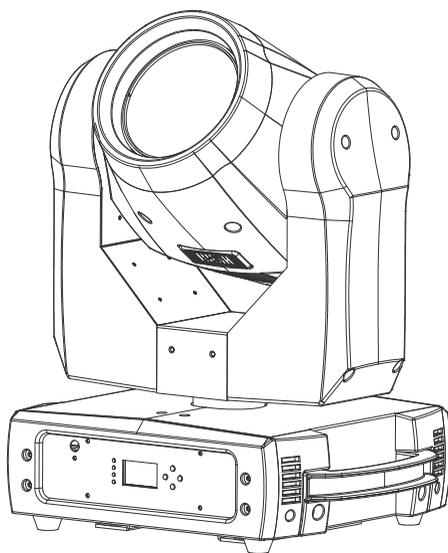


# MH 3 Beam



## User Manual



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Manual: Revision K

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# Safety information



## WARNING!

Read the safety precautions in this manual before installing, operating or servicing this product.

The following symbols are used to identify important safety information on the product and in this manual:



**Warning!**

**Safety hazard. Risk of severe injury or death.**



**Warning!**

**Powerful light emission. Risk of eye injury.**



**Warning!**

**See user manual for important safety information.**



**Warning!**

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



**Warning!**

**Hot surfaces and fire hazard.**



**Warning!**

**Do not look at exposed lamp.**



This lighting fixture is for professional use only and must be installed by a qualified technician. It is not for household use. It presents risks of severe injury or death due to fire hazards, electric shock and falls. It produces a powerful, concentrated beam of light that can create a fire hazard or a risk of eye injury if the safety precautions below are not followed.

Install, operate and service Martin™ products only as directed in their user manuals, or you may create a safety hazard or cause damage that is not covered by product warranties.

Follow the safety precautions listed below and observe all warnings in this manual and printed on the product. Keep this user manual for future use and give it to any person who uses the product.

For the latest user documentation and other information for this and all Martin™ products, please visit the Martin website at <http://www.martin.com>

If you have any questions about how to install, operate or service the fixture safely, please contact your Martin™

distributor (see [www.martin.com/distributors](http://www.martin.com/distributors) for details) or call the Martin™ 24-hour service hotline on +45 8740 0000, or in the USA on 1-888-tech-180.

Respect all locally applicable laws, codes and regulations when installing, operating or servicing the fixture.



### **Protection from electric shock**

Do not expose the fixture to rain or moisture.

Disconnect the fixture from AC power before carrying out any installation or maintenance work and when the fixture is not in use.

Ensure that the fixture is electrically connected to ground (earth).

Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault (earth-fault) protection.

Socket outlets or external power switches used to supply the fixture with power must be located near the fixture and easily accessible so that the fixture can easily be disconnected from power.

Replace defective fuses with ones of the specified type and rating only.

Isolate the fixture from power immediately if the power plug or any seal, cover, cable, or other component is damaged, defective, deformed, wet or showing signs of overheating. Do not reapply power until repairs have been completed.

Before using the fixture, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.

Use only a Neutrik PowerCon cable connector to connect to the power input socket.



### **Protection from burns and fire**

Do not operate the fixture if the ambient temperature ( $T_a$ ) exceeds 40° C (104° F).

The surface of the product casing can reach up to 85° C (185° F) during operation. Avoid contact by persons and

materials. Allow the fixture to cool for at least 10 minutes before handling.

Keep flammable materials well away from the fixture. Keep all combustible materials (e.g. fabric, wood, paper) at least 100 mm (4 in.) away from the fixture's head.

Ensure that there is free and unobstructed airflow around the fixture. Provide a minimum clearance of 100 mm (4 in.) around fans and air vents.

Do not use the fixture to illuminate surfaces within 12 m (39.4 ft.) of the fixture.

Do not attempt to bypass thermostatic switches or fuses.

Do not stick filters, masks or other materials onto any optical component.

The fixture's lenses can focus the sun's rays inside the fixture, creating a risk of fire and damage. Do not expose the front of the fixture to sunlight or any other bright light source.



### **Protection from injury**

Fasten the fixture securely to a fixed surface or structure when in use. The fixture is not portable when installed.

Ensure that any supporting structure and/or hardware used can hold at least 10 times the weight of all the devices they support.

If suspending from a rigging structure, fasten the fixture to a rigging clamp. Do not use safety cables as the primary means of support.

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 secondary attachment such as a safety cable 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, must comply with EN 60598-2-17 Section 17.6.6 and must be capable of bearing a static suspended load that is ten times the weight of the fixture and all installed accessories.

Allow enough clearance around the head to ensure that it cannot collide with an object or another fixture when it moves.

Check that all external covers and rigging hardware are securely fastened.

Block access below the work area and work from a stable platform whenever installing, servicing or moving the fixture.

Do not operate the fixture with missing or damaged covers, shields or any optical component.

Do not lift or carry the fixture by its head. Support the fixture by its base only.

In the event of an operating problem, stop using the fixture immediately and disconnect it from power. Never attempt to use a fixture that is obviously damaged.

Do not modify the fixture in any way not described in this manual or install other than genuine RUSH by Martin™ parts.

Refer any service operation not described in this manual to a qualified technician.



### **Lamp safety**

Install only a lamp that is approved by Martin™ for use in the product.



Prolonged exposure to an unshielded discharge lamp can cause eye and skin burns. Do not look at an exposed lamp while it is lit. Do not operate the fixture with missing or damaged covers, shields, lenses, ultraviolet screens or any optical component.



A hot discharge lamp is under pressure and can explode without warning. Allow the fixture to cool for at least 2 hours and protect yourself with safety glasses and gloves before handling a lamp.

Replace the lamp immediately if it becomes visually deformed, damaged or in any way defective.

Monitor hours of lamp use. Replace the lamp when it reaches the limit of its service life as specified in this manual or by the lamp manufacturer. If you exceed the lamp lifetime, the lamp may explode and damage the fixture.

If the quartz envelope of a discharge lamp is broken, the lamp releases a small quantity of mercury and other toxic gases. If a discharge lamp explodes in a confined area, evacuate the area and ventilate it thoroughly. Wear nitrile gloves when handling a broken discharge lamp. Treat broken or used discharge lamps as hazardous waste and send to a specialist for disposal.



### **Protection from eye injury**

Warning! Risk Group 3 (high risk) product according to EN 62471.

Do not look directly into the product's light output.

Do not look at operating lamp. Eye injury may result.

Do not expose persons to the product's light output from a distance of less than 1.5 m (5 ft.).

Avoid eye or skin exposure to unshielded product. UV emitted from this product. Possibly hazardous optical radiation emitted from this product.

Do not look at the light output with magnifiers, telescopes, binoculars or similar optical instruments that may concentrate the light output.

Ensure that persons are not looking directly into the front of the fixture when the product lights up suddenly. This can happen when power is applied, when the product receives a DMX signal, or when certain control menu items are selected.

To minimize the risk of eye irritation or injury, disconnect the fixture from power at all times when the fixture is not in use and provide well-lit conditions to reduce the pupil diameter of anyone working on or near the fixture.



# Introduction

The MH 3 Beam is a high-performance moving-head lighting fixture equipped with an MSD Platinum 5R lamp. It has a state-of-the-art optical system that incorporates a motorized 1°~ 3.8° zoom. Its compact design makes it ideal for live shows, TV events, stage and concerts.

The fixture provides a rotating gobo wheel with 17 gobos, a color wheel with 14 color filters, smooth mechanical dimming, pan/tilt feedback, coarse and fine control of movement and effects, a range of built-in movement and effect macros, prism effects, motorized focus, as well as frost filter and strobe effects. The device is rugged, lightweight and compact, and is ideal for touring applications or small fixed installations.

The fixture can be controlled using any DMX-compliant controller.

The fixture is supplied with this user manual, a 1.5 m (5 ft.) power cable (local power plug not included) and two omega brackets for rigging clamp attachment.

## Before using the product for the first time

1. Read 'Safety information' on page 5 before installing, operating or servicing the fixture.
2. Unpack and ensure that there is no transportation damage before using the fixture. Never attempt to operate a damaged fixture.
3. If the fixture is not going to be hard-wired to an AC mains power source, install a local power plug (not supplied) on the end of the supplied power cable.
4. Before operating, ensure that the voltage and frequency of the local power source match the power requirements of the fixture.
5. Check the RUSH™ support pages on the Martin Professional™ website at [www.martin.com](http://www.martin.com) for the most recent user documentation and technical information about the fixture. RUSH™ user manual revisions are identified by the revision letter at the bottom of the inside cover.

Note that whenever AC power is applied to the fixture, it will reset all effects and functions to their home positions. The fixture head will move. This process usually takes around 20 seconds.

## **Maximizing lamp life**

To obtain maximum operating life from the fixture's discharge lamp:

- Each time you power the lamp on, allow it to warm up for at least 5 minutes before you power it off.
- Before shutting down power completely, power the lamp off but leave power applied to the fixture for a few minutes so that cooling fans can prevent any momentary lamp temperature increase caused by heat from surrounding components.

## Physical installation



**Warning! Read 'Safety information' on page 5 before installing the fixture.**

The fixture is designed for indoor use only and must be used in a dry location with adequate ventilation. Ensure that none of the fixture's ventilation slots are blocked.

Fasten the fixture to a secure structure or surface. Do not stand it on a surface or leave it where it can be moved or fall over. If you install the fixture in a location where it may cause injury or damage if it falls, secure it as directed in this user manual using a securely anchored safety cable that will hold the fixture if the primary fastening method fails.

Do not use the fixture to illuminate surfaces less than 12 m (39.4 ft.) from the fixture.

Martin™ can supply safety cables and rigging clamps that are suitable for use with the fixture (see 'Accessories' on page 47).

### Fastening the fixture to a flat surface

The fixture can be fastened to a hard, fixed, flat surface that is oriented at any angle. Ensure that the surface and all fasteners used can support at least 10 times the weight of all fixtures and equipment they will support.

Fasten the fixture securely. If you install the fixture in a location where it may cause injury or damage if it falls, install a safety cable as directed in 'Securing with a safety cable' on page 13.

### Mounting the fixture on a truss

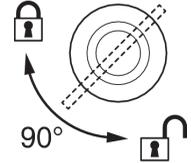
The fixture can be clamped to a truss or similar rigging structure in any orientation. When installing the fixture hanging vertically down, you can use an open-type clamp such as a G-clamp. When installing in any other orientation, you must use a half-coupler clamp (see illustration on right) that completely encircles the truss chord.



To clamp the fixture to a truss:

1. Check that the rigging structure can support at least 10 times the weight of all fixtures and equipment to be installed on it.
2. Block access under the work area.

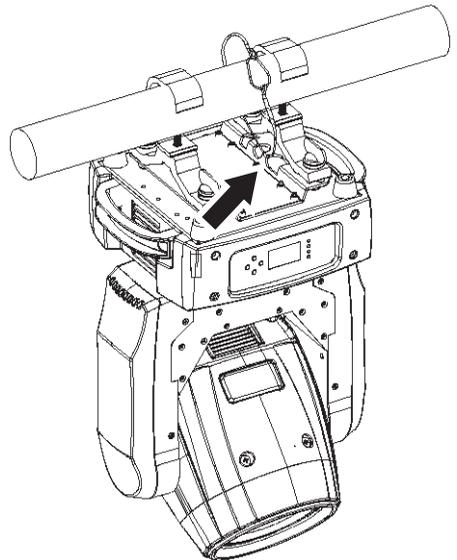
3. The fixture is supplied with two omega-type brackets to which rigging clamps can be attached. Bolt a rigging clamp securely to each bracket. The bolts used must be M12, grade 8.8 steel minimum, and fastened with self-locking nuts.
4. Fasten the omega brackets to the base of the fixture using the brackets' quarter-turn fasteners. Turn quarter-turn fasteners a full 90° to lock them (see illustration on right).
5. Working from a stable platform, hang the fixture on the truss and fasten the rigging clamps onto the truss.
6. Secure the fixture with a safety cable as directed below.
7. Check that the head will not collide with other fixtures or objects.



### Securing with a safety cable

Secure the fixture with a safety cable (or other secondary attachment) that is approved for the weight of the fixture so that the safety cable will hold the fixture if a primary attachment fails.

Loop the safety cable through the cutout in the fixture's baseplate (arrowed in illustration on right) and around a secure anchoring point.



## AC power



**Warning! Read ‘Safety information’ on page 5 before connecting the fixture to AC mains power.**

For protection from electric shock, the fixture must be grounded (earthed). The power distribution circuit must be equipped with a fuse or circuit breaker and ground-fault (earth-fault) protection.

Socket outlets or external power switches used to supply the fixture with power must be located near the fixture and easily accessible so that the fixtures can easily be disconnected from power.

Do not insert or remove live Neutrik PowerCon connectors to apply or cut power, as this may cause arcing at the terminals that will damage the connectors.

Do not use an external dimming system to supply power to the fixture, as this may cause damage to the fixture that is not covered by the product warranty.

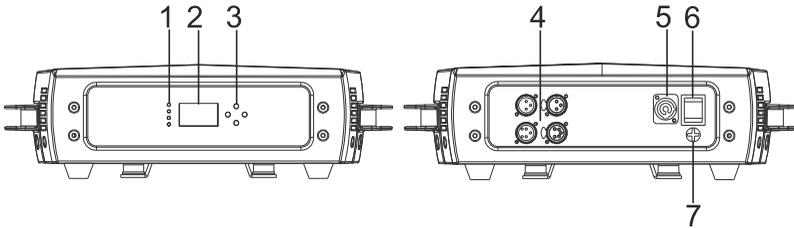
The fixture can be hard-wired to a building electrical installation if you want to install it permanently, or a power plug (not supplied) that is suitable for the local power outlets can be installed on the power cable.

If you install a power plug on the power cable, install a grounding type (earthed) plug with integral cable grip that is rated minimum 250 V, 6 A. Follow the plug manufacturer’s instructions and connect the wires in the power cable as shown in this table:

|                  | <b>Live or L</b> | <b>Neutral or N</b> | <b>Earth, Ground or ⊕</b> |
|------------------|------------------|---------------------|---------------------------|
| <b>US system</b> | Black            | White               | Green                     |
| <b>EU system</b> | Brown            | Blue                | Yellow/green              |

The fixture has an auto-ranging power supply that accepts AC mains power at 100-240 V at 50/60 Hz. Do not apply AC mains power at any other voltage or frequency to the fixture.

# Fixture overview



## 1 - LEDs

The LEDs on the front of the base give the following indications:

|       |                          |
|-------|--------------------------|
| POWER | Power on                 |
| DMX   | Valid DMX signal present |

## 2 – Display

## 3 – Buttons

|       |  |
|-------|--|
| MENU  | <ul style="list-style-type: none"><li>• Activate the menu mode functions, or</li><li>• Return to the previous level of the menu structure, or</li><li>• Hold to exit the menus</li></ul> |
| DOWN  | Go down a menu branch  |
| UP    | Go up a menu branch  |
| ENTER | Confirm the selected function  |

## 4 - DMX input/output

3 and 5-pin XLR sockets are provided for DMX input and output (throughput).

## 5 – AC mains power input

A blue Neutrik PowerCon socket is provided to connect the fixture to mains power.

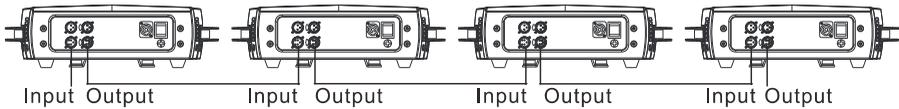
## 6 – Power on/off switch

## 7 – Fuse

The T5A fixture fuse is located in a fuseholder below the power switch.

## Control data link

A DMX 512 data link is required in order to control the fixture via DMX. The fixture has 3-pin and 5-pin XLR connectors for DMX data input and output.



The number of daisy-chained fixtures is limited by the number of DMX channels required by the fixtures in relation to the maximum 512 channels available in one DMX universe. Note that if independent control of a fixture is required, it must have its own DMX channels. Fixtures that are required to behave identically can share the same DMX address and channels. To add more fixtures or groups of fixtures when the above limit is reached, add a DMX universe and another daisy-chained link.

### Tips for reliable data transmission

Use shielded twisted-pair cable designed for RS-485 devices: standard microphone cable cannot transmit control data reliably over long runs. 24 AWG cable is suitable for runs up to 300 meters (1000 ft.). Heavier gauge cable and/or an amplifier is recommended for longer runs. The pin-out on all connectors is pin 1 = shield, pin 2 = cold (-), and pin 3 = hot (+). Pins 4 and 5 in the 5-pin XLR connectors are not used in the fixture but are available for possible additional data signals as required by the DMX512-A standard. Standard pin-out is pin 4 = data 2 cold (-) and pin 5 = data 2 hot (+).

To split the link into branches, use a splitter, such as the Martin 4-Channel Opto-Isolated RS-485 Splitter/Amplifier. Terminate the link by installing a termination plug in the output socket of the last fixture. The termination plug, which is a male XLR plug with a 120 Ohm, 0.25-Watt resistor soldered between pins 2 and 3, "soaks up" the control signal so it does not reflect and cause interference. If a splitter is used, terminate each branch of the link.

## **Connecting the DMX data link**

To connect the fixture to data:

1. Connect the DMX data output from the controller to the first fixture's male XLR DMX input connector.
2. Connect the first fixture's DMX output to the DMX input of the next fixture and continue connecting fixtures output to input. Terminate the last fixture on the link with a DMX termination plug.

## Fixture setup

This section explains the fixture settings and utilities that the user has access to via the control panel.

Settings are retained when the fixture is powered off.

A complete map of the control menu structure can be found in 'Control menus' on page 38.

### Using the control menus

To access the control menus, press the MENU button. Navigate the menu structure using the ENTER, DOWN and UP buttons. Select any required menu option using the ENTER button. To return to the previous level in the menu structure without making a change, press the MENU button.

To exit the menus, press and hold the MENU button.

### DMX function settings

#### *DMX addressing*

The fixture can be controlled using signals sent by a DMX controller. The DMX address, also known as the start channel, is the first channel used to receive instructions from a DMX controller. Each DMX-controlled fixture must have a DMX address set. If a fixture has its DMX address set to 1, for example, then it uses channels 1 to 19. The next fixture on the DMX link can have its DMX address set to 20, the next to 39 and so on until the 512 channels in one DMX universe are allocated.

For independent control, each fixture must be assigned its own control channels. Two fixtures of the same type may share the same address, if identical behavior is desired. Address sharing can be useful for diagnostic purposes and symmetric control, particularly when combined with the inverse pan and tilt options.

To set the fixture's DMX address:

1. In the control panel, select DMX FUNCTIONS and press ENTER.
2. Use the UP and DOWN buttons to select DMX ADDRESS and press ENTER to confirm. The present address will blink on the display.
3. Use the UP and DOWN buttons to select the address (1 to 512).
4. Once the address has been selected, press ENTER to set it (or press MENU to exit without making a change).

### ***Behavior when DMX signal is not present***

You can set the fixture so that when it is powered on but not receiving a DMX signal, it either continues to display the last effect it was displaying when it was receiving a DMX signal or blacks out.

To set fixture behavior when it is not receiving DMX:

1. Select DMX FUNCTIONS and press ENTER.
2. Use the UP and DOWN buttons to select DMX STATE and press ENTER.
3. Use the UP and DOWN buttons to select either HOLD (fixture displays last effect it was displaying when receiving DMX) or BLACKOUT (fixture blacks out) and press ENTER. The default setting is BLACKOUT.
4. Press MENU to exit.

### ***DMX viewer***

You can check the DMX values that the fixture is receiving on each DMX channel in the VIEW DMX VALUE menu.

To see the DMX values:

1. Select DMX FUNCTIONS and press ENTER.
2. Use the UP and DOWN buttons to select VIEW DMX VALUE and press ENTER.
3. Use the UP and DOWN buttons to scroll through the DMX channels and press ENTER to select a channel. The fixture will display the DMX value it is receiving on that channel.
4. Press MENU to exit the viewer.

## **Fixture settings**

### ***Pan and/or tilt inversion***

The FIXTURE SETTINGS→PAN INVERSE and TILT INVERSE menus can be used to reverse the direction of pan and/or tilt. These settings are useful for symmetrical effects with multiple fixtures, or when coordinating the movement of fixtures that are floor mounted and rigged upside down.

To adjust the pan inversion settings:

1. Select FIXTURE SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select PAN INVERSE or TILT INVERSE and press ENTER to confirm.

3. Use the DOWN and UP buttons to select the YES (inversion) or NO (normal) mode.
4. Press ENTER to set (or press MENU to exit without making a change).

### ***Pan/tilt feedback***

When pan/tilt feedback is enabled and pan or tilt loses its correct position, the fixture will detect this and reset pan and tilt so that the correct pan/tilt position is restored.

To deactivate or activate this function, use the FIXTURE SETTINGS→P/T FEEDBACK menu.

### ***Blackout during change or movement***

The fixture can be set so that when running a show, blackout is enabled during gobo change, color change, and/or pan and tilt movement. This is switched off by default. To adjust the blackout during show playback settings:

1. Select FIXTURE SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select BL. O. P/T MOVING BL. O.COLOR CHANGE, or BL. O: GOBO CHANGE and press ENTER to confirm.
3. Use the DOWN and UP buttons to select YES (blackout during movement or change) or NO (normal).
4. Press ENTER to set (or press MENU to exit without making a change).

## **Lamp settings**

### ***Lamp on/off***

To turn the lamp on or off via the control panel:

1. Select LAMP SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select ON/OFF and press ENTER to confirm.
3. Use the DOWN and UP buttons to select ON or OFF.
4. Press ENTER to confirm (or press MENU to exit without making a change).

### ***State/power on***

To set whether the fixture should power the lamp on automatically when the fixture is powered on:

1. Select LAMP SETTINGS and press ENTER to confirm.

2. Use the DOWN and UP buttons to select STATE/POWER ON and press ENTER to confirm.
3. Use the DOWN and UP buttons to select ON or OFF.
4. Press ENTER to confirm (or press MENU to exit without making a change).

### ***Off via DMX***

To enable the lamp to be turned off via DMX:

1. Select LAMP SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select OFF VIA DMX and press ENTER to confirm.
3. Use the DOWN and UP buttons to select NO or YES.
4. Press ENTER to confirm (or press MENU to exit without making a change).

### ***On if DMX on***

To set whether the fixture powers the lamp on automatically when it receives a DMX signal:

1. Select LAMP SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select ON IF DMX ON and press ENTER to confirm.
3. Use the DOWN and UP buttons to select NO (lamp power is not applied automatically) or YES (lamp power is applied automatically).
4. Press ENTER to confirm (or press MENU to exit without making a change).

### ***Off if DMX off***

To set whether the fixture powers the lamp off automatically if a DMX signal stops:

1. Select LAMP SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select OFF IF DMX OFF and press the
3. ENTER button to confirm.
4. Use the DOWN and UP buttons to select NO (lamp power is not shut down automatically) or YES (lamp power is shut down automatically).
5. Press ENTER to confirm (or press MENU to exit without making a change).

### ***Ignition delay***

An ignition delay of 0 to 255 seconds can be set so that there is a delay between power on and lamp on. This can help you avoid electrical problems if a large number of lamps power on at the same time. To set a delay:

1. Select LAMP SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select IGNITION DELAY and press ENTER to confirm.
3. Use the DOWN and UP buttons to scroll to a duration.
4. Press ENTER to confirm that duration (or press MENU to exit without making a change).

### ***Low power delay***

To set a low power delay, where the lamp runs at half power for a period before shutting off when a lamp off command is issued:

1. Select LAMP SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select LOW POWER DELAY and press ENTER to confirm.
3. Use the DOWN and UP buttons to specify a duration.
4. Press ENTER to confirm (or press MENU to exit without making a change).

## **Display settings**

### ***Invert display***

Inverting the display is useful if the fixture is hung from a truss or from elevation. To invert the display:

1. Select DISPLAY SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select DISPLAY INVERSE and press ENTER to confirm.
3. Use the DOWN and UP buttons to select YES (inverted) or NO (normal).
4. Press ENTER to confirm (or press MENU to exit without making a change).

### ***Automatically turn off display backlight***

By default the display is lit when the power is applied to the fixture. It can be set to automatically dim if the buttons and menus have not been used for a period:

1. Select DISPLAY SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select BACKLIGHT AUTO OFF and press ENTER to confirm.
3. Use the DOWN and UP buttons to select YES (auto off) or NO (constant backlight).
4. Press ENTER to confirm (or press MENU to exit without making a change).

### ***Adjust backlight intensity***

To adjust the brightness of the control panel display:

1. Select DISPLAY SETTINGS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select BACKLIGHT INTENSITY and press ENTER to confirm.
3. Use the DOWN and UP buttons to select a level from 1 to 10.
4. Press ENTER to confirm (or press MENU to exit without making a change).

### **Fixture test**

You can run an automatic test of all functions, or manually test individual functions from the control menus.

#### ***Auto test***

To perform a complete test of all of the fixture functions:

1. Select FIXTURE TEST and press ENTER to confirm.
2. Use the DOWN and UP buttons to select AUTO TEST and press ENTER to confirm. The automatic test will run.
3. Press MENU to exit the test.

#### ***Manual test***

Fixture functions can be tested or controlled without a DMX signal:

1. Select FIXTURE TEST and press ENTER to confirm.
2. Use the DOWN and UP buttons to select MANUAL TEST and press ENTER to confirm.

3. Select and activate the functions you wish to control.
4. Press MENU to exit.

## **Fixture information**

### ***Fixture operating hours counter***

To display the total number of hours the fixture has been used:

1. Select FIXTURE INFORMATION and press ENTER to confirm.
2. Use the DOWN and UP buttons to select FIXTURE USE TIME and press ENTER to confirm. The number of hours is shown in the display.
3. Press MENU to exit.

### ***Lamp operating hours counter***

The resettable lamp operating time counter lets you monitor lamp use and see when lamp replacement is due. The counter is available in the FIXTURE INFORMATION→LAMP ON TIME menu. Do not exceed the specified lamp lifetime, or the lamp may explode. Reset the counter when you replace the lamp.

### ***Firmware version***

To display the software version installed in the fixture:

1. Select FIXTURE INFORMATION and press ENTER to confirm.
2. Use the DOWN and UP buttons to select FIRMWARE VERSION and press ENTER to confirm. The firmware version is shown in the display.
3. Press MENU to exit.

### ***Reset functions or effects***

The various effects—pan, tilt color, gobos, iris, focus, prism—or all effects, can be manually reset to their home positions:

1. Select RESET FUNCTIONS and press ENTER to confirm.
2. Use the DOWN and UP buttons to select the function or effect that is to be reset. Press ENTER.
3. Use the DOWN and UP buttons to select YES and
4. Press ENTER to confirm (or press MENU to exit without making a change).

## **Special functions**

### ***Fixture Maintenance***

To help you monitor service intervals, the maintenance timer lets you set an interval and display the remaining time in hours before the end of the interval is reached.

### ***Reset factory default settings***

The fixture's default settings can be restored using SPECIAL FUNCTIONS→FACTORY SETTINGS.

## **Effect home position adjustment**

### ***Offset menu***

If an effect loses its correct home position, you can adjust the position offset to restore it.

To adjust an effect's home position offset:

1. In the menu structure, hold the ENTER button down for at least 3 seconds to enter the OFFSET MENU.
2. Use the DOWN and UP buttons to choose the function that requires adjustment. Press ENTER to select.
3. The currently indexed home position will blink in the display. Use the DOWN and UP buttons to adjust the home position.
4. Once the correct position has been reached, press ENTER to confirm (or press MENU to exit without making a change).

## Effects

This section describes DMX-controllable effects that require particular explanation. See 'DMX protocol' on page 33 for a full list of the DMX channels and values required to control the different effects.

Note that if a fixture loses its DMX signal it will maintain its current effect until powered off or reset.

### Pan and tilt

The fixture's moving head can be panned through 540° and tilted through 270° using coarse or fine control channels. The fixture can be set to automatically blackout during pan and tilt movement. A range of pan/tilt macros is available.

The fixture incorporates pan and tilt feedback, so that if correct pan or tilt position is lost, the shutter closes and the fixture resets to the correct position. This feature can be enabled or disabled as required (see 'Control menus' on page 38).

### Function channel

The function DMX channel lets you adjust certain fixture settings via DMX. This can be useful if access to the fixture's control panel is difficult or inconvenient when the fixture is installed.

### Dimming

Full range mechanical dimming is provided. Two dimming curves are available: linear or conventional. The dimming curve can be selected on the function channel.

### Frost filter

The frost filter softens and diffuses the projection.

### Zoom

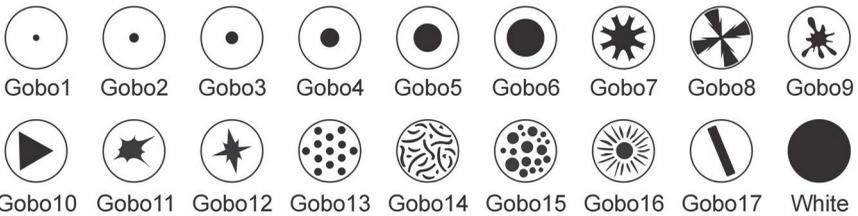
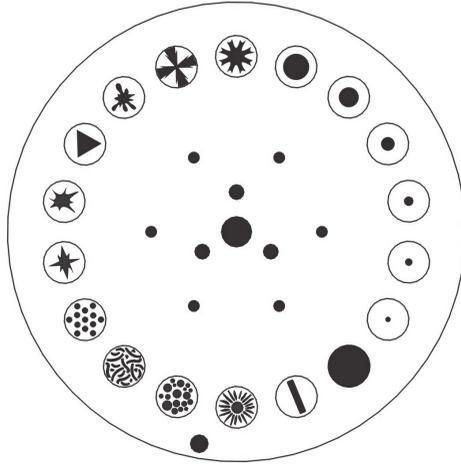
The fixture provides a 1°~ 3.8° zoom.

### Strobe effects

A range of variable speed and random shutter/strobe effects are provided.

## Gobos

The fixture contains a rotating wheel with 17 fixed gobos:



Any gobo can be projected statically, or the wheel can be rotated clockwise or counter-clockwise with variable speed. The fixture can be set to automatically blackout during gobo changes. The sharpness of gobo projections can be adjusted via DMX using the focus channel.

## Prism

The fixture incorporates an 8-facet prism that can be inserted into the beam to provide split beam effects. The prism can be set to an indexed position or rotated clockwise or counter-clockwise. A range of prism macros and movement effects are provided.

## **Color wheels**

The fixture incorporates a color wheel with 14 color filters (plus open). Colors can be individually selected or selected as splits between two colors, and the wheel can be rotated at varying speeds, both clockwise and counter-clockwise. The fixture can be set to automatically blackout during color changes.

## Maintenance



**Warning! Read 'Safety information' on page 5 before servicing the fixture.**

Refer any service operation not described in this user manual to a qualified service technician.

Disconnect the fixture from mains power and allow to cool completely before cleaning or servicing.

Service fixtures in an area where there is no risk of injury from failing parts, tools or other materials.

Excessive dust, smoke fluid, and particle buildup degrades performance, causes overheating and will damage the fixture. Damage caused by inadequate cleaning or maintenance is not covered by the product warranty.

## Cleaning

The cleaning of external optical lenses must be carried out periodically to optimize light output. Cleaning schedules for lighting fixtures vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the fixture. Environmental factors that may result in a need for frequent cleaning include:

- Use of smoke or fog machines.
- High airflow rates (near air conditioning vents, for example).
- Presence of cigarette smoke.
- Airborne dust (from stage effects, building structures and fittings or the natural environment at outdoor events, for example).

If one or more of these factors is present, inspect fixtures within their first 100 hours of operation to see whether cleaning is necessary. Check again at frequent intervals. This procedure will allow you to assess cleaning requirements in your particular situation. If in doubt, consult your RUSH by Martin dealer about a suitable maintenance schedule.

Use gentle pressure only when cleaning, and work in a clean, well-lit area. Do not use any product that contains solvents or abrasives, as these can cause surface damage.

To clean the fixture:

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

2. Vacuum or gently blow away dust and loose particles from the outside of the fixture and the air vents at the back and sides of the head and in the base with low-pressure compressed air.
3. Clean lenses by wiping gently with a soft, clean lint-free cloth moistened with a weak detergent solution. Do not rub the surface hard: lift particles off with a soft repeated press. Dry with a soft, clean, lint-free cloth or low-pressure compressed air. Remove stuck particles with an unscented tissue or cotton swab moistened with glass cleaner or distilled water.
4. Check that the fixture is dry before reapplying power.

## Lamp replacement



**Warning! Wear safety glasses and gloves when handling lamps.**

To avoid the risk of a discharge lamp exploding in the fixture, replace the lamp when it reaches its expected lifetime.

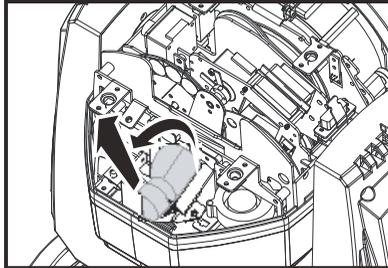
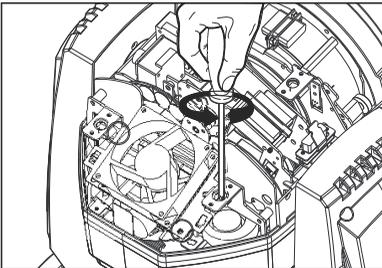
Install only lamps that are approved by Martin for this fixture™.

The lamp must be perfectly clean and totally free of oil and grease. Never touch the lamp with bare hands. If you contaminate the lamp, clean it with an alcohol wipe and then dry it with a lint-free cloth.

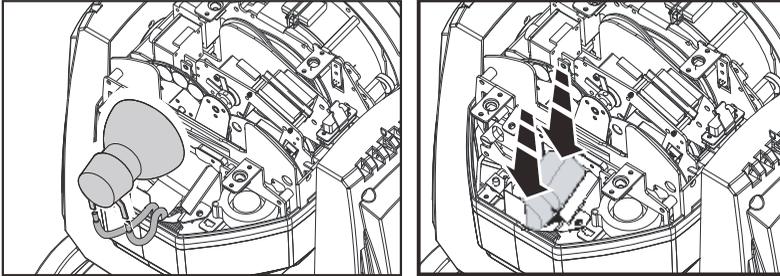
The lamp can be adjusted to obtain the best projection.

To replace the lamp:

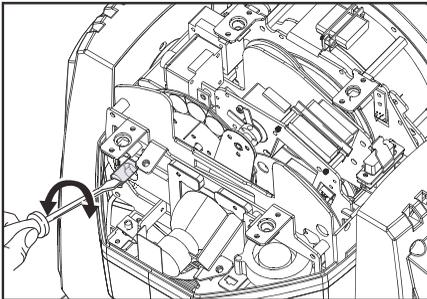
1. Disconnect the fixture from power and allow it to cool for two hours.
2. Remove the fixture head covers using a Phillips screwdriver.
3. Position the head as shown below and remove the lamp cooling fan at the rear of the head.



- Lift the lamp out of its recess.
- Disconnect the lamp and connect the replacement lamp. Use only a lamp that is approved by Martin™.



- Place the new lamp into the lamp recess.
- See illustration below. Adjust the lamp using a slotted (flat head) screwdriver until it is centralized.



- Reinstall the fan and secure it.
- Replace and secure the head covers before reapplying power.
- Reset the lamp hour counter using the control panel.

## Replacing the primary fuse

If the fixture is completely dead, the fixture's primary fuse F1 may have blown and it may be necessary to install a new fuse. This fuse is located in a fuseholder next to the power ON/OFF switch on the connections panel. See 'Fixture overview' on page 15.

If you need to replace a fuse:

- Disconnect the fixture from power and allow it to cool for at least 10 minutes.
- Use a large flat-bladed screwdriver to unscrew the cap of the fuseholder.

3. Replace the fuse with one of the same type and rating only.
4. Reinstall the fuseholder cap before reapplying power.

### **Other service and repairs**

There are no user-serviceable parts inside the fixture. Do not open the housing.

Refer any service or repair operation not described in this manual to an authorized RUSH by Martin™ service technician. Do not try to carry out such an operation yourself, as doing so may present a health or safety risk. It may also cause damage or malfunction, and it may void your product warranty.

Installation, on-site service and maintenance can be provided worldwide by the Martin™ Global Service organization and its approved agents, giving owners access to Martin's expertise and product knowledge in a partnership that will ensure the highest level of performance throughout the product's lifetime. Please contact your RUSH by Martin™ supplier for details.

# DMX protocol

| Channel | Value   | Function  |
|---------|---------|---|
| 1       | 0-255   | Pan 0°~540°   |
| 2       | 0-255   | Pan (fine control)                                    |
| 3       | 0-255   | Tilt 0°~270°  |
| 4       | 0-255   | Tilt (fine control)                                   |
| 5       | 0-255   | Pan/tilt speed – fast-slow                            |
| 6       |         | <b>Function</b>                                       |
|         | 0-29    | No function   |
|         | 30-39   | Dimmer - conventional                                 |
|         | 40-49   | Dimmer - linear                                       |
|         | 50-59   | Pan/tilt - fast                                       |
|         | 60-69   | Pan/tilt - normal                                     |
|         | 70-79   | Blackout during pan & tilt                            |
|         | 80-89   | Disable blackout during pan & tilt                    |
|         | 90-99   | Blackout during color change                          |
|         | 100-109 | Disable blackout during color change                  |
|         | 110-119 | Blackout during gobo change                           |
|         | 120-129 | Disable blackout during gobo change                   |
|         | 130-139 | Lamp on   |
|         | 140-149 | Pan/tilt reset  |
|         | 150-159 | Color reset   |
|         | 160-169 | Gobo reset  |
|         | 170-179 | Shutter/prism/rotating prism reset                    |
|         | 180-189 | No function   |
|         | 190-199 | Frost/focus/zoom reset                                |
|         | 200-209 | Reset all   |
|         | 210-219 | Blackout during pan/tilt or color/gobo change         |
|         | 220-229 | Disable blackout during pan/tilt or color/gobo change |
|         | 230-239 | Lamp off  |
|         | 240-255 | No function   |
| 7       |         | <b>Pan/tilt macros</b>                                |
|         | 0-7     | Off   |
|         | 8-15    | Macro 1   |
|         | 16-23   | Macro 2   |
|         | 24-31   | Macro 3   |
|         | 32-39   | Macro 4   |
|         | 40-47   | Macro 5   |
|         | 48-55   | Macro 6   |

| Channel       | Value       | Function                       |
|---------------|-------------|--------------------------------|
| 7<br>(contd.) | 56-63       | Macro 7                        |
|               | 64-71       | Macro 8                        |
|               | 72-79       | Macro 9                        |
|               | 80-87       | Macro 10                       |
|               | 88-95       | Macro 11                       |
|               | 96-103      | Macro 12                       |
|               | 104-111     | Macro 13                       |
|               | 112-119     | Macro 14                       |
|               | 120-127     | Macro 15                       |
|               | 128-135     | Macro 16                       |
|               | 136-143     | Macro 17                       |
|               | 144-151     | Macro 18                       |
|               | 152-159     | Macro 19                       |
|               | 160-167     | Macro 20                       |
|               | 168-175     | Macro 21                       |
|               | 176-183     | Macro 22                       |
|               | 184-191     | Macro 23                       |
|               | 192-199     | Macro 24                       |
|               | 200-207     | Macro 25                       |
|               | 208-215     | Macro 26                       |
|               | 216-223     | Macro 27                       |
| 224-231       | Macro 28    |                                |
| 232-239       | Macro 29    |                                |
| 240-247       | Macro 30    |                                |
| 248-255       | Macro 31    |                                |
| 8             | 0-255       | Pan/tilt macro speed fast-slow |
| 9             |             | <b>Color</b>                   |
|               | 0-2         | Open                           |
|               | 3-4         | Split color                    |
|               | 5-6         | Red                            |
|               | 7-8         | Split color                    |
|               | 9-10        | Yellow                         |
|               | 11-12       | Split color                    |
|               | 13-14       | Blue                           |
|               | 15-16       | Split color                    |
|               | 17-18       | Blue Green                     |
|               | 19-21       | Split color                    |
|               | 22-23       | Green                          |
|               | 24-25       | Split color                    |
| 26-27         | Light blue  |                                |
| 28-29         | Split color |                                |

| Channel       | Value                                 | Function                |
|---------------|---------------------------------------|-------------------------|
| 9<br>(contd.) | 30-31                                 | Light pink              |
|               | 32-33                                 | Split color             |
|               | 34-35                                 | Yellow green            |
|               | 36-37                                 | Split color             |
|               | 38-39                                 | Dark pink               |
|               | 40-42                                 | Split color             |
|               | 43-44                                 | Blue                    |
|               | 45-46                                 | Split color             |
|               | 47-48                                 | Light yellow            |
|               | 49-50                                 | Split color             |
|               | 51-52                                 | Off white               |
|               | 53-54                                 | Split color             |
|               | 55-56                                 | Light blue              |
|               | 57-58                                 | Split color             |
|               | 59-60                                 | Dark blue               |
|               | 61-63                                 | Split color (with open) |
| 64-127        | Color wheel indexing                  |                         |
| 128-189       | Clockwise rotation, fast-slow         |                         |
| 190-193       | Stop                                  |                         |
| 194-255       | Counter-clockwise rotation, slow-fast |                         |
| 10            |                                       | <b>Gobos</b>            |
|               | 0-3                                   | Open                    |
|               | 4-6                                   | Gobo 1                  |
|               | 7-9                                   | Gobo 2                  |
|               | 10-12                                 | Gobo 3                  |
|               | 13-15                                 | Gobo 4                  |
|               | 16-18                                 | Gobo 5                  |
|               | 19-21                                 | Gobo 6                  |
|               | 22-24                                 | Gobo 7                  |
|               | 25-27                                 | Gobo 8                  |
|               | 28-30                                 | Gobo 9                  |
|               | 31-33                                 | Gobo 10                 |
|               | 34-36                                 | Gobo 11                 |
|               | 37-39                                 | Gobo 12                 |
|               | 40-42                                 | Gobo 13                 |
|               | 43-45                                 | Gobo 14                 |
|               | 46-48                                 | Gobo 15                 |
| 49-51         | Gobo 16                               |                         |
| 52-55         | Gobo 17                               |                         |
| 56-59         | Open gobo shake                       |                         |
| 60-63         | Gobo 1 shake                          |                         |

| Channel        | Value  | Function                  |
|----------------|--|---------------------------|
| 10<br>(contd.) | 64-67  | Gobo 2 shake              |
|                | 68-71  | Gobo 3 shake              |
|                | 72-75  | Gobo 4 shake              |
|                | 76-79  | Gobo 5 shake              |
|                | 80-83  | Gobo 6 shake              |
|                | 84-87  | Gobo 7 shake              |
|                | 88-91  | Gobo 8 shake              |
|                | 92-95  | Gobo 9 shake              |
|                | 96-99  | Gobo 10 shake             |
|                | 100-103                                      | Gobo 11 shake             |
|                | 104-107                                      | Gobo 12 shake             |
|                | 108-111                                      | Gobo 13 shake             |
|                | 112-115                                      | Gobo 14 shake             |
|                | 116-119                                      | Gobo 15 shake             |
|                | 120-123                                      | Gobo 16 shake             |
|                | 124-127                                      | Gobo 17 shake             |
| 128-189        | Wheel rotation, counter-clockwise, fast-slow |                           |
| 190-193        | Stop   |                           |
| 194-255        | Wheel rotation, clockwise, slow-fast         |                           |
| 11             |  | <b>Prism effects</b>      |
|                | 0-7  | No function               |
|                | 8-127  | Prism effect              |
|                | 128-132                                      | Prism rotation effects 1  |
|                | 133-137                                      | Prism rotation effects 2  |
|                | 138-141                                      | Prism rotation effects 3  |
|                | 142-146                                      | Prism rotation effects 4  |
|                | 147-150                                      | Prism rotation effects 5  |
|                | 151-155                                      | Prism rotation effects 6  |
|                | 156-159                                      | Prism rotation effects 7  |
|                | 160-164                                      | Prism rotation effects 8  |
|                | 165-168                                      | Prism rotation effects 9  |
|                | 169-173                                      | Prism rotation effects 10 |
|                | 174-177                                      | Prism rotation effects 11 |
|                | 178-182                                      | Prism rotation effects 12 |
|                | 183-187                                      | Prism rotation effects 13 |
|                | 188-191                                      | Prism rotation effects 14 |
|                | 192-196                                      | Prism rotation effects 15 |
|                | 197-200                                      | Prism rotation effects 16 |
|                | 201-205                                      | Prism rotation effects 17 |
| 206-209        | Prism rotation effects 18                    |                           |
| 210-214        | Prism rotation effects 19                    |                           |

| Channel        | Value   | Function                                     |
|----------------|---------|--|
| 11<br>(contd.) | 215-218 | Prism rotation effects 20                    |
|                | 219-223 | Prism rotation effects 21                    |
|                | 224-227 | Prism rotation effects 22                    |
|                | 228-232 | Prism rotation effects 23                    |
|                | 233-236 | Prism rotation effects 24                    |
|                | 237-241 | Prism rotation effects 25                    |
|                | 242-246 | Prism rotation effects 26                    |
|                | 247-250 | Prism rotation effects 27                    |
|                | 251-255 | Prism rotation effects 28                    |
| 12             |         | <b>Prism rotation (coarse control)</b>       |
|                | 0-127   | Indexing                                     |
|                | 128-189 | Prism rotation, clockwise, fast-slow         |
|                | 190-193 | Stop   |
|                | 194-255 | Prism rotation, counter-clockwise, slow-fast |
| 13             | 0-255   | <b>Prism rotation (fine control)</b>         |
| 14             | 0-255   | Zoom 0-100%                                  |
| 15             | 0-255   | Focus – near-far                             |
| 16             | 0-255   | Frost 0-100%                                 |
| 17             |         | <b>Shutter</b>                               |
|                | 0-7     | Off  |
|                | 8-15    | Open   |
|                | 16-131  | Shutter strobe effect, slow-fast             |
|                | 132-167 | Fast close, slow open                        |
|                | 168-203 | Slow close, fast open                        |
|                | 204-239 | Pulse open and close                         |
|                | 240-247 | Random shutter                               |
|                | 248-255 | Open   |
| 18             | 0-255   | Dimmer (coarse control) 0-100%               |
| 19             | 0-255   | Dimmer (fine control)                        |

## Control menus

See 'Using the control menus' on page 18. Default settings are shown in **bold**.

| Menu            | Sub-menu           | Setting/value   | Explanation   |
|-----------------|--------------------|-----------------|---|
| DMX Functions   | DMX Address        | <b>1–512</b>    | Fixture DMX address setting   |
|                 | DMX Channel Mode   | Mode (19)       | Only Mode 1 available in current software   |
|                 | DMX State          | Hold            | If no DMX signal, fixture continues to obey the last command it received via DMX    |
|                 |                    | <b>Blackout</b> | If no DMX signal, fixture blacks out  |
|                 | View DMX Value     |                 | View received DMX values  |
| Fixture setting | Pan Inverse        | <b>No</b>       | Inverse pan movement left→right   |
|                 |                    | Yes             |   |
|                 | Tilt Inverse       | <b>No</b>       | Inverse tilt movement up→down   |
|                 |                    | Yes             |   |
|                 | P/T Feedback       | <b>No</b>       | No correction   |
|                 |                    | Yes             | If a pan or tilt position error is detected, the fixture corrects pan/tilt position |
|                 | Bl.O. P/T Moving   | <b>No</b>       | Blackout during pan/tilt movement   |
|                 |                    | Yes             |   |
|                 | Bl.O. Color Change | <b>No</b>       | Blackout during color change  |
|                 |                    | Yes             |   |
|                 | Bl.O. Gobo Change  | <b>No</b>       | Blackout during gobo change   |
|                 |                    | Yes             |   |

|                  |                     |   |   |
|------------------|---------------------|---|---|
| Lamp Setting     | On/Off              | Off   | Manually power lamp on or off                                   |
|                  |                     | <b>On</b>   |   |
|                  | State/Power On      | Off   | Lamp power on when fixture is powered on                        |
|                  |                     | <b>On</b>   |   |
|                  | Off via DMX         | No  | Lamp can be powered off via DMX                                 |
|                  |                     | <b>Yes</b>  |   |
|                  | On if DMX On        | <b>No</b>   | Lamp power on when fixture receives DMX                         |
| Yes              |                     |   |   |
| Off if DMX Off   | <b>No</b>           | Lamp power off when fixture does not receive DMX                  |   |
|                  | Yes                 |   |   |
| Ignition Delay   | 0~255S              | Delay lamp ignition: 0 to 255 seconds.                            |   |
| Low Power Delay  | 0~255S              | Low lamp power period when lamp is powered off: 0 to 255 seconds. |   |
| Display settings | Display inverse     | <b>No</b>   | Invert control panel display                                    |
|                  |                     | Yes   |   |
|                  | Backlight Auto Off  | <b>No</b>   | Automatically turn off display panel backlight when not in use. |
|                  |                     | Yes   |   |
|                  | Backlight Intensity | 1- <b>10</b>  | Display panel backlight intensity                               |
|                  | Temperature Unit    | °C  | Temperature display: Celsius/Fahrenheit                         |
| °F               |                     |   |   |
| Display Warning  | <b>No</b>           | Show warnings in LED display                                      |   |
|                  | Yes                 |   |   |
| Fixture Test     | Auto Test           |   | Automatic test of all functions                                 |
|                  | Manual Test         |   | Manually test each function                                     |

|                     |                     |             |   |
|---------------------|---------------------|-------------|---|
| Fixture Information | Fixture Use Time    |             | Fixture operating hour counter                |
|                     | Lamp On Time        | Exit        | Exit lamp hour use counter without resetting. |
|                     |                     | Reset Time  | Reset lamp hour use counter                   |
|                     | Firmware Version    |             | Current installed firmware version            |
| Reset Functions     | Pan/Tilt            | <b>No</b>   | Reset pan and tilt only                       |
|                     |                     | Yes         |   |
|                     | Shutter/Prism       | <b>No</b>   | Reset shutter/prism only                      |
|                     |                     | Yes         |   |
|                     | Color               | <b>No</b>   | Reset color wheel only                        |
|                     |                     | Yes         |   |
|                     | Gobo                | <b>No</b>   | Reset gobo wheel only                         |
|                     |                     | Yes         |   |
|                     | Zoom/Frost/Focus    | <b>No</b>   | Reset zoom, frost and focus only              |
|                     |                     | Yes         |   |
|                     | All                 | <b>No</b>   | Reset all effects                             |
|                     |                     | Yes         |   |
| Special Functions   | Fixture Maintenance | Remain time | Show remaining time before service            |
|                     |                     | Interval    | Set service interval                          |
|                     | Factory Settings    | <b>No</b>   | Restore fixture's default factory settings    |
|                     |                     | Yes         |   |

## Offset menu

The offset menu is used to adjust the home position of the various effects.

To access the Offset menu, press the MENU button to enter the menu structure and then press and hold the ENTER button for three seconds.

| Menu        | Sub-menu | Setting  | Explanation           |
|-------------|----------|----------|-----------------------|
| Offset Menu | Pan      | -128~127 | Pan offset            |
|             | Tilt     | -128~127 | Tilt offset           |
|             | Shutter  | 0~255    | Shutter offset        |
|             | Color    | -128~127 | Color offset          |
|             | Gobo     | -128~127 | Gobo offset           |
|             | Prism    | 0~255    | Prism offset          |
|             | R-Prism  | -128~127 | Rotating prism offset |
|             | Zoom     | 0~255    | Zoom offset           |
|             | Focus    | 0~255    | Focus offset          |
|             | Frost    | 0~255    | Frost offset          |

## Error messages

| Error:                  | Appears when:   |
|-------------------------|---|
| Lamp Startup Fail       | No lamp or lamp wiring damaged.   |
| Temperature Sense Error | Temperature sensor on the PCB is damaged.   |
| Lamp Too Hot Power Off  | Temperature above maximum safe level has been detected. Ensure that the fixture is adequately ventilated.<br>Fans or temperature sensor may be damaged. Contact authorized Martin™ service agent. |
| Lamp Too Hot Low Power  | Temperature close to maximum safe level has been detected. The fixture runs at a low power level.   |

|  |  |
|--|--|
| Maintenance Fixture  | Fixture maintenance is required (based on the countdown timer). Maintain the fixture, and then reset the countdown timer using the menus.              |
| Lamp On Over 2000 Hour   | The lamp has been in use for more than 2000 hours. Turn fixture off and replace lamp.  |
| Memory Initial Fail  | Damaged memory IC. Contact authorized Martin™ service agent.   |
| CPU-B Error<br>CPU-C Error<br>CPU-D Error  | PCB or fixture wiring is damaged. Contact authorized Martin™ service agent.  |
| Pan Reset Error<br>Pan Encode Error<br>Tilt Reset Error<br>Tilt Encode Error<br>Shutter Reset Fail<br>Dimmer Reset Fail<br>Color Reset Fail<br>Gobo Reset Fail<br>Frost Reset Fail | These can appear when powering on or resetting the fixture and can indicate damage to sensors or components. Contact authorized Martin™ service agent. |

# Troubleshooting

This section describes a few common problems that may occur during operation and provides some suggestions for easy troubleshooting:

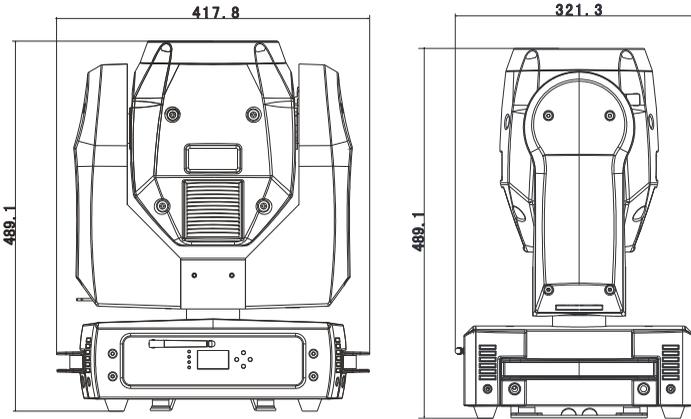
| Symptom  | Potential cause  | Remedies   |
|--|--|--|
| <p>No light from fixture, or fans not working.</p> | <p>Power supply issue such as blown fuse, faulty connector or damaged cable.</p> | <p>Ensure that the mains supply is connected and supplying power to the fixture.</p> <p>Ensure that the fixture's power-on LED is lit.</p> <p>Check all power connections and cables.</p> <p>Replace the fixture fuse.</p>         |
| <p>Lamp cuts out intermittently</p>                | <p>Incorrect mains voltage or internal temperature too high.</p>                 | <p>Check mains voltage.</p> <p>Check ambient temperature, inspect product to see if cleaning is required.</p> <p>Fan may need replacing. Contact your RUSH by Martin™ authorized distributor or service center for assistance.</p> |

| Symptom   | Potential cause  | Remedies   |
|---|--|--|
| <p>Fixture does not respond to DMX control.</p> | <p>Fault in the DMX network due to damaged connector or cable, or incorrect DMX addressing, or interference from proximity to a high voltage installation.</p> | <p>Check that the fixture's DMX LED is on, and if not, check all DMX cables and connections to ensure the integrity of the physical network.</p> <p>Ensure that the DMX network is terminated.</p> <p>Check that the components in the DMX network all use standard DMX polarity.</p> <p>Ensure that the fixture is set to the DMX address that matches the address set on the DMX control device.</p> <p>Check the pins on the connectors from the previous fixture in the DMX network.</p> <p>Attempt to control the fixture with another DMX control device.</p> <p>Move the fixture if it is being operated very close to an unshielded high-voltage installation.</p> |

# Specifications

## Physical

Dimensions (LxWxH) .....418 x 321x 489 mm (16.5 x 12.6 x 19.3 in.)  
 Weight .....20.5 kg (45.2 lbs.)



## Lamp

Approved lamp ..... Philips MSD Platinum 5R  
 Color temperature ..... 8000 K  
 CRI (Color rendering index) ..... 75  
 Average lifetime.....2000 hours

## Dynamic Effects

Color wheel ... 14 colors plus open, rotation with variable direction and speed  
 Static gobo wheel..... 17 gobos plus open, wheel rotation and shake  
 Pre-programmed effects .....31 pan and tilt macros, adjustable speed  
 Shutter.....Strobe effect, pulse effects, instant open and blackout  
 Prism ..... 8-facet, indexing and rotation with variable direction and speed  
 Frost .....Fade in/out  
 Zoom .....Motorized  
 Focus.....Motorized  
 Dimmer ..... 0 - 100%, four dimming curve options  
 Pan ..... 540°, with coarse & fine control and speed, P/T macros  
 Tilt ..... 240°, with coarse & fine control and speed, P/T macros

## Optics

Beam angle .....1° - 3.8°

## Control and Programming

|                              |  |
|------------------------------|--|
| Control system .....         | DMX  |
| DMX channels .....           | 19   |
| Setting and addressing ..... | Control panel with backlit LCD display       |
| 16-bit fine control .....    | Dimming, pan and tilt                        |
| DMX compliance .....         | USITT DMX512/1990                            |
| Pan and tilt speed .....     | Adjustable via onboard control panel and DMX |
| Head position .....          | Pan/tilt feedback correction                 |

## Construction

|                 |       |
|-----------------|-------|
| Color .....     | Black |
| IP rating ..... | IP 20 |

## Installation

|  |   |
|--|---|
| Minimum distance from illuminated surfaces ..... | 12 m (39.4 ft.)   |
| Location .....                                   | Indoor use only, must be fastened to surface or structure |
| Mounting points .....                            | Two quarter-turn brackets for rigging clamps              |
| Orientation .....                                | Any   |

## Connections

|                       |                           |
|-----------------------|---------------------------|
| AC power input .....  | Neutrik PowerCon          |
| DMX data in/out ..... | 3-pin & 5-pin locking XLR |

## Electrical

|                         |                                     |
|-------------------------|-------------------------------------|
| AC power .....          | 100-240 V, 50/60Hz                  |
| Fuse .....              | T5A                                 |
| Power supply unit ..... | Auto-ranging electronic switch mode |

## Typical power and current

|                    |                        |
|--------------------|------------------------|
| 110 V, 60 Hz ..... | 3.1 A, 348 W, PF 0.990 |
| 230 V, 50 Hz ..... | 1.6 A, 330 W, PF.0.917 |

*Measurements made at nominal voltage. Allow for a deviation of +/- 10%.*

## Thermal

|  |                |
|--|----------------|
| Cooling .....                                      | Forced air     |
| Maximum ambient temperature ( $T_a$ max.) .....    | 40° C (104° F) |
| Minimum ambient temperature ( $T_a$ min) .....     | 0° C (32° F)   |
| Total heat dissipation (calculated, +/- 10%) ..... | 1200 BTU/hr.   |

## Approvals

|   |   |   |
|---|---|---|
|  |  |  |
| EU safety .....   | EN 60598-2-17 (EN 60598-1), EN 62471, EN 62493                                      |   |
| EU EMC .....  | EN 55015, EN 55103-1, EN 55103-2,<br>EN 61000-3-2, EN 61000-3-3, EN 61547           |   |

US safety ..... UL 1573  
 US EMC ..... 47 CFR 15 Class A  
 Australia/NZ ..... C-TICK N4241 / RCM

**Included Items**

Power cable, 6 A, 18 AWG, 0.75 mm<sup>2</sup>, UL- listed, H05VV-F, 1.5 m,  
 without mains plug  
 Two omega-type brackets for rigging clamp attachment

**Accessories**

Neutrik PowerCon NAC3FCA power input connector, cable  
 mount, blue ..... P/N 05342804  
 Half-coupler clamp ..... P/N 91602005  
 G-clamp (vertical hanging suspension only) ..... P/N 91602003  
 Quick-trigger clamp (vertical hanging suspension only) ..... P/N 91602007  
 Safety cable, safe working load 50 kg ..... P/N 91604003

**Related Items**

RUSH Software Uploader 1™ ..... P/N 91611399

**Ordering Information**

RUSH MH 3 Beam™ in cardboard box, EU model ..... P/N 90280010  
 RUSH MH 3 Beam™ in cardboard box, US model ..... P/N 90280015

*Specifications are subject to change without notice. For latest product specifications, see [www.martin.com](http://www.martin.com)*

**Disposing of this product**



RUSH by Martin™ products are supplied in compliance with Directive 2012/19/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), where applicable. Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of RUSH by Martin™ products.

## Photobiological safety warning

The label shown below is displayed on this product. If it becomes difficult or impossible to read, it must be replaced using the illustration below to reproduce a new label sized 65 x 30 mm, in black on a yellow background.

