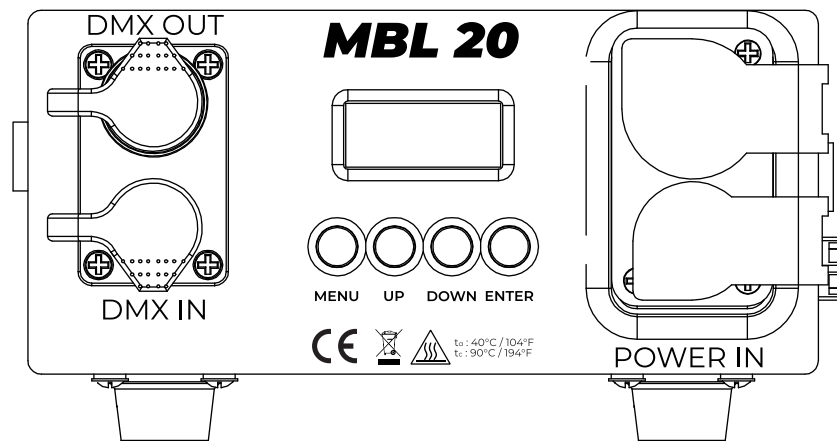


Figure 5. Onboard control panel

The four control buttons have the following functions:

MENU: 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, see Figure 5. The default screen displays the fixture's DMX mode and the DMX address that the fixture is using.

By default the display will flash when no DMX data is being received. This can be useful when rigging and checking DMX connections but you can switch the feature off using the **SETTINGS → SCRNFLASH** option on the control panel.

You can set the display to go into a blank sleep mode after a time by using the **SETTINGS → SCRNTIME** 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 SETTINGS → SCRNLCK menu setting. To unlock, hold down the MENU and ENTER buttons together for 3 seconds.

When the display is locked, pressing any button will show the message "HOLD 3S MENU/ENT" and the button press will have no other effect.

10. Control menu layout

Menus		Notes	
DMX ADDR	1 - 512	Enter DMX address	
DMX MODE	STANDARD – 2	Select DMX control mode	
	ADVANCED – 5		
MANUAL	CCT	2700K – 6500K in 100K steps	Set Color Temp for rotary knob “Manual” position
	BRI	000%-100% in 1% steps	Set Brightness / Dimmer for rotary knob “Manual” position
SETTINGS	DIMCURVE	LINEAR , THEATER, SQUARE, SQINVERS	Set dimmer curve
	DIMSPEED	FAST , SMOOTH	Set dimming speed
	PWM	10KHz, 12KHz , 16KHz, 18KHz, 24KHz, 30KHz	Set LED refresh rate
	NO DMX	BLACKOUT, HOLD , MANUAL	Set operation when DMX is lost
	SCRNTIME	01 MIN, 05 MIN, 10 MIN, OFF	Set time for screen to turn off
	SCRNFLASH	ON , OFF	Set screen to flash when no DMX is present
	SCRNLOCK	01 MIN, 05 MIN, 10 MIN, OFF	Set time for screen to lock
INFO	TIME CUR	00:00 (hh:mm)	Shows how long unit has been powered for this session
	TIME TOT	000000 (hours)	Shows total run time of unit
	TEMP LED	000 C	Shows LED temperature
	FIRMWARE	v1000	Firmware version
	SERIAL	00001	Unit serial number
	RDM UID	A0BC31 (example)	Last digits of unique identifier in hexadecimal
SERVICE	TEST	RUN	Press Enter to start test, Menu or Enter to stop
	DEFAULT	LOAD	Press Enter to load default settings, except DMX Address and DMX Mode
	CALIBRAT	See table below	Adjust the warm white/cool white settings for CCT values. You must hold Enter for 5 seconds to enter this menu.

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

Calibration menu

Hold down Enter for 5 seconds to access this menu.

Menus

Notes

CCT	2700K	W000C000	See note below
	3200K	W000C000	See note below
	4200K	W000C000	See note below
	5800K	W000C000	See note below
	6500K	W000C000	See note below
WW LED	000		Adjust the overall WW level
CW LED	000		Adjust the overall CW levels
DEF CAL	LOAD		Hold Enter for 3 seconds to load default calibration values

Note: For CCT menu, press "Enter" to switch between Warm White and Cool White, press "Up"/"Down" to change the values, to exit editing press "Menu" which will save all values.

11. DMX control modes overview

The following DMX control modes are available in the MBL20.

DMX Mode 1: Standard provides a selection of fixed color temperatures on the first channel and a master dimmer on the second channel.

Note: If Channel 1 is set below DMX 60 / 23.5% no light will be output.

Mode 1 Standard

1	CCT
2	Master dimmer

DMX Mode 2: Advanced provides a selection of fixed color temperatures on the first channel, a master dimmer on the second channel, then variable warm white / cool white controls on channels 3 / 4 (if Channel 1 is set below DMX 60 / 23.5%). If Channel 1 is above DMX 60 / 23.5% then Channels 3 / 4 have no effect.

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

Mode 2 Advanced

1	CCT
2	Master dimmer
3	Warm white
4	Cool white
5	Control channel

12. DMX control channel layout

In the following DMX channel layout tables:

- Default settings are indicated with **bold type**.
- 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: Standard

2 DMX Channels

Channel	Command	DMX range	Percent	Default DMX	Fade	
1	CCT	No light output	0-59	0-23.1%	0	Snap
		6500	60-64	23.5-25.1%		
		6400	65-69	25.5-27.1%		
		6300	70-74	27.5-29.0%		
		6200	75-79	29.4-31.0%		
		6100	80-84	31.4-32.9%		
		6000	85-89	33.3-34.9%		
		5900	90-94	35.3-36.9%		
		5800	95-99	37.3-38.8%		
		5700	100-104	39.2-40.8%		
		5600	105-109	41.2-42.7%		
		5500	110-114	43.1-44.7%		
		5400	115-119	45.1-46.7%		
		5300	120-124	47.1-48.6%		
		5200	125-129	49.0-50.6%		
		5100	130-134	51.0-52.5%		
		5000	135-139	52.9-54.5%		
		4900	140-144	54.9-56.5%		
		4800	145-149	56.9-58.4%		
		4700	150-154	58.8-60.4%		
		4600	155-159	60.8-62.4%		
		4500	160-164	62.7-64.3%		
		4400	165-169	64.7-66.3%		
		4300	170-174	66.7-68.2%		
		4200	175-179	68.6-70.2%		
		4100	180-184	70.6-72.2%		
		4000	185-189	72.5-74.1%		
		3900	190-194	74.5-76.1%		
		3800	195-199	76.5-78.0%		
		3700	200-204	78.4-80.0%		
3600	205-209	80.4-82.0%				
3500	210-214	82.4-83.9%				
3400	215-219	84.3-85.9%				
3300	220-224	86.3-87.8%				
3200	225-229	88.2-89.8%				
3100	230-234	90.2-91.8%				
3000	235-239	92.2-93.7%				
2900	240-244	94.1-95.7%				
2800	245-249	96.1-97.6%				
2700	250-255	98.0-100%				
2	Master Dimmer	Intensity 0-100%	0-255	0-100%	0	Fade

DMX Mode 2: Advanced

5 DMX Channels

Channel	Command	DMX range	Percent	Default DMX	Fade	
1	CCT	Manual WW / CW using Ch 3 / 4	0-59	0-23.1%	0	Snap
		6500	60-64	23.5-25.1%		
		6400	65-69	25.5-27.1%		
		6300	70-74	27.5-29.0%		
		6200	75-79	29.4-31.0%		
		6100	80-84	31.4-32.9%		
		6000	85-89	33.3-34.9%		
		5900	90-94	35.3-36.9%		
		5800	95-99	37.3-38.8%		
		5700	100-104	39.2-40.8%		
		5600	105-109	41.2-42.7%		
		5500	110-114	43.1-44.7%		
		5400	115-119	45.1-46.7%		
		5300	120-124	47.1-48.6%		
		5200	125-129	49.0-50.6%		
		5100	130-134	51.0-52.5%		
		5000	135-139	52.9-54.5%		
		4900	140-144	54.9-56.5%		
		4800	145-149	56.9-58.4%		
		4700	150-154	58.8-60.4%		
		4600	155-159	60.8-62.4%		
		4500	160-164	62.7-64.3%		
		4400	165-169	64.7-66.3%		
		4300	170-174	66.7-68.2%		
		4200	175-179	68.6-70.2%		
		4100	180-184	70.6-72.2%		
		4000	185-189	72.5-74.1%		
		3900	190-194	74.5-76.1%		
		3800	195-199	76.5-78.0%		
		3700	200-204	78.4-80.0%		
		3600	205-209	80.4-82.0%		
		3500	210-214	82.4-83.9%		
		3400	215-219	84.3-85.9%		
3300	220-224	86.3-87.8%				
3200	225-229	88.2-89.8%				
3100	230-234	90.2-91.8%				
3000	235-239	92.2-93.7%				
2900	240-244	94.1-95.7%				
2800	245-249	96.1-97.6%				
2700	250-255	98.0-100%				

2	Master Dimmer	Intensity 0-100%	0-255	0-100%	0	Fade
3	Warm White	Intensity 0-100% when Ch1 below 60	0-255	0-100%	0	Fade
4	Cool White	Intensity 0-100% when Ch1 below 60	0-255	0-100%	0	Fade
5	Control Channel	No function	0-19	0-7.5%	0	Snap
		Display off*	20-24	7.8-9.4%		
		Display on*	25-29	9.8-11.4%		
		No function	30-39	11.8-15.3%		
		No DMX = blackout*	40-44	15.7-17.3%		
		No DMX = hold*	45-49	17.6-19.2%		
		No DMX = manual*	50-54	19.6-21.2%		
		No function	55-84	21.6-32.9%		
		Dimmer speed = Fast*	85-89	33.3-34.9%		
		Dimmer speed = Smooth*	90-94	35.3-36.9%		
		No function	95-124	37.3-48.6%		
		Dimmer curve = Linear*	125-129	49.0-50.6%		
		Dimmer curve = Theater*	130-134	51.0-52.5%		
		Dimmer curve = Square Law*	135-139	52.9-54.5%		
		Dimmer curve = Inverse Square*	140-144	54.9-56.5%		
		No function	145-154	56.9-60.4%		
		PWM speed = 10KHz*	155-159	60.8-62.4%		
		PWM speed = 12KHz*	160-164	62.7-64.3%		
		PWM speed = 16KHz*	165-169	64.7-66.3%		
		PWM speed = 18KHz*	170-174	66.7-68.2%		
		PWM speed = 24KHz*	175-179	68.6-70.2%		
		PWM speed = 30KHz*	180-184	70.6-72.2%		
		No function	185-199	72.5-78.0%		
Load factory default settings*	200-204	78.4-80.0%				
No function	205-249	80.4-97.6%				
Reset all (restart device)*	250-255	98.0%-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

MBL20 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 clear front or display on the back of the fixture, as you may scratch these surfaces.

Installing optional barndoors

An optional barndoor accessory is available for the MBL20 that can be installed on the front of the fixture to control lateral light spill if required.

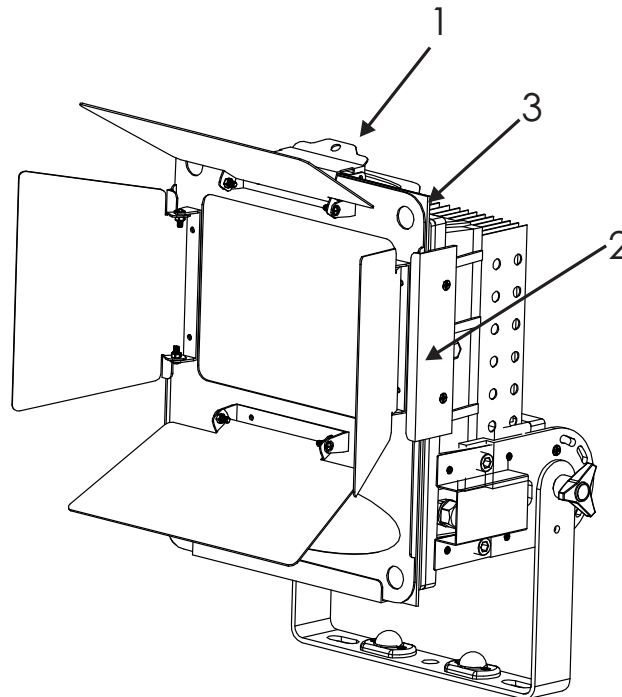


Figure 6. MBL20 Barndoors

To install barndoors:

1. See Figure 6. Pull back the spring clip (1) on the top of the fixture and slide the barndoors into the channel (2) provided on the front of the fixture. Release the spring clip and ensure that it is holding the top of the barndoors in place.
2. Install a safety bond between one of the holes (3) in the top corner of the barndoors assembly and the main fixture to prevent the barndoors falling if they become detached from the main 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
- 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: 27x WW, 27x CW Cree LEDs
Lifetime: 20 000 hrs. approx. to > 70% luminous output
CRI (Ra): 80+
Beam angle (half peak): 100°

Control

Control systems: DMX, RDM, Manual setting, Rotary Switches
DMX channel footprint: 2 / 5 depending on mode
Setting and addressing: Onboard control panel with LCD display, RDM
Rotary Switch CCT: 2700K / 3200K / 4200K / 5600K / 6500K / Manual
Rotary Switch Brightness: 20% / 40% / 60% / 80% / 100% / Manual
DMX compliance: USITT DMX512
RDM compliance: ANSI/ESTA E1.20

Installation

Options: Fixed to surface at any angle, suspended using truss mount 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: Two eyelets 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: 200 W

Maximum permitted number of fixtures daisy-chained to power

6 x MBL20 total @ 100-120 V, 60 Hz
12 x MBL20 total @ 200-240 V, 50 Hz

Connections

AC mains power in and thru (out): Neutrik powerCON TRUE1 with sealing caps
Control data in and thru (out): Neutrik 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 Neutrik powerCON TRUE1 mains input plug

Dimensions and weight

Length: 370mm / 14.6 ins.

Width: 250 mm / 9.8 ins.

Height: 170 mm / 6.7 ins.

Weight: 5 kg (11 lbs.)

15. Dimensions

All dimensions are in millimeters

