

**STORM** 

TECHNICAL SERVICES FOR  
EVENTS, THEATRE, MUSIC,  
EXHIBITION, FILM & TV

01483 757211

HIRE@STORMLTD.CO.UK

WWW.STORMLTD.CO.UK

# MAC Aura XB™

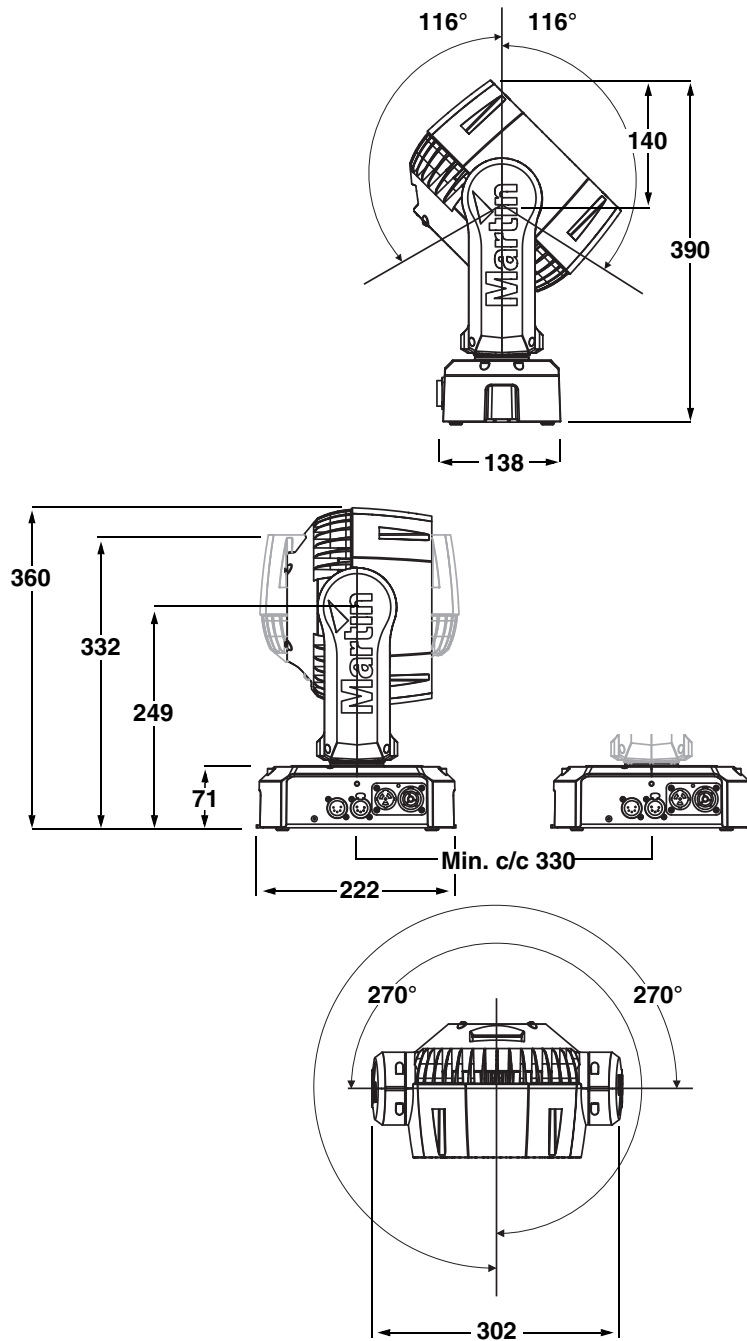
## User manual



**Martin**<sup>®</sup>  
by HARMAN

# Dimensions

All dimensions are in millimeters



©2011-2014 Martin Professional ApS. Information subject to change without notice. Martin Professional and all affiliated companies disclaim liability for any injury, damage, direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information contained in this manual. The Martin logo, the Martin name and all other trademarks in this document pertaining to services or products by Martin Professional or its affiliates and subsidiaries are trademarks owned or licensed by Martin Professional or its affiliates or subsidiaries. Martin MAC Aura XB products are covered by one or more of these patents: US 7,498,756 and/or one or more of these patent applications: PCT/DK2011/050040; US 13/176,137; PCT/DK2011/050120; PCT/DK2011/050110; PCT/DK2011/050112; DK PA 2011 00665; DK PA 2011 00666 and/or one or more of these licensed patents: US 6,806,659; US 6,150,774; US 6,788,011; US 6,016,038 and/or one or more of these designs: CN 201130210674.1; CN 201130210696.8; EU 001886888; US 29/396,683; US 29/396,684 and/or one or more other intellectual property rights, including one or more intellectual property rights listed on [www.martin.com/ipr](http://www.martin.com/ipr)

# Safety Information



## WARNING!

**Read the safety precautions in this section before installing, powering, 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!**  
Hazardous voltage. Risk of lethal or severe electric shock.



**WARNING!**  
Fire hazard.



**WARNING!**  
Burn hazard. Hot surface. Do not touch.



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



**WARNING!** Refer to user manual for important safety information.



**Warning! Risk Group 2 LED product according to EN 62471. Do not view the light output with optical instruments or any device that may concentrate the beam.**

This lighting fixture is for professional use only - it is not for household use. The fixture must be installed by a qualified technician. The safety of the installation is the responsibility of the installer. The fixture 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.



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.

Install, operate and service Martin™ products only as directed in their user documentation, or you may create a safety hazard or cause damage that is not covered by product warranties. Refer any service operation not described in this manual to an authorized Martin™ service technician. Do not try to carry out any such 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.

Before you install, operate or service the MAC Aura XB, check the Martin™ website and make sure that you have the latest user documentation for the fixture. Document revisions are indicated at the bottom of page 2. The latest versions of the product's user documentation, including this user manual, are available for download from the MAC Aura XB Product Support page on the Martin™ website at [www.martin.com](http://www.martin.com).

Follow the safety precautions listed below and observe all warnings in this manual and printed on the product. Keep this manual for future use.



## 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 service 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 used to supply MAC Aura XB fixtures with power or external power switches must be located near the fixtures and easily accessible so that the fixtures can easily be disconnected from power.
- 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.
- 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.
- Connect only a cable with a Neutrik PowerCON TRUE1 NAC3FX-W connector to the power input socket. Connect only a cable with a Neutrik PowerCON TRUE1 NAC3MX-W connector to the power throughput socket. Suitable connectors are available from Martin™ (see “Accessories” on page 35).
- All power input cables used to connect the product to AC power and all power throughput cables used to connect fixtures to each other so that they draw AC power in a chain must be minimum 14 AWG or 1.5 mm<sup>2</sup>, 16 amp-rated and temperature-rated to suit the application. In the USA and Canada, cables must be UL-listed, type SJT or equivalent. In the EU, cables must be type H05VV-F or equivalent. Suitable cables with Neutrik PowerCON TRUE1 connectors are available from Martin™ (see “Accessories” on page 35).
- If you use the correct cables and connectors as described above, you can connect fixtures to AC power in a linked chain, MAINS OUT throughput socket to MAINS IN input socket, but do not link more than:
  - three (3) MAC Aura XB fixtures at 100-120 V, 60 Hz or
  - eight (8) MAC Aura XB fixtures at 200-240 V, 50 Hz.
- Do not connect devices to power in a chain that will exceed the electrical ratings of any cable or connector used in the chain.
- Connect only other MAC Aura XB fixtures to the MAINS OUT power throughput socket. Do not connect any other type of device to this socket.
- The voltage and frequency at the MAINS OUT power throughput socket are the same as the voltage and frequency applied to the MAINS IN socket.

## PROTECTION FROM BURNS AND FIRE



- Do not operate the fixture if the ambient temperature (Ta) exceeds 40° C (104° F).
- The exterior of the fixture becomes hot during use. After 5 minutes of operation a surface temperature of 67° C (153° F) shall be expected, and the maximum steady state is 70° C (158° F). Avoid contact by persons and materials. Allow the fixture to cool for at least 10 minutes before handling.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 200 mm (8 in.) away from the fixture.
- Keep flammable materials (e.g. volatile liquids, pyrotechnics, fuel of any kind) well away from the fixture.
- Ensure that there is free and unobstructed airflow around the fixture.
- Do not illuminate surfaces within 1 m (3 ft. 4 in.) of the MAC Aura XB.
- Do not expose the front glass to sunlight or any other strong light source from any angle. Lenses can focus the sun's rays inside the fixture, creating a potential fire hazard.
- Do not attempt to bypass thermostatic switches or fuses.
- Do not modify the fixture in any way not described in this manual or the product's User Guide or install other than genuine Martin™ parts. Do not stick filters, masks or other materials onto any lens or other optical component. Use only accessories approved by Martin™ to mask or modify the light beam.

## PROTECTION FROM EYE INJURY



- Do not look at LEDs with magnifiers, telescopes, binoculars or similar optical instruments that may concentrate the light output.
- Do not operate the fixture with missing or damaged covers, shields or any optical component.
- 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.



## PROTECTION FROM INJURY

- Fasten the fixture securely to a fixed surface or structure when in use. The fixture is not portable when installed.
- When clamping the fixture to a truss or other supporting structure at any other angle than with the yoke hanging vertically downwards, use a half-coupler clamp fastened to the truss chord or similar bar. Do not use G-clamps, quick-trigger clamps or any other type of clamp that does not completely encircle the supporting structure when fastened.
- When suspending the fixture, ensure that the supporting structure and all 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 with an M12 bolt screwed into the threaded hole in the center of the base of the fixture. The bolt must protrude at least 20 - 30 mm (0.8 - 1.2 ins.) into the fixture. If the fixture is suspended by any other method, an M12 bolt must be tightened into this hole so that it protrudes at least 20 - 30 mm (0.8 - 1.2 ins.) into the fixture.
- If the fixture is installed in a location where it may cause injury or damage if it falls, install as described in this manual a secondary attachment such as a safety cable that is approved by an official body such as TÜV as a safety attachment for the weight that it secures. The safety cable must comply with EN 60598-2-17 Section 17.6.6 and be capable of bearing a static suspended load that is ten times the weight of the fixture and all installed accessories.
- 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.
- Allow enough clearance around the head to ensure that it cannot collide with an object or another fixture when it moves.

# Contents

|   |    |
|---|----|
| Dimensions .....                              | 2  |
| Safety Information.....                       | 3  |
| Fixture overview .....                        | 7  |
| Introduction .....                            | 8  |
| Using for the first time .....                | 8  |
| AC power .....                                | 9  |
| Power voltage .....                           | 9  |
| Power cables and power plug .....             | 9  |
| Linking fixtures to power in a chain .....    | 10 |
| Data link .....                               | 11 |
| Tips for reliable data transmission .....     | 11 |
| Connecting the data link .....                | 11 |
| Physical installation .....                   | 12 |
| Fastening the fixture to a flat surface.....  | 12 |
| Mounting the fixture on a truss .....         | 12 |
| Suspending the fixture .....                  | 13 |
| Quick-mount surface mounting bracket .....    | 13 |
| Setup .....                                   | 14 |
| Control panel and menu navigation.....        | 14 |
| DMX address setting .....                     | 14 |
| Beam, Aura and FX control .....               | 14 |
| Tailoring performance .....                   | 15 |
| Restoring factory default settings .....      | 16 |
| Operation and effects .....                   | 17 |
| Effects .....                                 | 17 |
| RDM.....                                      | 19 |
| Service and maintenance.....                  | 20 |
| Cleaning.....                                 | 20 |
| Control menu service utilities.....           | 21 |
| Fixture readouts.....                         | 22 |
| Lubrication .....                             | 22 |
| DMX protocol .....                            | 23 |
| FX: pre-programmed effects .....              | 28 |
| LEE colors and RGB equivalents .....          | 29 |
| Onboard control menus.....                    | 30 |
| Display messages.....                         | 32 |
| Troubleshooting .....                         | 33 |
| Specifications .....                          | 34 |
| PowerCON TRUE1 installation instructions..... | 37 |

# Fixture overview

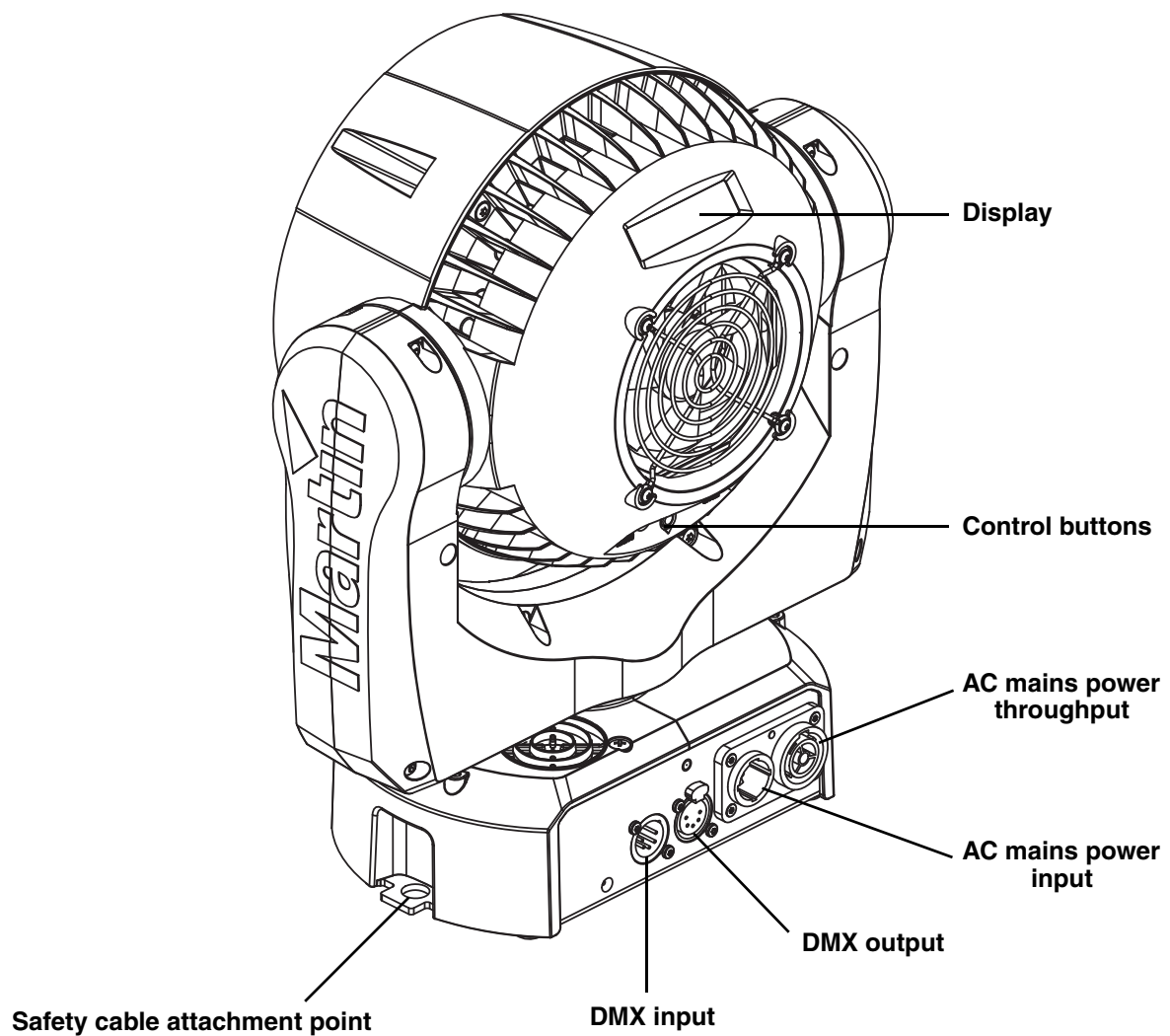


Figure 1: Fixture overview



# Introduction

Thank you for selecting the MAC Aura XB™, an intelligent lighting fixture from Martin Professional™. This compact LED-based moving-head washlight features:

- Support for HD and high-speed video camera technology
- Independent or linked Beam (primary LED array) and Aura (secondary background LED array) control
- Range of pre-programmed independent and synchronized Beam and Aura effects available via DMX that give instant access to the full potential of the fixture
- Beam RGBW color control with color temperature control
- Aura RGB control
- ‘Color wheel’ color snap Beam and Aura effects
- Onboard control panel and backlit LCD graphic display
- Motorized zoom
- Smooth electronic dimming
- Electronic shutter with strobe and pulse effects
- Calibrated and raw modes
- DMX control and RDM fixture management
- 540° pan and 232° tilt ranges

For the latest firmware updates, documentation, and other information about this and all Martin Professional products, please visit the Martin website at <http://www.martin.com>

Comments or suggestions regarding this document may be e-mailed to [service@martin.dk](mailto:service@martin.dk) or posted to: Technical Documentation, Martin Professional A/S, Olof Palmes Allé 18, DK-8200 Aarhus N, Denmark.

## Using for the first time

***Important! The MAC Aura XB must be protected from environmental factors such as physical shocks and vibration during transportation and storage to a level of protection equal to that provided by Martin brand flightcases.***



***Warning! Read “Safety Information” on page 3 before installing, powering, operating or servicing the MAC Aura XB. Before applying power to the fixture:***

- Check the Martin Professional website at [www.martin.com](http://www.martin.com) for the most recent user documentation and technical information about the MAC Aura XB. Martin user manual revisions are identified by the revision letter at the bottom of page 2.
- Carefully review “Safety Information” starting on page 3.
- Check that the local AC mains power source is within the fixture’s power voltage and frequency ranges.
- See “Power cables and power plug” on page 9. Install a Neutrik PowerCON NAC3FX-W power input connector on a suitable power input cable (cable and connector must be ordered separately). If drawing power from a mains power outlet, install a suitable power plug on the power input cable.

# AC power



**Warning!** Read “Safety Information” starting on page 3 before connecting the MAC Aura XB to AC mains power.

**Warning!** Before you connect any device to the MAINS OUT socket, see “Linking fixtures to power in a chain” on page 10.



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

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

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

## Power voltage



**Warning!** Check that the voltage range specified on the fixture’s serial number label matches the local AC mains power voltage before applying power to the fixture.

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

## Power cables and power plug



The MAC Aura XB requires a power input cable that must be ordered separately. The power input cable must have a Neutrik PowerCON TRUE1 NAC3FX-W cable connector for AC mains power input. The cable must meet the requirements listed under “Protection from electric shock” on page 3.

Martin™ can supply either suitable 3 m (9.8 ft.) power INPUT cables with PowerCON TRUE1 input connectors installed or PowerCON TRUE1 connectors without cables (see “Accessories” on page 35).

If you need to install a PowerCON TRUE1 connector on a power cable, see the instructions from Neutrik that are reproduced at the end of this manual.

The MAC Aura XB can be hard-wired to a building electrical installation if you want to install it permanently, or a power plug 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 an integral cable grip that is rated 250 V, 16 A minimum. Follow the plug manufacturer’s instructions. Table 1 shows standard wire color-coding schemes and some possible pin identification schemes; if pins are not clearly identified, or if you have any doubts about proper installation, consult a qualified electrician.

| Wire Color (EU models) | Wire Color (US models) | Conductor      | Symbol   | Screw (US)      |
|------------------------|------------------------|----------------|--|-----------------|
| brown                  | black                  | live           | L  | yellow or brass |
| blue                   | white                  | neutral        | N  | silver          |
| yellow/green           | green                  | ground (earth) |  or  | green           |

**Table 1: Wire color-coding and power connections**

## Linking fixtures to power in a chain

You can relay mains power from one fixture to another by connecting fixtures to power in a linked daisy-chain, MAINS OUT throughput socket to MAINS IN input socket, but you must respect the following safety limits.

If you connect fixtures to power in a chain:

- The power input cable must be 14 AWG / 1.5 mm<sup>2</sup> minimum
- If a power plug is installed on the power input cable, it must be grounding type (earthed) with integral cable grip and it must be rated minimum 250 V, 16 A
- All power relay cables used must be 14 AWG / 1.5 mm<sup>2</sup> minimum.

Suitable 14 AWG / 1.5 mm<sup>2</sup> power input and power relay (thru) cables are available from Martin™ (see “Accessories” on page 35).

Using 14 AWG / 1.5 mm<sup>2</sup> power input and relay cables from Martin™, you can link:

- Maximum three (3) MAC Aura XB fixtures in total at 100-120 V, or
- Maximum eight (8) MAC Aura XB fixtures in total at 200-240 V.

# Data link

A DMX 512 data link is required in order to control a MAC Aura XB via DMX.

The MAC Aura XB has 5-pin XLR connectors for DMX data input and output. 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 MAC Aura XB 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 (+).

The MAC Aura XB is not subject to the limit of 32 devices per daisy-chained link which is common in Martin fixtures. Instead, the number of fixtures is either limited to 256 or limited by the number of DMX channels required by the fixtures in relation to the maximum 512 channels available in one DMX universe, whichever limit is lower. 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 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.
- Never use both a fixture's outputs to split a DMX link. 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 data link

To connect the MAC Aura XB to data:

1. Connect the DMX data output from the controller to the closest MAC Aura XB's male 5-pin XLR DMX input connector.
2. Connect the DMX output of the fixture closest to the controller to the DMX input of the next fixture and continue connecting fixtures output to input.
3. Terminate the last fixture on the link with a 120 Ohm resistor.

# Physical installation



**Warning!** The MAC Aura XB must be either fastened to a flat surface such as a stage or wall, or clamped to a truss or similar structure in any orientation using a rigging clamp. Do not apply power to the MAC Aura XB if it is standing freely or the fixture can be moved.

**Warning!** If the MAC Aura XB can cause injury or damage if it falls, attach an approved safety cable to one of the safety cable attachment points on the base (see “Fixture overview” on page 7).

**Warning!** Check that all surfaces to be illuminated are minimum 1 m (3 ft. 4 in.) from the fixture, that combustible materials (wood, fabric, paper, etc.) are minimum 200 mm (8 in.) from the fixture, that there is free airflow around the fixture and that there are no flammable materials nearby.

**Warning!** Make sure that it is impossible for the moving head to collide with another fixture or other object. Allow a minimum center-to-center distance of 300 mm (12 ins.) between MAC Aura XB fixtures.

**Warning!** Do not expose the front glass to sunlight or other strong light sources.

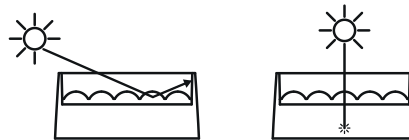


Figure 2: Risk of sunlight damage

See Figure 2. If light from the sun or other fixtures hits the front glass directly or at an angle, it can cause damage inside the fixture or around the edge of the front glass. Strong sunlight can cause damage within seconds! Before the fixture is exposed to sunlight or strong light, shield the front glass or point the head in the opposite direction to the light source.

## Fastening the fixture to a flat surface

The MAC Aura XB can be fastened to a stage or other flat surface. Check that the surface can support at least 10 times the weight of all fixtures and equipment to be installed on it.



**Warning!** The supporting surface must be hard and flat or air vents in the base may be blocked, which will cause overheating. Fasten the fixture securely. Do not stand it on a surface or leave it where it can be moved or can fall over. Attach a securely anchored safety cable to the safety cable attachment point (see “Fixture overview” on page 7) if the fixture is to be installed in any location where it may fall and cause injury or damage if the primary attachment fails.

## Mounting the fixture on a truss

The MAC Aura XB can be clamped to a truss or similar rigging structure in any orientation.



**Warning!** Use a rigging clamp with an M12 bolt if suspending the fixture from its base. The clamp must be screwed into the central threaded hole in the fixture base. The M12 bolt must protrude 20 - 30 mm (0.8 - 1.2 ins.) into the fixture base.

An M12 bolt that is suitable for many types of rigging clamp is supplied with the MAC Aura XB, but you must pass the bolt through the clamp and check that the distance the bolt will protrude into the fixture base is within the 20 - 30 mm limits before using it. If the bolt is not within these limits, you must find an alternative bolt that is.

To clamp a MAC Aura XB 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. Obtain a rigging clamp such as the G-clamp, Half-coupler clamp or Quick trigger clamp available as accessories from Martin (see “Accessories” on page 35). An omega bracket is not required.

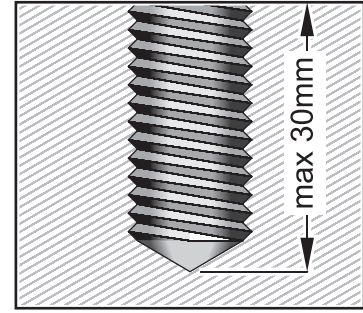
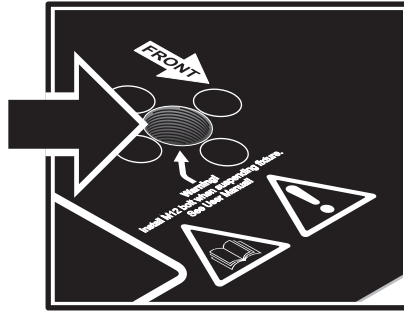


Figure 3: Rigging clamp bolt

3. Check that the rigging clamp is undamaged and can bear at least 10 times the weight of the fixture. Fasten the clamp to the fixture with a minimum grade 8.8 steel M12 bolt in the threaded hole in the center of the base of the fixture. The bolt must protrude 20 - 30 mm (0.8 - 1.2 ins.) into the base of the fixture.
4. Block access under the work area. Working from a stable platform, hang the fixture on the truss with the arrow on the base towards the area to be illuminated. Tighten the rigging clamp.
5. Secure the fixture against clamp failure with a secondary attachment such as an approved safety cable that is rated for the weight of the fixture and all attached accessories and hardware using one of the attachment points at the edges of the base (see “Fixture overview” on page 7). Do not use any other part of the fixture as a safety cable attachment point.
6. Check that the head will not collide with other fixtures or objects.

## Suspending the fixture

In some regions, it may be legal to use two safety cables, one looped through one cable attachment point (see “Fixture overview” on page 7) and the other looped through the other cable attachment point, to suspend the fixture. If one cable fails, the other will provide secondary attachment.

However, this suspension method is not recommended as it will not hold the base firmly, and moving pan and tilt will cause the fixture and light beam to swing uncontrollably. Instead, we strongly recommend installation using a rigging clamp as described above.



**Warning! If you choose to suspend using two cables anyway, you must install a minimum 8.8 grade steel M12 bolt in the rigging clamp hole in the center of the fixture’s base. See Figure 3. The bolt must protrude 20 - 30 mm (0.8 - 1.2 ins.) into the base. If you do not secure the base in this way, there is a risk that the fixture may separate from the base and fall.**

## Quick-mount surface mounting bracket

Quick-mount surface mounting brackets for the MAC Aura XB are available from Martin in sets of five that include hardware and safety cables (P/N 91606017). The bracket can be screwed to a surface and the MAC Aura XB can be mounted on and removed from the bracket in seconds.

The MAC Aura XB is a tight fit in the surface mounting bracket. Make sure that the fixture is securely clipped into the bracket and always secure the fixture with the safety cable supplied with the bracket.

Installation instructions are supplied with the brackets.

# Setup



**Warning!** Read “*Safety Information*” on page 3 before installing, powering, operating or servicing the MAC Aura XB.

## Control panel and menu navigation

The onboard control panel and backlit graphic display are used to set the MAC Aura XB’s DMX address, configure individual fixture settings, read out data and execute service utilities. See “Onboard control menus” on page 30 for a complete list of menus and commands.

Some of the commands available in the control panel are also available on-the-fly via DMX on channel 8, the fixture control channel. See channel 8 under “DMX protocol” on page 23 for a list of the commands available.

### Using the control buttons

- To enter a menu, select a function or apply a selection, press **▶** (Enter).
- Press **▲** (Up) and **▼** (Down) to scroll within a menu or adjust values.
- To escape a function or move back one level in the menu structure, press **◀** (Menu / Escape).

### Control button reset shortcut

- Holding **◀** (Menu/Escape) pressed in and pressing **▲** (Up) forces the fixture to reset.

### Display panel functions

The DMX address is shown in the display panel when the MAC Aura XB is powered on and has reset.

The display panel backlighting indicates fixture status as follows:

- The display blacks out during resets.
- The display flashes slowly if the fixture is not receiving a valid DMX signal unless the control buttons are used. In this case, the display behaves normally until the buttons have not been used for a short period, then begins to flash slowly again.
- The display can be set to go into sleep mode via **PERSONALITY** → **DISPLAY** in the control menu. Connecting a DMX signal ‘wakes up’ the display.

## DMX address setting

The DMX address, also known as the start channel, is the first channel used to receive instructions from the controller. For independent control, each fixture must be assigned its own control channels. Two MAC Aura XB fixtures of the same type may share the same address, however, 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.

The DMX address is configured using the **DMX ADDRESS** menu in the control panel.

The highest address that you can select is automatically limited to make sure that enough channels are available for the fixture – taking into account the mode that it is set to – within the 512 channels available in one DMX universe.

## Beam, Aura and FX control

### STD and EXT modes

DMX control mode is selected in the **CONTROL MODE** menu. The MAC Aura XB has two DMX control modes:

- **STD** (standard mode – uses 14 DMX channels)

- **EXT** (extended mode – uses 25 DMX channels).

### Standard mode

When the MAC Aura XB is set to **STD** standard mode, the Beam DMX channels 1 - 14 control the output of both the Beam and the Aura. The behavior of the Beam and Aura are identical.

### Extended mode

When the MAC Aura XB is set to **EXT** extended mode:

- Independent control of the Beam is available on channels 1 - 14
- A range of FX (pre-programmed effects with combined Beam and Aura output) is available on channels 15 - 19
- Independent control of the Aura is available on channels 20 - 25.

See “DMX protocol” on page 23 for details of the DMX commands available in the different modes.

## Recommended Beam and Aura control method

Operating the MAC Aura XB in **EXT** mode will give full access to the fixture’s effects. Depending on the type of console used and the intended precision of control, we recommend that you consider creating console libraries for the Beam and Aura either separately or in combined multi-part fixtures. Your console’s user documentation should give details of how it handles multi-part fixtures.

Separating Beam and Aura in this way may also be useful for pixel mapping applications where only the Aura is controlled by a media server.

For each device, a Beam and Aura ‘fixture’ will need to be patched consecutively.

### *Suggested setup*

**Beam:** Use channels 1 through 19.

Beam provides control of all parameters for the main Beam and the FX section.

**Aura:** Use channels 20 through 25.

Aura provides intensity, strobe and color control for the Aura array. Certain FX require Aura intensity to be above 0% to be visible. Please consult the FX documentation available on [www.martin.com](http://www.martin.com) for more details.

## Tailoring performance

### Pan and tilt movement

The **P/T SPEED** settings set the maximum speed of pan and tilt movement. **FAST** optimizes for speed and **SLOW** optimizes for smoothness of movement. **NORMAL** is a compromise between these two. The default setting is **FAST**.

The **PAN INVERT** and **TILT INVERT** commands reverse the direction of pan and tilt, and the **SWAP** command sends pan commands to tilt and vice versa. These settings are useful for symmetrical effects with multiple fixtures.

### Cooling

**FANS** gives you a choice of two settings:

- The default setting **REGULATED** should suit use in all normal situations and ensure excellent service lifetimes for all components.
- **FULL** maximizes cooling and reduces the operating temperature of the components in the head. It is recommended when the MAC Aura XB is used intensively in a warm environment or in fixed installations. Note that it will give increased fan noise compared to the other cooling modes.

Whatever cooling mode is selected, a thermal cutout shuts down power to the LEDs if the fixture temperature exceeds safe limits. If this occurs, you must reset the fixture via the control menus or via DMX, or cycle power to the fixture off and on again.

If a thermal shutdown occurs, you are pushing the fixture to its limits. Clean the fixture, particularly the air vents, and check that there is sufficient airflow around the fixture. Consider increasing ventilation, reducing the ambient temperature, or switching to **FULL** mode. Contact Martin for service if a thermal shutdown persists.



## Dimming

**DIMMER CURVE** provides four dimming options (see Figure 4):

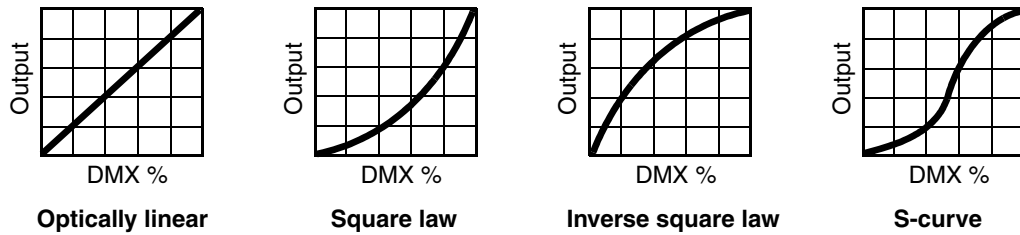


Figure 4: Dimming curve options

- **LINEAR** – the increase in light intensity appears to be linear as DMX value is increased.
- **SQUARE LAW** – light intensity control is finer at low levels and coarser at high levels.
- **INVERSE SQUARE LAW** – light intensity control is coarser at low levels and finer at high levels.
- **S-CURVE** – light intensity control is finer at low levels and high levels and coarser at medium levels.

Whichever **DIMMER CURVE** option you select, you can choose between **FAST** or **SMOOTH** dimming settings:

- **FAST** is the default setting. It gives a virtually instantaneous reaction when you dim from one intensity to another, but dimming slowly from one intensity to another may appear slightly uneven.
- The **SMOOTH** setting gives smoother dimming during slow changes in intensity, but it limits the speed of dimming changes slightly. This makes it ideal for slow, smooth dimming, but a short time-lag may be noticeable if you try to dim quickly from one intensity to another.

## Restoring factory default settings

The MAC Aura XB factory default settings can be restored by applying a **FACTORY DEFAULT** → **LOAD** command.

# Operation and effects



**Warning!** Read “Safety Information” starting on page 3 before installing, powering, operating or servicing the MAC Aura XB.

See “DMX protocol” on page 23 for a full list of the DMX channels and values required to control the different effects.

## Effects

### Beam and Aura

The MAC Aura XB has two LED arrays:

- The **Beam**: the LEDs that provide the main output, and
- The **Aura**: the secondary LEDs that illuminate the front of the head, provide local diffuse light output and can be set to contrast with the Beam output.

See “Beam, Aura and FX control” on page 14 for full details of these modes and how to set them up.

### Shutter effect

The electronic ‘shutter’ effect available for the Beam and the Aura provides instant open and blackout, variable speed regular and random strobe and opening/closing pulse effects as well as burst and sine wave effects.

### Dimming

Beam and Aura intensity can be adjusted 0 - 100% using electronic dimming. See the available dimming curve options in “Dimming” on page 16.

### Zoom

The Beam can be zoomed from 53° to 11° one-tenth peak angles.

Aura output is automatically dimmed as the zoom approaches maximum. There is a linear dimming curve from normal Aura output when the Beam is at 90% zoom, to zero Aura output when the Beam is at maximum (narrow) zoom.

### Pan and tilt

The MAC Aura XB’s moving head can be panned through 540° and tilted through 232°. The speed of pan/tilt movement can be adjusted on the DMX fixture control channel 8 and in the fixture’s onboard control panel.

Both **EXT** and **STD** control modes offer fine control of pan and tilt. In each case, the main control channel sets the first 8 bits (the most significant byte or MSB), and the fine channel sets the second 8 bits (the least significant byte or LSB) of the 16-bit control byte. In other words, the fine channel works within the position set by the main channel.

### Controlling color

#### Color wheel effects

The electronic virtual color wheel effects available for the Beam and the Aura give the convenience and feel of a mechanical color wheel and let you snap between 33 different full LEE-referenced color presets. You can also scroll continuously forwards or backwards through the colors or display random colors at variable speed.

The approximate RGB equivalents of the ‘color wheel’ colors are given in “LEE colors and RGB equivalents” on page 29.

## Color wheel priority

The color wheel effect channels for the Beam and Aura have priority and override any color set on the Beam RGBW channels or on the Aura RGB channels. To use the RGBW and RGB channels, you must set the color wheel effect channel for Beam or Aura respectively to a DMX value from 000 - 009. If you set either color wheel channel to a DMX value above 009, the color wheel effect overrides RGBW or RGB control.

## RGBW and RGB control

RGBW (in raw mode) or RGB (in calibrated mode) color control is available for the Beam and RGB control is available for the Aura.

To obtain consistent color output at different intensities, do not use the RGBW or RGB channels to control overall intensity. Instead, set the desired color on the RGBW or RGB channels, then use the dedicated Beam dimmer and Aura dimmer channels to control intensity.

## CTC (Color Temperature Control)

CTC is available for the Beam on the CTC channel 14. Setting this channel to DMX value 20 or above allows you to adjust the Beam's overall color temperature, i.e. the color that has been set using the 'color wheel' channel or the RGBW channels. Note that the more saturated the color, the less it will be affected by adjustments in color temperature. The biggest CTC variation is available when displaying white.

Overall color temperature can be varied from 10 000 - 2500 K.

In calibrated mode, CTC affects the available color spectrum and maximum output slightly. To obtain the full color and output ranges, disable CTC by setting the CTC channel to zero.

## Calibrated and raw color output

The color control modes are available in the **COLOR MODE** menu:

- **COLOR MODE** → **RGB** is a calibrated mode that gives the best-matched color gamut across multiple MAC Aura XB fixtures. To achieve this, it limits very slightly the levels of saturation that are possible.  
In RGB mode, the Beam has color wheel and RGB options available. In RGB control, the Beam's white LED control channel has no effect. White output is added to the Beam's calibrated RGB output automatically as required to increase intensity. Setting all three colors to 100% intensity gives 100% intensity white, with the white LEDs at their calibrated maximum.
- **COLOR MODE** → **EXTENDED** is a calibrated mode that allows deeper saturation than in RGB mode, but the exact hues of more saturated color may be less evenly matched across MAC Aura XB fixtures than in RGB mode. The white spot is calibrated across fixtures.
- **COLOR MODE** → **RAW** allows all LEDs to be operated to the maximum output level of the standard MAC Aura so that MAC Aura XB and standard MAC Aura fixtures can be controlled together. As RAW mode is uncalibrated, color and white output can vary slightly between fixtures.

In RAW mode, the Beam has color wheel effect and RGBW options available. In RGBW control, the Beam's white LED control channel must be adjusted to control white output.

## FX: pre-programmed Beam and Aura effects

A library of pre-programmed effects in which Beam and Aura output can be independent or synchronized is available via DMX. These effects are simply called **FX** in this manual and in the fixture menus. The library is available twice in the DMX channel layout with identical functions and effects, and two different FX can be combined and run simultaneously with one 'superimposed' over the other.

See "FX: pre-programmed effects" on page 28 for an overview of the FX available. The MAC Aura XB Product Support page on [www.martin.com](http://www.martin.com) features a downloadable detailed description of the parameters adjusted and algorithms applied in the different FX.

Effects are selected using the **FX select** DMX channels 15 and 17. Where modification is possible, the selected FX can be modified using its **FX adjust** channel. Modifications can include speed, amount, offset, smoothness, etc. depending on the FX selected.

## FX Sync and Random operation

The FX system uses a dedicated internal synchronization clock. If two different FX that repeat in cycles are activated, the **FX Sync** DMX channel 19 can be used to synchronize them. When two FX are synchronized, the repeat cycle of FX2 is adjusted to ensure that FX2 arrives at the end of a cycle and starts to repeat the cycle at the same time as FX1.

If one FX with a short repeat cycle is combined with another FX with a long repeat cycle, the short FX can repeat twice or more in the time it takes the long FX to repeat once. But if two FX with different repeat cycles are synchronized, the short cycle is adjusted so that it arrives at the end of a cycle at the same time as the long cycle.

### ***Sync shift***

The **sync shift** option modifies FX synchronization so that FX2 runs with a time offset. This means that the FX2 cycle start point is delayed relative to FX1, but the amount of the delay remains constant.

### ***Random operation***

Selecting random operation makes random changes in the duration of those FX effects that have repeat cycles. This means that some cycles are shorter and some cycles are longer in a random pattern.

The **random sync** option changes the duration of FX repeat cycles in a random pattern. Cycle duration is random, but it is always changed by the same amount for FX1 and FX2 so that FX remain synchronized. The overall speed of this synchronized effect is controlled on channel 16.

The **random no sync** option changes the duration of FX effect cycles in a random pattern, and FX1 and FX2 are not synchronized. The speed of FX1 and FX2 effects are controlled independently on channels 16 and 18 respectively.

### ***FX priority and overriding***

If an FX is activated, it overrides any other settings for the parameters that the FX modifies. For example, an FX that modifies the zoom will override any zoom angle set on the zoom channel (DMX channel 3).

If the same FX is selected on both the **FX1 select** and **FX2 select** channels, only the **FX1 adjust** channel is active. The **FX2 adjust** channel is ignored.

If different FX are selected on the **FX1 select** and **FX2 select** channels, FX2 is superimposed onto FX1 and FX2 overrides FX1 whenever both FX modify the same parameter.

## **RDM**

RDM (Remote Device Management) is implemented in the MAC Aura XB and RDM communication is possible over the DMX data link. As provided for in the ANSI/ESTA E1.20 RDM protocol, the fixture can send information about its RDM-accessible parameters to an RDM control device.

# Service and maintenance



**Warning! Read “Safety Information” on page 3 before servicing the MAC Aura XB.**

**Warning! Disconnect the fixture from AC mains power and allow to cool for at least 10 minutes before handling. Do not view the light output from less than 8.3 meters (27 ft. 3 inches) without shade 4-5 welding goggles. Be prepared for the fixture to light suddenly if connected to power.**



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



**Important! 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.**



The user will need to clean the MAC Aura XB periodically, and it is also possible for the user to update the fixture's software. All other service operations on the MAC Aura XB must be carried out by Martin Professional or its approved service agents.

Installation, on-site service and maintenance can be provided worldwide by the Martin Professional 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 Martin supplier for details.

It is Martin policy to apply the strictest possible calibration procedures and use the best quality materials available to ensure optimum performance and the longest possible component lifetimes. However, LEDs are subject to wear and tear over the life of the product, resulting in gradual changes in color and overall brightness over many thousands of hours of use. The extent of wear and tear depends heavily on operating conditions and environment, so it is impossible to specify precisely whether and to what extent LED performance will be affected. However, you may eventually need to ask Martin Professional to replace LEDs if their characteristics are affected by wear and tear after an extended period of use and if you require fixtures to perform within very precise optical and color parameters.

The manufacturer's LED lifetime data is based on performance under the manufacturer's test conditions. As with all LEDs, the gradual reduction in luminous output will be accelerated when LEDs are used in a fixture, where conditions are much tougher than in manufacturer's testing. To maximize LED lifetimes, keep the ambient temperature as low as possible and drive the LEDs no harder and for no longer than necessary.

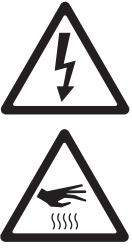
## Cleaning

Cleaning schedules for lighting fixtures vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the MAC Aura XB. 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 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.



**Warning! Disconnect from power and allow to cool before cleaning.**

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 the LED lens array in the front of the head 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.

## Control menu service utilities

### Functions test

The **TEST** feature provides four test routines that can be executed without a controller, allowing testing of pan/tilt and zoom, LEDs and display separately or together.

### Pan and tilt calibration

Pan and tilt on the MAC Aura XB are calibrated at the factory so that movement is identical in multiple fixtures. Adjustment should not be necessary initially, but over a period of use fixtures may gradually lose calibration. If re-calibration is necessary:

1. Pan calibration is easiest when multiple fixtures are stacked vertically. To calibrate, set tilt positions for easy one-over-the-other comparison and set each fixture to the same pan DMX value. Select one fixture to be the reference fixture. On that fixture, select **SERVICE** → **CALIBRATION** → **PAN OFFSET** and press **▶**. Wait for the fixture to move to its pan calibration position.
2. On each of the other fixtures, select **SERVICE** → **CALIBRATION** → **PAN OFFSET** and press **▶**. Wait for the head to move to the pan calibration position, then adjust the pan offset using the **▲** and **▼** buttons as necessary to align the beam with the reference beam. Press **▶** to save the setting, then **◀** to exit.
3. Tilt calibration is easiest when multiple fixtures are arranged side-by-side horizontally. To calibrate, set pan positions for easy side-by-side comparison. Select one fixture to be the reference fixture. On that fixture, select **SERVICE** → **CALIBRATION** → **TILT OFFSET** and press **▶**. Wait for the fixture to move to its tilt calibration position.
4. On each of the other fixtures, select **SERVICE** → **CALIBRATION** → **TILT OFFSET** and press **▶**. Wait for the head to move to the tilt calibration position, then adjust the tilt offset using the **▲** and **▼** buttons as necessary to align the beam with the reference beam. Press **▶** to save the setting, then **◀** to exit.

### Software upload

The MAC Aura XB is loaded with both software (that can be installed and updated by the user) and firmware (that is internal and accessible to Martin Service and its authorized partners only). Software updates are available from the Martin website and can be installed with a PC and Martin USB Duo DMX Interface box that can upload software to one fixture at a time.

The following are required in order to install software:

- The latest version of the MAC Aura XB software, available for download free of charge from the Product Support area of the Martin website at <http://www.martin.com>
- A PC running Windows 7 and Vista 32/64-bit and Windows XP SP3 32-bit
- The Windows-based Martin Uploader application available for download free of charge from the Downloads Area of the Martin website at <http://www.martin.com>
- Martin USB Duo DMX Interface Box with its supplied cables.

#### Installing software: normal method

1. Connect the Uploader hardware to a MAC Aura XB fixture's data input connector.
2. Upload the fixture software as described in the uploader's help file or user documentation.
3. Disconnect the Uploader hardware and reconnect the fixture to the DMX link.
4. Cycle power off and on. Check that the fixture resets correctly. If an error message appears in the display, cycle power off and on again and check that the fixture now resets correctly.

## Fixture readouts

### DMX input signal

The **DMX LIVE** menu lets you view the DMX values received on each channel in the mode – **STD** or **EXT** – it is currently set to. If the fixture does not behave as expected, reading the DMX values can help you troubleshoot the problem.

### Fixture status

The MAC Aura XB gives fixture status readouts in the **INFO** menu:

- Current software/firmware version information.
- Temperature readouts from the main PCB as well as the Beam LED and Aura LED PCBs. In each case, you can view the current temperature and the maximum temperature reached since the readout was last reset. The maximum temperatures can be reset individually. The **MAX** temperature counters are not resettable.
- Power on hours. You can view the number of hours since the resettable counter was last reset or the total number of hours since manufacture. You can also reset the resettable counter to zero.
- The manufacturer's serial number and the fixture's RDM ID number.

### Display messages

If an error occurs, the MAC Aura XB gives fixture status readouts in the display. See "Display messages" on page 32.

## Lubrication

In general, the MAC Aura XB does not require lubrication. However, depending on use conditions, the moving parts in the pan and tilt mechanisms may eventually require reapplication of lubricant. Excessive noise during pan/tilt movement is a sign that lubrication may be required. This operation can be carried out by a Martin service partner if necessary.

# DMX protocol

| Channel  |           | DMX       | Percent                           | Function  | Fade   | Default |
|----------|-----------|-----------|-----------------------------------|---|--------|---------|
| Std.     | Ext.      | value     |                                   |   | status | value   |
| <b>1</b> |           | 0 - 19    | 0 - 7                             | <b>Beam electronic shutter effect</b><br>Shutter closed           | Snap   | 22      |
|          |           | 20 - 24   | 8 - 9                             | Shutter open  |        |         |
|          |           | 25 - 64   | 10 - 25                           | Strobe 1 (fast → slow)  |        |         |
|          |           | 65 - 69   | 26 - 27                           | Shutter open  |        |         |
|          |           | 70 - 84   | 28 - 33                           | Strobe 2: opening pulse (fast → slow)                             |        |         |
|          |           | 85 - 89   | 34 - 35                           | Shutter open  |        |         |
|          |           | 90 - 104  | 36 - 41                           | Strobe 3: closing pulse (fast → slow)                             |        |         |
|          |           | 105 - 109 | 42 - 43                           | Shutter open  |        |         |
|          |           | 110 - 124 | 44 - 49                           | Strobe 4: random strobe (fast → slow)                             |        |         |
|          |           | 125 - 129 | 50 - 51                           | Shutter open  |        |         |
|          |           | 130 - 144 | 52 - 57                           | Strobe 5: random opening pulse (fast → slow)                      |        |         |
|          |           | 145 - 149 | 58 - 59                           | Shutter open  |        |         |
|          |           | 150 - 164 | 60 - 65                           | Strobe 6: random closing pulse (fast → slow)                      |        |         |
|          |           | 165 - 169 | 66 - 67                           | Shutter open  |        |         |
|          |           | 170 - 184 | 68 - 73                           | Strobe 7: burst pulse (fast → slow)                               |        |         |
|          |           | 185 - 189 | 74 - 75                           | Shutter open  |        |         |
|          |           | 190 - 204 | 76 - 81                           | Strobe 8: random burst pulse (fast → slow)                        |        |         |
|          |           | 205 - 209 | 82 - 83                           | Shutter open  |        |         |
|          | 210 - 224 | 84 - 89   | Strobe 9: sine wave (fast → slow) |   |        |         |
|          | 225 - 229 | 90 - 91   | Shutter open                      |   |        |         |
|          | 230 - 244 | 92 - 97   | Strobe 10: burst (fast → slow)    |   |        |         |
|          | 245 - 255 | 98 - 100  | Shutter open                      |   |        |         |
| <b>2</b> |           | 0 - 255   | 0 - 100                           | <b>Beam dimmer</b><br>0 → 100% intensity                          | Fade   | 0       |
| <b>3</b> |           | 0 - 255   | 0 - 100                           | <b>Zoom</b><br>Wide → narrow                                      | Fade   | 255     |
| <b>4</b> |           | 0 - 255   | 0 - 100                           | <b>Pan</b><br>Pan 0° - 540°                                       | Fade   | 128     |
| <b>5</b> |           | 0 - 255   | 0 - 100                           | <b>Pan fine</b><br>Pan fine adjustment (Least Significant Byte)   | Fade   | 32768   |
| <b>6</b> |           | 0 - 255   | 0 - 100                           | <b>Tilt</b><br>Tilt 0° - 232°                                     | Fade   | 128     |
| <b>7</b> |           | 0 - 255   | 0 - 100                           | <b>Tilt fine</b><br>Tilt fine adjustment (Least Significant Byte) | Fade   | 32768   |

**Table 2: MAC Aura XB DMX Protocol**



| Channel  |           | DMX       | Percent   | Function   | Fade   | Default |
|----------|-----------|-----------|---|--|--------|---------|
| Std.     | Ext.      | value     |   |  | status | value   |
| <b>8</b> |           | 0 - 9     | 0 - 3   | <b>Fixture control settings</b>  |        |         |
|          |           | 10 - 14   | 4 - 5   | <i>No function</i>   |        |         |
|          |           | 15 - 39   | 6 - 13  | Reset entire fixture <sup>1</sup>  |        |         |
|          |           | 40 - 44   | 14 - 15   | <i>No function</i>   |        |         |
|          |           | 45 - 49   | 16 - 17   | PTSP = NORM <sup>2</sup>   |        |         |
|          |           | 50 - 54   | 18 - 19   | PTSP = FAST <sup>2</sup>   |        |         |
|          |           | 55 - 59   | 20 - 21   | PTSP = SLOW <sup>2</sup>   |        |         |
|          |           | 60 - 64   | 22 - 23   | <i>No function</i>   |        |         |
|          |           | 65 - 69   | 24 - 25   | Fan mode FULL <sup>2</sup>   |        |         |
|          |           | 70 - 74   | 26 - 27   | <i>No function</i>   |        |         |
|          |           | 75 - 89   | 28 - 33   | Fan mode REGULATED <sup>2</sup>  |        |         |
|          |           | 90 - 94   | 34 - 35   | <i>No function</i>   |        |         |
|          |           | 95 - 99   | 36 - 37   | RGB color mode: fully calibrated color output, same gamut for all MAC Aura XBs <sup>3</sup>  |        |         |
|          |           | 100 - 104 | 38 - 40   | EXTENDED color mode: calibrated white point with extended color saturation, saturated colors may not be exactly identical <sup>3</sup> |        |         |
|          |           | 105 - 109 | 41 - 42   | RAW color mode: compatible with standard MAC Aura fixtures, max. output set to standard MAC Aura level <sup>3</sup>                    | Snap   | 0       |
|          |           | 110 - 114 | 43 - 44   | <i>No function</i>   |        |         |
|          |           | 115 - 119 | 45 - 46   | Fast dimming: speed of intensity changes unrestricted <sup>2</sup>   |        |         |
|          |           | 120 - 124 | 47 - 48   | <i>No function</i>   |        |         |
|          |           | 125 - 129 | 49 - 50   | Smooth dimming: speed of intensity changes restricted slightly <sup>2</sup>  |        |         |
|          |           | 130 - 134 | 51 - 52   | <i>No function</i>   |        |         |
|          | 135 - 249 | 53 - 97   | Video dimming: instant intensity changes, optimized for video   |  |        |         |
|          | 250 - 255 | 98 - 100  | <i>No function</i>  |  |        |         |
|          |           |           | Illuminate display  |  |        |         |
|          |           |           | <sup>1</sup> If DMX Reset is disabled in the menu, a reset command can only be executed if channel 2 is set to 232 and channel 1 is set to zero. These values need to be held for 5 seconds before feature is activated. Values must be "snapped to" to function. |  |        |         |
|          |           |           | <sup>2</sup> Menu override: setting unaffected by power off/on.   |  |        |         |
|          |           |           | <sup>3</sup> Value must be held for 3 seconds to activate. Setting unaffected by power off/on.  |  |        |         |

**Table 2: MAC Aura XB DMX Protocol**

| Channel |           | DMX   | Percent  | Function  | Fade   | Default |
|---------|-----------|---|--|---|--------|---------|
| Std.    | Ext.      | value   |  |   | status | value   |
|         | <b>9</b>  | 0 - 9<br>10 - 14<br>15 - 19<br>20 - 24<br>25 - 29<br>30 - 34<br>35 - 39<br>40 - 44<br>45 - 49<br>50 - 54<br>55 - 59<br>60 - 64<br>65 - 69<br>70 - 74<br>75 - 79<br>80 - 84<br>85 - 89<br>90 - 94<br>95 - 99<br>100 - 104<br>105 - 109<br>110 - 114<br>115 - 119<br>120 - 124<br>125 - 129<br>130 - 134<br>135 - 139<br>140 - 144<br>145 - 149<br>150 - 154<br>155 - 159<br>160 - 164<br>165 - 169<br>170 - 174<br>175 - 179<br><br>180 - 201<br>202 - 207<br>208 - 229<br>230 - 234<br><br>235 - 239<br>240 - 244<br>245 - 249<br>250 - 255 | 0 - 2<br>3 - 4<br>4 - 5<br>6 - 7<br>8 - 9<br>10 - 11<br>12 - 13<br>14 - 15<br>16 - 17<br>18 - 19<br>20 - 21<br>22 - 23<br>24 - 25<br>26 - 27<br>28 - 29<br>30 - 31<br>32 - 33<br>34 - 35<br>36 - 37<br>38 - 39<br>40 - 41<br>42 - 43<br>44 - 45<br>46 - 47<br>48 - 49<br>50 - 51<br>52 - 53<br>54 - 55<br>56 - 57<br>58 - 59<br>60 - 61<br>62 - 63<br>64 - 65<br>66 - 67<br>68 - 69<br><br>70 - 78<br>79 - 80<br>81 - 89<br>90 - 91<br><br>92 - 93<br>94 - 95<br>96 - 97<br>98 - 100 | <b>Beam color wheel effect</b><br>Open. RGBW color mixing enabled<br>LEE 790 - Moroccan pink<br>LEE 157 - Pink<br>LEE 332 - Special rose pink<br>LEE 328 - Follies pink<br>LEE 345 - Fuchsia pink<br>LEE 194 - Surprise pink<br>LEE 181 - Congo Blue<br>LEE 071 - Tokyo Blue<br>LEE 120 - Deep Blue<br>LEE 079 - Just Blue<br>LEE 132 - Medium Blue<br>LEE 200 - Double CT Blue<br>LEE 161 - Slate Blue<br>LEE 201 - Full CT Blue<br>LEE 202 - Half CT Blue<br>LEE 117 - Steel Blue<br>LEE 353 - Lighter Blue<br>LEE 118 - Light Blue<br>LEE 116 - Medium Blue Green<br>LEE 124 - Dark Green<br>LEE 139 - Primary Green<br>LEE 089 - Moss Green<br>LEE 122 - Fern Green<br>LEE 738 - JAS Green<br>LEE 088 - Lime Green<br>LEE 100 - Spring Yellow<br>LEE 104 - Deep Amber<br>LEE 179 - Chrome Orange<br>LEE 105 - Orange<br>LEE 021 - Gold Amber<br>LEE 778 - Millennium Gold<br>LEE 135 - Deep Golden Amber<br>LEE 164 - Flame Red<br>Open<br><b>Color wheel rotation effect</b><br>Clockwise, fast → slow<br>Stop (this will stop wherever the color is at the time)<br>Counter-clockwise, slow → fast<br>Open<br><b>Random color</b><br>Fast<br>Medium<br>Slow<br>Open | Snap   | 0       |
|         | <b>10</b> | 0 - 255   | 0 - 100  | <b>Beam red</b><br>Red 0 → 100%   | Fade   | 255     |
|         | <b>11</b> | 0 - 255   | 0 - 100  | <b>Beam green</b><br>Green 0 → 100%   | Fade   | 255     |
|         | <b>12</b> | 0 - 255   | 0 - 100  | <b>Beam blue</b><br>Blue 0 → 100%   | Fade   | 255     |
|         | <b>13</b> | 0 - 255   | 0 - 100  | <b>Beam white</b><br>White 0 → 100%<br><i>Only available when the fixture is set to RAW mode.</i>   | Fade   | 0       |
|         | <b>14</b> | 0 - 19<br>20 - 255  | 0 - 7<br>8 - 100   | <b>Beam CTC (Color Temperature Control)</b><br>CTC disabled<br>CTC 10 000K → 2 500K   | Fade   | 0       |
| -       | <b>15</b> | 0 - 255   | 0 - 100  | <b>FX1 select</b><br>Pre-programmed effect 1 selection<br>(see "FX: pre-programmed effects" on page 28)   | Snap   | 0       |
| -       | <b>16</b> | 0 - 255   | 0 - 100  | <b>FX1 adjust, sync speed adjust</b><br>Zero → maximum<br>• If no sync set on channel 19, adjusts FX1<br>• If sync set on channel 19, adjusts synchronized FX1+FX2 speed  | Fade   | 128     |
| -       | <b>17</b> | 0 - 255   | 0 - 100  | <b>FX2 select</b><br>Pre-programmed effect 2 selection<br>(see "FX: pre-programmed effects" on page 28)   | Snap   | 0       |

Table 2: MAC Aura XB DMX Protocol

| Channel |           | DMX value | Percent  | Function  | Fade status | Default value |
|---------|-----------|-----------|----------|---|-------------|---------------|
| Std.    | Ext.      |           |          |   |             |               |
| -       | <b>18</b> | 0 - 255   | 0 - 100  | <b>FX2 adjust</b><br>Zero → maximum<br>• If no sync set on channel 19, adjusts FX2<br>• If sync set on channel 19, has no effect  | Fade        | 128           |
| -       | <b>19</b> | 0 - 49    | 0 - 19   | <b>Sync (FX synchronization)</b><br>No sync<br>• FX1 and FX2 run through cycles independently<br>• Cycle duration is regular<br>• Channel 16 and channel 18 adjust FX1 and FX2 independently<br>Sync<br>• FX1 and FX2 run through cycles in sync<br>• Cycle duration is regular<br>• Channel 16 adjusts overall speed, channel 18 has no effect<br>Sync shift<br>• FX1 and FX2 run through cycles in sync<br>• FX2 is offset (delayed) relative to FX1<br>• Offset is adjustable from zero → maximum<br>• Channel 16 adjusts overall speed, channel 18 has no effect<br>Sync random<br>• FX1 and FX2 run through cycles in sync<br>• Cycle duration for synchronized FX1 and FX2 is made shorter and longer at random.<br>• Channel 16 adjusts overall speed, channel 18 has no effect<br>No sync, random<br>• FX1 and FX2 run through cycles independently<br>• Cycle duration is for FX1 and FX2 is made shorter and longer at random<br>• Channel 16 and channel 18 adjust FX1 and FX2 speed independently | Snap        | 0             |
|         |           | 50        | 20       |   |             |               |
|         |           | 51 - 169  | 21 - 66  |   |             |               |
|         |           | 170 - 209 | 67 - 81  |   |             |               |
|         |           | 210 - 255 | 82 - 100 |   |             |               |

### Aura control

|   |           |  |   |  |      |    |
|---|-----------|--|---|--|------|----|
| - | <b>20</b> | 0 - 19<br>20 - 24<br>25 - 64<br>65 - 69<br>70 - 84<br>85 - 89<br>90 - 104<br>105 - 109<br>110 - 124<br>125 - 129<br>130 - 144<br>145 - 149<br>150 - 164<br>165 - 169<br>170 - 184<br>185 - 189<br>190 - 204<br>205 - 209<br>210 - 224<br>225 - 229<br>230 - 244<br>245 - 255 | 0 - 7<br>8 - 9<br>10 - 25<br>26 - 27<br>28 - 33<br>34 - 35<br>36 - 41<br>42 - 43<br>44 - 49<br>50 - 51<br>52 - 57<br>58 - 59<br>60 - 65<br>66 - 67<br>68 - 73<br>74 - 75<br>76 - 81<br>82 - 83<br>84 - 89<br>90 - 91<br>92 - 97<br>98 - 100 | <b>Aura shutter and strobe effect</b><br>Shutter closed<br>Shutter open<br>Strobe 1 (fast → slow)<br>Shutter open<br>Strobe 2: opening pulse (fast → slow)<br>Shutter open<br>Strobe 3: closing pulse (fast → slow)<br>Shutter open<br>Strobe 4: random strobe (fast → slow)<br>Shutter open<br>Strobe 5: random opening pulse (fast → slow)<br>Shutter open<br>Strobe 6: random closing pulse (fast → slow)<br>Shutter open<br>Strobe 7: burst pulse (fast → slow)<br>Shutter open<br>Strobe 8: random burst pulse (fast → slow)<br>Shutter open<br>Strobe 9: sine wave (fast → slow)<br>Shutter open<br>Strobe 10: burst (fast → slow)<br>Shutter open | Snap | 22 |
| - | <b>21</b> | 0 - 255  | 0 - 100   | <b>Aura dimmer</b><br>0 → 100% intensity   | Fade | 0  |

**Table 2: MAC Aura XB DMX Protocol**

| Channel |      | DMX value   | Percent  | Function   | Fade status | Default value |
|---------|------|---|--|--|-------------|---------------|
| Std.    | Ext. |   |  |  |             |               |
| -       | 22   | 0 - 9<br>10 - 14<br>15 - 19<br>20 - 24<br>25 - 29<br>30 - 34<br>35 - 39<br>40 - 44<br>45 - 49<br>50 - 54<br>55 - 59<br>60 - 64<br>65 - 69<br>70 - 74<br>75 - 79<br>80 - 84<br>85 - 89<br>90 - 94<br>95 - 99<br>100 - 104<br>105 - 109<br>110 - 114<br>115 - 119<br>120 - 124<br>125 - 129<br>130 - 134<br>135 - 139<br>140 - 144<br>145 - 149<br>150 - 154<br>155 - 159<br>160 - 164<br>165 - 169<br>170 - 174<br>175 - 179<br><br>180 - 201<br>202 - 207<br>208 - 229<br>230 - 234<br><br>235 - 239<br>240 - 244<br>245 - 249<br>250 - 255 | 0 - 1<br>2 - 3<br>4 - 5<br>6 - 7<br>8 - 9<br>10 - 11<br>12 - 13<br>14 - 15<br>16 - 17<br>18 - 19<br>20 - 21<br>22 - 23<br>24 - 25<br>26 - 27<br>28 - 29<br>30 - 31<br>32 - 33<br>34 - 35<br>36 - 37<br>38 - 39<br>40 - 41<br>42 - 43<br>44 - 45<br>46 - 47<br>48 - 49<br>50 - 51<br>52 - 53<br>54 - 55<br>56 - 57<br>58 - 59<br>60 - 61<br>62 - 63<br>64 - 65<br>66 - 67<br>68 - 69<br><br>70 - 78<br>79 - 80<br>81 - 89<br>90 - 91<br><br>92 - 93<br>94 - 95<br>96 - 97<br>98 - 100 | <b>Aura color wheel effect</b><br>Open. RGB color mixing enabled<br>LEE 790 - Moroccan pink<br>LEE 157 - Pink<br>LEE 332 - Special rose pink<br>LEE 328 - Follies pink<br>LEE 345 - Fuchsia pink<br>LEE 194 - Surprise pink<br>LEE 181 - Congo Blue<br>LEE 071 - Tokyo Blue<br>LEE 120 - Deep Blue<br>LEE 079 - Just Blue<br>LEE 132 - Medium Blue<br>LEE 200 - Double CT Blue<br>LEE 161 - Slate Blue<br>LEE 201 - Full CT Blue<br>LEE 202 - Half CT Blue<br>LEE 117 - Steel Blue<br>LEE 353 - Lighter Blue<br>LEE 118 - Light Blue<br>LEE 116 - Medium Blue Green<br>LEE 124 - Dark Green<br>LEE 139 - Primary Green<br>LEE 089 - Moss Green<br>LEE 122 - Fern Green<br>LEE 738 - JAS Green<br>LEE 088 - Lime Green<br>LEE 100 - Spring Yellow<br>LEE 104 - Deep Amber<br>LEE 179 - Chrome Orange<br>LEE 105 - Orange<br>LEE 021 - Gold Amber<br>LEE 778 - Millennium Gold<br>LEE 135 - Deep Golden Amber<br>LEE 164 - Flame Red<br>Open<br><b>Color wheel rotation effect</b><br>Clockwise, fast → slow<br>Stop (this will stop wherever the color is at the time)<br>Counter-clockwise, slow → fast<br>Open<br><b>Random color</b><br>Fast<br>Medium<br>Slow<br>Open | Snap        | 0             |
| -       | 23   | 0 - 255   | 0 - 100  | <b>Aura red</b><br>Red 0 → 100%  | Fade        | 255           |
| -       | 24   | 0 - 255   | 0 - 100  | <b>Aura green</b><br>Green 0 → 100%  | Fade        | 255           |
| -       | 25   | 0 - 255   | 0 - 100  | <b>Aura blue</b><br>Blue 0 → 100%  | Fade        | 255           |

**Table 2: MAC Aura XB DMX Protocol**

Note: DMX values labeled "No function" will have no effect - the last functional value will be used.

If **COLOR CALIB** is set to **OFF** in the control menus, RGBW, RGB and color wheel effect output is uncalibrated. If **COLOR CALIB** is set to **ON**, output is calibrated.

# FX: pre-programmed effects

The table below lists the pre-programmed effects that can be selected on DMX channels 15 and 17. Two effects can be superimposed by selecting one effect on channel 15 and a different effect on channel 17.

| Type                | DMX value | Percent         | FX Name  | FX Adjust                   |
|---------------------|-----------|-----------------|--|-----------------------------|
| <b>Aura Sync</b>    | 0 - 9     | 0 - 3           | <b>Dimmer sync</b><br>Idle                       | n/a                         |
|                     | 10 - 12   | 4               | Dimmer sync                                      | n/a                         |
|                     | 13 - 15   | 5               | Strobe sync                                      | n/a                         |
|                     | 16 - 18   | 6 - 7           | Dimmer + strobe sync                             | n/a                         |
|                     | 19 - 21   | 8               | Aura color sync                                  | n/a                         |
|                     | 22 - 24   | 9               | Aura all sync                                    | n/a                         |
|                     | 25 - 39   | 10 - 15         | <i>Reserved</i>                                  | n/a                         |
| <b>Intensity FX</b> | 40 - 42   | 16              | <b>Aura strobe delay</b><br>Aura strobe delay    | Trigger Delay               |
|                     | 43 - 45   | 17              | Strobe alternate single                          | Speed                       |
|                     | 46 - 48   | 18              | Strobe alternate dual                            | Speed                       |
|                     | 49 - 51   | 19 - 20         | Strobe alternate triple                          | Speed                       |
|                     | 52 - 54   | 21              | 3-step strobe                                    | Speed                       |
|                     | 55 - 60   | 22 - 23         | <i>Reserved</i>                                  | n/a                         |
|                     | 61 - 63   | 24              | Intensity random alternate                       | Speed                       |
|                     | 64 - 66   | 25              | Aura ramp, Beam flash                            | Speed                       |
|                     | 67 - 69   | 26 - 27         | Beam ramp, Aura flash                            | Speed                       |
|                     | 70 - 72   | 28              | Intensity Aura, Beam ramp                        | Speed                       |
|                     | 73 - 75   | 29              | Intensity Beam, Aura ramp                        | Speed                       |
| 76 - 99             | 30 - 38   | <i>Reserved</i> | n/a  |                             |
| <b>Color FX</b>     | 100 - 102 | 39              | <b>Aura color offset</b><br>Aura color offset    | Color offset                |
|                     | 103 - 108 | 40 - 42         | <i>Reserved</i>                                  | n/a                         |
|                     | 109 - 111 | 43              | Hue shimmer                                      | Amount                      |
|                     | 112 - 114 | 44              | Saturation shimmer                               | Amount                      |
|                     | 115 - 126 | 45 - 49         | <i>Reserved</i>                                  | n/a                         |
|                     | 127 - 129 | 50              | Color strobe                                     | n/a                         |
|                     | 130 - 132 | 51              | Color offset strobe                              | Color offset on strobe      |
|                     | 133 - 135 | 52              | Aura color strobe                                | n/a                         |
|                     | 136 - 138 | 53              | Aura color offset strobe                         | Aura color offset on strobe |
|                     | 139 - 141 | 54 - 55         | Color spikes                                     | Strength                    |
| 142 - 159           | 56 - 62   | <i>Reserved</i> | n/a  |                             |
| <b>Zoom FX</b>      | 160 - 162 | 63              | <b>Zoom / color offset</b><br>Color zoom ramp in | Speed                       |
|                     | 163 - 165 | 64              | Color zoom ramp out                              | Speed                       |
|                     | 166 - 168 | 65              | Color zoom fade in                               | Speed                       |
|                     | 169 - 171 | 66              | Color zoom fade out                              | Speed                       |
|                     | 172 - 174 | 67 - 68         | <i>Reserved</i>                                  | n/a                         |
|                     | 175 - 177 | 69              | Zoom ramp up                                     | Speed                       |
|                     | 178 - 180 | 70              | Zoom ramp down                                   | Speed                       |
|                     | 181 - 219 | 71 - 85         | <i>Reserved</i>                                  | n/a                         |
| <i>Reserved</i>     | 220 - 255 | 86 - 100        | <i>Reserved</i>                                  | n/a                         |

**Table 3: FX (pre-programmed Beam and Aura effects)**

The MAC Aura XB Product Support page on [www.martin.com](http://www.martin.com) features a downloadable detailed description of the parameters that are adjusted and algorithms that are applied in the different FX.

# LEE colors and RGB equivalents

The table below gives approximate RGB equivalents for the LEE colors available in the standard MAC Aura XB's color wheel effects for the Beam (on DMX channel 9 in **STD** and **EXT** modes) and Aura (on DMX channel 22 in **EXT** mode only).

| Lee no. | Name              | DMX Integer |       |      |
|---------|-------------------|-------------|-------|------|
|         |                   | Red         | Green | Blue |
| 790     | Moroccan Pink     | 255         | 235   | 052  |
| 157     | Pink              | 214         | 134   | 048  |
| 332     | Special rose Pink | 255         | 000   | 044  |
| 328     | Follies Pink      | 255         | 059   | 113  |
| 345     | Fuchsia Pink      | 255         | 138   | 219  |
| 194     | Surprise Pink     | 226         | 175   | 226  |
| 181     | Congo Blue        | 040         | 001   | 255  |
| 071     | Tokyo Blue        | 000         | 000   | 255  |
| 120     | Deep Blue         | 000         | 078   | 255  |
| 079     | Just Blue         | 000         | 199   | 255  |
| 132     | Medium Blue       | 000         | 255   | 234  |
| 200     | Double CT Blue    | 149         | 246   | 255  |
| 161     | State Blue        | 137         | 255   | 227  |
| 201     | Full CT Blue      | 213         | 220   | 222  |
| 202     | Half CT Blue      | 219         | 232   | 175  |
| 117     | Steel Blue        | 205         | 255   | 199  |
| 353     | Lighter Blue      | 115         | 255   | 165  |
| 118     | Light Blue        | 006         | 255   | 143  |
| 116     | Medium Blue Green | 000         | 255   | 94   |
| 124     | Dark Green        | 029         | 255   | 000  |
| 139     | Primary Green     | 032         | 223   | 000  |
| 089     | Moss Green        | 075         | 255   | 000  |
| 122     | Fern Green        | 080         | 232   | 000  |
| 738     | JAS Green         | 108         | 226   | 000  |
| 088     | Lime Green        | 145         | 194   | 000  |
| 100     | Spring Yellow     | 210         | 255   | 000  |
| 104     | Deep Amber        | 225         | 232   | 000  |
| 179     | Chrome Orange     | 023         | 215   | 000  |
| 105     | Orange            | 247         | 214   | 000  |
| 021     | Gold Amber        | 255         | 163   | 000  |
| 778     | Millennium Gold   | 255         | 152   | 000  |
| 135     | Deep Golden Amber | 255         | 108   | 000  |
| 164     | Flame Red         | 255         | 080   | 000  |

# Onboard control menus

| Menu                   | Item                     | Options  | Notes (Default settings in bold print)   |
|------------------------|--------------------------|--|--|
| <b>DMX ADDRESS</b>     |                          | <b>1 – XXX</b>   | DMX address (default address = <b>1</b> ). <b>XXX</b> means that the DMX address range is limited so that the fixture will always have enough DMX channels within the 512 available. |
| <b>CONTROL MODE</b>    | <b>STD</b>               |  | Linked control of Beam and Aura using Beam channels, Aura copies Beam (fixture uses 14 DMX channels)   |
|                        | <b>EXT</b>               |  | <b>Independent control of Beam and Aura, FX available (fixture uses 25 DMX channels)</b>   |
| <b>COLOR MODE</b>      | <b>RGB</b>               |  | Color calibration mode on. Independent white control not available for Beam (white controlled automatically by RGB dimming)  |
|                        | <b>EXTENDED</b>          |  | <b>Calibrated white point. Extended color saturation.</b>  |
|                        | <b>RAW</b>               |  | Raw RGBW dimming, output limited to match standard MAC Aura in raw mode  |
| <b>PERSONALITY</b>     | <b>P/T SETTING</b>       | <b>P/T SPEED</b>   | Pan and tilt speed normal / <b>fast</b> / slow   |
|                        |                          | <b>SWAP</b>  | Swap pan and tilt (pan commands move tilt and vice versa) - <b>off</b> / on  |
|                        |                          | <b>PAN INVERT</b>  | Pan inversion (reverse direction pan control) - <b>off</b> / on  |
|                        |                          | <b>TILT INVERT</b>   | Tilt inversion (reverse direction tilt control) - <b>off</b> / on  |
|                        | <b>FANS</b>              | <b>REGULATED</b>   | <b>Cooling fan speed thermostatically regulated</b>  |
|                        |                          | <b>FULL</b>  | Max. cooling fan speed   |
|                        | <b>DIMMER CURVE</b>      | <b>LINEAR</b>  | Linear dimming curve   |
|                        |                          | <b>SQUARE LAW</b>  | <b>Square law dimming curve</b>  |
|                        |                          | <b>INV SQUARE LAW</b>  | Inverse square law dimming curve   |
|                        |                          | <b>S-CURVE</b>   | S-curve dimming curve  |
|                        | <b>DIMMER SPEED</b>      | <b>FAST</b>  | <b>Fast dimming with unrestricted speed</b>  |
|                        |                          | <b>SMOOTH</b>  | Smooth dimming with restricted speed   |
|                        | <b>DMX RESET</b>         | <b>OFF</b>   | Disable reset via DMX  |
|                        |                          | <b>ON</b>  | <b>Enable reset via DMX</b>  |
|                        | <b>DISPLAY</b>           | <b>ON</b>  | Display is always on   |
|                        |                          | <b>2MIN</b>  | <b>Display switches off and goes into Sleep mode if the controls have not been pressed for 2 minutes.</b>  |
|                        |                          | <b>5MIN</b>  | Display switches off and goes into Sleep mode if the controls have not been pressed for 5 minutes  |
|                        |                          | <b>10MIN</b>   | Display switches off and goes into Sleep mode if the controls have not been pressed for 10 minutes   |
|                        | <b>DISPLAY INTENSITY</b> | <b>10-100</b>  | Display intensity. Default= <b>100</b>   |
|                        | <b>ERROR MODE</b>        | <b>NORMAL</b>  | <b>Display errors at 100% intensity (regardless of DISPLAY INTENSITY setting) and illuminate the service light</b>   |
| <b>SILENT</b>          |                          | Silent error mode. The error message does not appear in the display, but the service lamp is illuminated |  |
| <b>FACTORY SETTING</b> | <b>FACTORY DEFAULT</b>   | <b>LOAD</b>  | Return all settings (except calibrations) to factory defaults<br><i>NB: can take up to 2 minutes to complete!</i>  |

Table 4: Control menu

| Menu                  | Item                         | Options                         | Notes (Default settings in bold print)   |
|-----------------------|------------------------------|---------------------------------|--|
| INFO                  | <b>VERSION</b>               |                                 | CPU firmware version   |
|                       | <b>POWER ON HOURS</b>        | <b>RESETTABLE</b>               | Hours of operation since counter reset   |
|                       |                              | <b>TOTAL</b>                    | Total hours of operation since manufacture   |
|                       |                              | <b>CLEAR RESETTABLE</b>         | Reset resettable counter to zero   |
|                       | <b>MAIN PCB TEMP</b>         | <b>CURRENT</b>                  | Display current main PCB temperature   |
|                       |                              | <b>SINCE RESET</b>              | Display highest main PCB temperature since last reset  |
|                       |                              | <b>MAX</b>                      | Display highest main PCB temperature since manufacture   |
|                       | <b>BEAM LED TEMP</b>         | <b>CURRENT</b>                  | Display current average Beam LED temperature   |
|                       |                              | <b>RESET</b>                    | Display highest average Beam LED temperature since last reset  |
|                       |                              | <b>MAX</b>                      | Display highest average Beam LED temperature since manufacture   |
|                       | <b>AURA LED TEMP</b>         | <b>CURRENT</b>                  | Display current average Aura LED temperature   |
|                       |                              | <b>RESET</b>                    | Display highest average Aura LED temperature since last reset  |
|                       |                              | <b>MAX</b>                      | Display highest average Aura LED temperature since manufacture   |
| <b>SERIAL NUMBERS</b> | <b>RDM</b>                   | Display fixture's RDM ID        |  |
|                       | <b>FIXT SERIAL NUMBER</b>    | Display fixture's serial number |  |
| TEST                  | <b>TEST ALL</b>              |                                 | Test LEDs, pan, tilt, zoom and display   |
|                       | <b>TEST LEDS</b>             |                                 | Test LEDs only   |
|                       | <b>TEST MOTORS</b>           |                                 | Test pan, tilt and zoom movement only  |
|                       | <b>TEST DISPLAY</b>          |                                 | Test all segments in onboard display panel   |
| DMX LIVE              | <b>RATE</b>                  | <b>XX Hz</b>                    | DMX transmission speed, live, in packets per second  |
|                       | <b>QUALITY</b>               | <b>0 - 100%</b>                 | Percentage of packets received with errors, live   |
|                       | <b>START CODE</b>            | <b>0 - 255</b>                  | Decimal value of DMX start code, live  |
|                       | <b>BEAM SHUT - AURA BLUE</b> | <b>0 - 255</b>                  | Scrolls through DMX value received on each DMX channel<br><i>DMX values received on FX and Aura control channels only appear in list when fixture is set to EXT mode</i> |
| SERVICE               | <b>P/T FEEDBACK</b>          | <b>ON</b>                       | <b>Enable pan/tilt position feedback/correction system</b>   |
|                       |                              | <b>OFF</b>                      | Disable pan/tilt feedback for servicing (this setting is not saved when fixture is reset)  |
|                       | <b>CALIBRATION</b>           | <b>PAN OFFSET</b>               | Pan calibration  |
|                       |                              | <b>TILT OFFSET</b>              | Tilt calibration   |

Table 4: Control menu



# Display messages

| Message  | Appears when...  | What to do...   |
|--|--|---|
| <b>RST</b> (Reset)   | ... the fixture is indexing effects at startup.  | Wait for reset to complete.   |
| <b>SRST</b> (Serial reset)   | ... the fixture has received a reset command.  | Wait for reset to complete. Note that you can set <b>PERSONALITY</b> → <b>DMX RESET</b> to <b>OFF</b> to prevent accidental DMX reset commands.                                 |
| <b>MEMORY ERROR</b>  | ...the EEPROM memory cannot be read.   | Reset fixture.<br>Contact Martin if problem persists.   |
| <b>MAIN TMP SEN ERR</b><br>(RDM message: Head Temp. Error)   | ...there is a malfunction in the temperature sensor circuit in the main PCB in the head.   | Contact Martin service for assistance.  |
| <b>BEAM TMP SEN ERR</b><br>(RDM message: Lamp Temp. Error)   | ...there is a malfunction in the Beam LED temperature sensor circuit.  | Contact Martin service for assistance.  |
| <b>AURA TMP SEN ERR</b><br>(RDM message: Lamp Temp. Error)   | ...there is a malfunction in the Aura LED temperature sensor circuit.  | Contact Martin service for assistance.  |
| <b>MAIN TMP CUT OFF</b><br>(RDM message: Lamp Temp. Cut Off)   | ...the temperature sensor on the main PCB in the head measures that temperature is too high. Power to the LEDs is cut off.   | Check that ambient temperature is not too high. Check that the fixture is clean. Check that there is free airflow around the fixture.<br>Contact Martin service for assistance. |
| <b>BEAM TMP CUT OFF</b><br>(RDM message: Lamp Temp. Cut Off)   | ...the Beam LED temperature sensor measures that LED temperature is too high. Power to the LEDs is cut off.  |   |
| <b>AURA TMP CUT OFF</b><br>(RDM message: Lamp Temp. Cut Off)   | ...the Aura LED temperature sensor measures that LED temperature is too high. Power to the LEDs is cut off.  |   |
| <b>PAN FBACK ERR</b><br><b>TILT FBACK ERR</b>  | ...there is a malfunction in the optical pan or tilt monitoring/feedback circuit (e.g. sensor defective). After a time-out, pan or tilt stops in a random position.                              | Reset fixture. Contact Martin service if problem continues.   |
| <b>PAN SENSOR ERR</b><br><b>TILT SENSOR ERR</b><br><b>DRIVER CURR ERR</b>  | ...there is a malfunction in the electrical indexing circuit for pan, tilt or one of the drivers. After a time-out, the fixture will establish a mechanical stop, and continue to work normally. | Reset fixture. Contact Martin service if problem continues.   |
| <b>VOLTAGE ERR</b><br><b>RAM ERROR</b>   | ...there is a voltage or RAM error.  | Reset fixture. Contact Martin service if problem continues.   |
| <b>EFFECTS TOO COLD</b>  | ...the onboard thermostat measures that the effects are too cold.  | Leave fixture powered on to warm it up. Contact Martin service if problem continues or fixture is warm.   |
| <b>FAN ERROR</b>   | ...there is a fan or fan driver error.   | Check that fan on rear of head is free to rotate freely.<br>Contact Martin service for assistance.  |
| <b>COLOR ERROR</b>   | ...there is a driver error.  | Contact Martin service for assistance.  |
| <b>BEAM CALIB ERR</b><br>(RDM message: Color Calibration Error 1)<br><b>AURA CALIB ERR</b><br>(RDM message: Color Calibration Error 2) | ...color calibration data for Beam or Aura LEDs is invalid or there is a communication error.  | Contact Martin service for assistance.  |

Table 5: Display messages

# Troubleshooting

| <b>Problem</b>  | <b>Probable cause(s)</b>  | <b>Remedy</b>  |
|---|---|--|
| Fixture is completely dead.   | No power to fixture.  | Check AC mains power and connections.  |
|   | Internal circuit fault.   | Have faulty fixture serviced by Martin service technician.   |
| One or more fixtures resets correctly but responds erratically or not at all to the controller. | Fault on data link.   | Inspect connections and cables. Correct poor connections. Repair or replace damaged cables.  |
|   | Data link not terminated.   | Insert termination plug in output connector of the last fixture on the link.   |
|   | Incorrect fixture DMX addressing.   | Check addressing on fixture and controller. Check fixture is set to correct DMX mode.  |
|   | One of the fixtures is defective and is disturbing data transmission on the link. | Unplug XLR in and out connectors and connect them directly together to bypass one fixture at a time until normal operation is regained. Have faulty fixture serviced by Martin service technician.                             |
|   | XLR pin-out on fixtures does not match (pins 2 and 3 reversed).                   | Install a phase-reversing cable between the fixtures or swap pins 2 and 3 in the fixture that behaves erratically.   |
| Light output shuts down unexpectedly.   | Fixture is too hot.   | Clean the fixture, especially air vents. Ensure free airflow around fixture. Check that ambient temperature does not exceed max. permitted level. Switch to FULL cooling mode. If problem persists, contact Martin for advice. |

**Table 6: Troubleshooting**

# Specifications

## Physical

|        |  |
|--------|--|
| Length | 302 mm (11.9 in.) across yoke          |
| Width  | 302 mm (11.9 in.) across yoke          |
| Height | 360 mm (14.2 in.), head straight up    |
| Weight | 6.0 kg (13.3 lbs.) without accessories |

## Dynamic Effects

|   |  |
|---|--|
| Beam color mixing                                     | RGBW   |
| Aura (secondary lens array illumination) color mixing | RGB  |
| Beam color temperature control                        | CTC, variable 10 000 - 2500 K  |
| Beam and Aura electronic 'color wheel' effect         | 33 LEE-referenced colors plus white, variable-speed color-wheel rotation effect and random color |
| Beam and Aura independent shutter effects             | Electronic, with regular and random pulse, burst and strobe effects                              |
| Pre-programmed effects                                | Range of independent and synchronized Beam and Aura FX, two combinable                           |
| Electronic dimming                                    | Independent Beam and Aura, four dimming curve options  |
| Zoom  | 11° - 53° (one-tenth peak angle)   |
| Pan   | 540°   |
| Tilt  | 232°   |
| Pan and tilt speed                                    | Adjustable via onboard control panel and DMX   |

## Optics and Photometric Data

|  |   |
|--|---|
| Light source                                   | 15 W RGBW array system                            |
| LED refresh rate                               | Beam 1200 Hz, Aura 4395 Hz                        |
| Minimum LED lifetime                           | 50 000 hours (to >70% luminous output)*           |
| Total luminous output (wide, one-tenth peak)   | 4.6 klm   |
| Total luminous output (narrow, one-tenth peak) | 3.8 klm   |
| Video compatibility                            | Designed for use with HD/high-speed video cameras |

\*Manufacturer's figure obtained under manufacturer's test conditions

## Control and Programming

|                        |   |
|------------------------|---|
| Control options        | Independent or synchronized Beam and Aura control |
| Control systems        | DMX, RDM  |
| Control resolution     | .8-bit, with 16-bit control of pan & tilt         |
| DMX channels           | 14/25   |
| Setting and addressing | Control panel with backlit graphic display        |
| DMX compliance         | USITT DMX512-A                                    |
| RDM compliance         | ANSI/ESTA E1.20 RDM                               |
| Transceiver            | RS-485  |
| Firmware update        | Via DMX with Martin USB Duo DMX Interface         |

## Construction

|                   |   |
|-------------------|---|
| Color             | Black   |
| Housing           | High-impact thermoplastic, flame-retardant to UL 94 5VA |
| Protection rating | IP 20   |

## Installation

|   |  |
|---|--|
| Mounting points                           | M12 hole for rigging clamp, attachment points for surface-mounting bracket |
| Orientation                               | Any  |
| Minimum distance to combustible materials | 200 mm (8 in.) from fixture  |
| Minimum distance to illuminated surfaces  | 1 m (3 ft. 4 in.) from fixture   |
| Location                                  | Indoor use only, must be fastened to structure or surface                  |

## Connections

|                 |   |
|-----------------|---|
| AC power        | Neutrik PowerCON TRUE1 NAC3PX dual socket   |
|                 | <i>AC power IN socket accepts Neutrik PowerCON TRUE1 NAC3FX-W cable connector</i>       |
|                 | <i>AC power OUT/THRU socket accepts Neutrik PowerCON TRUE1 NAC3MX-W cable connector</i> |
| DMX data in/out | 5-pin locking XLR   |

## Electrical

|  |                                     |
|--|-------------------------------------|
| AC power   | 100-240 V nominal, 50/60 Hz         |
| Maximum power consumption                                | 400 W                               |
| Power supply unit  | Auto-ranging electronic switch mode |
| Power consumption, all effects static, zero light output | <25 W                               |
| Typical half-cycle RMS inrush current                    | 10.7 A                              |

## Typical Power and Current

|              |                       |
|--------------|-----------------------|
| 100 V, 60 Hz | 359 W, 3.8 A, PF 0.99 |
| 120 V, 60 Hz | 355 W, 3.2 A, PF 0.99 |
| 208 V, 60 Hz | 350 W, 1.8 A, PF 0.97 |
| 230 V, 50 Hz | 349 W, 1.7 A, PF 0.95 |
| 240 V, 50 Hz | 349 W, 1.6 A, PF 0.95 |

*PF = power factor. Measurements made at nominal voltage with all LEDs at full intensity. Allow for a deviation of +/- 10%.*

## Thermal

|  |  |
|--|--|
| Cooling                                      | Forced air (temperature-regulated, low noise, user-definable levels) |
| Maximum ambient temperature (Ta max.)        | 40° C (104° F)   |
| Minimum ambient temperature (Ta min.)        | 5° C (41° F)   |
| Total heat dissipation (calculated, +/- 10%) | 1230 BTU/hr.   |

## Approvals



|                 |  |
|-----------------|--|
| EU safety       | EN 60598-2-17 (EN 60598-1), EN 62471       |
| EU EMC          | EN 55103-1, EN 55103-2, EN 55015, EN 61547 |
| US safety       | UL 1573                                    |
| US EMC          | FCC Part 15 Class A                        |
| Canadian safety | CSA E598-2-17 (CSA E60598-1)               |
| Canadian EMC    | ICES-003 Class A                           |
| Australia/NZ    | C-TICK N4241                               |

## Included Items

M12 bolt suitable for use with Martin™ rigging clamps  
*Note that power cables and connectors are not included and must be ordered separately*

## Accessories

### Power cables

|   |              |
|---|--------------|
| Power input cable, 16 A, 14 AWG, SJT, 1.5 mm <sup>2</sup> , H05VV-F,<br>with PowerCON TRUE1 NAC3FX-W female power IN connector, 3 m (9.8 ft.)     | P/N 11541513 |
| Power relay cable, 16 A, 14 AWG, SJT, 1.5 mm <sup>2</sup> , H05VV-F,<br>with PowerCON TRUE1 male OUT/THRU and female IN connectors, 3 m (9.8 ft.) | P/N 11541512 |

### Power connectors

|  |               |
|--|---------------|
| Cable connector, power IN, PowerCON TRUE1 NAC3FX-W       | P/N 05323416* |
| Cable connector, power OUT/THRU, PowerCON TRUE1 NAC3MX-W | P/N 05343418* |

*\*Note that the fourth digit as well as the last digit is different between these two part numbers.*

### Installation hardware

|  |              |
|--|--------------|
| Set of 5 x quick-mount surface mounting brackets, wide | P/N 91606018 |
| G-clamp  | P/N 91602003 |
| Half-coupler clamp                                     | P/N 91602005 |
| Quick trigger clamp                                    | P/N 91602007 |
| Safety wire, safe working load 50 kg                   | P/N 91604003 |

## Flightcase

6-unit flightcase for MAC Aura™ ..... P/N 91515020

## Related Items

Martin USB Duo™ DMX Interface Box ..... P/N 90703010

Martin DMX 5.3 Splitter™ ..... P/N 90758140

Martin RDM 5.5 Splitter™ ..... P/N 90758150

## Ordering Information

MAC Aura XB™ in cardboard box ..... P/N 90232100

MAC Aura XB™ in 6-unit flightcase ..... P/N 90232110

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

### RISK GROUP 2

**CAUTION** Possibly hazardous optical radiation emitted from this product.  
Do not look at operating lamp.  
May be harmful to the eyes.

### GROUPE DE RISQUE 2

**ATTENTION** Des radiations lumineuses potentiellement dangereuses sont émises par ce produit.  
Ne pas regarder le projecteur en fonctionnement.  
Peut être dangereux pour les yeux.

## Photobiological Safety Warning

The label shown on the left is displayed on this product. If it becomes difficult or impossible to read, it must be replaced using the illustration on the left to reproduce a new label.

## FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Canadian Interference-Causing Equipment Regulations - *Règlement sur le Matériel Brouilleur du Canada*

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

*Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.*



## Disposing of this product

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 Martin products.



# OPERATING & ASSEMBLY INSTRUCTION

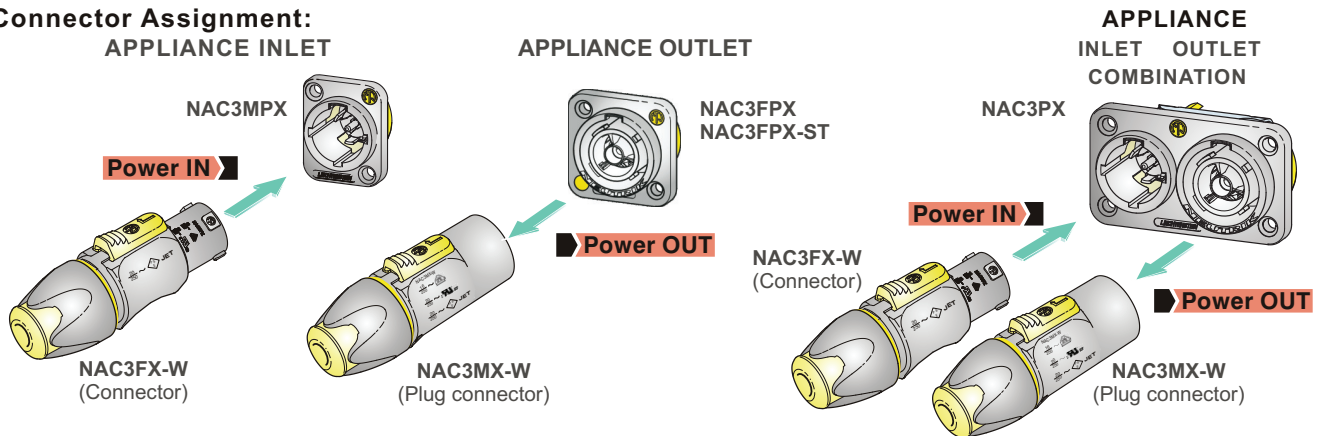
## NAC3MX-W | powerCON TRUE1

### A. OPERATING INSTRUCTION

#### Application:

The powerCON TRUE1 system is certified as connector with breaking capacity according IEC 60320, VDE 0625. It is intended for use as appliance couplers and interconnection couplers. It serves to supply power to an appliance and from an appliance to another equipment. To be installed by qualified person only.

#### Connector Assignment:



|                        |   |   |
|------------------------|---|---|
| <b>Approval based:</b> | <b>VDE</b><br>EN 60320-1/EN60320-2-2  | <b>UL</b><br>UL 498 / CSA C22.2 No. 182.3 |
| <b>Rating:</b>         | 250 V ac / 16 A   | 250 V ac / 20 A                           |
| <b>Cable Type:</b>     | H05VV-F3G 1.0 mm <sup>2</sup> , Length max. 2 m<br>H05VV-F3G 1.5 - 2.5 mm <sup>2</sup><br>H07RN-F3G 1.5 mm <sup>2</sup> | SJTOW, SJOOW 3 x 12 AWG                   |
| <b>Strain Relief:</b>  | White chuck   | White chuck                               |
| <b>Cable O.D.:</b>     | 6.0 - 12.0 mm   | 6.0 - 12.0 mm                             |

### B. ASSEMBLY INSTRUCTION

**A** Insert cable into the bushing and housing.  
**Note:** "Apply cable pulling lubricant to cable jacket."

**B** Separate the housing from the bushing (cable remain in bushing)

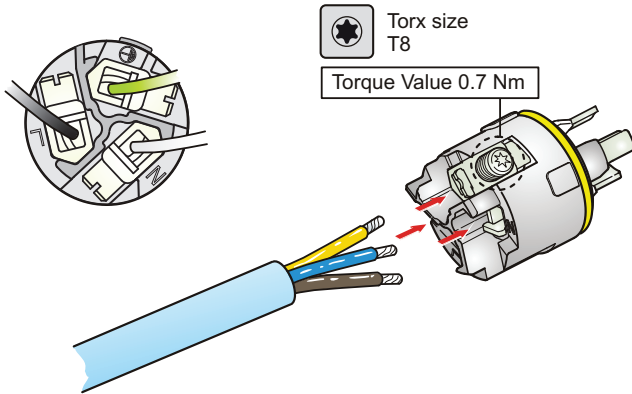
**C** Place chuck over the cable.

**D** Prepare cable as shown.

| Standard                          | Dimensions  |
|-----------------------------------|---|
| VDE (EN 60320-1/EN60320-2-2)      | 20 mm [0.787"]<br>8 mm [0.32"]<br>PE 23 mm [0.9"] |
| UL (UL 498 / CSA C22.2 No. 182.3) | 20 mm [0.787"]<br>8 mm [0.32"]<br>PE 23 mm [0.9"] |



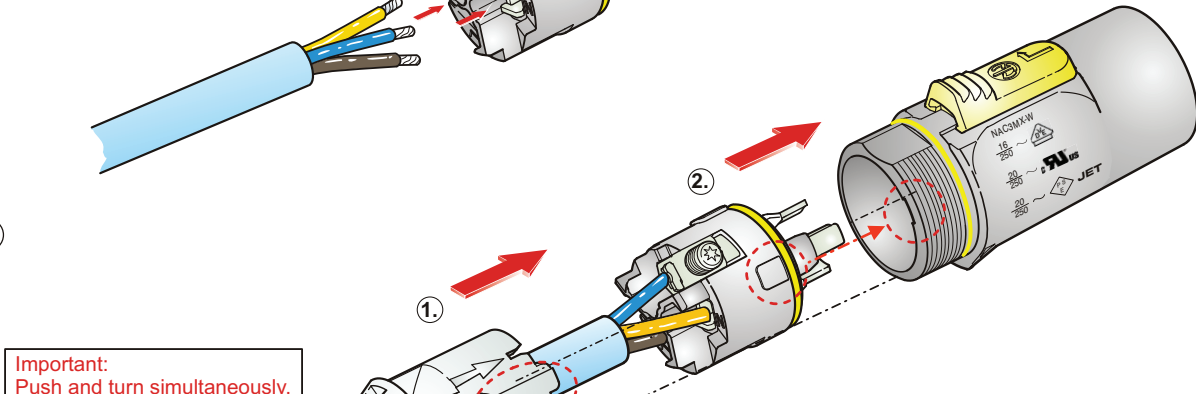
E



Slide the cable into the contacts and clamp with the screw with Torx size T8.

| Wiring | VDE            | UL    |
|--------|----------------|-------|
| L ⇒    | brown          | black |
| N ⇒    | blue           | white |
| ⊥ ⇒    | green / yellow | green |

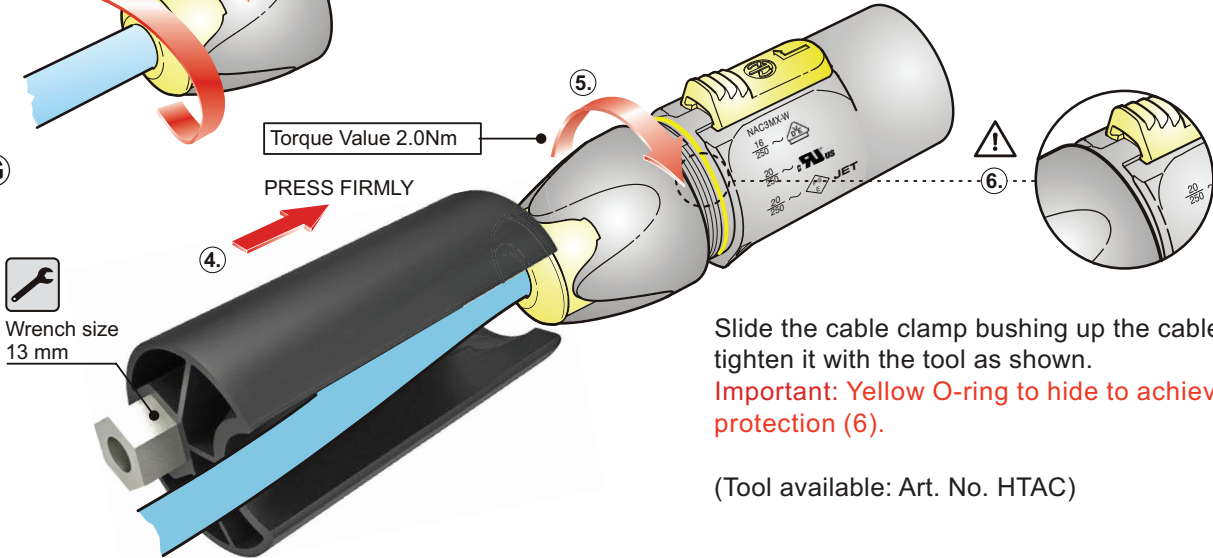
F



Slide chuck onto insert (1) and then both into housing (2).

Important: Align the chuck by positioning the nose into keyway.

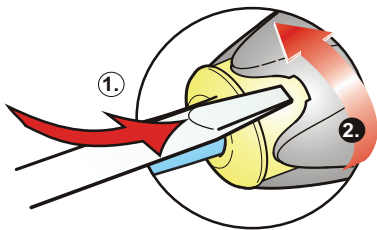
G



Slide the cable clamp bushing up the cable and tighten it with the tool as shown.

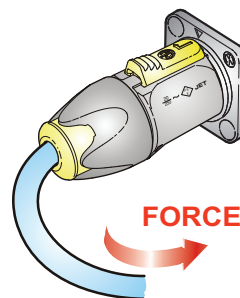
Important: Yellow O-ring to hide to achieve IP protection (6).

(Tool available: Art. No. HTAC)



**Disassembly (open twist lock):**

1. Press with screw driver to unlock
2. Turn bushing while still pressing locking.



**CAUTION**

To ensure protection category, do not expose the connection to bending forces (e.g. do not attach loads to the cable, no free-dangling cable windings etc.).

NEUTRIK AG LI T: +423/237 24 24 F: +423/232 53 93  
 NEUTRIK USA Inc. USA T: +1 704 / 972 3050 F: +1 704/438 9202  
 NEUTRIK (UK) Ltd. UK T: +44 1983 / 811 441 F: +44 1983/811 439  
 NEUTRIK Vertriebs GmbH DE/NL/AT/DK T: +49 8131 / 280 890 F: +49 8131/280 830

NEUTRIK France FR T: +33 1/4131 6750 F: +33 1/4131 0511  
 NEUTRIK Tokyo Ltd. JP T: +81 3/3663 4733 F: +81 3/3663 4796  
 NEUTRIK Hong Kong Ltd. HK T: +852/2687 6055 F: +852/2687 6052  
 NEUTRIK India Pvt. Ltd. IND T: +91/982 05 43 424 F: +91/22 26163 540







---

[www.martin.com](http://www.martin.com) • Olof Palmes Allé 18 • 8200 Aarhus N • Denmark  
Tel: +45 8740 0000 • Fax +45 8740 0010