

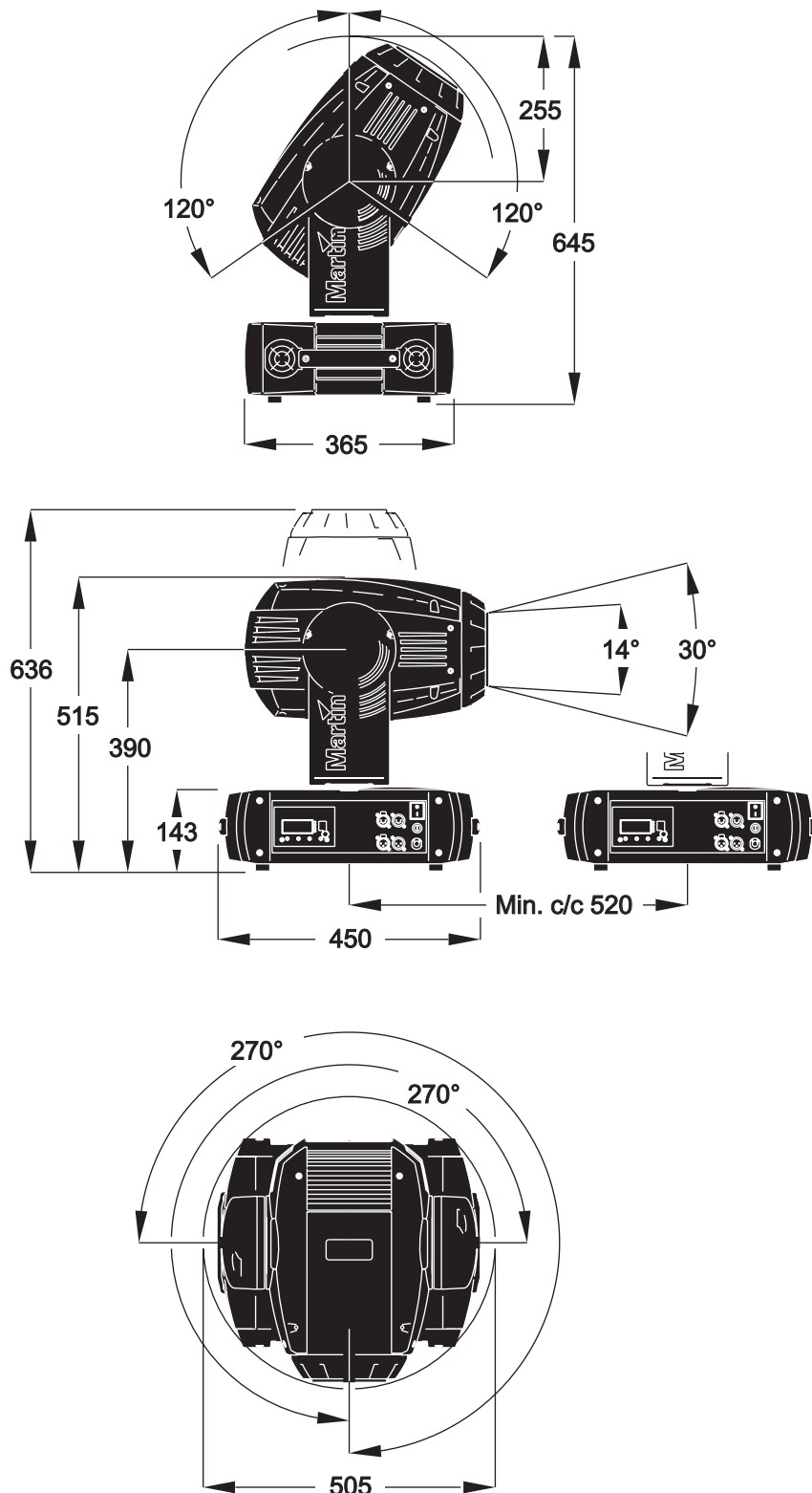
# MAC 575 Krypton™

user manual



# Dimensions

All measurements are expressed in millimeters



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P/N 35000206, Rev. C

# 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:



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



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



**WARNING!**  
Fire hazard.



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



**WARNING!**  
Risk of eye injury. Safety glasses must be worn.



**WARNING!**  
Risk of hand injury. Safety gloves must be worn.



**WARNING!** Refer to user manual.



This product is for professional use only. It is not for household use.

This product presents risks of severe injury or death due to fire and burn hazards, electric shock, lamp explosion and falls.



**Read this manual** before installing, powering or servicing the fixture, follow the safety precautions listed below and observe all warnings in this manual and printed on the fixture. If you have questions about how to operate the fixture safely, please contact your Martin dealer or call the Martin 24-hour service hotline at +45 70 200 201.



## PROTECTION FROM ELECTRIC SHOCK

- Disconnect the fixture from AC power before removing or installing any cover or part – including the lamp and fuses – and when not in use.
- Always ground (earth) the fixture electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault (earth-fault) protection.
- Connect this fixture to AC power either using the supplied power cable or via 3-conductor cable that is rated minimum 8 amp, hard usage. Suitable cable types include SJT, ST, STW, SEO, SEOW and STO.
- 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.
- Do not use the fixture if the power cable or power plug are in any way damaged, defective or wet, or if they show signs of overheating.
- Do not expose the fixture to rain or moisture.
- Refer any service operation not described in this manual to a qualified technician.



## LAMP SAFETY



- Prolonged exposure to an unshielded discharge lamp can cause eye and skin burns. Do not stare directly into the light output. Never look at an exposed lamp while it is lit.
- Do not operate the fixture with missing or damaged covers, shields, lenses or ultraviolet screens.
- A hot discharge lamp is under pressure and can explode without warning. Allow the fixture to cool for at least 45 minutes and protect yourself with safety glasses and gloves before handling a lamp or servicing the fixture internals.
- Replace the lamp immediately if it becomes visually deformed, damaged or in any way defective
- Monitor hours of lamp use and lamp intensity and replace the lamp when it reaches the limit of its service life as specified in this manual or by the lamp manufacturer.
- Install only an approved lamp.
- If the quartz envelope of a discharge lamp is broken, the lamp releases a small quantity of mercury and other toxic gases. If a discharge lamp explodes in a confined area, evacuate the area and ventilate it thoroughly. Wear nitrite gloves when handling a broken discharge lamp. Treat broken or used discharge lamps as hazardous waste and send to a specialist for disposal.



## PROTECTION FROM BURNS AND FIRE



- Do not operate the fixture if the ambient temperature ( $T_a$ ) exceeds  $40^{\circ}\text{C}$  ( $104^{\circ}\text{F}$ ).
- The exterior of the fixture becomes very hot – up to  $160^{\circ}\text{C}$  ( $320^{\circ}\text{F}$ ) – during use. Avoid contact by persons and materials. Allow the fixture to cool with the lamp powered off for at least 45 minutes before handling or opening any cover.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 0.5 meters (20 inches) away from the head.
- Keep flammable materials well away from the fixture.
- Ensure that there is free and unobstructed airflow around the fixture. Provide a minimum clearance of 0.1 meters (4 inches) around fans and air vents.
- Do not illuminate surfaces within 1.2 meters (42 inches) of the fixture.
- Do not attempt to bypass thermostatic switches or fuses. Replace defective fuses with ones of the specified type and rating.
- Do not stick filters, masks or other materials onto any lens or other optical component.
- Do not modify the fixture in any way not described in this manual
- Install only genuine Martin parts.



## PROTECTION FROM INJURY DUE TO FALLS

- Use a secondary attachment such as a safety cable that is approved for the weight of the fixture and installed as described in this manual.
- If suspending from a rigging structure, attach the fixture with two evenly spaced clamps. Do not use only one clamp.
- Ensure that any structure and/or hardware used can hold at least 10 times the weight of all devices suspended from them.
- Allow enough clearance around the head to ensure that it cannot collide with an object or another fixture when it moves.
- Check that all external covers and rigging hardware are securely fastened.
- Do not lift or carry the fixture alone.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the fixture.

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# Notes

# Introduction

Thank you for selecting the Martin MAC 575 Krypton™. This moving-head spotlight features:

- 575 watt short-arc high-output discharge lamp
- full-range mechanical dimmer/shutter
- two color wheels with a total of 16 color filters including two color temperature correction filters
- gobo wheel with 9 static gobos
- gobo wheel with 6 rotating gobos
- four-facet rotating prism
- iris
- variable focus and zoom
- 540° of pan and 246° of tilt

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:

Service Department  
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***Warning! Read the safety precautions in this manual before installing and operating the fixture.***

## Unpacking

The following items are included with the MAC 575 Krypton:

- GE CSR 575/S/DE/70 lamp (installed)
- 2 clamp attachment brackets
- this user manual

## Using for the first time

Before applying power to the fixture,

- carefully review the safety information on page 3,
- install a cord cap (mains plug) on the power cable as described in “Power connection” on page 8
- unlock the tilt lock as described on page 24.

When powered up, check lamp alignment as described on page 10.

# AC power



**WARNING!** For protection from electric shock, the fixture must be grounded (earthed). The AC mains supply must be fitted with a fuse or circuit breaker and ground-fault (earth-fault) protection.

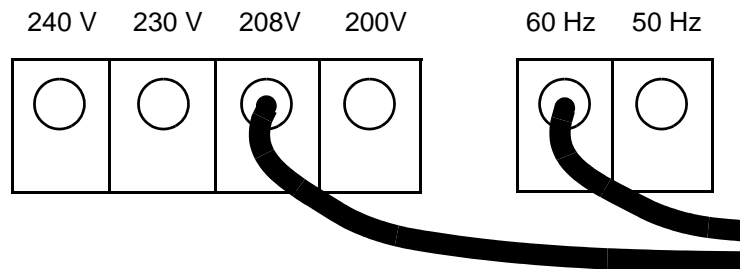
**Important!** There are terminals on the ballast to match different voltages and AC frequencies. Check that these are correctly wired before applying power.

## Configuring the ballast for AC power

The MAC 575 Krypton can be connected to 200-240 V nominal AC mains power at 50 or 60 Hz. The fixture's power supply unit automatically adapts to voltage and frequency within these ranges. However, wiring to the magnetic ballast must be configured manually to match local power.

To configure the ballast wiring:

1. Check that the fixture is not connected to AC power.
2. Remove the four screws holding the 'blind' side cover on the opposite side of the base from the control panel and remove the cover for access to the terminals on the ballast.



**Figure 1: Ballast configuration**

3. See Figure 1. Check that the *longer* black wire to the ballast is connected to the screw terminal marked with the local AC power voltage. Release it and connect it to the screw terminal for the correct voltage if necessary. If the exact local voltage is not marked on a terminal, install the wire in the terminal with the next highest voltage (for example, if the local power voltage is 220 V, install the wire in the 230 V terminal).
4. Check that the *shorter* black wire to the ballast is connected to the screw terminal marked with the local AC power frequency. Release it and connect it to the screw terminal for the correct frequency if necessary.
5. Reinstall the 'blind' side cover before applying power.

## Power connection

**Important!** Connect the MAC 575 Krypton directly to AC power. Do not connect it to a dimmer system; doing so may damage the fixture.

You may need to fit the power cable with a power plug that is suitable for your power outlets. If so, install a grounding-type (earthed) plug following the manufacturer's instructions. Table 1 shows some possible pin identification schemes; if the pins are not clearly identified, or if you have any doubts about proper installation, consult a qualified electrician.

To apply power, first check that the head tilt locks are released and then set the power switch on the base to the "I" position.

Wire Color	Pin	Symbol	Screw (US)
brown	live	L	yellow or brass
blue	neutral	N	silver
yellow/green	ground (earth)		green

**Table 1: Cord cap connections**



# Lamp

## About the discharge lamp

The MAC 575 Krypton is designed for use with the GE CSR 575/S/DE/70 lamp. This highly efficient double-ended short-arc discharge lamp provides a color temperature of 7000 K, a color rendering index greater than 85, and an average lifetime of 750 hours.

**Warning!** *Installing a lamp that is not approved may create a safety hazard or damage the fixture!*

To reduce the risk of explosion, replace the lamp when it reaches the limit of its average service life, i.e. when usage reaches 750 hours. *Never* exceed the lamp's average service life by more than 10%. To read lamp hours from the control panel, please refer to "Readouts" on page 14. Replace the lamp immediately if it is deformed or in any way defective.

For maximum lamp life, avoid dousing the lamp before it has warmed up for at least 5 minutes.

## Lamp replacement



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



**Important!** *Do not touch the quartz bulb with bare fingers.*

Replacement lamps are available from your Martin dealer (P/N 97010212).

The clear quartz bulb must be clean and free of any oils from your fingers. Clean the lamp with an alcohol wipe and polish it with a dry cloth, particularly if you accidentally touch the bulb.

### To replace the lamp

1. Disconnect the fixture from power and allow it to cool for at least 45 minutes or until the lamp access plate is cool enough to touch. Lock the head right-side up.
2. Release the 4 quarter-turn fasteners marked with arrows on the lamp access plate, as shown in Figure 2. Pull the lamp assembly straight back as far as it goes and let it rest in place.
3. Push down the retention spring on the right end of the socket and push out the pin. You can use a screwdriver to gently pry the lamp out of the socket as shown in Figure 3. Remove the lamp.

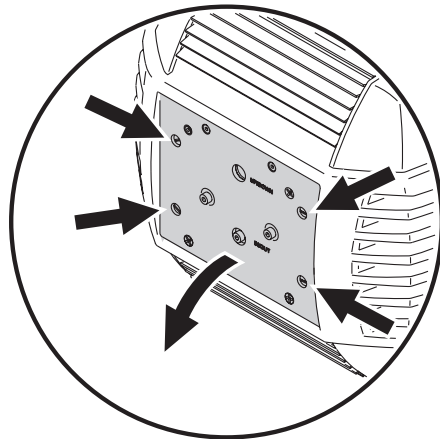


Figure 2: Lamp access

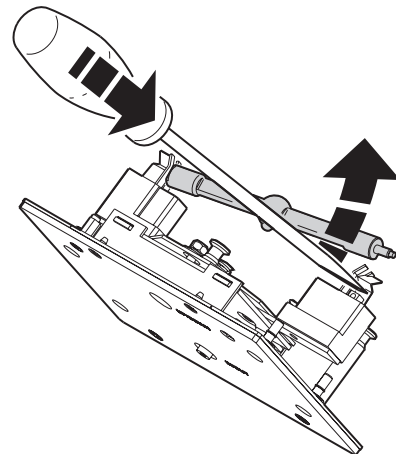


Figure 3: Lamp removal

4. With the nipple on the replacement lamp facing towards the back as shown in Figure 4, insert the left pin into the socket. Push down on the right-hand spring and snap the pin into place.

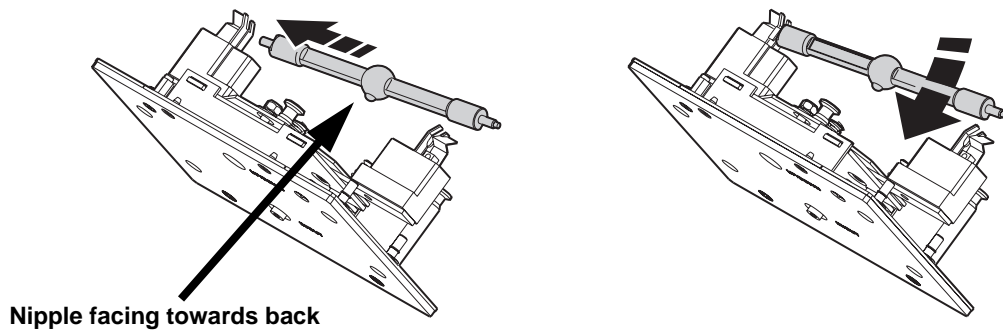


Figure 4: Lamp insertion

5. Make sure that the terminals on the lamp sit below the V-section in the lampholder clips and not in the V-section itself, as shown in Figure 5.

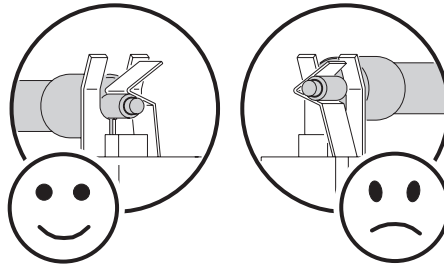


Figure 5: Lamp terminals

6. Lift the lamp assembly so that lamp is level with the center of the reflector. Push the assembly straight in until it seats, making sure the lamp passes through the reflector opening.
7. Push and turn the 4 fasteners a quarter turn or so clockwise to close the lamp access panel.
8. After installing a new lamp, reset the lamp hour and lamp strike counters. See "Time" on page 14.

### To align the lamp

**Important!** *Align the lamp carefully. An excessive hot-spot will damage optical components.*

1. Apply power and allow the MAC 575 Krypton to reset. Using either a controller or the control menu, strike the lamp and project an open white beam on a flat surface.
2. See Figure 6. Center the hot spot vertically using the top Allen-head adjustment screw (A) in the center of the rear plate. Center the hot spot horizontally using the side-to-side adjustment screws (C).
3. If there is an excessive hot spot, turn the bottom adjustment screw (B) counterclockwise until the light is evenly distributed. If the light is brighter around the edge than it is in the center, or if light output is low, turn the bottom adjustment screw (B) clockwise until the light is bright and evenly distributed.

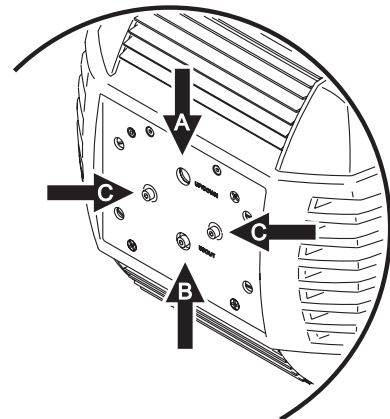


Figure 6: Lamp adjustment screws

# DMX data link

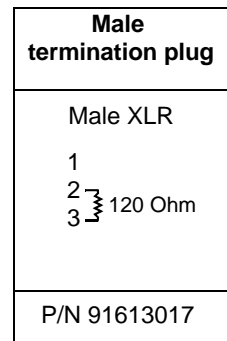
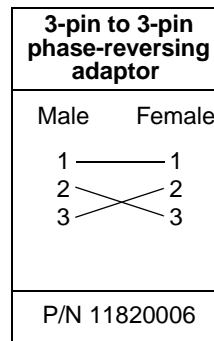
**Important!** Never connect more than 1 data input and 1 data output.

The MAC 575 Krypton has both 3-pin and 5-pin XLR sockets for DMX input and output. The pin-out on all sockets is pin 1 to shield, pin 2 to cold (-), and pin 3 to hot (+). There is no connection to pins 4 and 5.

The sockets are wired in parallel: both inputs connect to both outputs. To avoid damage to the fixture, never use more than one input and one output socket!

## 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 outputs to split the link. To split the serial link into branches use a splitter such as the Martin 4-Channel Opto-Isolated RS-485 Splitter/Amplifier.
- Do not overload the link. Up to 32 devices may be connected on a serial link.
- 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.
- Some older fixtures have reversed polarity data sockets (pin 2 hot and pin 3 cold). Polarity is normally labelled on devices and described in user manuals. Use a phase-reversing cable between the MAC 575 Krypton and any device with reversed polarity.



## To connect the data link

1. Connect the DMX data output from the controller to the MAC 575 Krypton's 3-pin or 5-pin input (male) socket.
2. Using the sockets that match your data cable, connect the output of the fixture closest to the controller to the input of the next fixture.
3. Insert a male 120 Ohm XLR termination plug in the 3-pin or 5-pin output of the last fixture on the link.

# Rigging

The MAC 575 Krypton can be placed on stage or clamped to a truss in any orientation using the clamp bracket mounting points shown in Figure 7.

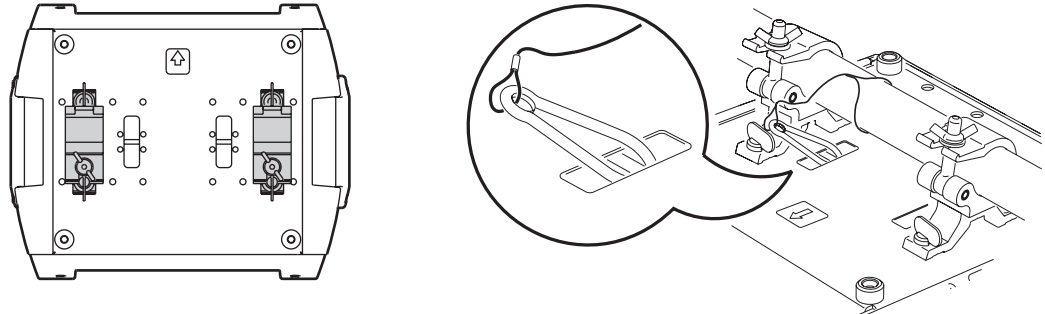


Figure 7: Clamp bracket positions and safety wire attachment point



**Warning!** Always use 2 clamps to rig the fixture. Lock each clamp with both 1/4-turn fasteners. The fasteners are locked only when turned fully clockwise.

**Warning!** Attach an approved safety cable to the attachment point labelled "SAFETY WIRE" in the base. Never use the carrying handles for secondary attachment.

## To clamp the fixture on a truss

1. Check that the rigging clamps are undamaged and can bear at least 10 times the weight of the fixture. Check that the structure can bear at least 10 times the weight of all installed fixtures, clamps, cables, auxiliary equipment, etc.
2. Bolt each clamp securely to a clamp bracket with an M12 bolt (minimum grade 8.8) and lock nut.
3. Align a clamp with 2 mounting points in the base. Insert the fasteners into the base and turn both levers a full 1/4-turn clockwise to lock. Install the second clamp.
4. Block access under the work area. Working from a stable platform, hang the fixture on the truss with the arrow towards the area to be illuminated. Tighten the rigging clamps.
5. Install a safety wire that can bear at least 10 times the weight of the fixture. The attachment point is designed to fit a carabiner clamp.
6. Check that the tilt lock is released. Verify that there are no combustible materials within 0.5 meters (20 inches) or surfaces to be illuminated within 1.2 meters (42 inches) of the head, and that there are no flammable materials nearby.
7. Check that there is no possibility of heads or yokes colliding with other fixtures.

# Control panel

You can set the MAC 575 Krypton's DMX address, configure individual fixture settings (personality), read out data, and execute service utilities from the fixture's control panel. Settings can also be changed remotely via the DMX link with the Martin MP-2 uploader.

See also the control menu overview starting on page 35 for a complete list of the menus and commands available in the control panel.

## Menu navigation

The DMX address and any status messages (see page 40) are displayed on the control panel when the MAC 575 Krypton is powered on. To enter the menu, press [Menu]. Press [Up] and [Down] to move within the menu. To select a function or submenu, press [Enter]. To escape a function or menu, press [Menu].

Note: [Enter] must be pressed and held for a few seconds to enter the Utilities menu.

## DMX address and protocol

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 575 Kryptons 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.

Depending on the selected DMX mode, the MAC 575 Krypton requires 19 or 25 DMX channels. The basic mode uses 19 channels and provides coarse control of all effects plus fine control of gobo rotation, pan, and tilt. The extended mode uses 25 channels and provides the basic mode features plus fine control of the dimmer, color wheel, iris, focus, and zoom.

DMX addressing is limited to channels 1 - 494 (in basic mode) and 1 - 488 (in extended mode). This makes it impossible to set the DMX address so high that you are left without enough control channels for the fixture.

### To set DMX address and protocol

1. Press [Menu] to enter the main menu.
2. Press [Up] until **ADDR** is displayed. Press [Enter]. To snap to channel 1, press [Enter] and [Up]. Scroll to the desired channel and press [Enter].
3. Select **PSET** from the main menu and press [Enter]. Select **16BT** for basic mode, or **16EX** for extended mode. Press [Enter].

## Tailoring performance

### Movement

The MAC 575 Krypton provides several options for optimizing movement for different applications.

- The protocol setting (**PSET**) setting selects the basic (**16BT**) or extended (**16EX**) control mode. Extended mode provides finer position control of the dimmer, color wheel, iris, focus lens, and zoom lens than the basic mode.
- The pan and tilt invert (**PATI**) menu swaps and/or inverts pan and tilt.
- The pan/tilt speed (**PTSP**) menu provides 3 settings: **FAST**, **NORM**, and **SLOW**. **NORM** is best for most applications. **FAST** provides better performance in applications where speed is most important. **SLOW** provides the smoothest movement and is best in long-throw applications with slow movements through narrow angles.
- The studio mode (**STUD**) setting optimizes all effects besides pan and tilt for quietness or speed.
- The shortcuts (**PERS**→**SCUT**) setting determines whether the gobo and color wheels take the shortest path between two positions, crossing the open position if necessary, or always avoid the open position.

## Dimmer

The dimmer curve setting (*PERS*→*DIKU*) provides two options for dimmer behavior. Select *DIM 1* to simulate tungsten dimming or *DIM 2* for more linear dimming.

## Display

The display intensity (*PERS*→*DIINT*) setting controls display brightness. Select *AUTO* for automatic display or manually set the intensity to a level from *10* to *100*.

The display on/off setting (*PERS*→*DISP*) determines whether the display remains on (*ON*), remains on for 2 minutes after the last key press (*2 MN*), or for 10 minutes after the last key press (*10MN*).

To flip the display, press [Up] and [Down] simultaneously.

## Lamp

There are two settings that modify lamp control: Automatic Lamp On (*PERS*→*ALON*) and DMX Lamp Off (*PERS*→*LLOF*).

When *ALON* is *OFF*, the lamp remains off until a “lamp on” command is received. When *ALON* is *ON*, the lamp strikes automatically after the fixture is powered on. When *ALON* is set to *DMX*, the lamp strikes automatically when the fixture receives DMX data, and it douses 15 minutes after DMX data is lost.

When *ALON* is set to either *ON* or *DMX*, the automatic lamp strike timing is staggered to prevent all lamps from striking at once. The delay is determined by the fixture address.

The DMX Lamp Off (*LLOF*) setting allows you to enable (*ON*) or disable (*OFF*) the DMX command that switches off the lamp. The special combination of DMX values listed on page 29 allows you to execute the lamp-off command even when disabled.

## DMX reset

The DMX reset (*PERS*→*DRS*) setting controls the behavior of the reset command. When set to *ON*, the command is fully enabled. When set to *OFF*, the command is disabled to prevent accidental resets. When set to *5SEC*, the command must be sent for five seconds. The special combination of DMX values listed on page 29 allows you to execute a reset even when the command is disabled.

## iris blackout

The iris blackout (*PERS*→*IRIB*) setting enhances blackout effectiveness. When set to *ON*, the iris deploys 3 seconds after dimmer blackout. This absorbs any light that may escape past the dimmer.

The iris takes a fraction of a second longer to open than the dimmer blades, however, so setting iris blackout to *OFF* (the default setting) allows the fixture to snap open more rapidly after a blackout.

## Custom settings

The custom configuration function *DFSE*→*CUS 1- CUS 3* allows you to save and recall three sets of fixture settings. The savable settings are DMX mode, pan/tilt speed, pan/tilt inverse and swap, DMX lamp off and reset, display settings, shortcuts, studio mode, automatic lamp on, effects feedback, tracking algorithm, and tracking samples.

# Readouts

## Time

*INFO*→*TIME* provides readouts of fixture hours (*HRS*), lamp hours (*L HR*), and lamp strikes (*L ST*). Under each item is a resettable (*RSET*) increment counter and a non-resettable (*TOTL*) counter for total accumulated hours/strikes since fabrication. To reset an increment counter, display it and then press [Up] until it reads *0*.

## Temperature

*INFO*→*TEMP* provides temperature readouts for the head, lamp, PCB and power supply in Celsius and Fahrenheit.

## Firmware version

*INFO*→*VER* displays the version number of the installed firmware. The firmware version is also displayed briefly at startup.

## DMX

The DMX log (*DMXL*) menu provides useful information for troubleshooting control problems.

*RATE* displays the DMX refresh rate in packets per second. Values lower than 10 or higher than 44 may result in erratic performance, especially when using tracking control.

*QUAL* displays the quality of the received DMX data as a percentage of packets received. Values much below 100 indicate interference, poor connections, or other problems with the serial data link that are the most common cause of control problems.

*STCO* displays the DMX start code. Packets with a start code other than 0 may cause irregular performance.

The remaining options under *DMXL* display the DMX values received on each channel. If the fixture does not behave as expected, reading the DMX values can help you troubleshoot the problem.

## Service messages

The Service LED on the control panel lights under conditions that require fixture service, and there is a message describing the service required. To display the message, select *SMSG* in the main menu. This item is available only when the LED is lit. There are two service messages.

*REPLACE LAMP* is displayed when the lamp counter exceeds 750 hours, which is the rated average life for the lamp.

*FIXTURE OVERHEATING* is displayed when the head temperature exceeds 85° C (185° F). Overheating is probably due to dirty air filters, fans, or air vents. It may be due to incorrect power supply settings, or a defective fan.

## Manual control

The manual control menu (*MAN*) provides commands for resetting the fixture (*RST*), striking the lamp (*LON*), and dousing the lamp (*LOFF*). It also permits you to position and move individual effects.

## Service utilities

**Important!** *[Enter]* must be held for several seconds to access the utilities menu.

### Test sequences

*TSEQ* provides a general test of all effects that can be run without a controller. *UTIL*→*PCBT* provides routines for circuit board testing that are for service use only.

### Feedback toggles

An on-the-fly position correction system monitors the gobo and color wheels and rotating gobos. If a position error is detected, the shutter closes while the effect resets. This feature can be disabled by turning effects feedback (*UTIL*→*EFFB*) off.

The automatic pan/tilt position correction system may be temporarily turned off under *UTIL*→*FEBR*. The off setting, however, is not saved and the system will be re-enabled the next time the fixture starts. If the system cannot correct the pan/tilt position within 10 seconds, feedback is automatically disabled.

### Adjustment

The adjustment menu (*UTIL*→*ADJ*) provides manual control for making mechanical adjustments. See page 38.

### Calibration

The calibration menu (*UTIL*→*CAL*) provides utilities to define offsets in software that are relative to the mechanical reset or home positions. This allows you to fine tune optical alignment and achieve uniform

performance between fixtures. Dimmer and zoom are calibrated to defined points. The other effects are calibrated relative to an arbitrary reference fixture.

All offsets can be set to **128** (the middle of their adjustment range) with the default offset command: select **UTIL→CAL→JFDF→SURE** then press [Enter].

## To calibrate effects

1. Apply power but do not strike the lamp until zoom has been calibrated.
2. To calibrate zoom, first remove the bottom head cover. Select **UTIL→CAL→ZDDF** and press [Enter]. Adjust the offset until the face of the zoom lens plate is flush with the back edge of the focus plate. Press [Enter] to save the setting. Replace the bottom head cover.
3. Pan calibration is most useful when multiple fixtures are stacked vertically. To calibrate, set zoom, focus, iris, and tilt position 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 the other fixtures, select **UTIL→CAL→P DF** and press [Enter]. Adjust the offset as necessary to align the beam with the reference beam. Press [Enter] to save the setting.
4. Tilt calibration is most useful when multiple fixtures are arranged horizontally. To calibrate, set zoom, focus, iris, and pan position for easy side-by-side comparison and set each fixture to the same tilt DMX value. Select one fixture to be the reference fixture. On the other fixtures, select **UTIL→CAL→T DF** and press [Enter]. Adjust the offset as necessary to align the beam with the reference beam. Press [Enter] to save the setting.
5. To calibrate the dimmer, set the iris to fully closed and set focus to 1m in the **UTIL→ADJ** menu. Select **UTIL→CAL→J DF** and press [Enter]. Hold a piece of paper over the lens. Set the offset to zero and then increase it until a clearly defined M shape with minimal light spill is projected onto the paper. Press [Enter] to save the setting and remove the paper.
6. Focus calibration is useful when two or more fixtures are the same distance from a projection surface. To calibrate focus, set up all fixtures with the same focus, zoom, dimming, iris, and gobo values. Select a focused fixture to be the reference. On the other fixtures, select **UTIL→CAL→FDDF** and press [Enter]. Adjust the offset to focus the image. Press [Enter] to save the setting.

## Fans

The cooling fans can be set to either full speed or thermostatically regulated operation via **UTIL→FANS**. In lower ambient temperature environments, regulated operation is recommended if reduced noise levels are desired. Service life of lamps, fans, etc. is maximized if fans are set to full speed.

## Software upload

The upload mode command (**UTIL→UPL J**) prepares the fixture for a software update. This command is not normally necessary, as upload mode is engaged automatically by the uploader.



# Effects

This section describes the effects that can be controlled via DMX in the MAC 575 Krypton.

The MAC 575 Krypton has two DMX operating modes, 16-bit basic and 16-bit extended. The extended mode requires six more DMX channels than the basic mode and provides all features of the basic mode plus fine control of the dimmer, both color wheels, iris, focus and zoom.

Where fine control is available, the main control channel sets the first 8 bits (the most significant byte or MSB), and the fine channels set 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 coarse channel.

See page 29 for the complete DMX protocol.

## Lamp power

### Lamp on

The lamp-on command on channel 1 strikes the lamp if it is off. If the lamp is on, this command has no effect.

Note: An inrush current that can be many times the operating current is drawn for an instant when striking a discharge lamp. Striking many lamps at once may cause a voltage drop large enough to prevent lamps from striking or draw enough current to trip circuit breakers. If sending lamp-on commands to multiple fixtures, program a sequence that strikes lamps one at a time at 5 second intervals.

### Lamp off

The lamp can be doused from the controller with the lamp-off command on channel 1. The command must be sent for 5 seconds.

If the lamp-off command is disabled in the control menu (*PERS*→*ILOF*→*OFF*), the lamp-off command can still be selected on channel 1 if the following effects are also selected:

- color wheel 2 must be set to slot 1 by sending DMX value 17 on channel 4 in basic mode/6 in extended mode
- the prism must be set to on with no rotation by sending DMX values 80 - 89 on channel 10 in basic mode/13 in extended mode
- both gobo wheels must be set to open gobo by sending DMX value zero on channels 5 and 8 in basic mode/8 and 11 in extended mode.

## Fixture reset

If an effect loses its indexing and fails to move to programmed positions, the fixture can be reset from the controller by sending the "Reset" command on channel 1.

If DMX reset is disabled in the control menu (*PERS*→*IRES*→*OFF*), the reset command can only be executed if the conditions listed under "Lamp-off" are met (see above). If it is set to *5SEC*, the reset command must be sent for 5 seconds before it is executed.

## Dimming and strobe

The mechanical dimmer/shutter system provides smooth, high-resolution 100 percent dimming, instant open and blackout, random and variable strobe effects, and random and variable pulses in which the dimmer snaps open and slowly dims or snaps closed and slowly opens.

Normal dimmer control is available on channel 2, with fine control available on channel 3 in extended mode.

## Color wheels

The two color wheels have 8 color filters each. Both wheels can scroll continuously, allowing split colors, or in full-color steps. The DMX protocol provides commands for random and continuous color scrolling at different speeds.

In basic mode, color wheel 1 is controlled on channel 3 and color wheel 2 is controlled on channel 4.

In extended mode, color wheel 1 is controlled on channel 4, with fine control on channel 5. Color wheel 2 is controlled on channel 6, with fine control on channel 7.

## Rotating gobos

The rotating gobo wheel (gobo wheel 1) has six gobos that can be selected, indexed (positioned at a programmed angle), rotated continuously, and shaken (bounced). The gobo wheel can also be scrolled continuously. These features are controlled on channel 5 in basic mode/8 in extended mode. Indexed angle or rotation speed and direction can be set on channel 6 in basic mode/9 in extended mode, with fine control of indexed angle available on channel 7 in basic mode/10 in extended mode.

## Static gobos

The static gobo wheel (gobo wheel 2) has nine static gobos and can be scrolled continuously (allowing split gobo effects) or in full-gobo steps using channel 8 in basic mode/11 in extended mode. Continuous and random gobo wheel scrolling can also be set at different speeds.

## Gobo/color macros

Channel 9 in basic mode/12 in extended mode provides pre-programmed variable-speed macros that use different combinations of color and gobos.

## Prism

On channel 10 in basic mode/13 in extended mode, the prism can be activated and rotated clockwise and counterclockwise with variable speed.

## Iris

Channel 11 in basic mode/14 in extended mode controls the diameter of the iris opening and provides variable speed pulsing effects. Fine control of the iris is provided on channel 15 in extended mode.

## Focus

The focus control on channel 12 in basic mode/16 in extended mode focusses the beam from approximately 2 meters (6.5 feet) to infinity. Fine control is available on channel 17 in extended mode.

## Zoom

The zoom lens controlled on channel 13 in basic mode/18 in extended mode varies the focused beam angle from 14° to 30°. Fine control is available on channel 19 in extended mode.

## Pan and tilt

Pan and tilt are controlled on channels 14 to 17 in basic mode/20 to 23 in extended mode. Fine control of pan and tilt is available in both basic and extended modes.

## Pan/tilt speed and effects speed channels

### Tracking versus vector control

**Important!** *Effect movement may be rough and unpredictable if controller fade times are combined with vector speed values.*

The speed channels provide two methods for controlling speed that are known as “tracking” and “vector”.

With tracking control, the speed at which effects move is determined by a cross-fade time programmed on the controller. With this method, the controller divides a movement into tiny steps that the fixture “tracks”. Tracking control is enabled via the speed channel for the effect concerned.

With vector control, speed is set with a DMX value on the speed channel. This provides a way to control speed on controllers without cross-faders. Vector control can also provide smoother movement, particularly at slow speeds, with controllers that send slow or irregular tracking updates. When using vector control, the controller’s cross-fade time, if available, must be set to 0.

## **Blackout**

When “blackout while moving” is selected on a speed channel, the shutter closes when an effect moves to make the transition invisible. The shutter opens when the movement is complete. This function is available for pan and tilt on channel 18 in basic mode/24 in extended mode and for color wheels/fixed gobo wheel selection, rotating gobo selection and prism in/out on channel 19 in basic mode/25 in extended mode.

## **Personality overrides**

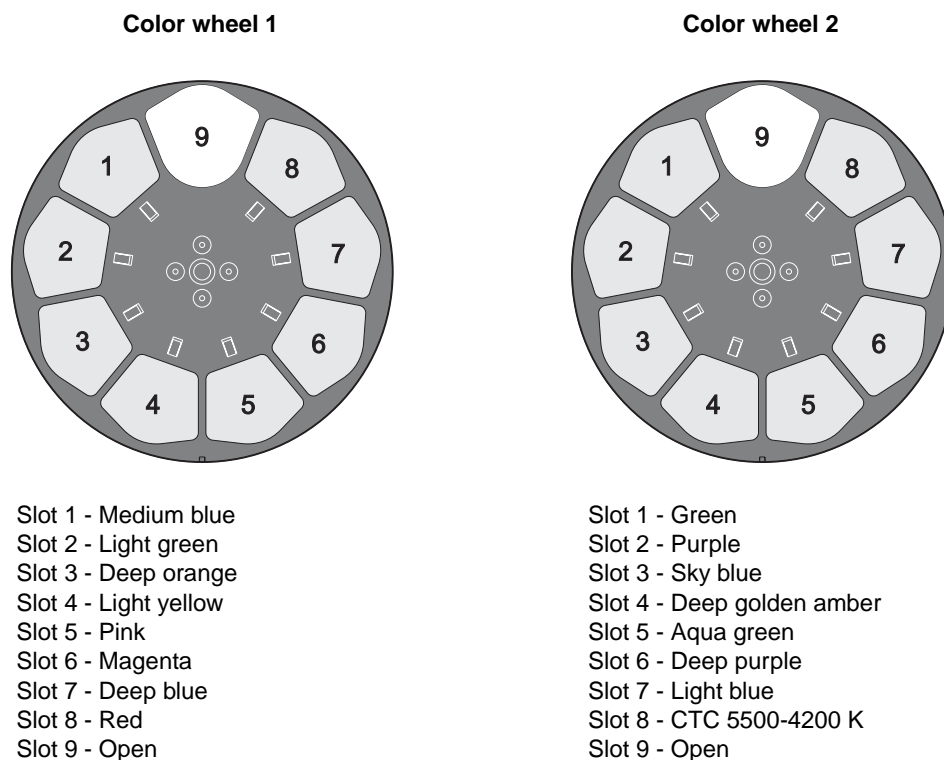
The pan/tilt speed channel provides tracking values that allow you to override the pan/tilt speed setting from the controller.

The effects speed channel provides values for overriding the shortcuts setting for the color and gobo wheels.

# Optical configuration

## Color wheels

The MAC 575 Krypton features two color wheels, each with 8 interchangeable dichroic color filters and an open position. As standard the MAC 575 Krypton is supplied with 15 color filters and a CTC (color temperature control) filter installed. The illustration shows the filter positions as seen from the lamp side. The DMX Protocol on page 29 gives details of color filter selection.



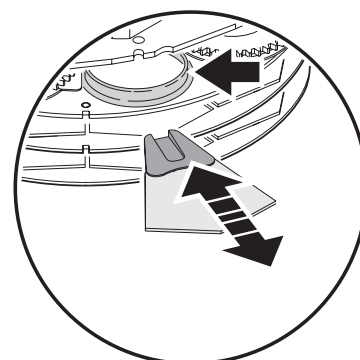
**Figure 8: Standard filter positions**

## Replacing a color filter

Note: Wear cotton gloves while handling color filters and use only genuine Martin filters.

When the fixture resets, the filters at slot 8 in wheel 1 (red) and slot 1 in wheel 2 (green) black out the fixture while the shutter resets. If you remove or replace these filters, the fixture may blink during a reset.

1. Disconnect the fixture from AC power and allow it to cool.
2. Lock the head in the upside-down position (the indication TOP on the back of the head must be upside down) and remove the bottom cover.
3. For best access, align the rotating gobo wheel so that the open position is above the color filter to be replaced (see arrow in Figure 9).
4. Turn the color wheel to access the desired filter position. Press the filter forwards slightly to release it and then grasp it by the edges and remove. If your fingers are too large, protect the glass with a piece of paper that has been folded several times and grasp the filter with needle nose pliers.
5. To insert a filter, slide it under the retention spring until it snaps into place.
6. Replace the cover and unlock the head before applying power.



**Figure 9: Filter replacement**

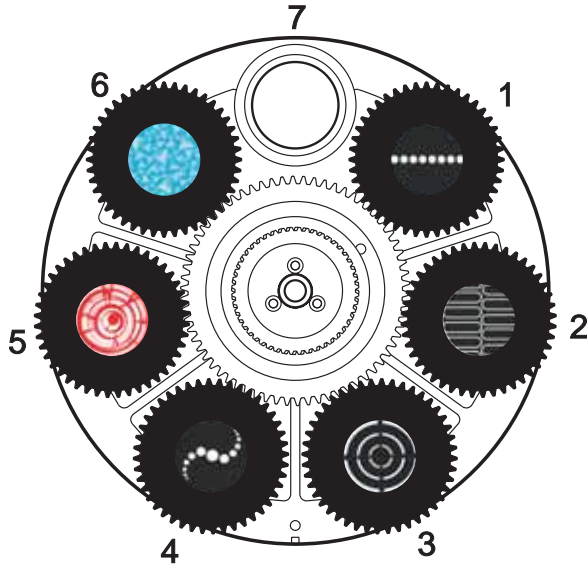
# Gobos

Gobo wheel 1 provides 6 rotating gobos; gobo wheel 2 provides 9 static gobos. The standard gobo configuration is shown in Figure 10 on page 21.

All gobos are interchangeable with the following limitations:

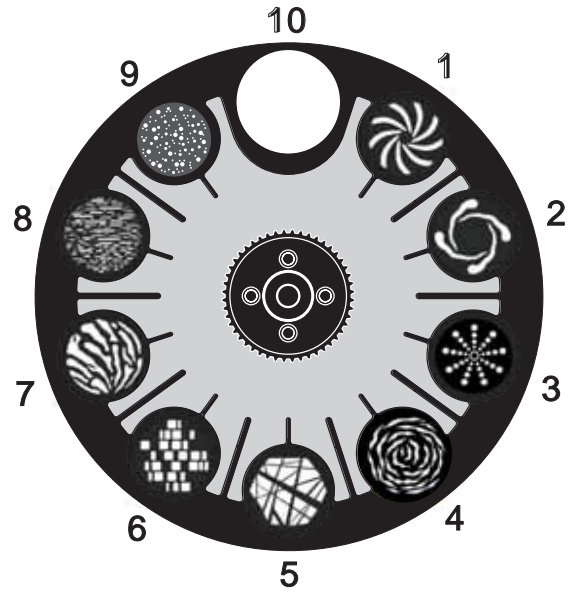
- On wheel 1, the gobo retention spring works with gobos up to 3 mm in thickness. Thicker gobos can be glued to the holder with a UV adhesive or Loctite 330 Multibond with Activator.
- Glass gobos in the rotating gobo wheel are generally glued to the goboholders and must therefore be changed as a unit.
- The maximum thickness for gobos on wheel 2 is 1.1 mm (0.043 inches).

**Gobo wheel 1: rotating gobos**



- |                      |                             |
|----------------------|-----------------------------|
| 1. Laser Dots.....   | P/N 43086049                |
| 2. Ovals.....        | P/N 62400795 (incl. holder) |
| 3. Three Rings ..... | P/N 43086051                |
| 4. Fractal .....     | P/N 43076085                |
| 5. Red Eye .....     | P/N 43086053                |
| 6. Blue Ripple.....  | P/N 62400796 (incl. holder) |

**Gobo wheel 2: static gobos**



- |                             |              |
|-----------------------------|--------------|
| 1. Inspiral.....            | P/N 43076089 |
| 2. Spiral Drops.....        | P/N 43076090 |
| 3. Radial Circles .....     | P/N 43076079 |
| 4. "Les Mis" Whirlpool..... | P/N 43076081 |
| 5. Triangles.....           | P/N 43076093 |
| 6. DNA Squares .....        | P/N 43076094 |
| 7. Radial Breakup.....      | P/N 43076095 |
| 8. Warp Speed.....          | P/N 43076096 |
| 9. Star Field .....         | P/N 43076097 |

**Figure 10: Gobo wheels as seen from front lens**

## Custom gobos

Martin can provide many additional gobos for the MAC 575 Krypton. Gobos are interchangeable between MAC 500, MAC 550, MAC 575 and MAC 700 fixtures. For more information, please visit the Martin website at [www.martin.com](http://www.martin.com).

For optimum performance and gobo life, custom glass gobos should be made with the artwork reversed on the coated side and used with the coated side facing away from the lamp.

While glass gobos are generally the most durable, satisfactory results can be obtained at less expense with aluminum gobos. Custom stainless steel gobos can also be used, however they can warp, losing sharpness, in a matter of hours. The useful life will depend on the gobo pattern and the projection cycle. Consult your gobo supplier for more information.

For best results, custom gobos should meet the specifications listed on page 43.

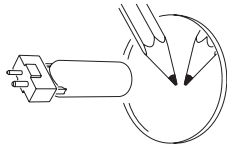
## Gobo orientation in the MAC 575 Krypton

The orientations shown in Figure 11 are correct in most cases, but consult your Martin dealer or gobo supplier if you are in any doubt about the orientation of a specific gobo type.

### Coated Glass Gobos

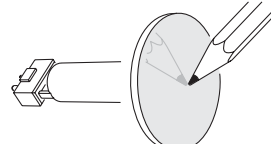
Focus is easiest to maintain if all coated gobos in a fixture are installed with their coatings as close as possible to the same plane of focus. The coated gobos in the MAC 575 Krypton are factory-installed in this position. However, if there is an unusually high risk of heat damage on a custom coated gobo, the first priority is normally to ensure that more reflective sides face towards the lamp. If in doubt, install coated gobos with the more reflective side towards the lamp, or consult your Martin dealer or gobo supplier.

#### More reflective side towards lamp



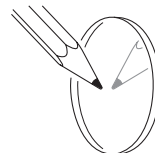
To minimize the risk of gobo overheating and damage, turn the more reflective side of a coated gobo towards the lamp.

#### Less reflective side away from lamp

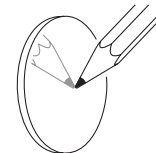


The less reflective side of a coated gobo will absorb less heat if it faces away from the lamp.

To determine which side of a gobo is coated, hold an object up to it. On the uncoated side, there is a space between the object and its reflection and the edge of the gobo can be seen when looking through the glass.



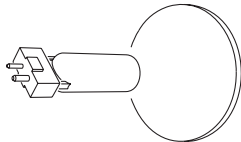
Uncoated side



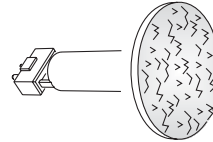
Coated side

### Textured Glass Gobos

#### Smooth side towards lamp



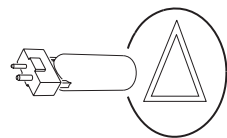
#### Textured side away from lamp



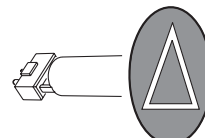
Textured glass gobos in the MAC 575 Krypton give the best focus results with the smooth side towards the lamp. If in doubt, consult your Martin dealer or gobo supplier.

### Metal Gobos

#### Reflective side towards lamp

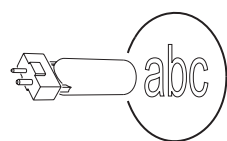


#### Black side away from lamp



### Image / text Gobos

#### True image towards lamp



#### Reversed image away from lamp

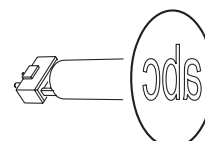
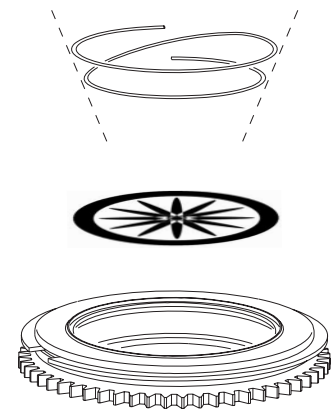


Figure 11. Correct gobo orientation

## To replace rotating gobos

**Important!** *The gobo can fall out if the spring is inserted backwards.*

1. Disconnect the fixture from power and allow it to cool.
2. Position the head upside down and remove the bottom head cover. Turn the gobo wheel to the desired position. Grasp the holder by the teeth and pull the holder lightly towards the front lens to release the holder and remove it from the wheel.
3. With a small screwdriver or similar, unhook the end of the gobo spring furthest from the gobo and pull out the spring. Drop the gobo out of the holder.
4. Insert the new gobo in the holder with the side that faces towards the lamp facing upwards, towards the spring (see Figure 11 and Figure 12).
5. Insert the spring with the narrow end against the gobo, as shown in Figure 12. To identify the narrow end, press the spring flat: the narrow end is on the inside. Push the end of the spring in under the lip of the holder.
6. Verify that the gobo is seated flush against the holder. Press the spring as flat as possible against the back of the gobo.
7. Work the rim of the gobo holder under both clips and snap the gobo holder back into position on the gobo wheel. If necessary, a small screwdriver or similar tool may be used to pry the clips away from the wheel.
8. Replace the bottom cover and release the tilt lock before applying power.



**Figure 12: Rotating gobo holder**

## To replace static gobos

1. Disconnect the fixture from power and allow it to cool.
2. Remove the top head cover.
3. Turn the gobo wheel to the desired position. Press the gobo from the lamp side to release. Remove the gobo.
4. To insert a gobo, orient the gobo as shown in Figure 11 and place the edges under the retention spring. Verify that the gobo is centered in the opening.
5. Replace the top head cover and release the tilt lock before applying power.

# Service and maintenance



**Warning!** Read “Safety Information” on page 3 before servicing the MAC 575 Krypton. Disconnect the fixture from power and allow to cool for 45 minutes before handling or removing any cover. Refer any service operation not described here 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.

As with electronic components in general, the MAC 575 Krypton’s PCBs are sensitive to ESD (electrostatic discharge). Take precautions to avoid ESD damage before opening the fixture. Service electronic components at a static-safe workstation only.

It is Martin policy to use the best-quality materials and coatings available to ensure optimum performance and the longest possible component lifetimes. However, optical components in all lighting fixtures are subject to wear and tear over the life of the fixture, resulting in gradual changes in color rendition of dichroic filters or the specular properties of reflectors, for example.

The extent of wear and tear depends heavily on operating conditions, maintenance and environment, so it is impossible to specify precise lifetimes for optical components. However, you will eventually need to replace optical components 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.

To maximize the life of the MAC 575 Krypton and protect the investment it represents, clean the fixture regularly – especially the cooling systems – following the guidelines in this section.

## Tilt lock

**Important!** Release the tilt lock before operating the fixture.

The tilt position of the head can be locked for transportation and service with the tilt lock. To lock or unlock the head, pull the lock out and turn it one-quarter turn in either direction.

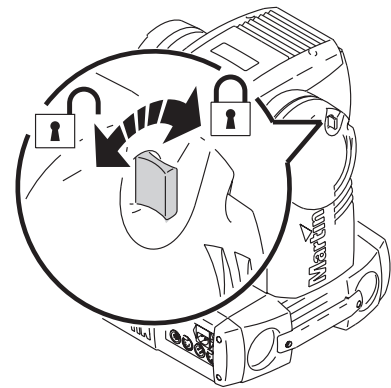


Figure 13: Tilt lock

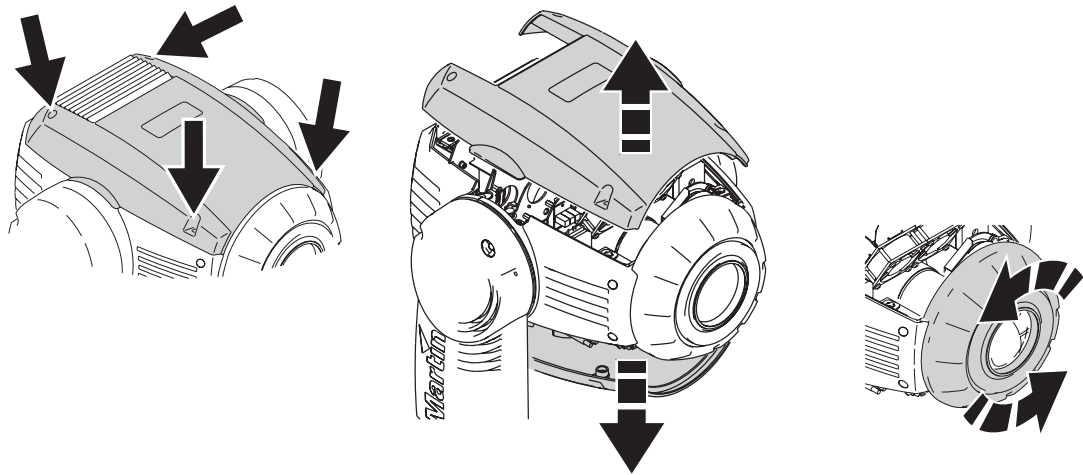
## Disassembly

### Removing the gobo module

1. Disconnect the fixture from power and allow it to cool for 45 minutes.
2. Turn the four retaining screws in the top and bottom head covers one quarter-turn counter-clockwise to release the covers.

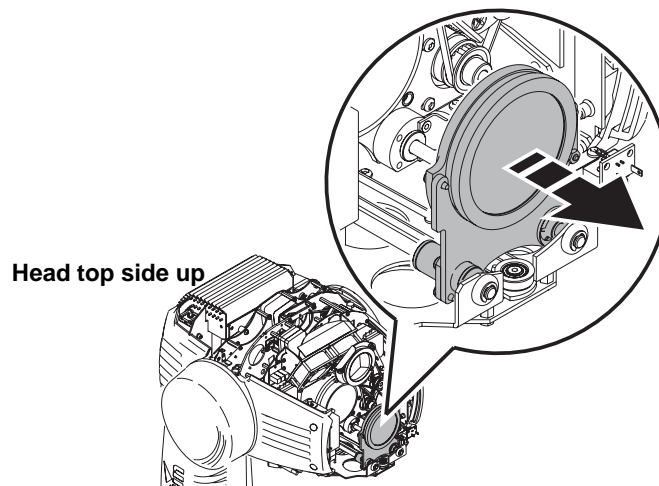


3. Remove the front lens by twisting one quarter-turn counter-clockwise.



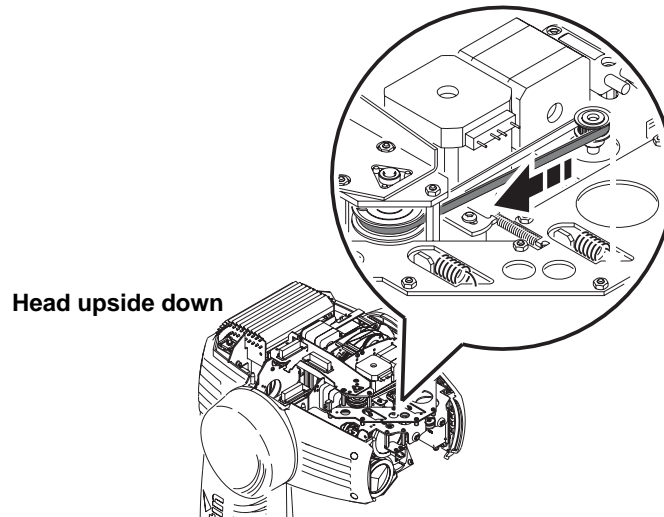
**Figure 14: Releasing top and bottom covers and removing front lens**

4. Position the head top side up so that you have access through the top. Holding the zoom lens by its base, slide it out to its limit at the front of the fixture as shown in Figure 15.



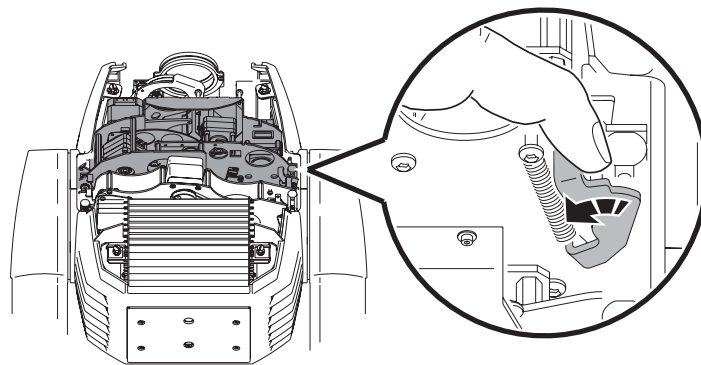
**Figure 15: Moving the zoom lens forward**

5. Flip the head upside-down. Move the focus lens to its forward limit by pulling on its belt as shown in Figure 16.



**Figure 16: Moving the focus lens forward**

6. Unlock the gobo module by pulling the levers on each side towards the center. Lift the module up 1 cm (0.5 in.) and release the levers. Lift the module straight up to remove from the head.



**Figure 17: Gobo module locking levers**

7. When reinstalling the module, verify that the guide pins are correctly seated and that the module is securely locked.

## Cleaning

Regular cleaning is very important for fixture life and performance. Buildup of dust, dirt, smoke particles, fog fluid residues, etc. degrades the fixture's light output and cooling ability.

Cleaning schedules for lighting fixtures vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the MAC 575 Krypton. Cooling fans suck in airborne dust and smoke particles, and in extreme cases fixtures may require cleaning after surprisingly few hours of operation. 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 25 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 care when cleaning optical components and work in a clean, well lit area. The coated surfaces are fragile and easily scratched. Do not use solvents that can damage plastic or painted surfaces.

## Cleaning the fixture

1. Disconnect the fixture from power and allow the components to cool completely.
2. Remove the covers, front lens and gobo modules as described earlier.
3. Vacuum or gently blow away dust and loose particles with compressed air.
4. Carefully clean the optical components. Remove smoke and other residues with cotton swabs or unscented tissues moistened with isopropyl alcohol. A commercial glass cleaner may be used, but residues must be removed with distilled water. Clean with a slow circular motion from center to edge. Dry with a clean, soft and lint-free cloth or compressed air. Remove stuck particles with an unscented tissue or cotton swab moistened with glass cleaner or distilled water. Do not rub the surface: lift the particles off with a soft repeated press.
5. Remove dust from the head fans and air vents with a soft brush, cotton swab, vacuum, or compressed air.
6. On each side of the head, remove the 2 screws that hold the side covers. Slide the covers forward to remove. Clean the air filters or replace them. If they are saturated with smoke fluid, etcetera, soak them in warm soapy water and blot dry. Position the filters on the side covers and reinstall. See Figure 18.
7. Reassemble the head.
8. Remove the screws from the side cover/grill on the front of the base (front is indicated by an arrow on the bottom). Remove the top cover from the front of the base. Lift the power supply / ballast module up and out to expose the base fans for inspection and cleaning.
9. Reinstall the power supply / ballast module and base cover.

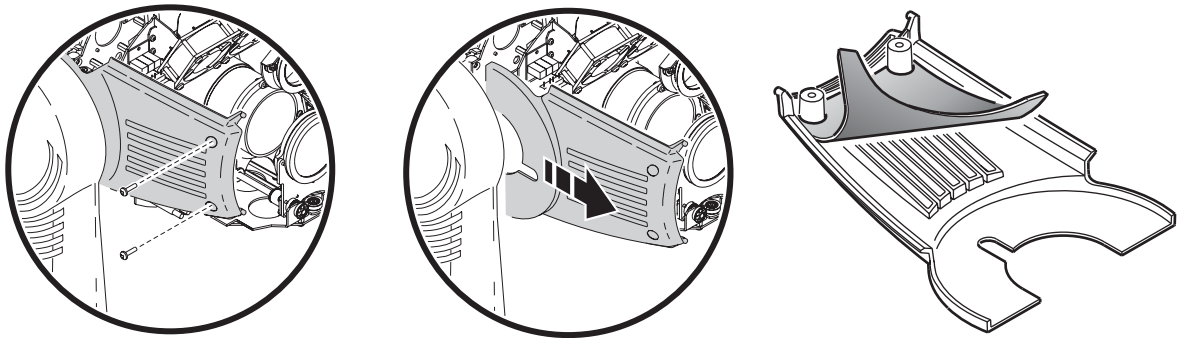


Figure 18: Air filter replacement

## Lubrication

The MAC 575 Krypton does not require lubrication under normal circumstances. The slides for the zoom and focus lens cars are lubricated with a long-lasting teflon-based grease that can be reapplied by a Martin service partner if necessary.

## Fuse replacement



**DANGER! Disconnect from power before opening covers. Replace fuses with ones of the same type and rating only. Never bypass or bridge a fuse.**



The MAC 575 Krypton is protected by a 10 amp slow blow main fuse located in a fuseholder next to the power input connector on the connections plate.

To replace the main fuse:

1. Disconnect the power cable from the fixture at the power input connector.
2. Use a flathead screwdriver to open the fuseholder and remove the fuse for testing or replacement.
3. Replace defective fuses with ones of the same type and rating only. Replacement fuses are available from Martin.
4. Reinstall the fuseholder before reapplying power.

A further 6.3 amp slow-blow fuse (P/N 05020020) is located on the power PCB. This fuse must be changed by a qualified electrical technician observing appropriate safety and ESD (electrostatic discharge) precautions.

If a fuse blows repeatedly, disconnect the fixture from power immediately and consult your Martin supplier.

## Replacing the lamp socket

The lamp holder used in the MAC 575 Krypton eventually wears out due to the high voltages that pass through the contacts.

Wear begins to show up as discoloration at the contact surfaces. When this happens, resistance increases and the lamp becomes harder to strike. If this process is allowed to continue, the lamp is likely to fail prematurely.

Each time the lamp is replaced, inspect the lamp holder and have it replaced by a qualified technician as soon as there are signs of discoloration or pitting at the contact surfaces. Damage caused by failure to replace a worn and/or discolored lamp holder is not covered by the product warranty.

## Firmware installation

Firmware (i.e. fixture software) updates are available from the Martin web site and can be installed via the data link with a Martin upload device.

The following are required in order to install fixture software.

- The latest version of the MAC 575 Krypton software in the form of an MU3 file, available for download from the User Support Area of the Martin web site (<http://www.martin.com>).
- The Martin Software Uploader application, version 5.0 or later, available for download from the User Support Area of the Martin web site.
- A PC running Windows 2000/XP
- A PC-DMX interface supported by the Martin Software Uploader application (Martin Universal USB/DMX Interface recommended).

### To install software, normal method

Connect the PC to the fixture's DMX input via the PC-DMX interface and power the fixture on. For further details, please refer to the Martin Software Uploader online help file.

### To install software if all else fails (boot sector update)

Note: Use this procedure only if the firmware is totally corrupted, which is evident if the control panel does not respond when power is applied, or if the software update notes call for a boot sector update. In the event of a check sum error, repeat the normal upload procedure.

1. Disconnect the fixture from power and allow to cool for at least 45 minutes.
2. Remove the three Phillips screws from the top cover of the base on the control panel side and remove the top cover.
3. Remove the four Phillips screws that hold the side cover with the connections and control panels and gently lift the side cover and PCB away from the base.
4. Remove the six retaining screws from the aluminum shield plate on the PCB and lift the plate off.
5. Locate the "BOOT" jumper on the main PCB (see page 42) and move the jumper cap to the "INIT" position.
6. Perform a boot mode upload as described in the uploader documentation.
7. When the upload is complete, disconnect the fixture from power and move the jumper back to the "DISABLE" position.
8. Reassemble the base, being careful to avoid trapping wires and making sure that wires will not foul moving components when the base is reassembled.

# MAC 575 Krypton DMX protocol

16-bit Basic Mode	16-bit Extended Mode	DMX Value	Percent	Function
1	1	0 - 19	0 - 7	Shutter, strobe, reset, lamp on/off Shutter closed
		20 - 49	8 - 19	Shutter open
		50 - 72	20 - 28	Strobe, fast → slow
		73 - 79	29 - 30	Shutter open
		80 - 99	31 - 39	Opening pulse, fast → slow
		100 - 119	40 - 47	Closing pulse, fast → slow
		120 - 127	48 - 50	Shutter open
		128 - 147	51 - 57	Random strobe, fast
		148 - 167	58 - 65	Random strobe, medium
		168 - 187	66 - 73	Random strobe, slow
		188 - 190	74	Shutter open
		191 - 193	75	Random opening pulse, fast
		194 - 196	76	Random opening pulse, slow
		197 - 199	77	Random closing pulse, fast
		200 - 202	78 - 79	Random closing pulse, slow
		203 - 207	80 - 81	Shutter open
		208 - 217	82 - 85	Reset fixture* **
		218 - 227	86 - 89	Shutter open
		228 - 237	90 - 93	Lamp on
		238 - 247	94 - 97	Shutter open
248 - 255	98 - 100	Lamp off*		
2	2	0 - 255	0 - 100	<b>Dimmer</b> Closed → open
-	3	0 - 255	0 - 100	<b>Dimmer, fine (LSB)</b>

*\*If disabled in the control menu, Reset fixture and Lamp off work only if the following effects are selected:*

- Both color wheels to slot 1 – DMX value 17 on channels 3 and 4 (in basic mode) or 4 and 6 (extended mode)
- Prism on, no rotation – DMX value 80-89 on channel 10 (basic) or 13 (extended)
- Gobo wheel 1 open – DMX value 0 on channel 5 (basic) or 8 (extended)
- Gobo wheel 2 open – DMX value 0 on channel 8 (basic) or 11 (extended)

*\*\* A five-second delay for the Reset fixture command can be set in the control menu under IRES.*

16-bit Basic Mode	16-bit Extended Mode	DMX Value	Percent	Function	
<b>3</b>	<b>4</b>	0	0	<b>Color wheel 1</b>	
		<i>Continuous scroll</i>			
		1 - 16	1 - 6	Open	
		17	7	Open → slot 1	
		18 - 33	8 - 12	Slot 1 (Medium blue)	
		34	13	Slot 1 → slot 2	
		35 - 50	14 - 19	Slot 2 (Light green)	
		51	20	Slot 2 → slot 3	
		52 - 67	21 - 26	Slot 3 (Deep orange)	
		68	27	Slot 3 → slot 4	
		69 - 84	28 - 32	Slot 4 (Light yellow)	
		85	33	Slot 4 → slot 5	
		86 - 101	34 - 39	Slot 5 (Pink)	
		102	40	Slot 5 → slot 6	
		103 - 118	41 - 46	Slot 6 (Magenta)	
		119	47	Slot 6 → slot 7	
		120 - 135	48 - 52	Slot 7 (Deep blue)	
		136	53	Slot 7 → slot 8	
		137 - 152	54 - 59	Slot 8 (Red)	
		153	60	Slot 8 → open	
		<i>Open</i>			
		<i>Stepped scroll</i>			
		154 - 158	61 - 62	Slot 8	
		159 - 163	63 - 64	Slot 7	
		164 - 168	65 - 66	Slot 6	
		169 - 173	67 - 68	Slot 5	
		174 - 178	69 - 70	Slot 4	
		179 - 183	71 - 72	Slot 3	
		184 - 188	73 - 74	Slot 2	
		189 - 193	75 - 76	Slot 1	
194 - 198	77 - 78	Open			
<i>Continuous rotation</i>					
199 - 219	79 - 86	CW, fast → slow			
220 - 240	87 - 94	CCW, slow → fast			
<i>Random color</i>					
241 - 245	95 - 96	Fast			
246 - 250	97 - 98	Medium			
251 - 255	99 - 100	Slow			
-	<b>5</b>	0 - 255	0 - 100	<b>Color Wheel 1 fine (LSB)</b>	

16-bit Basic Mode	16-bit Extended Mode	DMX Value	Percent	Function		
4	6	0	0	<b>Color wheel 2</b>		
		<i>Continuous scroll</i>				
		1 - 16	1 - 6	Open		
		17	7	Open → slot 1		
		18 - 33	8 - 12	Slot 1 (Green)		
		34	13	Slot 1 → slot 2		
		35 - 50	14 - 19	Slot 2 (Purple)		
		51	20	Slot 2 → slot 3		
		52 - 67	21 - 26	Slot 3 (Sky blue)		
		68	27	Slot 3 → slot 4		
		69 - 84	28 - 32	Slot 4 (Deep golden amber)		
		85	33	Slot 4 → slot 5		
		86 - 101	34 - 39	Slot 5 (Aqua green)		
		102	40	Slot 5 → slot 6		
		103 - 118	41 - 46	Slot 6 (Deep purple)		
		119	47	Slot 6 → slot 7		
		120 - 135	48 - 52	Slot 7 (Light blue)		
		136	53	Slot 7 → slot 8		
		137 - 152	54 - 59	Slot 8 (CTC 5500-4200 K)		
		153	60	Slot 8 → open		
				Open		
				<i>Stepped scroll</i>		
				154 - 158	61 - 62	Slot 8
				159 - 163	63 - 64	Slot 7
				164 - 168	65 - 66	Slot 6
				169 - 173	67 - 68	Slot 5
				174 - 178	69 - 70	Slot 4
				179 - 183	71 - 72	Slot 3
				184 - 188	73 - 74	Slot 2
				189 - 193	75 - 76	Slot 1
		194 - 198	77 - 78	Open		
		<i>Continuous rotation</i>				
		199 - 219	79 - 86	CW, fast → slow		
		220 - 240	87 - 94	CCW, slow → fast		
		<i>Random color</i>				
		241 - 245	95 - 96	Fast		
		246 - 250	97 - 98	Medium		
		251 - 255	99 - 100	Slow		
-	7	0 - 255	0 - 100	<b>Color Wheel 2 fine (LSB)</b>		

16-bit Basic Mode	16-bit Extended Mode	DMX Value	Percent	Function
5	8	0 - 11	0 - 4	<b>Gobo wheel 1 (rotating gobos): gobo selection, shake, rotation</b> <i>Indexed gobo position: set angle on channel 6 (basic) or 9 (extended)</i> Open
		12 - 15	4 - 5	Gobo 1 (Laser dots)
		16 - 19	6 - 7	Gobo 2 (Ovals)
		20 - 23	7 - 9	Gobo 3 (Three Rings)
		24 - 27	9 - 10	Gobo 4 (Fractal)
		28 - 31	11 - 12	Gobo 5 (Red Eye)
		32 - 35	12 - 13	Gobo 6 (Blue Ripple)
				<i>Continuous gobo rotation: set gobo rotation speed on channel 6 (basic) or 9 (extended)</i>
		36 - 39	14 - 15	Gobo 1
		40 - 43	15 - 16	Gobo 2
		44 - 47	17 - 18	Gobo 3
		48 - 51	18 - 20	Gobo 4
		52 - 55	20 - 21	Gobo 5
		56 - 59	22 - 23	Gobo 6
				<i>Indexed gobo position with shake: set angle on channel 6 (basic) or 9 (extended)</i>
		60 - 71	23 - 27	Gobo 1, slow → fast
		72 - 83	28 - 32	Gobo 2, slow → fast
		84 - 95	33 - 36	Gobo 3, slow → fast
		96 - 107	37 - 41	Gobo 4, slow → fast
		108 - 119	42 - 46	Gobo 5, slow → fast
120 - 131	47 - 51	Gobo 6, slow → fast		
		<i>Continuous gobo rotation with shake: set gobo rotation speed on channel 6 (basic) or 9 (extended)</i>		
132 - 143	52 - 56	Gobo 6, slow → fast		
144 - 155	57 - 61	Gobo 5, slow → fast		
156 - 167	62 - 65	Gobo 4, slow → fast		
168 - 179	66 - 70	Gobo 3, slow → fast		
180 - 191	71 - 75	Gobo 2, slow → fast		
192 - 203	76 - 80	Gobo 1, slow → fast		
		<i>Gobo wheel scroll with continuous gobo rotation: set gobo rotation speed on channel 6 (basic) or 9 (extended)</i>		
204 - 229	81 - 90	CW scroll, slow → fast		
230 - 255	91 - 100	CCW scroll, fast → slow		
6	9	0 - 255	0 - 100	<b>Rotating gobo: indexing, speed</b> <i>If indexed gobo is selected on channel 5 (basic) or 8 (extended)</i> Rotating gobo indexing, 0 → 395°
				<i>If continuous gobo rotation is selected on channel 5 (basic) or 8 (extended)</i>
		0 - 2	0	No rotation
		3 - 127	1 - 50	CW, slow → fast
		128 - 252	51 - 99	CCW, fast → slow
253 - 255	100	No rotation		
7	10	0 - 255	0 - 100	<b>Rotating gobo, fine indexing (LSB)</b> <i>If indexed gobo is selected on channel 5 (basic) or 8 (extended)</i>



16-bit Basic Mode	16-bit Extended Mode	DMX Value	Percent	Function
8	11			<b>Gobo wheel 2 (static gobos): gobo selection, wheel scroll, random gobo</b>
				<i>Continuous scroll</i>
		0	0	Open
		0 - 10	1 - 3	Open → slot 1
		11	4	Slot 1 (Inspiral)
		12 - 21	5 - 7	Slot 1 → slot 2
		22	8	Slot 2 (Spiral Drops)
		23 - 32	9 - 12	Slot 2 → slot 3
		33	13	Slot 3 (Radial Circles)
		34 - 43	14 - 16	Slot 3 → slot 4
		44	17	Slot 4 ("Les Mis" Whirlpool)
		45 - 54	18 - 21	Slot 4 → slot 5
		55	21	Slot 5 (Triangles)
		56 - 65	22 - 25	Slot 5 → slot 6
		66	26	Slot 6 (DNA)
		67 - 76	27 - 29	Slot 6 → slot 7
		77	30	Slot 7 (Radial Breakup)
		78 - 87	31 - 33	Slot 7 → slot 8
		88	34	Slot 8 (Warp Speed)
		89 - 98	35 - 38	Slot 8 → slot 9
		99	39	Slot 9 (Star Field)
		100 - 109	40 - 42	Slot 9 → open
		110 - 112	43	Open
				<i>Stepped scroll</i>
		113 - 121	44 - 47	Slot 9
		122 - 130	48 - 51	Slot 8
		131 - 139	52 - 54	Slot 7
		140 - 148	55 - 58	Slot 6
		149 - 157	59 - 61	Slot 5
		158 - 166	62 - 65	Slot 4
		167 - 175	66 - 69	Slot 3
		176 - 184	70 - 72	Slot 2
185 - 193	73 - 76	Slot 1		
194 - 202	77 - 79	Open		
		<i>Continuous wheel rotation</i>		
203 - 221	80 - 87	CW, fast → slow		
222 - 240	88 - 94	CCW, slow → fast		
		<i>Random gobo</i>		
241 - 245	95 - 96	Fast		
246 - 250	97 - 98	Medium		
251 - 255	99 - 100	Slow		
9	12	0 - 15	0 - 5	<b>Macros</b>
		16 - 55	6 - 21	No macro
		56 - 95	22 - 37	Static gobo wheel shake, slow → fast
		96 - 135	37 - 53	Color wheel 1 shake, slow → fast
		136 - 175	54 - 69	Color wheel 2 shake, slow → fast
		176 - 215	70 - 84	Static gobo wheel and color wheel 1 shake, slow → fast
		216 - 255	85 - 100	Static gobo wheel and color wheel 2 shake, slow → fast
				Static gobo wheel and color wheels 1 and 2 shake, slow → fast
10	13	0 - 19	0 - 7	<b>Prism</b>
		20 - 79	8 - 31	Prism off
		80 - 89	31 - 35	Prism on, CCW rotation, fast → slow
		90 - 149	35 - 58	Prism on, no rotation
		150 - 255	59 - 100	Prism on, CW rotation, slow → fast
				Prism off
11	14	0 - 199	0 - 77	<b>Iris</b>
		200 - 215	78 - 84	Open → closed
		216 - 229	85 - 89	Closed
		230 - 243	90 - 94	Opening pulse, fast → slow
		244 - 246	95 - 96	Closing pulse, fast → slow
		247 - 249	97	Random opening pulse, fast
		250 - 252	98 - 99	Random opening pulse, slow
		253 - 255	100	Random closing pulse, fast
		Random closing pulse, slow		

16-bit Basic Mode	16-bit Extended Mode	DMX Value	Percent	Function
-	15	0 - 255	0 - 100	<b>Iris, fine (LSB)</b>
12	16	0 - 255	0 - 100	<b>Focus</b> Infinity → near
-	17	0 - 255	0 - 100	<b>Focus, fine (LSB)</b>
13	18	0 - 255	0 - 100	<b>Zoom</b> Flood → spot
-	19	0 - 255	0 - 100	<b>Zoom, fine (LSB)</b>
14	20	0 - 255	0 - 100	<b>Pan</b> Left → right (128 = neutral)
15	21	0 - 255	0 - 100	<b>Pan, fine (LSB)</b>
16	22	0 - 255	0 - 100	<b>Tilt</b> Left → right (128 = neutral)
17	23	0 - 255	0 - 100	<b>Tilt, fine (LSB)</b>
18	24	0 - 2 3 - 242 243 - 245 246 - 248 249 - 251 252 - 255	0 - 1 1 - 95 96 96 - 97 98 99 - 100	<b>Pan/tilt speed</b> Tracking Vector control, fast → slow Tracking, <b>PTSP = SLOW</b> (menu override) Tracking, <b>PTSP = NORM</b> (menu override) Tracking, <b>PTSP = FAST</b> (menu override) Blackout while moving
19	25	0 - 2 3 - 245 246 - 251 252 - 255  0 - 2 3 - 245 246 - 248 249 - 251 252 - 255  0 - 245 246 - 248 249 - 251 252 - 255  0 - 251 252 - 255	0 - 1 1 - 96 96 - 98 99 - 100  0 - 1 1 - 96 96 - 97 98 99 - 100  0 - 96 96 - 97 98 99 - 100  0 - 98 99 - 100	<b>Effects speed</b> <i>Dimmer, iris, zoom and focus</i> Tracking Vector control, fast → slow Tracking Blackout while moving  <i>Color wheels, static gobo wheel</i> Tracking Vector control, fast → slow Tracking, <b>SCUT = OFF</b> (menu override) Tracking, <b>SCUT = ON</b> (menu override) Blackout while moving  <i>Rotating gobo wheel</i> Vector control, fast → slow Normal, <b>SCUT = OFF</b> (menu override) Normal, <b>SCUT = ON</b> (menu override) Blackout while moving  <i>Prism</i> Normal (no blackout) Blackout while moving

# Control menu

Menu	Item	Options	Notes (Default settings in bold print)
<i>ADDR</i>		<i>1 - 494</i> (16-bit basic) <i>1 - 488</i> (16-bit extended)	DMX address (new fixtures are supplied with address set to 1)
<i>PSET</i>		<i>16BT</i>	<b>16-bit basic DMX mode</b> with 2-channel (coarse and fine) control of gobo rotation, pan, and tilt
		<i>16EX</i>	16-bit extended DMX mode with basic mode features plus fine control of dimmer, color wheels, iris, focus and zoom
<i>PATI</i>	<i>SWAP</i>	<i>OFF</i>	<b>Normal pan and tilt control</b>
		<i>ON</i>	Map DMX pan control to tilt channel and vice versa
	<i>PINV</i>	<i>OFF</i>	<b>Normal pan control: left → right</b>
		<i>ON</i>	Reverse DMX pan control: right → left
	<i>TINV</i>	<i>OFF</i>	<b>Normal tilt control: up → down</b>
		<i>ON</i>	Reverse DMX tilt control, down → up
<i>PTSP</i>		<i>NORM</i>	<b>Normal pan/tilt speed</b>
		<i>FAST</i>	Optimize pan/tilt movement for speed
		<i>SLOW</i>	Optimize pan/tilt movement for smoothness
<i>EFSP</i>		<i>NORM</i>	Normal effects speed
		<i>FAST</i>	Optimize effects movement for speed
		<i>SLOW</i>	Optimize effects movement for smoothness
		<i>PTSS</i>	<b>Pan/tilt speed slave: effects speed copies the pan/tilt speed set via the control menu or via DMX</b>
<i>STUD</i>		<i>OFF</i>	<b>Optimize effects for speed</b>
		<i>ON</i>	Optimize effects for silence (studio mode)
<i>PERS</i>	<i>DISP</i>	<i>ON</i>	<b>Display remains on</b>
		<i>2 MN</i>	Display extinguishes 2 minutes after last key press
		<i>10MN</i>	Display extinguishes 10 minutes after last key press
	<i>DINT</i>	<i>AUTO</i>	<b>Display adjusts automatically for ambient light level</b>
		<i>100 - 10</i>	Adjust display intensity manually
	<i>DLOF</i>	<i>OFF</i>	<b>Disable lamp off via DMX</b>
		<i>ON</i>	Enable lamp off via DMX
	<i>DRES</i>	<i>ON</i>	<b>Enable reset via DMX</b>
		<i>OFF</i>	Disable reset via DMX
		<i>5SEC</i>	Enable reset via DMX when reset command is held for 5 seconds
	<i>ALON</i>	<i>OFF</i>	<b>No automatic lamp strike</b>
		<i>ON</i>	Lamp strikes automatically within 90 seconds of power on
		<i>DMX</i>	Lamp strikes if DMX is present, douses after 15 mins. without DMX
	<i>SCUT</i>	<i>ON</i>	<b>Gobo and color wheels turn shortest distance (across open)</b>
		<i>OFF</i>	Gobo and color wheels do not cross open
	<i>DICU</i>	<i>DIM1</i>	<b>Dimmer curve simulates tungsten incandescent bulb characteristics</b>
		<i>DIM2</i>	Near-linear dimmer curve
	<i>COLB</i>	<i>OFF</i>	<b>Disable color wheel blackout</b>
		<i>ON</i>	Enable color wheel blackout
	<i>IRIB</i>	<i>OFF</i>	<b>Disable iris blackout</b>
<i>ON</i>		Enable iris blackout	
<i>DFSE</i>	<i>FACT</i>	<i>LOAD</i>	Return all settings (except calibrations) to factory defaults
	<i>CUS1, CUS2, CUS3</i>	<i>LOAD</i>	Load custom configuration
		<i>SAVE</i>	Save current custom configuration

Table 2: Control menu

Menu	Item	Options	Notes (Default settings in bold print)	
INFO	TIME→HRS	TOTL	Total hours of operation since manufacture	
		RSET	Hours of operation since counter reset (see page 14)	
	TIME→L HR	TOTL	Total hours of operation with lamp on since manufacture	
		RSET	Lamp hours since counter reset (see page 14)	
	TIME→L ST	TOTL	Total number of lamp strikes since manufacture	
		RSET	Number of lamp strikes since counter reset (see page 14)	
	TEMP	LAMP	Lamp temperature	
PCB		Main circuit board temperature		
SMPS		Switch mode power supply temperature		
VER	X.X.X	CPU firmware version		
DMXL	RATE		DMX transmission speed in packets per second	
	QUAL		Percent of packets received	
	STCO		Value of the DMX start code	
	SHUT - EFSP		DMX value (0 - 255) received on each channel Values for fine control channels (indicated with <b>F</b> in the display) can only be viewed if available in the DMX mode the fixture is set to	
MAN	RST		Reset fixture	
	L ON		Lamp on	
	L OFF		Lamp off	
	SHUT	OPEN		Open shutter
		CLOS		Close shutter
		STRF		Fast strobe
		STRM		Medium strobe
		STRS		Slow strobe
	DIM	0 - 255		Dimmer
	COL 1	OPEN		Color wheel 1: open position
		C 1 - CB		Color wheel 1: filters 1-8
		CW F - CCWS		Color wheel 1 continuous rotation: CW and CCW; fast, medium and slow
		RNDJF - RNDJS		Color wheel 1 random rotation: fast, medium and slow
	COL2	OPEN		Color wheel 2: open position
		C 1 - CB		Color wheel 2: filters 1-8
		CW F - CCWS		Color wheel 2 continuous rotation: CW and CCW; fast, medium and slow
		RNDJF - RNDJS		Color wheel 2 random rotation: fast, medium and slow
	GOB 1	OPEN		Gobo wheel 1 (rotating gobo wheel): open position
		G 1 I - G 6 I		Rotating gobos 1 - 6: indexed position
		G 1 R - G 6 R		Rotating gobos 1 - 6: continuous rotation
G 1RS - G 6RS			Rotating gobos 1 - 6: rotation and shake	
CW F - CCWS			Gobo wheel 1: scroll CW and CCW; fast, medium and slow	
RG 1	0 - 255		Rotating gobo wheel: scroll	
RG 1F	0 - 255		Rotating gobo wheel: scroll (fine)	
GOB2	OPEN		Gobo wheel 2 (static gobo wheel): open position	
	G 1 - G 9		Static gobos 1 - 9	
	CW F - CCWS		Gobo wheel 2 scroll: CW and CCW; fast, medium, slow and random	
	RNDJF - RNDJS		Gobo wheel 2 random scroll: fast, medium and slow	
GOMA	NONE - MAC 3		Gobo macros 1 - 3	

Table 2: Control menu

Menu	Item	Options	Notes (Default settings in bold print)
MAN (cont.)	PRIS	OFF	Prism off
		ON	Prism on, no rotation
		CWF - CCWS	Prism on: rotation CW and CCW; fast, medium and slow
	IRIS	0->C	Iris diameter: Press [Enter], then use up and down arrows to select a value from 0 - 200
		CLS	Iris closed
		PLOF	Fast opening pulse
		PLOS	Slow opening pulse
		PLCF	Fast closing pulse
		PLCS	Slow closing pulse
		RPOF	Fast random opening pulse
		RPOS	Slow random opening pulse
		RPCF	Fast random closing pulse
		RPCS	Slow random closing pulse
		FOC	0 - 255
	ZOOM	0 - 255	Zoom position
	PAN	0 - 255	Pan position
PANF	0 - 255	Pan position (fine)	
TILT	0 - 255	Tilt position	
TLTF	0 - 255	Tilt position (fine)	
TSEQ		RUN	Run a general test of all effects (for use by service technicians only)
UTIL To access this menu, hold [Enter] pressed for a few seconds	FEBA	ON	<b>Enable pan/tilt position correction system. See page 15</b>
		OFF	Disable pan/tilt feedback. Setting not saved
	EFFB	ON	<b>Enable position feedback from rotating effects. See page 15</b>
		OFF	Disable position feedback from rotating effects. Setting not saved
	ADJ		<b>See "Adjustment submenu" on page 38</b>
	CAL (OF = offset)	P OF	Pan calibration (adjustment range: 1 - 255)
		T OF	Tilt calibration (adjustment range: 70 - 186)
		D OF	Dimmer calibration (adjustment range: 90 - 170)
		C 1OF	Color wheel 1 calibration (adjustment range: 103 - 153)
		C 2OF	Color wheel 2 calibration (adjustment range: 103 - 153)
		G 1OF	Gobo wheel 1 (rotating gobos) calibration (adjustment range: 103 - 153)
		G 2OF	Gobo wheel 2 (static gobos) calibration (adjustment range: 103 - 153)
		F OF	Focus calibration (adjustment range: 105 - 158)
		Z OF	Zoom calibration (adjustment range: 105 - 158)
		I OF	Iris calibration (adjustment range: 128 - 255)
	P OF	Prism calibration (adjustment range: 116 - 140)	
	D OF	SURE	Set all effects to calibration value 128
PCBT		PCB test: for service use only	
FANS	FULL	<b>Cooling fans: full speed</b>	
	REG	Cooling fans: temperature regulated	
UPL	SURE	Manually set fixture to software update mode	

Table 2: Control menu

# Adjustment submenu

The *UTIL*→*ADJ* menu is for use by service technicians when performing adjustments.

Menu	Item	Item	Options	Notes		
	<i>RST</i>			Reset fixture		
	<i>L ON</i>			Strike lamp		
	<i>L OFF</i>			Douse lamp		
<i>HEAD</i>	<i>DIMM</i>	<i>ADJ</i>		Dimmer blades against stop		
		<i>CLOS</i>		Close dimmer		
		<i>OPEN</i>		Dimmer to open position		
		<i>ST S</i>		Strobe slow		
		<i>ST M</i>		Strobe medium		
		<i>ST F</i>		Strobe fast		
	<i>TEST</i>			Test dimmer and effects		
	<i>EFFM</i>	<i>TOOL</i>			For service use only	
			<i>COL</i>	<i>OPEN - CB</i> <i>CW F - RNDS</i>	Color wheel full positions Color wheel rotation	
		<i>GOB 1</i>		<i>OPEN - GG I</i> <i>G 1 R - GG R</i> <i>G 1RS - GG RS</i> <i>CW F - CCWS</i>	Gobo wheel 1 (rotating gobos) gobo selection (indexing) Gobo selection and rotation Gobo selection, rotation and shake Gobo wheel 1 scroll: speed and direction	
			<i>GOB 2</i>		<i>OPEN - G9</i> <i>CW F - RNDS</i>	Gobo wheel 2 (static gobos) gobo selection (indexing) Gobo wheel 2 scroll: speed and direction
				<i>IRIS</i>		<i>0 - &gt; C</i> <i>CLSD</i> <i>PLOF - PLCS</i> <i>RPOF - RPCS</i>
			<i>TEST</i>			
		<i>ZFPM</i>	<i>TOOL</i>			
				<i>PRIS</i>	<i>OFF</i> <i>ON</i> <i>CW F - CCWS</i>	Prism, zoom, and focus to adjustment positions Prism in Prism rotation: direction and speed
			<i>ZOOM</i>	<i>ZI S - ZO F</i>	Zoom: in/out, speed	
			<i>ZFPT</i>		<i>POUT</i> <i>PIN</i>	Zoom/focus/prism test: prism out Zoom/focus/prism test: prism in
				<i>FOCU</i>	<i>FI S - FO F</i>	Focus: near/far, speed
			<i>TEST</i>			Test zoom, focus, and prism
			<i>PATI</i>	<i>NEUT</i>		
		<i>PNTD</i>				Pan neutral, tilt down
		<i>PNTU</i>				Pan neutral, tilt up
		<i>PLTN</i>				Pan left, tilt neutral
		<i>PRTN</i>				Pan right, tilt neutral
	<i>PLTD</i>				Pan left, tilt down	
	<i>PRTU</i>				Pan right, tilt up	

Table 3: Adjustment submenu

# Control menu shortcuts

The following shortcuts are available using the buttons in the MAC 575 Krypton control panel:

Shortcut	Function
Hold [Menu] and press [Up]	Resets fixture
Hold [Enter] and press [Up]	Strikes lamp
Hold [Enter] and press [Down]	Douses lamp
Hold [Menu] and [Enter] while applying power	Freezes pan and tilt
Hold [Up] and press [Down]	Invert display

Table 4: Control menu shortcuts

## Service messages

SM5G (when service message LED is lit)	REPLACE LAMP	Displayed when lamp hours exceed average life
	FIXTURE OVERHEATING	Displayed if head temperature is too high.

Table 5: Service messages

# Display messages

Message	Appears when...	What to do
<i>RST</i> (Reset)	... the fixture is indexing effects at startup.	Wait for reset to complete.
<i>SRST</i> (Serial reset)	... the fixture has received a reset command.	Wait for reset to complete. Note that you can set <i>PERS</i> → <i>DRS</i> to <i>OFF</i> to prevent accidental DMX reset commands.
<i>HOME</i>	... the effects have been indexed and are moving to their default positions.	Wait a few moments.
<i>LDOR</i>	...the lamp access cover is not fully closed.	Check that the lamp access cover is locked in place.
<i>LEER</i> (Lamp error)	... the lamp does not ignite within 30 seconds of receiving the 'Lamp ON' command. Likely reasons are a missing or defective lamp, or insufficient AC voltage.	Check the lamp. Check that the voltage and frequency settings match the local supply.
<i>LS1ER</i> (Light sensor 1 error)	... there is an error in the light sensor circuit.	
<i>HOT</i> (Lamp hot)	... the lamp is too hot to restrike.	Allow up to ten minutes for the lamp to cool enough for it to restrike.
<i>COLD</i>	...the fixture is below the minimum temperature for the lamp to strike.	Leave the fixture powered on for a while to generate a little internal heat. Increase the ambient temperature.
<i>MEER</i> (Memory error)	...the EEPROM memory cannot be read.	Contact Martin service personnel for assistance.
<i>CSER</i> (Check-sum error)	...a software upload is unsuccessful.	Reload software.
	... there is no communication between the control panel and motherboard. This readout appears briefly when switching on the fixture.	Check fuses and replace accordingly. Check that cable between control panel and motherboard is connected properly. Reinstall software.
<i>SHER</i> (Short error)	... the fixture detects the lamp is ON but no 'Lamp ON' command has been received. This can occur if the lamp relay is stuck or if the lamp-power feedback circuit fails. The fixture may be operated but remote lamp on/off may be affected.	Contact Martin service personnel for assistance.
<i>BTERR</i> (Base temperature sensor error) <i>LTERR</i> (Lamp temperature sensor error) <i>ETERR</i> (Switchmode/ballast side temperature sensor error)	...there is a malfunction in the temperature sensing circuit.	Contact Martin service personnel for assistance.
<i>FBEPP</i> (Feedback error pan) <i>FBEPT</i> (Feedback error tilt) <i>FBER</i> (Feedback error pan/tilt)	...there is a malfunction in the optical pan/tilt monitoring circuit (e.g. sensor defective). After a time-out, the effect in question stops in a random position.	Reset fixture. Contact Martin service personnel if problem continues.
<i>LTCO</i> (Lamp temperature cut-out)	... the lamp temperature is too high and thermal protection circuits cut power to the lamp.	Allow fixture to cool. Ensure nothing is obstructing airflow around fixture. Clean air vents, air filters and fans. Reduce ambient temperature. Contact Martin service personnel if problem continues.
<i>PAER</i> (Pan time-out) <i>TIER</i> (Tilt time-out) <i>FOER</i> (Focus time-out) <i>ZOER</i> (Zoom time-out)	...there is a malfunction in the electric indexing circuit for pan, tilt, focus or zoom. The fixture will, after the time-out, establish a mechanical stop, and continue to work normally.	Reset fixture. Contact Martin service personnel if problem continues.
<i>C1ER</i> (Color wheel 1 time-out) <i>C2ER</i> (Color wheel 2 time-out) <i>G1ER</i> (Gobo wheel 1 time-out) <i>G2ER</i> (Gobo wheel 2 time-out) <i>RGER</i> (Gobo wheel rotation time-out)	...there is a malfunction in the magnetic-indexing circuit (e.g. sensor defective or magnet missing). After the time-out, the effect in question stops in a random position.	Reset fixture. Contact Martin service personnel if problem continues.
<i>DRER</i> (Driver current error) <i>RCER</i> (Real-time clock error) <i>DPER</i> (Display programming error)	...there is a software error.	Reset fixture. Contact Martin service personnel if problem continues.

Table 6: Display messages



Message	Appears when...	What to do
<i>RAME</i>	...there is an onboard RAM memory error.	Contact Martin service personnel for assistance.
<i>OPER</i>	...there is an onboard programming error.	Contact Martin service personnel for assistance.

**Table 6: Display messages**

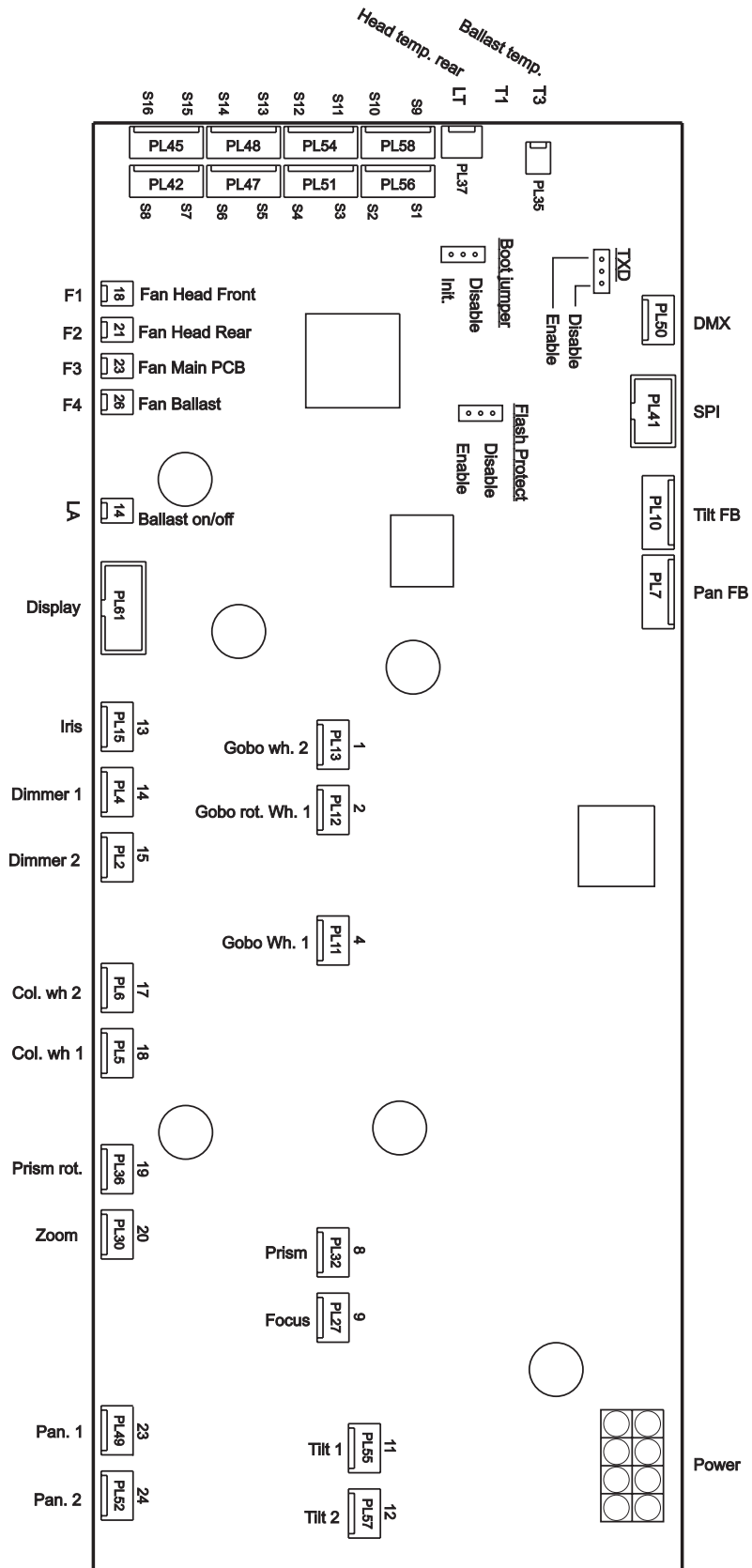
# Troubleshooting

Problem	Probable cause(s)	Remedy
One or more of the fixtures is completely dead.	No power to fixture.	Check that power is switched on and cables are plugged in.
	Primary fuse blown (located near mains inlet).	Isolate fixture from power and replace fuse.
	Secondary fuse(s) blown (located on PCBs in base).	Isolate fixture from power. Check fuses and replace.
Fixtures reset correctly but respond erratically or not at all to the controller.	Bad data link.	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables.
	Data link not terminated.	Insert termination plug in output jack of the last fixture on the link.
	Incorrect addressing of the fixtures.	Check fixture address and protocol settings.
	One of the fixtures is defective and disturbs data transmission on the link.	Unplug the XLR in and out connectors and connect them directly together to bypass one fixture at a time until normal operation is regained. Have the fixture serviced by a qualified 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.
Timeout error after fixture reset.	Effect requires mechanical adjustment.	Disable effects feedback (page 15). Contact Martin technician for service.
Mechanical effect loses position.	Mechanical train requires cleaning, adjustment, or lubrication.	Contact Martin technician for service.
No light and <i>LERR</i> (lamp error) message displayed.	Lamp blown	Disconnect fixture and replace lamp.
	Lamp not installed	Disconnect fixture and install lamp.
	Lamp access safety switch open	Verify that lamp access plate is fully seated and locked in place.
Lamp cuts out intermittently.	Fixture is too hot.	Allow fixture to cool. Clean fixture. Reduce ambient temperature.

**Table 7: Troubleshooting**

# Circuit board connections

S1		
S2	PL56	Ballast FB
S3	PL51	Pan
S4	PL51	Tilt
S5	PL47	Gobo 1
S6	PL47	Gobo 1 Rot.
S7	PL42	Focus Sw.
S8	PL42	Zoom Sw.
S9	PL58	
S10	PL58	
S11	PL54	
S12	PL54	
S13	PL48	Gobo 2
S14	PL48	Door switch
S15	PL45	Color 1
S16	PL45	Color 2



Label P/N: 33120087-B

# Specifications

## PHYSICAL

Length	450 mm (17.7 in)
Width	365 mm (14.4 in)
Height	636 mm (25.0 in)
Weight	37.8 kg (83.3 lbs)

## LAMP

Type	.575 W short-arc discharge
Approved lamp	GE CSR 575/S/DE/70
Color temperature	7000 K
CRI (Color rendering index)	>80
Average lifetime	750 hours
Hot restrike	No
Socket	Double-ended SFC 10-4 with key
Ballast	Magnetic

## DYNAMIC EFFECTS

Color wheel 1	.8 interchangeable dichroic filters plus open
Color wheel 2	.8 interchangeable dichroic filters plus open
Rotating gobo wheel	6 interchangeable gobos + open, shake, variable speed rotation and indexing
Static gobo wheel	.9 interchangeable gobos + open, indexing, continuous rotation, random gobo
Prism	Replaceable high speed rotating 4-facet prism
Iris	0 - 100%, pulse effects
Mechanical dimmer	0 - 100% dimming
Shutter	Strobe variable 2 - 10 Hz, regular or random opening or closing pulse
Focus	2 m to infinity
Zoom	14° - 30° (2.1:1)
Pan	540°
Tilt	246°
Position correction system	Yes

## CONTROL AND PROGRAMMING

Control channels	19 or 25
Setting and addressing	Control panel with LED display
16-bit control	Dimmer, color wheels 1 & 2, rotating gobo indexing, iris, focus, zoom, pan & tilt
Movement control options	Tracking and vector
Protocol	USITT DMX-512 (1990)
Receiver	Opto-isolated RS-485
Firmware update	Upload via DMX link (Martin Universal USB/DMX Interface recommended)

## CONSTRUCTION

Colors	Black or white
Housing	UV-resistant fiber-reinforced composite shell
Reflector	Glass, cold light
Protection rating	IP 20

## GOBOS

Outside diameter	.27.9 +0/-0.3 mm
Maximum image diameter	23 mm
Maximum thickness	1.1 mm in static slots, 4 mm in rotating slots
Recommended glass	High-temperature Borofloat or better with dichroic or enhanced aluminum coating
Recommended metal	0.5 mm aluminum

## INSTALLATION

Mounting points	2 pairs of 1/4-turn locks
Orientation	any
Minimum distance from illuminated surface	1.2 m (48 in.)
Minimum distance from combustible materials	0.5 m (20 in.)

## CONNECTIONS

AC power input . . . . . 3 m integral cable without power plug  
DMX data in/out . . . . . 3-pin and 5-pin locking XLR

## ELECTRICAL

AC power . . . . . 200-240 V nominal, 50/60 Hz (user-configurable voltage and frequency settings on ballast)  
Main fuse . . . . . 10 amp slow blow

### Typical power and current

200 V, 50 Hz . . . . . 788 W, 4.1 A, PF 0.972  
200 V, 60 Hz . . . . . 778 W, 4.1 A, PF 0.963  
208 V, 60 Hz . . . . . 797 W, 4.0 A, PF 0.960  
230 V, 50 Hz . . . . . 817 W, 3.7 A, PF 0.981  
230 V, 60 Hz . . . . . 804 W, 3.9 A, PF 0.907  
240 V, 50 Hz . . . . . 813 W, 3.5 A, PF 0.976

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

## OPTICS

Spread angle . . . . . 14° - 30° (focused on open gobo)  
Focal length . . . . . 46 - 100 mm

## THERMAL

Maximum ambient temperature (T<sub>a</sub>) . . . . . 40° C (104° F)  
Maximum surface temperature . . . . . 160° C (320° F)  
Cooling . . . . . Filtered forced air, temperature regulated  
Total heat dissipation (calculated, +/- 10% at 230 V, 50 Hz) . . . . . 2800 BTU/hr

## APPROVALS



EU safety . . . . . EN 60598-1, EN 60598-2-17  
EU EMC . . . . . EN 55 015, EN 55 103-1, EN 61 547  
US safety . . . . . ANSI/UL 1573  
Canadian safety . . . . . CSA C22.2 No. 166

## INCLUDED ITEMS

GE CSR 575/S/DE/70 lamp (installed)  
Two omega clamp attachment brackets with quarter-turn fasteners . . . . . 2 x P/N 91602001  
User manual . . . . . P/N 35000206

## ACCESSORIES

Half-coupler clamp . . . . . P/N 91602005  
G-clamp . . . . . P/N 91602003  
MAC 500/550/575//700™ stock gobos . . . . . see [www.martin.com](http://www.martin.com)

## SPARE PARTS

Head (side) air filter . . . . . P/N 20800170  
10 AT main fuse . . . . . P/N 05020025

## RELATED ITEMS

Martin Universal USB/DMX Interface Box™ . . . . . P/N 90702045

## ORDERING INFORMATION

MAC 575 Krypton™ Low Noise, black, in cardboard packing case . . . . . P/N 90216100  
MAC 575 Krypton™, white, in cardboard packing case . . . . . P/N 90216030



#### **Disposing of this product**

Martin™ products are supplied in compliance with Directive 2002/96/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), as amended by Directive 2003/108/EC, 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.





