Mania
EFX500/EFX600
user manual

Martin

DIMENSIONS

Measurements are expressed in millimeters.

500

180

410

230

CONTENTS

OVERVIEW

A: **Power inlet**
B: **Voltage selector switch**
   (EFX500 all models & EFX600 EU models)
C: **DMX in**
D: **DMX out**
E: **Display and control buttons**
F: **Safety cable attachment point**
G: **Power on/off switch**

INTRODUCTION

Thank you for selecting a Martin Mania EFX series dynamic lighting fixture. The Mania EFX500 and EFX600 are DJ lighting effects with a motorized rotating parabolic mirror dish, a motorized rotating gobo wheel (gobos are outlines or masks placed in a light beam to create different patterns) and a mirror drum with motorized pan (swivel) and tilt (rotation).

The Mania EFX500 and EFX600 offer the following features:

• Stand-alone single fixture and synchronized (master/slave) operation in auto and music triggering modes
• DMX control
• Two DMX modes: DMX mode 2 gives extended functionality on additional channels
• 180° pan and 360° tilt
• Adjustable focus
• Adjustable music triggering sensitivity
• The EFX500 has 11 colored gobos plus blackout, and the EFX600 has 12 colored gobos

The Mania EFX500 is supplied with a long-life 250 watt halogen lamp.

The Mania EFX600 is supplied with a long-life 150 watt discharge lamp.

Safety information

Warning!   ***This product is not for household use. It presents risks of lethal or severe injury due to fire and heat, electric shock, ultraviolet radiation, lamp explosion and falls.***

This product presents risks of lethal or severe injury due to fire and heat, electric shock, ultraviolet radiation, lamp explosion, and falls. **Read this manual** before installing or powering the fixture, follow the safety precautions listed below and observe all warnings in this manual and on the fixture. If you have any questions about how to operate the fixture safely, please contact your Martin dealer or call the Martin 24-hour service hotline.

Protecting yourself and others from electric shock and injury

- Ensure that the fixture's voltage setting matches your local AC power supply before applying power.
- Disconnect the fixture from AC power before removing or installing the lamp, fuse, or any part, and when not in use.
- Always ground (earth) the fixture electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault protection.
- Do not expose the fixture to rain or moisture.
- Refer all service not described in this manual to a Martin service technician.
- Do not operate the fixture if any covers or components are missing, damaged or deformed.
- Do not use the product if the power cable is damaged. Replace the cable with a Martin item only (available from your Martin dealer).

Protecting yourself and others from burns and fire

Warning! **Hot lamp. The exterior of the fixture can become hot. Allow to cool for at least 10 minutes before handling or opening.**

- Surface temperature under steady state condition = 100°C (212° F).
- Do not operate the fixture if the ambient temperature (T_a) exceeds 40° C (104° F).
- Never attempt to bypass the thermostatic switch or fuses. Always replace defective fuses with ones of the specified type and rating.
- See serial label for replacement fuse size and lamp type.
- Keep all combustible materials (for example fabric, wood, paper) at least 0.3 meters (4 inches) away from the fixture. Keep flammable materials well away from the fixture.
- Do not illuminate surfaces within 1 meter (3.3 feet) of the fixture.
- Provide a minimum clearance of 0.1 meters (4 inches) around fans and air vents and ensure that air flow through and around vents is free and unobstructed.
- Never place filters or other materials over the lens or in the optical path.
- Do not look directly into the light.
- Change the lamp immediately if it becomes damaged or thermally deformed.
- Do not operate the fixture if any optical components or shields are missing, damaged or deformed: an unshielded discharge lamp emits dangerous UV radiation that can cause burns and eye damage.
- Do not modify the fixture or install other than genuine Martin parts.

Preventing injuries due to falls

- When suspending the fixture above ground level, verify that the structure can hold at least 10 times the weight of all installed devices.
- Ensure that all external covers and rigging hardware are securely fastened and use an approved means of secondary attachment such as a safety cable.
- Block access below the work area and work from a stable platform whenever installing or removing the fixture.

Unpacking

Important! ***Do not lift or carry the fixture by holding the plastic mirror drum motor housing. It is not designed for this purpose. You could injure yourself or others, and you could cause damage that is not covered by the product guarantee.***

The packing material is carefully designed to protect the fixture during shipment - always use it to transport the fixture.

Mania EFX fixtures are supplied with the following items:

- 3-wire IEC power cable.
- 5m (16.4 ft.) DMX cable.
- Mounting plate (installed).
- User manual.
- EFX500: 250 watt halogen lamp (installed).
- EFX600: 150 watt discharge lamp (the EFX600 discharge lamp is supplied separately to avoid damage during shipping and must be installed before use – see "*Installing the EFX600 lamp*" on page 25).

Removing protective packaging

Important! ***The mirror drum is secured with packaging and white plastic ties for shipment. Wearing gloves to avoid cutting yourself on the mirrors, cut and remove the plastic ties. Check that the drum can be swivelled through 180° and rotated through 360° before operating the fixture. If it cannot, you may have missed one of the plastic ties.***

Remove the clear protective film from the mirror drum before operating.
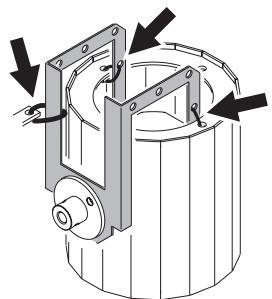
INSTALLATION

AC power

Warning! ***Ensure that the fixture's voltage setting matches your local AC power supply before applying power.***

For protection from fire and electric shock, the fixture must be grounded (earthed). The power supply must have both overload and ground-fault (earth fault) protection.

Check that power cables are undamaged and rated for the current requirements of all connected devices before use.

Important! ***Do not connect the fixture to a dimmer system, as this may cause damage that is not covered by the product guarantee.***

Mania EFX500 power settings

All Mania EFX500 models must be set to 115 V, 60 Hz or 230 V, 50 Hz AC power using the red voltage selector switch on the connections panel.

- Set the switch so that 115 V is visible if you have 110-120 V, 60 Hz AC power.
- Set the switch so that 230 V is visible if you have 220-240 V, 50 Hz AC power.

Mania EFX600 power settings

- Mania EFX600 EU models must be set to 230 or 240 V, 50 Hz AC power using the voltage selector switch on the connections panel.
- Mania EFX600 US models do not have a voltage selector switch and are supplied set up for 110-120 V, 60 Hz AC power.

Warning! ***Do not operate the fixture on a power supply that falls outside of these ranges.***

Installing a cord cap (plug) on the power cable

The fixture's power cable may require a grounding-type cord cap (earthed mains plug) that matches your power distribution system. Consult a qualified electrician if you have any doubts about proper installation.

Following the cord cap manufacturer's instructions, connect the appropriate wires to ground (earth), live, and neutral. The table below shows some common wire identification schemes.

Function	Wire (EU)	Wire (US)	Marking	Screw color
live	brown	black	"L"	yellow or brass
neutral	blue	white	"N"	silver
ground	yellow/green	green	⏚	green

Table 1: Cord cap wiring

Physical installation

The Mania EFX500/600 must be either:

- fastened to an overhead structure by means of its mounting plate and a Martin rigging clamp (available from your Martin dealer), or
- fastened to a surface by means of its mounting plate and suitable bolts.

Do not install the fixture by any other means, as this can cause the fixture to overheat.

Ensure that the mounting structure or surface and all fasteners used can support at least 10 times the weight of all installed fixtures, clamps, cables, auxiliary equipment, etc.

Ensure that the fixture is located:

- at least 1 meter (3.3 ft.) away from the surface to be illuminated,
- at least 0.1 meters (4 in.) from any combustible materials (wood, fabric, paper, etc.) and
- well away from any flammable materials.

Ensure that the clearance around the fan and air vents is at least 0.1 meters (4 in.) and that airflow is free and unobstructed.

Warning! ***Block access below the work area and work from a stable platform when installing or servicing the fixture.***

Always use a secure means of secondary attachment that can hold at least 10 times the weight of the fixture, looping it through the attachment point shown at F in "Overview" on page 4. Do not simply pass the secondary attachment around the mounting plate, as this will leave the fixture unsecured.

Surface mounting

To mount the Mania EFX500/600 on a surface, you will need four grade 8.8 (minimum) 8mm diameter, 13mm head hex screwbolts (or similar type fasteners of the same grade and size) and an eyebolt for the safety cable.
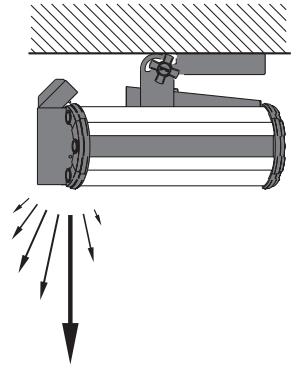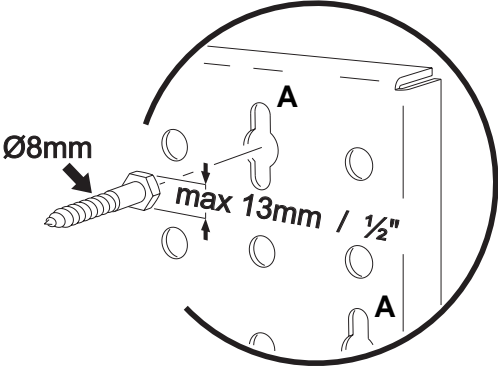
Installing the mounting plate separately

Surface mounting is easiest if you detach the mounting plate from the fixture, bolt the mounting plate to the surface, and then reattach the fixture. If you choose this method, access for reattachment and adjustment can be easier if you remove the swivel locks and replace them with two M8 hexagonal lock nuts, P/N 08132701. Install an eyebolt and safety attachment once the fixture is mounted.

Installing the fixture and mounting plate as a unit

If you prefer to install the fixture and mounting plate without separating them:

1. Using the inside back cover of this manual as a guide, drill three holes in the positions marked **A**.
2. Screw three grade 8.8 (minimum) 8mm diameter, 13mm head hex screwbolts or bolts into the holes at **A**, but do not tighten them fully –allow enough clearance between the bolt head and surface for the 3mm thick mounting plate.
3. Fold the mounting plate so that it lies flat against the back of the fixture and tighten the swivel locks. For easier access for adjustment, it is possible to remove the swivel locks and replace them with two M8 hexagonal lock nuts, P/N 08132701).

4. Hold the fixture up to the surface so that the screwbolt heads pass through the centers of the keyholes **A** in the mounting plate, and slide the fixture to engage the screwbolt heads in the mounting plate.

5. Using one of the remaining holes in the mounting plate as a guide, mark a position for a fourth hole to accept a screwbolt that will lock the fixture in place.

6. Remove the fixture from the surface, drill the fourth hole and replace the fixture on the surface as described in point 4 above. Screw the fourth screwbolt through the mounting plate into the surface to lock the fixture in place, using a washer on the screwbolt if necessary.

7. Install an eyebolt and safety attachment once the fixture is mounted.

Overhead mounting

To hang the Mania EFX on an overhead structure:

1. If using a rigging clamp, ensure that the clamp is undamaged and can bear at least 10 times the fixture's weight. Bolt the clamp securely to the fixture's mounting plate with a grade 8.8 (minimum) M12 bolt and lock nut through one of the 13 mm holes provided, or as recommended by the clamp manufacturer. The clamp must be attached centrally in the mounting plate to distribute the load evenly.

2. Working from a stable platform, clamp or fasten the fixture to the structure.

3. Install a safety cable that can hold at least 10 times the weight of the fixture.

4. Loosen the swivel locks, tilt the fixture to the desired angle, and retighten.
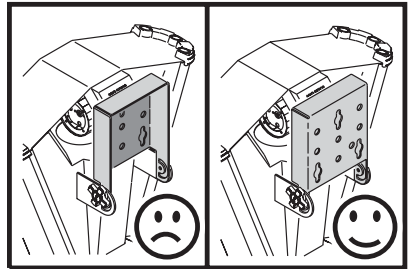
Important! *Check to make sure that the mirror drum cable does not rub on the mounting plate. If it does, reverse the mounting plate (see illustration).*

Creating a data link for DMX and synchronized operation

You need a serial data link to:

• run light shows on one or more fixtures using a DMX controller, or

• run synchronized light shows on two or more fixtures (master/slave operation).

Fixtures on a serial data link must be daisy-chained in one single line, maximum 500 meters (1640 ft.) long, with maximum 32 fixtures. If you wish to exceed 32 fixtures or 500 meters, or to split the link into branches, use an optically isolated amplifier-splitter such as the Martin RS-485 Opto-Splitter (P/N 90758060).

Reliable data connection requires suitable cable. Standard microphone cable cannot transmit DMX data reliably over long runs. For best results, use cable with at least one twisted pair specifically designed for RS-485 applications. Your Martin dealer can supply suitable high quality cable in various lengths.

Connecting the serial data link

The Mania EFX's data connections are XLR type, wired with pin 1 to ground, pin 2 to signal - (cold), and pin 3 to signal + (hot). This is the standard configuration for DMX devices.

One or more adaptor cables may be required to connect the Mania EFX to the controller and/or other types of fixture, because some devices may have 5-pin XLR connectors, and others may have reversed signal polarity (pin 2 hot and pin 3 cold). Connector polarity is normally specified on the device or in the device's user manual.

5-pin to 3-pin Adaptor	3-pin to 5-pin Adaptor	3-pin to 3-pin Phase-Reversing Adaptor	Male Termination Plug	Female DMX Termination Plug
Male Female	Male Female	Male Female	Male XLR	Female XLR

1 ——— 1
2 ——— 2
3 ——— 3
4
5
	1 ——— 1
	2 ——— 2
	3 ——— 3
	    4
	    5
		1 ——— 1
		2 ⨯ 2
		3 ⨯ 3
			1
			2 ⌇ 120 Ohm
			3
				1
				2 ⌇120 Ohm
				3

P/N 11820005	P/N 11820004	P/N 11820006	P/N 91613017	P/N 91613018

DMX connectors and polarity

To connect the data link:

1. Power all devices off.
2. If you intend to use a DMX controller, run a data cable from the DMX controller's data output to the first fixture's data IN socket. If the controller has a 5-pin output, use a 5-pin male to 3-pin female adaptor cable (P/N 11820005).
3. If you intend to run fixtures in master/slave operation, insert a female DMX termination plug (P/N 91613018) in the first fixture's data IN socket.

4. Plug a data cable into the OUT socket of the first fixture and the IN socket of the next one. Continue connecting up to 32 Mania EFXs output-to-input.

5. Terminate the link by inserting a male termination plug (P/N 91613017) into the data output of the last fixture. A termination plug is simply an XLR connector with a 120 Ohm, 0.25 W resistor soldered across pins 2 and 3.

Gobo wheels

The Mania EFX500 contains the following gobo wheel.

The Mania EFX600 contains the following gobo wheel.
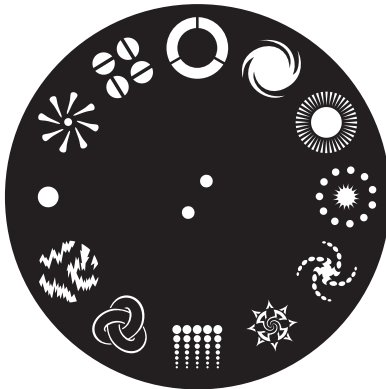
Note that it is the whole wheel, and not the individual gobos, that rotates. Rotating gobo image effects are created by the mirror dish.

OPERATION

Getting started

The Mania EFX500/600 is supplied in DMX mode with its DMX address set to 1. If you want to operate the fixture without a DMX controller, you need to set the fixture to music trig or auto trig mode before use (see "*Selecting DMX, music trig or auto trig operating modes*" on page 15).

Powering on

Once the fixture is correctly and safely installed, power on at the fixture's power on/off switch. The fixture will start up and reset.

If the fixture resets successfully, the software version installed will appear in the display. For example, if software version 1.00 is installed, the message *100* should appear in the display.

Once the fixture has reset, the fixture will display either its DMX address, *901* (music trig mode) or *900* (auto trig mode).

If any other message is displayed, the fixture has detected an error (see "*Error messages*" on page 21). If this occurs, switch off, wait a few seconds and switch on again. If the error message appears again, consult your Martin dealer.

Music trig, auto trig and DMX modes

The Mania EFX has three main operating modes:

Music trig mode: In this mode, lighting effects are triggered by music intensity. Multiple fixtures can be synchronized if one master fixture is set to music trig mode and the other fixtures are set to DMX mode.

Auto trig mode: In this mode, the fixture runs a factory-set dynamic light show that uses all the fixture's effects in a random program. Multiple fixtures can be synchronized if one master fixture is set to auto trig mode and the other fixtures are set to DMX mode.

DMX mode: In DMX mode, fixtures receive control instructions via the serial data link. They will respond to control signals from a DMX controller (or from another fixture set as master).

Selecting DMX, music trig or auto trig operating modes

The Mania EFX is supplied set to DMX mode with DMX address set to 1. If you intend to operate the fixture without a DMX controller, you need to set the fixture to music trig or auto trig mode.

To switch between DMX, auto trig and music trig modes:

1. Apply power to the fixture and wait while it resets. If the fixture is in DMX mode, the display will show the fixture's DMX address.
2. Press the [Mode] button once. The fixture enters auto trig mode and 𝟗𝟘𝟘 appears in the display.
3. Press the [Mode] button again once. The fixture enters music trig mode, and 𝟗𝟘𝟏 appears in the display.
4. Press the [Mode] button again once to return to DMX mode. The fixture's DMX address appears in the display.
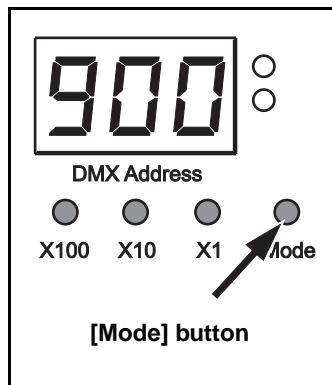
The fixture will return to the mode you have set when it is powered off and on.

If you set the fixture to music trig mode but it does not respond satisfactorily to the music beat, adjust the music trig sensitivity level (see "*Adjusting music trig sensitivity*" on page 20).

Synchronized music trig and auto trig operation

You can set multiple fixtures on a serial data link to respond together to a music trig or auto trig signal from one fixture. This feature allows synchronized operation without a DMX controller. The fixture sending the signal is the 'master' fixture and the fixtures that receive the signal are the 'slave' fixtures.

Important! *Set only one fixture as master: damage can occur if two masters, or a master and a DMX controller, are linked.*

Setting up synchronized operation

To set up Mania EFX fixtures for synchronized operation:

1. Ensure that all fixtures on the data link are in DMX mode.
2. Select one fixture to be the master and set it to auto trig or music trig mode (see "*Selecting DMX, music trig or auto trig operating modes*" on page 15)
3. When a slave fixture receives signals from the master, it will automatically begin operating in slave mode. $9 \ 10$ will appear in its display and the green Data LED will light to show that the fixture is receiving control data.

Slave mode

DMX Address

Data LED lit

X100   X10   X1   Mode

[Mode] button
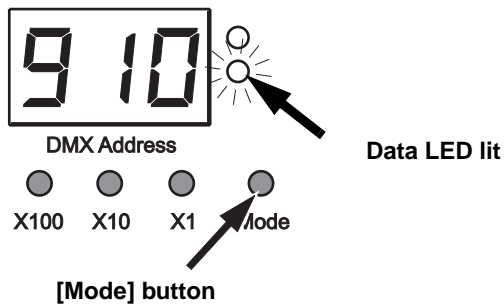
Fixtures return to their DMX/auto trig/music trig settings when powered off and on, so you should only need to set fixtures as masters/slaves once.

DMX controller operation

Setting DMX mode 1 or 2

Two DMX modes are available: DMX mode 1 (normal) and DMX mode 2 (extended). Mode 2 uses two extra DMX channels that allow you to select pre-programmed macros and set the speed of effects movement from the DMX controller. The fixture is supplied set to DMX mode 2.

• The Mania EFX500 uses seven DMX channels in DMX mode 1 and nine channels in DMX mode 2.
• The Mania EFX600 uses six DMX channels in DMX mode 1 and eight channels in DMX mode 2.

To toggle between DMX modes 1 and 2:

1. Apply power to the fixture and wait for the fixture to reset.
2. Hold the [Mode] button pressed in for 5 seconds to enter the fixture control menu.
3. Press the [X100] button repeatedly until *0* appears in the left of the display. Press the [X1] button to toggle between *1* (to set DMX mode 1) and *2* (to set DMX mode 2) in the right of the display.
4. Press the [Mode] button again to save your setting.

DMX Address

X100   X10   X1   Mode

DMX mode 2
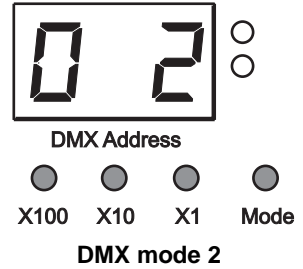
Setting DMX addresses

If you intend to use a DMX controller, you will need to set the DMX address for each fixture. The DMX address, also known as the start channel, is the first channel used to receive instructions from the controller. It is set using the three addressing buttons on the Mania EFX's control panel.

For individual control, each fixture must be assigned its own DMX address and control channels. Control channels must not overlap with those of other fixtures. Fixtures of the same type with the same DMX address will receive the same instructions and behave identically.

If a Mania EFX500 is set to DMX mode 2, it will use 9 channels. If you give it DMX address 100, for example, it will use channels 100, 101, 102, 103, 104, 105, 106, 107 and 108. Channel 109 is available for the next fixture.

The default factory-set DMX address is '1'.
To set a fixture's DMX address:

1. Decide on suitable DMX addresses for all the fixtures on the data link. 512 channels are available in one DMX universe.
2. Apply power to the fixture and wait while it resets.
3. Use the three addressing buttons on the fixture's control panel to enter the DMX address. The [X1] button increases the last digit in the DMX address, the [X10] button increases the address by 10 and the [X100] button increases the address by 100.

DMX Address

X100   X10   X1

DMX addressing buttons
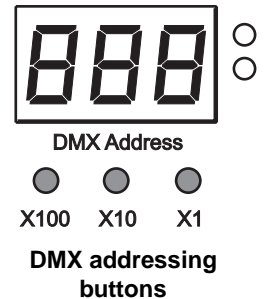
Fixtures remember their DMX address when they are powered off and on.

DMX control options

See also the DMX protocols starting on page 32 for an overview of DMX commands and channels.

In DMX modes 1 and 2, the following functions can be controlled:

Strobe effect: A strobe effect with variable flash rate can be selected.

Auto trig: While in DMX mode, the Mania EFX can be remotely set to auto trig.

Reset: All effects can be reset to their index positions from the controller using channel 1. The reset command must be sent for 5 seconds before it takes effect.

When a fixture is reset via DMX, 800 should appear in the digital display.

Dimming: The Mania EFX500 can be dimmed from 0% (blackout) up to 100% intensity using channel 2. The Mania EFX600 can be dimmed from 0% to 100% using the shutter on channel 1.

Gobo wheel position, rotation and music trig: The gobo wheel can be positioned to project one of the colored gobos or at blackout. The gobo wheel can also be spun in either direction or set to music trig, in which gobos change with the music beat but the other effects are still controlled via DMX.

Mirror dish rotation and music trig: The mirror dish can be spun in either direction for dynamic projection effects or set to music trig.

Pan: The mirror drum pans (swivels) approx. 180°. A pan position can be selected, pan can be set to narrow or wide shake, or pan can be set to music trig.

Tilt: The mirror drum tilts (rotates) 360°. The drum can be held in a stationary position, set to rotate in either direction, set to narrow or wide shake, or set to music trig.

In DMX mode 2, the following additional functions can be controlled on two extra channels:

Macros: On the first extra channel, you can select one of twelve factory-set macros. Macros are pre-programmed dynamic shows that use all the fixture's effects.

Effect speed: On the second extra channel, you can either select the speed at which effects change or select tracking. Selecting a speed allows you to adjust fade times when using DMX controllers that do not feature fade time programming (a fade time is the time taken for effects to change

from one scene to the next). If you select tracking, the DMX controller defines fade times.

Unsure about speed and tracking?

Set the fixture to tracking if you are using programmed fade times or macros on your DMX controller. Select an effects speed if you are *not* using programmed fade times or macros on your DMX controller.

However, if you are using fade times on your controller and have set the fixture to tracking, but effects movement is rough and irregular, setting fade times on your controller to zero and selecting an effects speed may give smoother movement.

Effects movement is set to 'tracking' if the fixture is in DMX mode 1 and by default.

DMX signal indicator

When the Mania EFX receives a valid DMX signal, the green Data LED will light to show that the fixture is receiving control data.

DMX signal received

9 10

DMX Address

○ ○ ○ ○

Data LED lit
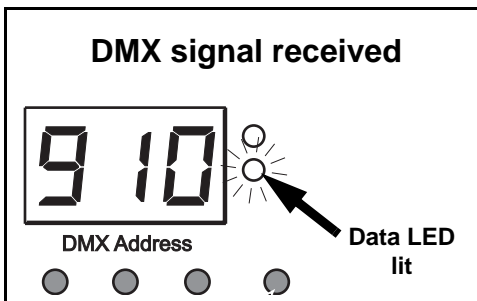
Fixture control menu

You can change various personality settings by holding the [Mode] button pressed in for 5 seconds and then using the buttons on the control panel.

Changing the DMX mode is described in "*Setting DMX mode 1 or 2*" on page 16.

Inverting pan and tilt for symmetrical action

You can create symmetrical action across multiple fixtures in synchronized and DMX operation by inverting pan and/or tilt on some fixtures so that they 'mirror' the action of others. When one fixture pans left, for example, a fixture on the other side of the dance floor can bet set to pan right.

Inverting pan

To invert pan (mirror drum swivel) on a Mania EFX:

1. Power the fixture on.
2. Hold the [Mode] button pressed in for 5 seconds to enter the control menu.
3. Press the [X100] button repeatedly until *I* appears on the left of the display.
4. Press the [X1] button to change the pan setting on the right of the display from *0* (normal pan) to *I* (inverted pan).
5. Press the [Mode] button again to save your setting and exit the control menu.
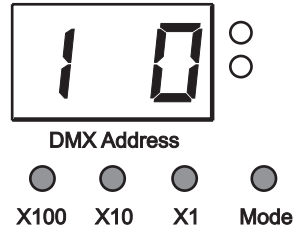
Inverting tilt

To invert tilt (mirror drum rotation) on a Mania EFX:

1. Power the fixture on.
2. Hold the [Mode] button pressed in for 5 seconds to enter the control menu.
3. Press the [X100] button repeatedly until *2* appears on the left of the display.
4. Press the [X1] button to change the tilt setting on the right of the display from *0* (normal tilt) to *I* (inverted tilt).
5. Press the [Mode] button again to save your setting and exit the control menu.
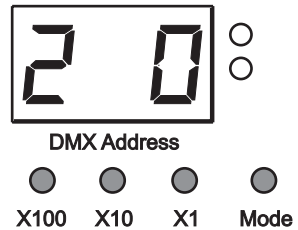
Adjusting music trig sensitivity

To adjust sensitivity for optimum synchronization with the music:

1. With the fixture powered on and in music trig mode, play a typical music track at typical volume for your location.
2. Hold the [Mode] button pressed in for 5 seconds to enter the control menu.
3. Press the [X100] button repeatedly until *3* appears on the left of the display.
4. Press the [X1] button to select a music trig sensitivity setting on the right of the display from *I* (minimum sensitivity) to *9* (maximum sensitivity). The default setting is *6*.
5. Press the [Mode] button again to save your setting and exit the control menu.
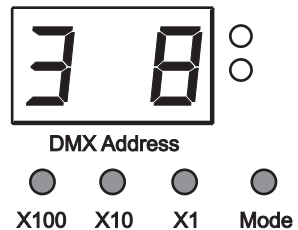
Error messages

In the event of a gobo wheel error, the message `70 1` will appear in the fixture's display. If an error message is displayed, try powering the fixture off and then on again to reset it.

If the problem persists, contact your Martin dealer.

Striking the EFX600 lamp

If the EFX600's discharge lamp is powered off via DMX during operation, you must wait eight minutes before the lamp can be restruck.

If you try to strike the lamp anyway, the message `702` will appear in the display.

Adjusting focus

Focus can be adjusted from approx. 2 meters (6.6 ft.) to approx. 20 meters (66 ft.).

The focus adjustment knob is close to the lens aperture in the mirror drum cutout (see illustration on right).

SERVICE AND MAINTENANCE

The Mania EFX requires simple routine maintenance. The maintenance schedule depends heavily on the operating environment. Please consult a Martin service technician for recommendations.

Refer any service procedure not described here to a qualified technician.

Warning! **Disconnect the fixture from power and allow it to cool for at least 10 minutes before removing any cover.**

Cleaning

Important! **Excessive dust, grease, and smoke fluid buildup degrades performance and causes overheating and damage to the fixture that is not covered by the warranty. Check and, if necessary, clean fixtures at regular intervals.**

Cleaning the fan and air vents

To maintain adequate cooling, dust must be cleaned from the fan and air vents periodically.

1. Disconnect the fixture from power and allow it to cool for at least 10 minutes.
2. Loosen the lamp cover release thumbscrew and slide and lift the lamp cover out of the fixture housing. Let the cover hang on its safety strap.
3. Remove the four torx screws holding the main cover (see illustration on right) and slide and lift the cover out of the housing. Let the cover hang on its safety strap.

4. Remove dust and dirt from the fan blades and vent grills using a soft brush, cotton swab, vacuum, or compressed air.
5. Reinstall the main cover and lamp cover securely before reapplying power.
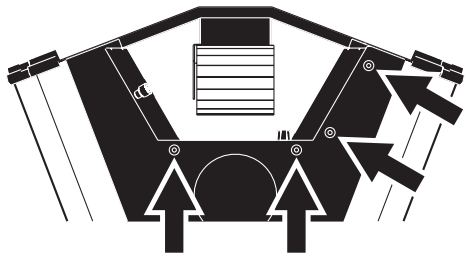
Cleaning optical components

Use care when cleaning optical components. The coated surfaces are fragile and even small scratches may be visible in the fixture's light output.

Optical path

1. Disconnect the fixture from power and allow it to cool for at least 10 minutes.
2. Open the covers as described in "Cleaning the fan and air vents" above.
3. Blow or vacuum away loose dust. Remove dirt from lenses, gobos and mirror wheel with a soft cloth or cotton swabs wetted with isopropyl alcohol. Regular glass cleaner may also be used, but no residues may remain. To avoid scratches, do not rub. Instead, press repeatedly to lift dirt off surfaces.
4. Any remaining residues or streaking can be removed with distilled water. Mixing the water with a small amount of wetting agent such as Kodak Photoflo will help prevent streaking and spotting.
5. Dry with a clean, soft, lint-free cloth or compressed air.
6. Reinstall all covers before reapplying power.
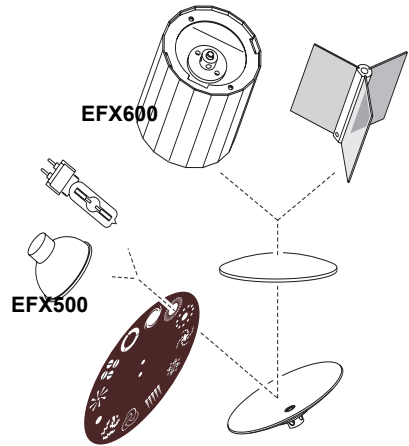
Lamp replacement and adjustment

Warning!   *Wear safety glasses and gloves and allow the fixture to cool for at least 10 minutes before replacing lamps.*

Mania EFX500 lamp

The Mania EFX500 uses a 250 W halogen lamp. Replace the lamp when it reaches the average life specified by the manufacturer.

Important! ***Use only this type of lamp. See "Accessories" on page 38 for details of replacement lamps. Installing any other lamp may damage the fixture.***

Replacing the EFX500 lamp

1. Disconnect the fixture from power and allow it to cool for at least 10 minutes.
2. Loosen the lamp cover release thumbscrew enough to slide and lift the lamp cover out of the fixture housing. The lamp cover is attached to the housing with a safety strap.
3. Remove the old lamp and socket from the lampholder clip and, being careful not to strain any wires, gently pull the lamp off its ceramic socket.
4. Hold the new lamp by its base (do not touch any other part of the lamp). Push the lamp pins squarely into the ceramic socket.
5. If you touched the bulb, the reflector or any optical components, clean them with a clean, soft, lint-free cloth wetted with isopropyl alcohol and dry with a clean, soft, lint-free cloth or compressed air.
6. Replace the lamp and socket in the lampholder clip, ensuring that the reflector sits flat against its plate and is held securely in place. When installed correctly, the rim of the reflector locates under the heads of two stop screws so that the reflector is held firmly between these screws and the lampholder clip.
7. Close the lamp cover, checking that no wires are trapped, and retighten the thumbscrew.
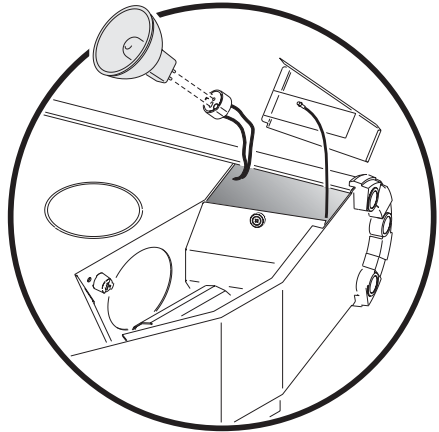
Mania EFX600 lamp

The Mania EFX600 uses a 150W long-life discharge lamp.

For optimum lamp life, always allow discharge lamps to warm up for at least 5 minutes before dousing.

Restriking the EFX600 lamp

Note that, when the Mania EFX600's discharge lamp is powered off, it must be allowed to cool for 8 minutes before it is restruck.

Installing the EFX600 lamp

Warning!   *Wear safety glasses and gloves and allow the Mania EFX600 to cool for at least 10 minutes before replacing the lamp.*

1. Disconnect the fixture from power and allow it to cool for at least 10 minutes.

2. Loosen the screw holding the lamp cover (see illustration on right) and open the cover. The cover is attached to the housing with a safety strap.
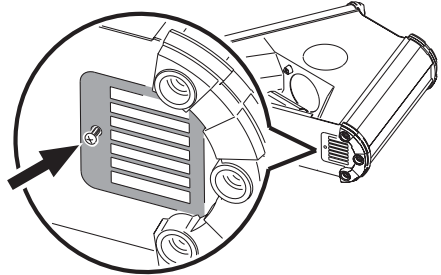
3. Loosen the four small screws (see illustration on right) holding the lampholder and pull the lampholder gently out of the fixture. Note which edge faces outwards, as the lampholder must be reinstalled in the same position.

This edge faces out
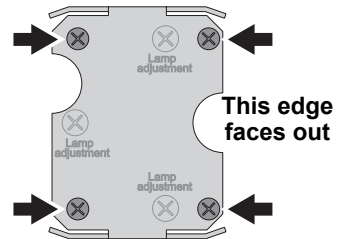
4. If replacing an old lamp, remove it from its ceramic socket.

5. Hold the new lamp by its base (do not touch any other part of the lamp). Push the lamp pins squarely into the socket.

6. If you touched the bulb, the reflector or any optical components, clean them with a clean, soft, lint-free cloth wetted with isopropyl alcohol and dry with a clean, soft, lint-free cloth or compressed air.
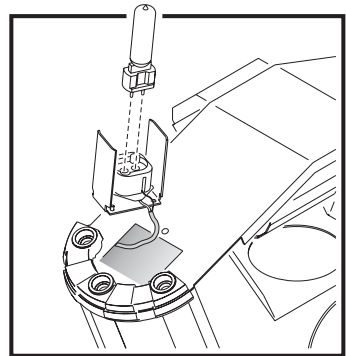
7. Replace the lampholder in the housing, making sure that the edge with the semicircular cutout in its center faces out towards the edge of the and reinstall the four screws. Close the lamp cover, checking that no wires are trapped, and replace the lamp cover screw.

8. Reapply power.

EFX600 lamp adjustment

The EFX600 lamp alignment can be adjusted to optimize the projected image using the adjustment screws on the lampholder (see illustration on right). Experiment with turning the screws until the brightest part of the beam is centered in the projected images.
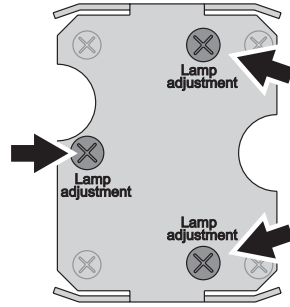
Replacing the main fuse

The Mania EFX500/600 uses a slow-blow fuse for protection against current overload. An indication that the fuse may have blown is that when power is applied and the lamp is switched on, no light is produced.

If the fuse blows repeatedly, there is probably a fault. Disconnect the fixture from power and data and contact a Martin service technician.

Never bypass the fuse or replace it with one of another type or rating.

To replace the main fuse:

1. Disconnect the power cable.
2. Pry open the fuse holder next to the power cable inlet with a flat-head screwdriver and remove the fuse.
3. Replace the fuse with one of the same type and rating. Fuse ratings are listed on serial number labels and under "*Electrical*" on page 37.
4. Replace the fuse holder before reapplying power.
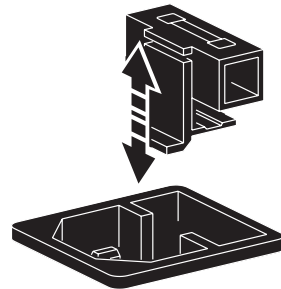
Firmware and hard boot uploads

It is possible to upload new firmware to the Mania EFX via the data IN connector using, for example, an uploader such as the Martin MP-2 Uploader, or a PC using a Martin DABS interface device and suitable software. The latest version of the Mania EFX firmware is available in the Support area of the Martin website at http://www.martin.com

If the Mania EFX will not accept normal firmware uploads, it can be forced to accept an upload by starting it in hard boot mode. To start in hard boot mode, hold both the [Mode] button and the [X100] button pressed in while powering on the fixture. When the Mania EFX is in hard boot mode, the data LED blinks.

If you are not sure how to carry out uploads, your Martin dealer will be able to give advice or carry out the upload for you.

MANIA EFX500 CIRCUIT BOARD LAYOUT

Voltage
Selecter
Switch

J13

Main PCB
/ J12

J6

Power
PCB

J5

Lamp

Main
PCB
/J13

J9

J3

Transformer

J7

J1

Fan Transformer

Display

J11

J3

DMX

Main PCB

Power
PCB J9

J13

J10

J12

Power PCB J6

Hall
Color /
Gobo

J7

J6

J5

J4

J8

Tilt

Pan

Mirror
Dish

Color / Gobo
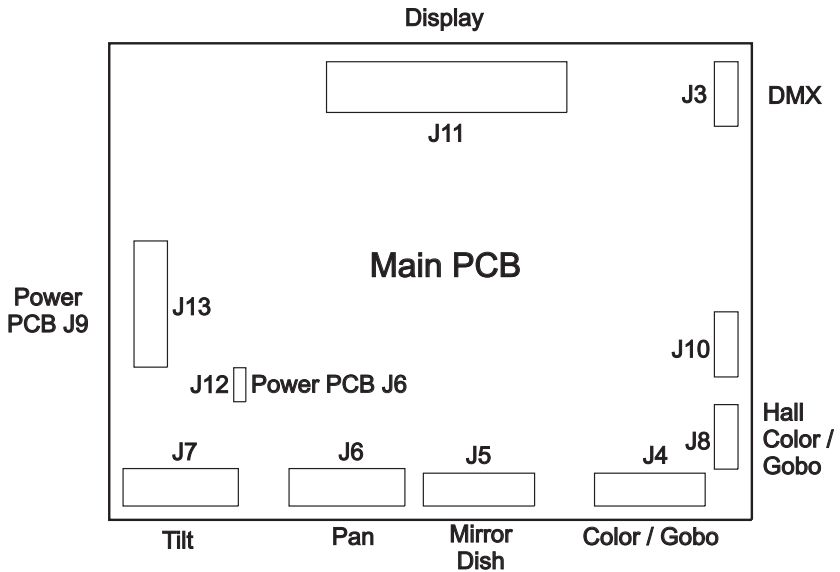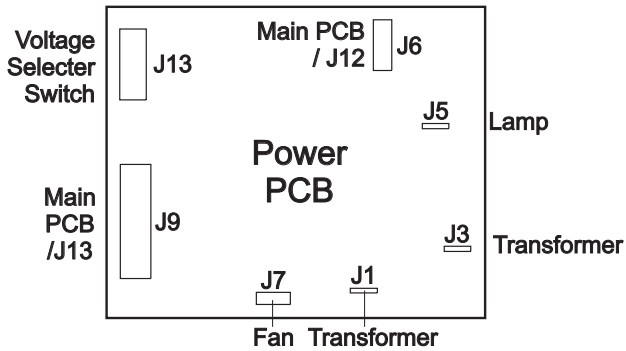
MANIA EFX600 CIRCUIT BOARD LAYOUT

Transformer 15

Main PCB (J12)	J6	J5
Main PCB (J13)	J9	J2
Fan	J7	Ballast Capacitor
	J8	

Mania EFX600
US
Power PCB

J3 J1

Fuse 5A 250V   Toroidal transformer

Ballast

Main PCB (J12)	J6	J5
Main PCB (J13)	J9	J2
Fan	J7	Mains filter
	J8	

Mania EFX600
EU
Power PCB

J3 J1

Fuse 5A 250V   Toroidal transformer

Display   Hall Color / Gobo

J1   J10   J8

Mania EFX600
EU / US
Main PCB

Power PCB   J12

J13   Power PCB J9

DMX   J3

J7   J6   J2   J4   J15   J16

Tilt   Pan   Mirror Dish   Color / Gobo   Shutter

TROUBLESHOOTING

Problem	Possible cause(s)	Suggested remedy
No light	No power to the fixture	Check connections
	Blown fuse	If power is applied and the lamp is switched on but does not light, check and replace fuse if necessary
	Burned out lamp	Install new lamp
	Fixture too hot	Allow to cool. Improve air flow around fixture
No action in music trig mode	Sound too low to activate control circuit	Adjust music level sensitivity. Increase music volume. Reduce distance between fixture and loudspeakers
No action in music trig and auto trig modes	Electrical malfunction	Refer to a Martin service technician
Unsatisfactory action in synchronized operation	Fixtures incorrectly linked	Check data link connections between fixtures
	More than one fixture set as master	Check that all slave fixtures are set to DMX mode
Poor action in a new fixture	Some transport packaging has not been removed	Remove all plastic ties from mirror drum until drum rotates freely
Fuse blows repeatedly	Electrical malfunction	Refer to a Martin service technician
EFX600: Impossible to restrike lamp after dousing via DMX.	8 minute restrike protection delay activated.	Wait 8 minutes before restriking a hot lamp.
Fixtures reset correctly but behave erratically or do not respond during DMX or synchronized operation	Data link not terminated	Insert DMX termination plug in output of last fixture on link. In synchronized operation, insert DMX termination plug in input of first fixture.

CONTROL MENU

- Hold the [Mode] button pressed in for 5 seconds to access the control menu.
- Use the [X100] button to select the personality feature.
- Use the [X1] button to change the setting for that feature.

Personality feature — DMX Address — **Setting**

X100   X10   X1   Mode
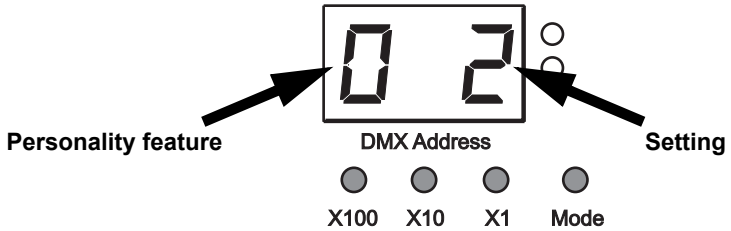
Personality feature		Setting*	
0	DMX mode	*1*	Mode 1 (normal)
		2	**Mode 2 (extended)**
1	Pan (swivel) invert	*0*	**Pan normal**
		1	Pan inverted
2	Tilt (rotation) invert	*0*	**Tilt normal**
		1	Tilt inverted
3	Music trig sensitivity	*1* ↓ *9*	Minimum ↓ Maximum

*Default settings are shown in **bold type**.

MANIA EFX500 DMX PROTOCOL

Channel	Value	Percent	Function
1			**Strobe effect, auto trig, music trig, reset**
	0 - 4	0 - 1	No function
	5 - 68	2 - 26	Strobe (fast to slow)
	69 - 100	27 - 39	Remote stand-alone, auto trig
	101 - 132	40 - 51	Remote stand-alone, music trig
	133 - 249	52 - 97	Reserved, no function
	250 - 255	98 - 100	Reset fixture (value must be held for 5 seconds)
2			**Intensity**
	0 - 255	0 - 100	0 - 100%
3			**Colored gobo wheel positions, gobo wheel rotation, gobo wheel music trig**
			Full gobo positions
	0 - 9	0 - 3	Gobo 1
	10 - 19	4 - 7	Gobo 2
	20 - 29	8 - 11	Gobo 3
	30 - 39	12 - 15	Gobo 4
	40 - 49	16 - 19	Gobo 5
	50 - 59	20 - 23	Gobo 6
	60 - 69	24 - 26	Gobo 7
	70 - 79	27 - 30	Gobo 8
	80 - 89	31 - 35	Gobo 9
	90 - 99	36 - 38	Gobo 10
	100 - 109	39 - 42	Gobo 11
	110 - 119	43 - 46	Gobo 12 (blackout)
	120 - 175	47 - 68	Reserved, (Gobo 12 - blackout)
			Continuous Rotation
	176 - 207	69 - 81	Clockwise (fast → slow)
	208 - 239	82 - 93	Counterclockwise (slow → fast)
			Music function
	240 - 244	94 - 95	Gobo wheel music trig fast
	245 - 249	96 - 97	Gobo wheel music trig slow
	250 - 255	98 - 100	Gobo wheel music trig dynamic
4			**Colored gobo wheel shake**
	0 - 1	0	No function
	2 - 128	1 - 50	Narrow shake (slow → fast)
	129 - 255	51 - 100	Wide shake (slow → fast)
5			**Mirror dish rotation, shake and music trig**
	0 - 1	0	Stop
	2 - 65	1 - 25	Counterclockwise rotation (fast → slow)
	66 - 129	26 - 50	Clockwise rotation (slow → fast)
	130 - 192	51 - 75	Shake (slow → fast)
	193 - 208	76 - 81	Random shake
	209 - 239	82 - 93	Reserved, stop
	240 - 244	94 - 95	Mirror dish music trig, fast
	245 - 249	96 - 97	Mirror dish music trig, slow
	250 - 255	98 - 100	Mirror dish music trig, dynamic

Channel	Value	Percent	Function
6			**Pan (mirror drum swivel) position, shake and music trig**
	0	0	Maximum left pan
	63	24	Neutral
	127	50	Maximum right pan
	128 - 182	51 - 71	Narrow shake (slow → fast)
	183 - 239	72 - 93	Wide shake (slow → fast)
	240 - 244	94 - 95	Music trig pan, fast
	245 - 249	96 - 97	Music trig pan, slow
	250 - 255	98 - 100	Music trig pan, dynamic
7			**Tilt (mirror drum rotation) rotation, shake and music trig**
	0 - 1	0	No rotation
	2 - 63	1 - 24	Clockwise rotation (slow → fast)
	64 - 65	25	No rotation
	66 - 127	26 - 49	Counterclockwise rotation (fast → slow)
	128 - 129	50	No rotation
	130 - 184	51 - 72	Narrow shake (slow → fast)
	185 - 239	73 - 93	Wide shake (slow → fast)
	240 - 244	94 - 95	Mirror drum rotation music trig, fast
	245 - 249	96 - 97	Mirror drum rotation music trig, slow
	250 - 255	98 - 100	Mirror drum rotation music trig, dynamic
8*			**Macros (DMX mode 2 only)**
	0 - 15	0 - 5	No Macro
	16 - 31	6 - 11	Macro 1
	32 - 47	12 - 18	Macro 2
	48 - 63	19 - 24	Macro 3
	64 - 79	25 - 30	Macro 4
	80 - 95	31 - 37	Macro 5
	96 - 111	38 - 43	Macro 6
	112 - 127	44 - 49	Macro 7
	128 - 143	50 - 55	Macro 8
	144 - 159	56 - 62	Macro 9
	160 - 175	63 - 68	Macro 10
	176 - 191	69 - 74	Macro 11
	192 - 207	75 - 81	Macro 12
	208 - 255	82 - 100	Reserved. No function
9*			**Effects speed (DMX mode 2 only)**
	0 - 1	0	Tracking (default)
	2 - 255	1 - 100	Fast → slow

* Channels 8 and 9 are available in DMX mode 2 only. In DMX mode 1, effects speed is set to 'tracking'.

Mania EFX600 DMX protocol

Channel	Value	Percent	Function
1			**Intensity, strobe effect, auto trig, reset, lamp off**
	0 - 4	0 - 1	Blackout (shutter closed)
	5 - 122	2 - 47	Intensity 0-100%, lamp on
	123 - 129	48 - 50	Shutter open
	130 - 189	51 - 74	Strobe (fast to slow)
	190 - 199	75 - 78	Shutter closed
	200 - 209	79 - 82	Random strobe
	210 - 219	83 - 86	Remote stand-alone, auto trig
	220 - 239	87 - 94	Blackout (shutter closed)
	240 - 249	95 - 98	Reset fixture (value must be held for 5 seconds)
	250 - 255	99 - 100	Lamp off (value must be held for 5 seconds and channels 2 & 3 must be set to more than 252 / 99%). Note that there is a five-minute delay before lamp can be restruck.
2			**Colored gobo wheel position, rotation and music trig**
			Full gobo positions
	0 - 9	0 - 3	Gobo 1
	10 - 19	4 - 7	Gobo 2
	20 - 29	8 - 11	Gobo 3
	30 - 39	12 - 15	Gobo 4
	40 - 49	16 - 19	Gobo 5
	50 - 59	20 - 23	Gobo 6
	60 - 69	24 - 26	Gobo 7
	70 - 79	27 - 30	Gobo 8
	80 - 89	31 - 35	Gobo 9
	90 - 99	36 - 38	Gobo 10
	100 - 109	39 - 42	Gobo 11
	110 - 119	43 - 46	Gobo 12
	120 - 175	47 - 68	Reserved (gobo 12)
			Continuous Rotation
	176 - 207	69 - 81	Clockwise (fast → slow)
	208 - 239	82 - 93	Counterclockwise (slow → fast)
			Music function
	240 - 244	94 - 95	Gobo wheel music trig fast
	245 - 249	96 - 97	Gobo wheel music trig slow
	250 - 255	98 - 100	Gobo wheel music trig dynamic
3			**Colored gobo wheel shake**
	0 - 1	0	No function
	2 - 128	1 - 50	Narrow shake (slow → fast)
	129 - 255	51 - 100	Wide shake (slow → fast)

Channel	Value	Percent	Function
4			**Mirror dish rotation, shake and music trig**
	0 - 1	0	Stop
	2 - 65	1 - 25	Counterclockwise rotation (fast → slow)
	66 - 129	26 - 50	Clockwise rotation (slow → fast)
	130 - 192	51 - 75	Shake (various shakes)
	193 - 208	76 - 81	Random shake
	209 - 239	82 - 93	Reserved, stop
	240 - 244	94 - 95	Mirror dish music trig, fast
	245 - 249	96 - 97	Mirror dish music trig, slow
	250 - 255	98 - 100	Mirror dish music trig, dynamic
5			**Pan (mirror drum swivel) position, shake and music trig**
	0	0	Maximum left pan
	63	24	Neutral
	127	50	Maximum right pan
	128 - 182	51 - 71	Narrow shake (slow → fast)
	183 - 239	72 - 93	Wide shake (slow → fast)
	240 - 244	94 - 95	Music trig pan, fast
	245 - 249	96 - 97	Music trig pan, slow
	250 - 255	98 - 100	Music trig pan, dynamic
6			**Tilt (mirror drum rotation) rotation, shake and music trig**
	0 - 1	0	No rotation
	2 - 63	1 - 24	Clockwise rotation (slow → fast)
	64 - 65	25	No rotation
	66 - 127	26 - 49	Counterclockwise rotation (fast → slow)
	128 - 129	50	No rotation
	130 - 184	51 - 72	Narrow shake (slow → fast)
	185 - 239	73 - 93	Wide shake (slow → fast)
	240 - 244	94 - 95	Mirror drum rotation music trig, fast
	245 - 249	96 - 97	Mirror drum rotation music trig, slow
	250 - 255	98 - 100	Mirror drum rotation music trig, dynamic
7*			**Macros (DMX mode 2 only)**
	0 - 15	0 - 5	No Macro
	16 - 31	6 - 11	Macro 1
	32 - 47	12 - 18	Macro 2
	48 - 63	19 - 24	Macro 3
	64 - 79	25 - 30	Macro 4
	80 - 95	31 - 37	Macro 5
	96 - 111	38 - 43	Macro 6
	112 - 127	44 - 49	Macro 7
	128 - 143	50 - 55	Macro 8
	144 - 159	56 - 62	Macro 9
	160 - 175	63 - 68	Macro 10
	176 - 191	69 - 74	Macro 11
	192 - 207	75 - 81	Macro 12
	208 - 255	82 - 100	Reserved. No function
8*			**Effects speed (DMX mode 2 only)**
	0 - 1	0	Tracking (default)
	2 - 255	1 - 100	Fast → slow

* Channels 7 and 8 are available in DMX mode 2 only. In DMX mode 1, effects speed is set to 'tracking'.

MANIA EFX500/600 SPECIFICATIONS

Physical

Size with mounting plate (LxWXH) . . . . . .410 x 500 x 230mm (16.2 x 19.7 x 9.1 in.)
Mania EFX500 weight with mounting plate . . . . 12.5 kg (27.6 lb)
Mania EFX600 EU model weight with mounting plate . . . . .14 kg (31 lb)
Mania EFX600 US model weight with mounting plate . . . . .16.5 kg (36.5 lb)

Installation

Orientation. . . . . .any
Minimum distance to combustible material . . . . 0.1 m (4 in.)
Minimum distance to illuminated surface . . . . 0.3 m (12 in.)
Minimum clearance around air vents . . . . 0.1 m (4in)
Suitable for mounting on combustible surfaces (wood, etc.) using
mounting bracket and plate and respecting specified minimum distances

Construction

Housing . . . . .steel and aluminum, rubber corner protectors

Source

Mania EFX500 . . . . .24 V, 250 W halogen lamp with integral reflector
Mania EFX500 lamp socket GX5.3
Mania EFX600 . . . . 150 W discharge lamp
Mania EFX600 lamp socket G12

Control and programming

DMX control . . . . USITT DMX-512 (1990) DMX protocol
Mania EFX500: number of DMX channels . . . . .7 (mode 1) or 9 (mode 2)
Mania EFX600: number of DMX channels . . . . .6 (mode 1) or 8 (mode 2)
Data I/O connections. . . . . 3-pin locking XLR, pin 1=shield, pin 2 (-), pin 3 (+)
Stand-alone music trig (single fixture and synchronized master-slave)
Stand-alone auto trig (single fixture and synchronized master-slave)
Individual effects can be set to music trig remotely via DMX

Dynamic effects

Motorized rotating parabolic mirror dish
Motorized rotating gobo wheel, 11 colored gobos plus blackout (EFX500), 12 colored
gobos (EFX600)
Motorized rotating & swivelling mirror drum
Pan . . . . 180°
Tilt . . . . 360°

Electrical

Mania EFX500 all models

Input . . . . 3-prong IEC male socket
AC power . . . . switch-selectable, 110-120 V, 60 Hz / 220-240 V, 50 Hz
Main fuse. . . . . .3.15 AT
Typical power and current*
       @ 110 V, 60 Hz. . . . . 229 W, 2.1 A, PF = 0.997
       @ 115 V, 60 Hz. . . . . 248 W, 2.2 A, PF = 0.997
       @ 120 V, 60 Hz . . . . 264 W, 2.2 A, PF = 0.997
       @ 220 V, 50 Hz . . . . 229 W, 1.1 A, PF = 0.995
       @ 230 V, 50 Hz . . . . 247 W, 1.1 A, PF = 0.995
       @ 240 V, 50 Hz . . . . 265 W, 1.2 A, PF = 0.994

Mania EFX600 EU model

Input . . . . 3-prong IEC male socket
AC power . . . . .switch-selectable, 230 V / 240 V, 50 Hz
Main fuse. . . . . 2 AT
Typical power and current*
       @ 220 V, 50 Hz . . . . 181 W, 0.9 A, PF = 0.950
       @ 230 V, 50 Hz . . . . 197 W, 1.0 A, PF = 0.926
       @ 240 V, 50 Hz . . . . 204 W, 1.0 A, PF = 0.923

Mania EFX600 US model

Input . . . . 3-prong IEC male socket
AC power . . . . 115-120 V, 60 Hz
Main fuse. . . . . .3.15 AT
Typical power and current*
       @ 110 V, 60 Hz. . . . . 189 W, 1.8 A, PF = 0.963
       @ 115 V, 60 Hz. . . . . 207 W, 1.9 A, PF = 0.964
       @ 120 V, 60 Hz . . . . 226 W, 2.0 A, PF = 0.957

* V = volts, Hz = hertz, W = watts, A = amps, PF = power factor
Allow for a deviation of +/- 10% from typical figures listed above.
Measurements made at nominal voltage. Local supply voltages can vary by +/-10%.

Thermal

EFX500: maximum exterior surface temperature, steady state . . . . . 100°C (212°F)
EFX600: maximum exterior surface temperature, steady state . . . . . . 80°C (176°F)
Time required to cool before handling. . . . . minimum 10 minutes
Maximum ambient temperature (T_a) . . . . 40°C (104°F)

Approvals

EU EMC . . . . EN 55015, EN 61547, EN 61000-3-3, EN 61000-3-2
EU safety. . . . . EN 60598-1, EN 60598-2-17
US safety. . . . . UL 1573
Canadian safety . . . . .CSA C22.2 NO 166

Included items – EFX500 all models

Long-life 250 W halogen lamp
3 m (9.8 ft) EU mains cable 3x1.0mm^2 with Schuko male connector
3 m (9.8 ft) EU mains cable 3x1.0mm^2 with no male connector
2 m (6.5 ft) US mains cable 18AWG with US male connector (UL approved)
5 meter (16.4 ft.) RS-485 XLR cable for data link . . . . P/N 11820008
User manual . . . . P/N 35000168

Included items – EFX600 EU (230 V) models

Long-life 150 W discharge lamp
3 m (9.8 ft) EU mains cable 3x1.0mm^2 with Schuko male connector
3 m (9.8 ft) EU mains cable 3x1.0mm^2 with no male connector
5 meter (16.4 ft.) RS-485 XLR cable for data link . . . . P/N 11820008
User manual . . . . P/N 35000168

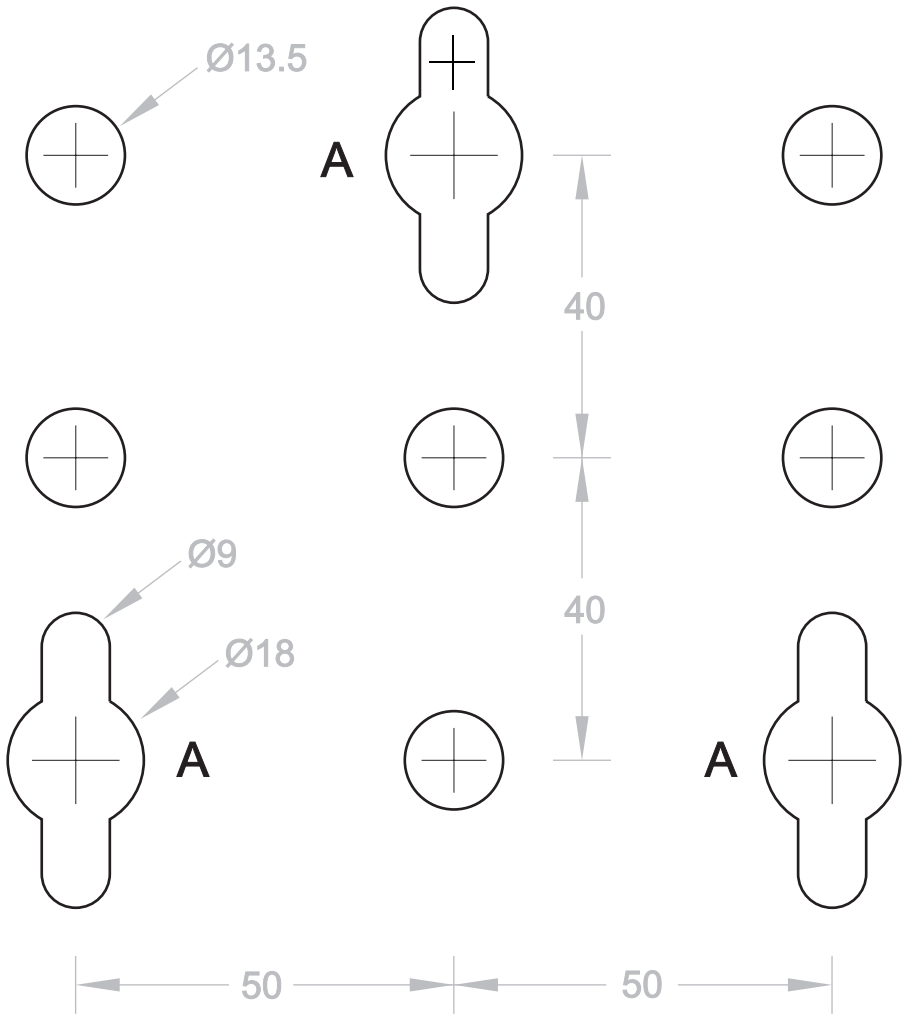## Included items – EFX600 US (115 V) models

Long-life 150 W discharge lamp
2 m (6.5 ft) US mains cable 18AWG with US male connector (UL approved)
5 meter (16.4 ft.) RS-485 XLR cable for data link . . . . P/N 11820008
User manual . . . . P/N 35000168

Accessories

Philips ELC 10H 250 W halogen lamp (EFX500) . . . . P/N 97000109
Philips CDM SA-T 150 W discharge lamp (EFX600) . . . . P/N 97010111
Osram HSD 150/70 150 W discharge lamp (EFX600) . . . . P/N 97010117
DMX termination plug (end of link), XLR male . . . . P/N 91613017
DMX termination plug, (start of link, master/slave), XLR female. . . . . P/N 91613018
G-clamp. . . . . P/N 91602003
Half-coupler clamp . . . . P/N 91602005
5-pin male to 3-pin female XLR adaptor cable . . . . P/N 11820005
5 meter (16.4 ft.) RS-485 XLR cable for data link . . . . P/N 11820008
Mania EFX500 (all models) main fuse, 3.15 AT . . . . .P/N 05020043
Mania EFX600 (EU models) main fuse, 2 AT . . . . .P/N 05020009
Mania EFX600 (US models) main fuse, 3.15 AT. . . . . .P/N 05020043

Ordering information

Mania EFX500, 115/230 V, 50/60 Hz . . . . P/N 90430050
Mania EFX600 EU model, 220-240 V, 50 Hz . . . . P/N 90430052
Mania EFX600 US model, 110-120 V, 60 Hz . . . . P/N 90430053

Ø13.5

A

Ø9

Ø18

A

A

40

40

50

50

Martin