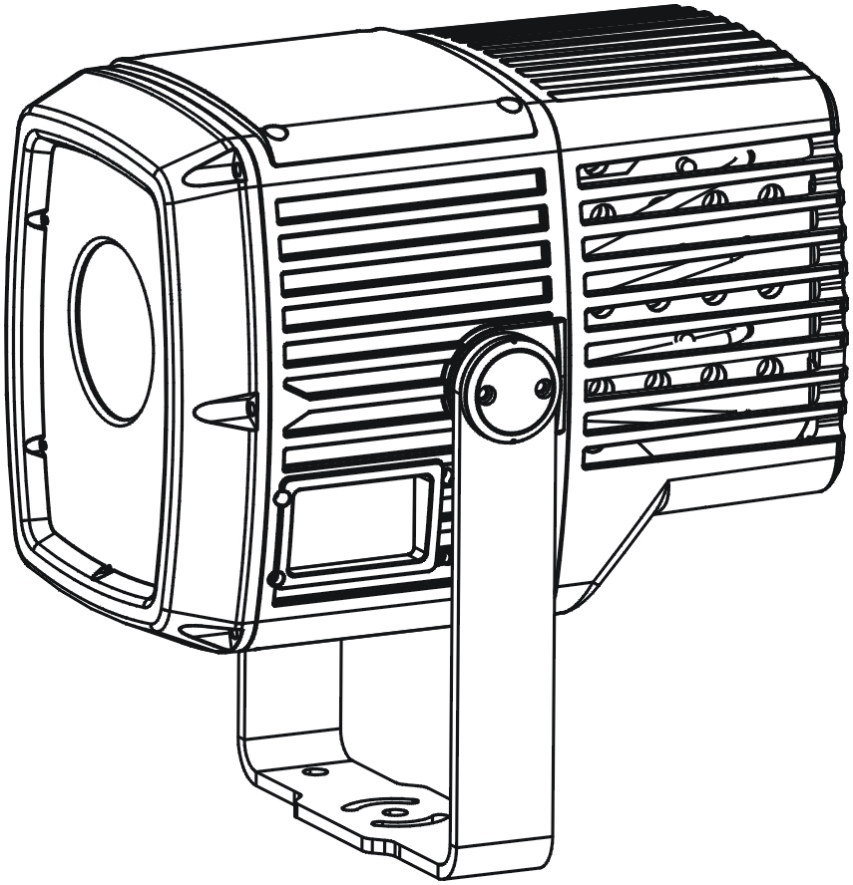
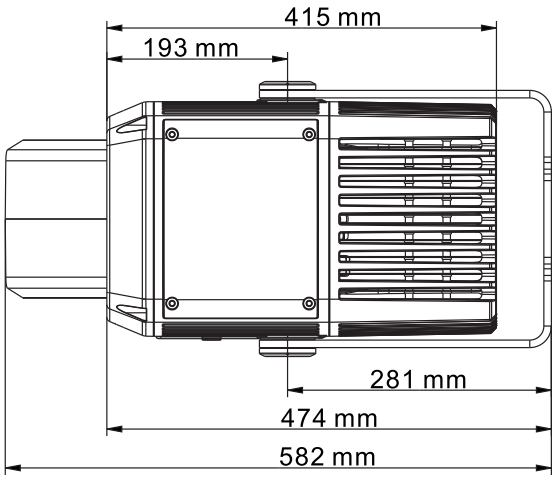
Exterior Projection 500

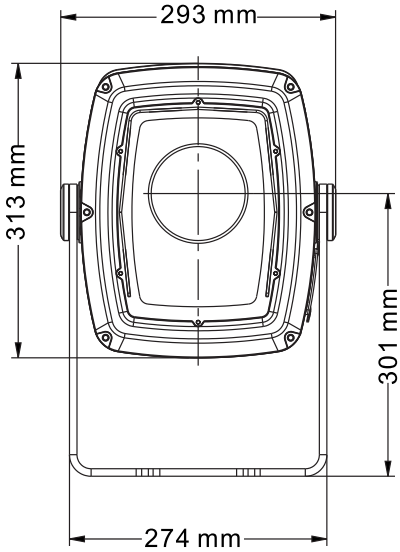


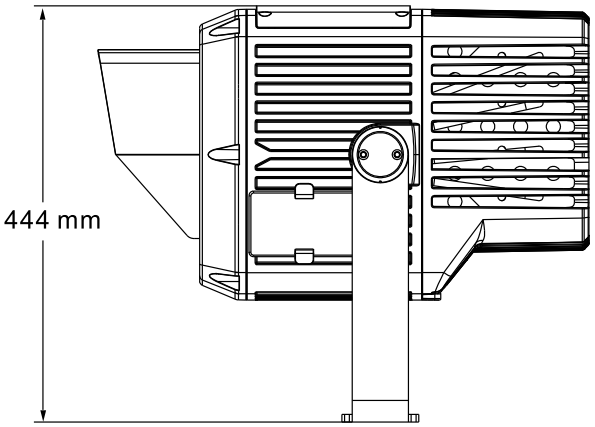
User Manual

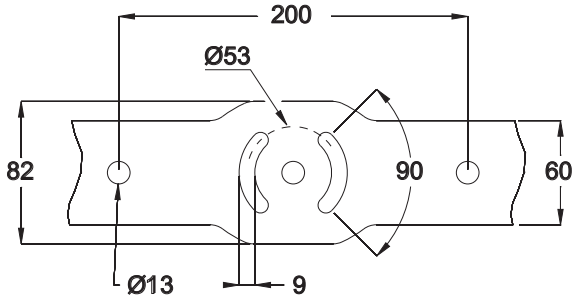
Martin® by HARMAN

Dimensions









All dimensions are in millimeters

Martin Professional • Olof Palmes Allé 18 • 8200 Aarhus N • Denmark • www.martin.com

Exterior Projection 500 User Manual P/N 5088618-00 Revision B

Table of contents

Safety information

WARNING!

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

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

Warning! Safety hazard. Risk of severe injury or death.

Warning! Hot surface. Risk of burns.

Warning! See user manual for important safety information.

Warning! Risk of eye injury. Wear protective eyewear.

Warning! Hazardous voltage. Risk of lethal or severe electric shock.

Warning! Do not look into light output.

Warning! Fire hazard.

Warning! Risk Group 3 product according to EN 62471. Do not look directly into the beam. Do not view the light output with optical instruments or any device that may concentrate the beam.

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

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

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

Keep this user manual for future use. Before installing, using or servicing this fixture, check that you have the latest version of the user manual, available on the fixture's Tech Docs/Support page on the Martin™ website at http://www.martin.com. Martin™ user manual versions are identified by the Revision letter given at the bottom of page 2.

Refer any operation not described in this user manual to Martin™ Global Service or an authorized Martin™ service agent.

Follow the safety precautions listed below and observe all warnings in this manual and printed on the fixture.

If you have any questions about how to install, operate or service the fixture safely, please contact your Martin™ distributor (see www.martin.com/distributors for details) or call the Martin™ 24-hour service hotline on +45 8740 0000, or in the USA on 1-888-tech-180.

Protection from electric shock

This fixture is IP66 rated. Suitable for wet locations. Do not immerse in water.

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

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

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

The circuit used to supply the fixture with AC power must include a power switch that is easily accessible so that the fixture can easily be disconnected from power.

Isolate the fixture from power immediately if any seal, cover, cable, connector or other component is damaged, defective, deformed, wet or showing signs of overheating. Contact Martin™ for any service operation not described in this user manual. Do not reapply power until repairs have been completed

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

Protection from burns and fire

Do not operate the fixture if the ambient temperature (T_a) exceeds 45° C (113° F).

The surface of the fixture casing can reach up to 85° C (185° F) during operation. Avoid contact by persons and materials. Allow the fixture to cool for at least 10 minutes before handling.

Keep flammable materials well away from the fixture. Keep combustible materials (e.g. fabric, wood, paper) at least 0.1 m (4 ins.) away from the fixture housing.

Ensure that there is free and unobstructed airflow around the fixture.

Do not illuminate surfaces within 0.5 m (1.6 ft.) of the front glass.

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

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

Protection from eye injury

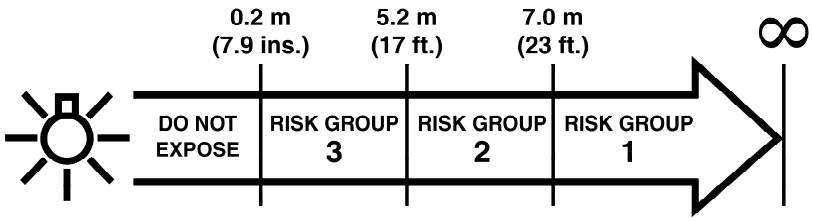
Do not stare directly into the light output. Ensure that persons are not looking directly into the lamp when the fixture lights up suddenly. This can happen when power is applied, when the fixture receives a DMX signal, or when certain control menu items are selected.

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

Wear protective glasses and other PPE (personal protective equipment) when working on or near the fixture.

The risk group distances given below apply to the light output from one fixture only. If fixtures can be operated in combination, light intensity can increase and you should consult a lighting professional for safety recommendations.

The Exterior Projection 500 falls into the following risk groups according to EN 62471 at the distances indicated:



At a distance of less than 5.2m (17 ft.) from the fixture, the light output can potentially cause eye or skin injury before an exposed person's natural aversion responses (blink reflex and reaction to skin discomfort) can protect them. At distances greater than 5.2m (17 ft.), potential eye and skin injury hazards from the light output are normally prevented by natural aversion reflexes.

Position the Exterior Projection 500 so that persons cannot be exposed to the fixture's light output at less than 5.2m (17 ft.) from the fixture and so that prolonged staring into the light output at less than 7 m (23 ft.) from the fixture is not expected.

Protection from injury

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

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

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

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

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

In the event of an operating problem, stop using the fixture immediately and disconnect it from power. Do not attempt to use a fixture that is obviously damaged.

Do not modify the fixture or install other than genuine Martin™ parts.

Introduction

The Exterior Projection 500 from Martin™ is an image projection fixture that features a powerful 230 W LED engine, advanced dynamic effects and rugged weatherproofing.

Four models are available with beam angles ranging from narrow to very wide. Exterior Projection 500 Narrow, Medium and Wide models are suitable for the projection of images and/or text such as logos. The Exterior Projection 500 Very Wide has less clearly defined projections than the other three models and is best suited to the projection of abstract patterns. See www.martin.com for photometric data relating to the different beam angle options. Fixtures can be converted from one beam angle to another with the help of kits available from Martin, but beam angle kits must be installed by Martin™ or its authorized service agents only.

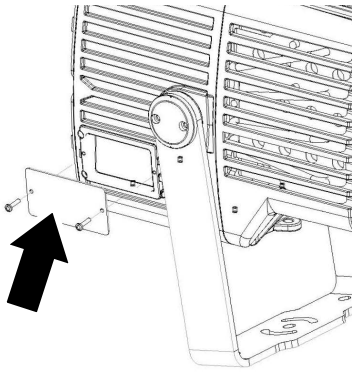
The fixture features a rotating gobo wheel with six interchangeable rotating gobos and a gobo animation effect that provides animated projections when used in combination with a rotating gobo. The fixture has 8 dichroic color filters, one radial 3-facet and one linear 4-facet rotating prism and a frost filter. It also has smooth electronic dimming, remote focusing and strobe effects.

The Exterior Projection 500 can be controlled using any controller that is compatible with the industry-standard DMX512 lighting control protocol. It will also respond to RDM (Remote Device Management) communication if you use an RDM-compliant controller. RDM lets you set up and retrieve status information from fixtures over the DMX data link. Martin™ can provide suitable high-quality DMX and DMX/RDM controllers with an intuitive user interface that make it easy to set up impressive lighting effects. See www.martin.com for details.

The Exterior Projection 500 can also function without DMX control as a standalone projector and display one of twenty dynamic lighting effects that you can pre-program.

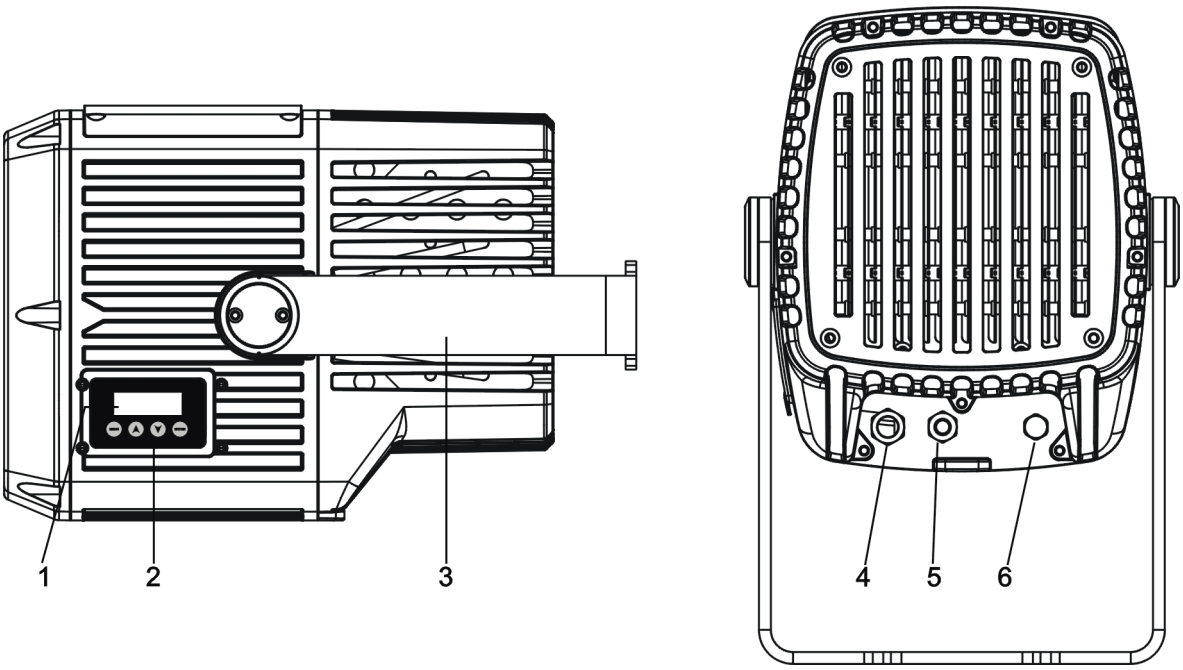
Before using the product for the first time

1. Unpack and ensure that there is no transportation damage before using the fixture. Do not attempt to operate a damaged fixture.
2. Check the fixture's Tech Docs / Product Support page on the Martin Professional™ website at www.martin.com and make sure that you have read the latest user documentation and technical information about the fixture. Martin™ user manual revisions are identified by the revision letter at the bottom of the inside cover.
3. Read 'Safety information' on page 4 of this user manual.
4. Ensure that the voltage and frequency of the power supply match the power requirements of the fixture.
5. See illustration on right. Remove the cover (arrowed) from the control panel and display on the side of the fixture so that you can set up the fixture using the control panel.
6. If the temperature is below -20° C (-4° F), apply power to the fixture but do not use it for 30 minutes. This will give the fixture time to warm up to within its operating temperature range.



Note that whenever AC power is applied to the fixture, it will reset all effects and functions to their home positions. Reset is available when fixture temperature is above -20° C (-4° F).

Fixture overview



1. Control panel display (shown with cover removed)
2. Control buttons:

MENU	Enter the control menus, or Return to the previous level of the menu structure, or Press and hold to exit the control menus
DOWN (▼)	Scroll down a menu or scroll descending values
UP (▲)	Scroll up a menu or scroll ascending values
ENTER	Confirm a selection

3. Adjustable mounting yoke
4. AC mains power cable
5. DMX data combined in/out cable
6. Pressure relief valve

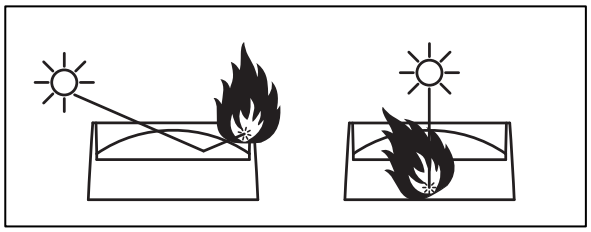
Physical installation

Warning! Read 'Safety information' on page 4 before installing the fixture.

Protection from the sun

Important! The fixture's optical system can focus rays from the sun inside the fixture, causing internal damage and presenting a fire hazard. Make sure that the sun will not shine into the front of the fixture at any time.

The Glare Shield available from Martin™ (see 'Accessories' on page 43) can help protect the front of the fixture from the sun.

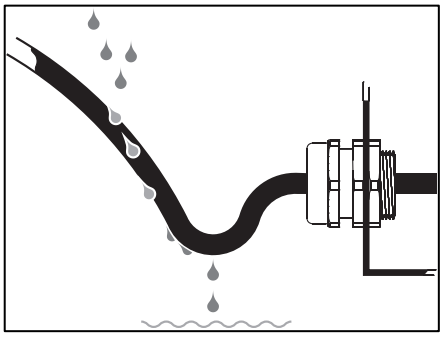


If the control panel will be exposed to sunlight, install its cover to protect the panel and its display from heat and UV radiation.

Protection from moisture

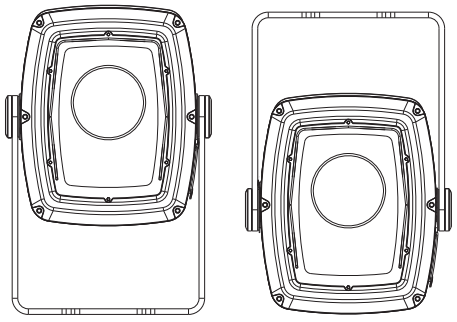
If there is a break or cut at any point in a cable (for example at a connection point), and if this is exposed to water, moisture can be drawn up the inside of the cable due to the vacuum effect of temperature fluctuations during operation. Ensure that the fixture is protected from the entry of water via cables by using IP66-rated connectors or junction boxes, or by protecting connectors with weatherproof housings. Make sure that all cables open into dry areas.

See illustration on right. Create a drip loop before cable glands to reduce any tendency for glands to be constantly immersed in water.

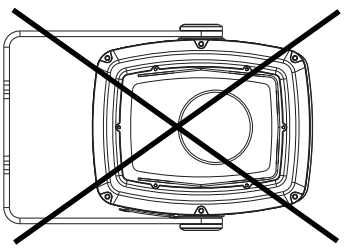


Mounting the fixture

The fixture can be mounted at any angle and the yoke can be fastened to a vertical, horizontal or angled surface, but the sides of the fixture must be vertical when installed (see examples below), or the fixture's cooling airflow will be affected, leading to excessively high fixture temperature and reduced light output.



Sides of fixture vertical: OK



Sides of fixture not vertical: Not OK

Do not stand the fixture freely on a surface or leave it where it can be moved or fall over. Ensure that the installation surface or structure and all fasteners used can safely bear at least 10 times the weight of all the fixtures and equipment they will support.

Avoiding galvanic corrosion

The fixture and mounting bracket are manufactured in corrosion-resistant anodized aluminum. Avoid mounting the fixture in direct contact with other types of metal, as this can cause galvanic corrosion. When fastening to a metal that is not aluminum:

- Use an electrically insulating material (such as rubber or plastic) or coating between the mounting bracket and the other metal.
- Use a non-conductive coating such as Delta Seal on fasteners (screws, bolts, washers, etc.) where they come into contact with the mounting bracket.

Fasteners

The type of fasteners used will depend on the installation, but use a minimum of three high-strength corrosion-resistant fasteners that are suitable for the installation environment and application. We recommend that all fasteners are stainless steel A4-70 grade according to ISO 3506 or steel grade 8.8 according to ISO 898-1 or better.

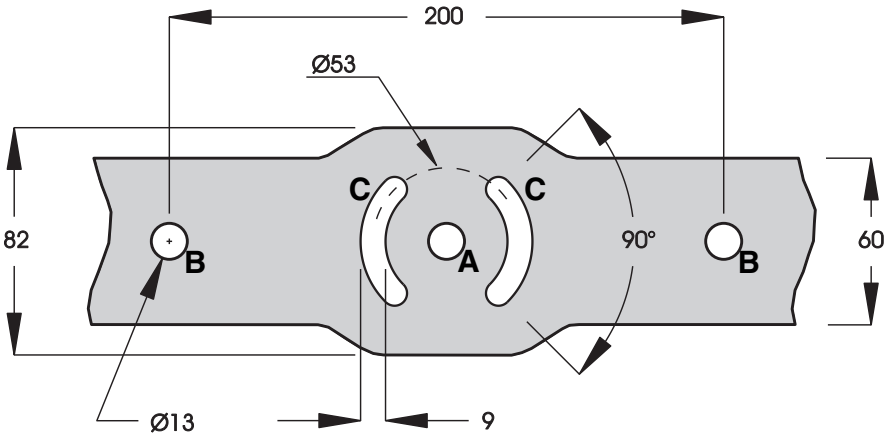
Install washers between the head of each fastener and the yoke base. If you use nuts, use self-locking type only and install washers under the nuts.

Anchoring to a surface or structure

The fixture's mounting yoke base must be securely anchored to a flat surface on a wall, pedestal, structural beam or other suitable support. The yoke allows the fixture to be manually panned and tilted for beam aiming adjustment.

To anchor the fixture to a surface:

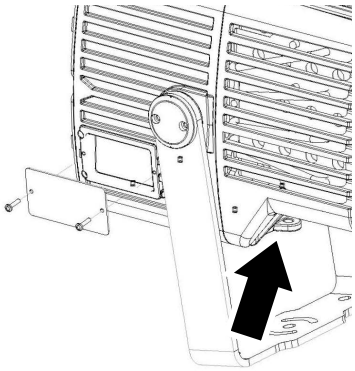
1. See illustration below. Fasten a 12 mm (1/2 inch) shaft diameter bolt to the surface through the center hole **A** in the mounting yoke.
2. Fasten two bolts with 8 mm (5/16 inch) shaft diameter to the surface with one bolt passing through each of the curved slots **C** to anchor the fixture. This will give approximately 90° of pan adjustment.
3. Adjust the fixture's pan angle (side-to-side beam aiming) as described later in this chapter. Adjusting pan is best carried out with power applied to the fixture so that the projection is visible. Once pan is correct, fasten two 12 mm (1/2 inch) shaft diameter bolts to the surface with one bolt passing through each of the holes **B**. Once bolts have been installed in holes **B**, pan adjustment is no longer possible.



Mounting yoke base

Secondary attachment

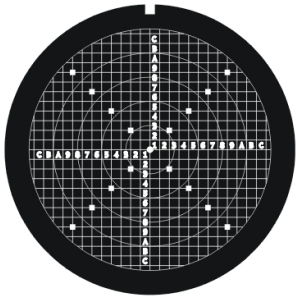
If a secondary attachment is required for reasons of safety (in entertainment venues, onboard marine vessels or in temporary installations, for example), see drawing on right. Loop a safety cable that is approved for the weight of the fixture through the secondary attachment point (arrowed) in the fixture and attach the safety cable to a secure anchoring point so that the cable will catch the fixture if the primary method of attachment fails.



Adjusting aiming (pan and tilt)

Warning! The fixture can become hot. Wear heat-resistant gloves if you adjust the aim of the fixture when it is (or has recently been) powered on.

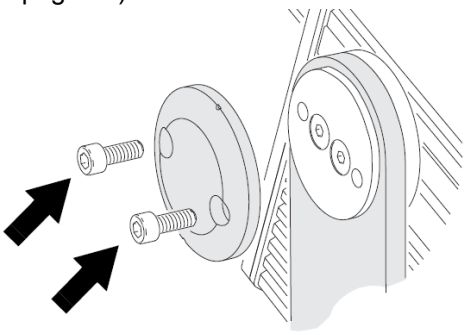
Fixture aim adjustment is best carried out after the fixture has been connected to power and in weak light conditions so that the projection from the fixture is clearly visible.



See illustration on right. If you require very precise aiming and setup, we recommend that you order the projection setup gobo available from Martin™ for the Exterior Projection 500 (see ’Accessories’ on page 43) and install it in the gobo wheel while you adjust fixture aim, focus, etc.

To adjust the aim of the fixture:

1. Set the fixture to project a setup gobo (see above) or another gobo with a sharply defined pattern. You can select the image remotely either via DMX or by using the MANUAL TEST menu in the fixture’s control panel (see ‘Manual test’ on page 18).
2. Put on heat-resistant gloves.
3. See ‘Anchoring to a surface or structure’ on page 10. Loosen the bolts in the center hole **A** and curved slots **C** slightly, just until you can rotate the yoke.
4. See illustration on right. Loosen the tilt lock Allen (hex) screws (arrowed) on both sides of the yoke slightly, just until you can tilt the fixture in the yoke.



5. Pan and tilt the fixture until it is aimed correctly.
6. Use a torque driver and tighten the four tilt adjustment screws to a torque of 1.8 – 2.3 Nm.
7. See ‘Anchoring to a surface or structure’ on page 10. Tighten the bolts in the center hole **A** and curved slots **C** and install bolts in holes **B**. Check that the fixture will be held securely in all wind and weather conditions.

AC power

Warning! Read “Safety Information” on page 4 before installing the fixture.

Electrical installation must be carried out by qualified professionals only.

Lock out power to the entire installation before working on cables and connections.

For protection from dangerous electric shock, the fixture must be grounded (earthed). The AC power distribution system must be fitted with current overload and ground-fault (earth-fault) circuit breakers as well as a means to isolate fixtures from power and lock out power during service.

The Exterior Projection 500 is supplied in EU and US models. Both models accept AC power at 100-240 V nominal or 277 V nominal at 50 or 60 Hz. Do not connect to power at any other voltage or frequency.

You can connect the Exterior Projection 500 to either of the following mains power distribution systems:

- Single-phase (live, neutral, ground/earth) system.
- Grounded/earthed three-phase four-wire (three phases, neutral, ground/earth) system.

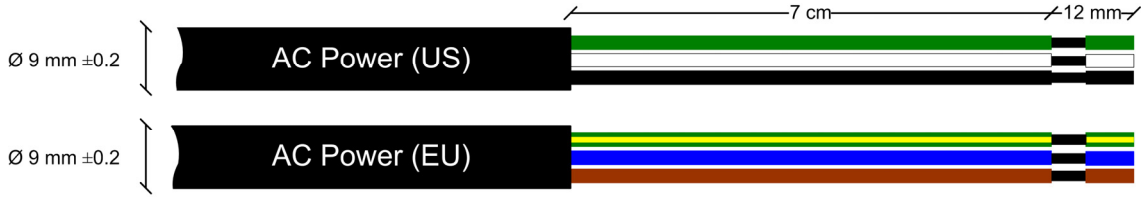
Do not try to connect to a three-phase three-wire (three phases, ground/earth) system.

There is no power on/off switch. Power is applied to an Exterior Projection 500 fixture as soon as it is connected to power. Provide a means to disconnect or shut down power to fixtures that is easily accessible and is located close to the fixtures.

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

Connecting to AC mains power

The fixture is supplied with a power cable installed ready for connection. See illustration below:



AC power cable

To connect to a single-phase system or to one phase of a three-phase four-wire system:

1. Lock out power to the installation.
2. Connect the conductors in the power cable to the distribution circuit as follows:
   a) Connect the green wire (US models) or yellow/green wire (EU models) to ground (earth).
   b) Connect the white wire (US models) or blue wire (EU models) to neutral.
   c) Connect the black wire (US models) or brown wire (EU models) to live (one phase of a three-phase system).
3. Check that all installation work is completed and carry out appropriate tests and safety checks before applying power.

It is possible to install a power plug on the power cable for temporary use only. If you need to do this, install a grounding type (earthed) plug with integral cable grip that is rated minimum 277 V, 6 A. Follow the plug manufacturer's instructions and connect the wires in the power cable as shown in the table below:

	Live or L	**Neutral or N**	**Earth, Ground or ⏚**
US system	Black	White	Green
EU system	Brown	Blue	Yellow/green

Power plug connections

Control data link

A DMX512 data link is required in order to control the fixture via DMX (and manage fixtures via RDM, if used). Your Martin™ supplier will be happy to help if you need advice or assistance in planning the link.

Follow these guidelines when creating a DMX data link:

- Use RS-485 data cable designed for exterior use. RS-485 cable has low capacitance and a characteristic impedance of 85 to 150 Ohms. It is electrically shielded and has at least one twisted pair of conductors. The minimum recommended wire size is 0.25 mm2 (24 AWG) for runs up to 300 meters (1000 ft.) and 0.32 mm2 (22 AWG) for runs up 500 meters (1640 ft.). A cable run of more than 500 meters requires the use of a splitter-amplifier to boost the DMX signal.
- If independent control of a fixture is required, that fixture must have its own DMX channels. Any fixtures that will always be required to behave identically can have the same DMX address, which means that they will use the same DMX channels.
- 512 DMX channels are available in a single DMX universe. Each time the number of DMX channels required by the fixtures on a data link reaches 512 and you want to add more fixtures, create a new DMX universe on a new data link and connect the additional fixtures to the new link.
- You can connect up to 32 fixtures in a single daisy chain on a DMX data link. Connecting in a daisy chain means that you must connect the DMX data OUT from one fixture to the DMX data IN of the next fixture, creating a single line of fixtures. Do not split the link into branches by creating a **Y** shape in the cable or at connectors.
- However, you can split a DMX data link into two or more branches if you use an optically isolated DMX splitter-amplifier. To preserve RDM functionality, use an RDM-compatible splitter such as the Martin™ RDM 5.5 Splitter. Each branch can contain up to 32 fixtures.
- If you reach the limit of 32 fixtures on a DMX data link, you can connect up to 32 additional fixtures if you add a splitter-amplifier such as the Martin™ RDM 5.5 Splitter to the link in order to boost the data signal. Adding a splitter-amplifier also lets you extend a data link beyond 500 meters (1640 ft.).
- The data link (and each branch of the link if you have created branches with a splitter-amplifier) must be terminated at the end by placing a 120 ohm resistor (available from Martin, P/N 04150308) across the data output hot (+) and data output cold (-) conductors of the last fixture on the link.
- Do not create long parallel runs of AC power and data cables, as these may cause interference on the data link. Even if not required by law, use separate conduits for power and data cables.
- The Exterior Projection 500's combined data input/output cable does not support the optional second data wire pair that is provided for in the DMX512-A standard. Do not place devices that use the second data pair on the same DMX data link as Exterior Projection 500 fixtures.

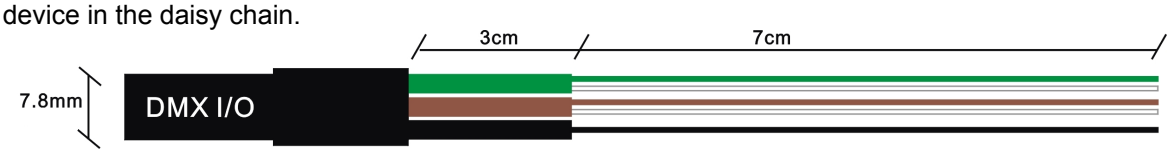
Connecting the data link

Important! All connections must be completely protected from moisture (inside IP66-rated junction boxes, for example).

Important! Connect the data output from one fixture to the data input of ***one fixture only.*** If you connect one data output to more than one data input, you will split the DMX data link into branches which will probably cause data signal integrity problems.

The Exterior Projection 500 is supplied with a hard-wired 1.8 m (5.9 ft.) shielded cable with 2 pairs of wires for connection to a DMX data link.

The pair of wires with a green sleeve is for data input from the control device or previous device in the daisy chain. The pair of wires with a brown sleeve is for data output (throughput) to the next device in the daisy chain.



Exterior 500 Projection DMX data cable

Connect the cable as shown in the table below. Do not connect the shield conductor to ground (earth) or allow it to come into contact with a connector shell, as this may cause interference.

	Input wires (green sleeve)		***Output wires (brown sleeve)***		***Shield***
Wire color	*white*	*green*	*white*	*brown*	*black*
Signal	*DMX in +*	*DMX in –*	*DMX out +*	*DMX out –*	*common*
Male XLR pinout	*pin 3*	*pin 2*	*-*	*-*	*pin 1*
Female XLR pinout	*-*	*-*	*pin 3*	*pin 2*	*pin 1*

Data connection pinout

Fixture setup

Warning! Read ‘Safety information’ on page 4 before operating the fixture.

Using the control menus

This section explains the fixture settings and utilities that are available using the control panel and display that are located on the side of the fixture.

You can find a full map of the control menus in ’Control menus’ on page 38. Some settings and functions are also available via RDM.

Control menu settings are retained when the fixture is powered off.

Navigating in the control menus

To access the control menus, press the MENU button and hold for three seconds.

- To select a menu option or to confirm a selection, press the ENTER button.
- To scroll up and down the items in a menu or adjust values, use the DOWN ARROW (▼) and UP ARROW (▲) buttons.
- To return to a higher level in the menu structure, press the MENU button.
- To exit all active control menus and return directly to the top level, press and hold the MENU button.

Passwords

The Exterior Projection 500 onboard control panel is password-protected to discourage tampering. There are two passwords:

- A user password that is set to 111 by default, but can be changed to any number from 0 to 999. This password is required to enter the control menus.
- A service password that is factory-set to 123 and cannot be changed. This password is required to reset the ’Lamp Hours’ counter, set the fixture to Evaporation Mode before closing the top cover, and enter the fixture offset menus. Note that users may only make changes to the fixture offsets with guidance from Martin Service.

To enter or set a password, use the DOWN ARROW and UP ARROW buttons to scroll to the required number. When the number is displayed, press ENTER to confirm.

Setting a DMX address

The Exterior Projection 500 uses thirteen DMX channels to receive instructions from a DMX controller. The fixture’s DMX address, also known as the start channel, is the first of these channels. If a fixture that requires 4 DMX channels has its DMX address set to 1, for example, then it uses channels 1, 2, 3 and 4. The next fixture can have its DMX address set to 5, the next to 9 and so on until all the 512 channels in one DMX universe are allocated.

If you want independent control of a group of fixtures, give each fixture its own DMX address so that each fixture has its own control channels. If you want a group of fixtures of the same type to always behave identically, give all the fixtures the same DMX address so that they all use the same DMX control channels.

You can set a fixture’s DMX address using the fixture’s control panel or by sending commands from an RDM-compliant DMX controller.

To set the fixture’s DMX address from the control panel:

1. Press and hold the MENU button to access the control menu.

2. Use UP and DOWN to select DMX ADDRESS from the menu. Press ENTER.
3. The fixture's current DMX address is displayed. Press UP or DOWN to scroll to the DMX address that you want to give to the fixture.
4. Press ENTER to store the DMX address in the fixture.
5. Press MENU to exit.

Programming a standalone show

You can program a standalone show – a sequence of 'scenes' that run in a loop – in the Exterior Projection 500. A scene consists of a combination of effects such as gobo selection, gobo movement, color, intensity, etc. You can set the standalone show to run if you are not using a DMX controller or if a signal from a DMX controller is lost. The show can have up to 20 scenes that display for up to 10 minutes each. You can program 'fades' (changes from one scene to the next) so that scenes change immediately or change gradually over a period of up to 120 seconds' duration.

Note: To enable standalone operation, the OFFLINE MODE setting in the FIXTURE CONFIG menu must be set to RUN SHOW. See 'Offline mode – behavior without DMX' on page 20. A fixture will only run a standalone show when it is not receiving a DMX signal.

To program a stand-alone show:

1. Access the control menu and use UP and DOWN to scroll to PROGRAM SHOW. Press ENTER to select.
2. Set the total number of scenes:
   a) Select SET SCENE TOTAL and press ENTER.
   b) Use UP and DOWN to select from 1 to 20 scenes.
   c) Press ENTER.
3. Modify the appearance of scenes:
   a) Select EDIT SCENE and press ENTER.
   b) Select the scene that you want to modify and press ENTER.
   c) Select the effect that you want to adjust (STROBE, INTENSITY, COLOR, etc.) and press ENTER.
   d) Press UP or DOWN to scroll to a value. When satisfied, press ENTER to confirm your selection.
   e) Repeat steps c) and d) for each effect.
   f) Press MENU to go back up one level in the menus and select another scene to modify.
   g) When done editing scenes, press MENU again to return to the PROGRAM SHOW menu.
4. Set the length of time each scene is displayed before fading to the next scene and set the length of time one scene fades to the next scene:
   a) Select SET SHOW TIMES and press ENTER.
   b) Select SET HOLD TIME and press ENTER. Press UP or DOWN to scroll to scene duration from 0 to 99.9 seconds. Press ENTER to confirm your selection.
   c) Select SET FADE TIME and press ENTER. Press UP or DOWN to scroll to a scene change fade duration from 0 to 99.9 seconds. Press ENTER to confirm your selection.
5. Press MENU to exit.

Manual control mode

The fixture can be tested, reset and returned to default factory settings manually from the control panel. To enter manual mode:

1. Access the control menu and select MANUAL MODE.
2. Press ENTER.

Manual test / manual single scene display

The manual test commands let you display a single scene (i.e. a single combination of effects) manually, either for test purposes or to control the fixture without a DMX controller. To set up the scene:

1. Select MANUAL TEST and press ENTER.
2. Use UP and DOWN to scroll through the fixture's effect controls (STROBE, INTENSITY, COLOR, GOBO SELECTION, etc.). Press ENTER to select an effect to adjust.
3. Use UP and DOWN to select a value for the effect, and press ENTER to confirm your selection.
4. Repeat for each effect you want to control.
5. Press MENU to exit.

Any scene that you set in the MANUAL TEST menu is retained in memory when fixture power is cycled off and on. The MANUAL TEST menu therefore lets you set up a permanent single-scene display without DMX control.

Resetting effects

To reset an effect, returning it to its default setting:

1. Select RESET FUNCTIONS and press ENTER.
2. Select ALL or one of the effects.
3. Press ENTER to reset.
4. Press MENU to exit.

Returning to factory defaults

To return the fixture to its factory default settings, erasing any settings, standalone scenes, etc. stored in the fixture's memory:

1. Select FACTORY DEFAULT and press ENTER.
2. Select YES to return to factory defaults or NO to exit.
3. Press ENTER to confirm.
4. Give the fixture time to return to the factory default settings.

Display setting

The DISPLAY SETTING menu provides options to invert, dim, and turn off the control panel display.

Display inverse

For easier reading when the fixture is mounted upside down, flip the display as follows:

1. Select DISPLAY INVERSE and press ENTER.
2. Select YES to invert the display or NO for normal reading.
3. Press ENTER to confirm.

Display auto turn off

The display can be set to stay on or to turn off 1 minute after the last key press. To set display behavior:

1. Select DISPLAY AUTO OFF and press ENTER.

2. Select NO to keep the display illuminated, or YES to have the display turn off automatically after 1 minute.
3. Press ENTER to confirm.

Display intensity

To adjust the brightness of the control panel display:

1. Select INTENSITY and press ENTER.
2. Scroll to a value from 0 to 100%.
3. Press ENTER to confirm.

Fixture status

You can view the following fixture status information in the FIXTURE STATUS menu:

- Current temperature of LED engine.
- Total number of hours the fixture has been in use.
- Total number of hours the LEDs have been powered on.
- Software version currently installed in the fixture.

You can also call up fixture status information from an RDM-compatible controller.

Fixture configuration (including master/slave operation)

The FIXTURE CONFIG menu contains additional settings for customizing behavior.

Master/slave operation – important guidelines

Fixtures operating in standalone mode can be synchronized in master/slave operation if they are all connected to each other on a DMX data link as described under ‘Control data link’ on page 14.

In master/slave operation, one fixture running a standalone show – the ’master’ fixture –sends ‘fade’ and ’wait’ signals to the other fixtures running standalone shows – the ’slave’ fixtures – so that scene change times in slave fixtures are synchronized with the scene change times in the master. Every time the master changes to its next pre-programmed scene, the slave fixtures change to their next pre-programmed scene at the same time.

Note the following:

- Although scene changes in master and slave fixtures all occur at the same time, scenes do not have to be identical. You can program different effects in the standalone scenes of different fixtures.
- Each fixture displays its own pre-programmed standalone show until it reaches its last scene, then it starts the show sequence again and continues in a loop. If all fixtures have the same number of scenes in their shows, they will all start shows in synch. If the standalone shows in different fixtures have different numbers of scenes, the fixtures will restart their shows at different times relative to each other.
- If no controller is connected to the first fixture on the link, you can improve the quality of the data signal sent to slave fixtures by connecting a DMX termination plug (a plug with a 120 Ohm resistor across data hot and data cold) to the data input of the first fixture.
- DMX and RDM signals will override standalone operation in both the master and the slave fixtures. This means that standalone operation is only possible if no DMX signal is present.
- You must set only the first fixture on the link to be the master fixture. Set all the other fixtures as slaves. If you set more than one fixture to act as master, you may cause damage that is not covered by the product warranty.

Setting up master/slave operation

Set up master/slave operation as follows:

1. Program a standalone show in each fixture as described under ‘Programming a standalone show’ on page 17.
2. On each fixture, access the control menu and select FIXTURE CONFIG. Press ENTER.
3. Check that all fixtures are set to SLAVE. On the first fixture on the link – and ***only*** on this fixture – select MASTER and press ENTER. Press MENU to return to the FIXTURE CONFIG menu.
4. ON each fixture, scroll to OFFLINE MODE and press ENTER. Then select RUN SHOW and press ENTER. Finally, press and hold MENU to exit the control menus.
5. Fixtures will now run standalone shows synchronized with the master fixture’s standalone shows whenever the fixtures are powered on and not receiving a DMX control signal.

Offline mode – behavior without DMX

There are three options for setting how a fixture behaves when it is not receiving a DMX signal (including when it is receiving a DMX signal but the signal is suddenly lost):

- RUN SHOW: Fixture executes pre-programmed scenes in a standalone show.
- DMX LAST STATE: Fixture holds and displays the last received DMX command.
- BLACK OUT (default): Fixture blacks out.

To set the desired behavior:

1. Access the control menu and select FIXTURE CONFIG. Press ENTER.
2. Press UP or DOWN to select one of the above three options. Press ENTER to confirm.

Note that for standalone and master/slave operation, OFFLINE MODE must be set to RUN SHOW.

Setting the software to match the fixture variant

Important! The user should normally never need to change the Fixture Variant setting. Change the setting with guidance from Martin Service only.

The Exterior 500 Projection firmware fixture software (firmware) can be configured to match one of the following two fixture variants:

- Exterior Projection 500 MG (Multigobo –standard fixture)
- Exterior Projection 500 FR (Framing – special fixture variant)

By default, the software is configured to match the Multigobo variant. To change this setting:

1. Select SET VARIANT from the main menu and press ENTER.
2. Select from:
   a) EP500 MG (Exterior Projection 500 Multigobo, the default setting) or
   b) EP500 FR (Exterior Projection 500 Framing).
3. Press ENTER to confirm.

Setting effect offsets

Important! The user should normally never need to change the Fixture Offsets setting. Change the setting with guidance from Martin Service only.

It is possible to adjust the home position of each effect by setting an offset in the FIXTURE OFFSET menu. Adjustments are held in memory when the fixture is powered off and on.

Offsets can be used to match multiple fixtures after they have been installed (if precise gobo alignment is required, for example).

To reduce the risk of unauthorized tampering with the fixture, you must enter the service password (123) before you can access the FIXTURE OFFSET menu.

Setup via RDM

The Exterior Projector 500 is compatible with RDM (Remote Device Management). Using an RDM-compliant DMX controller, you can communicate with all the fixtures on a data link without needing to access the fixture's control panels or connect to each fixture individually. RDM lets you set the DMX addresses of all the fixtures on the link, carry out basic fixture configuration and retrieve basic fixture data.

Before you can communicate with fixtures, you will need to send a 'Disc Unique Branch' scan command from the RDM controller to detect the devices on the data link. You can then send a 'Get Supported Parameters' RDM command to retrieve a list of the Parameter IDs or messages, supported by the fixture.

Effects

Strobe / shutter

The strobe / shutter effect provides instant open and blackout as well as variable speed regular and random strobe effects.

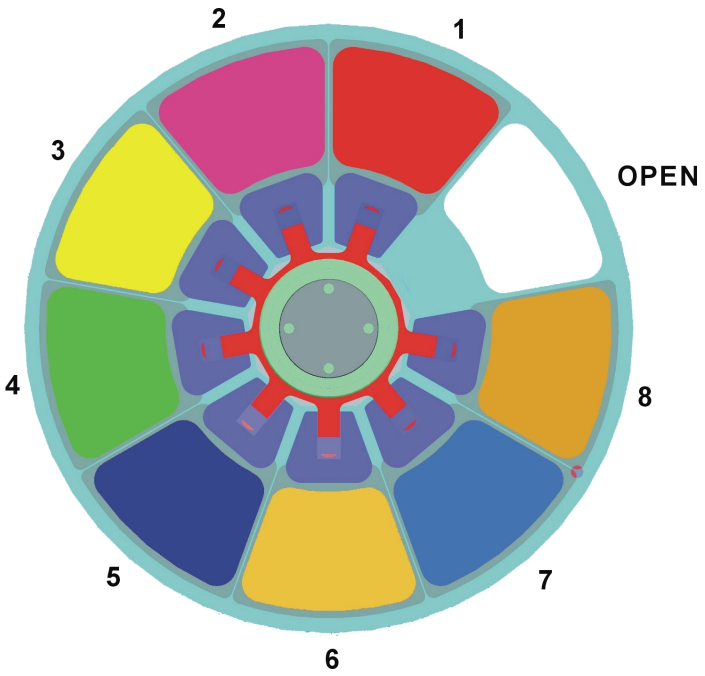
Electronic dimming

Overall intensity can be adjusted 0-100%. 16-bit dimming resolution is available using two DMX channels.

Color wheel

The color wheel contains the 8 dichroic color filters listed below plus an open (white) position.

Colors can be selected in full position steps or continuously scrolled for split colors. The color wheel can be rotated with variable speed and direction. It can also be set to display random colors at slow, medium and fast speeds. The color wheel is shown below viewed from the LED side (rear of the fixture):



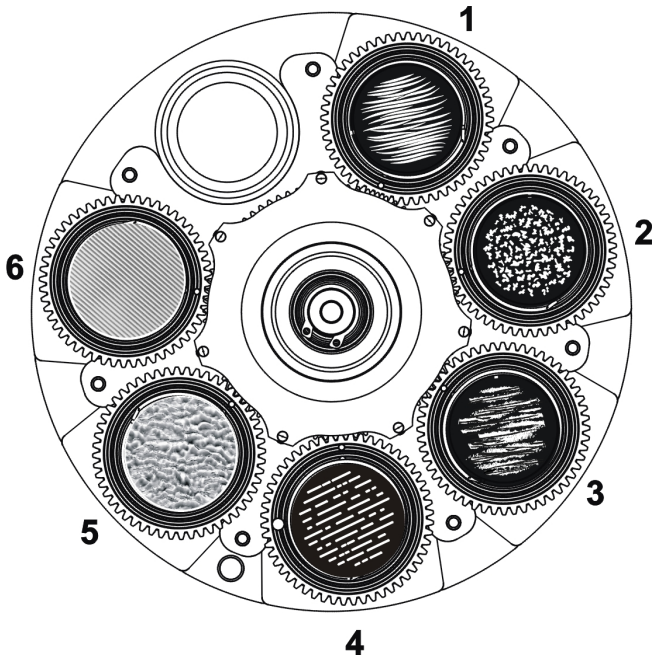
Color wheel

Slot 1: Red	Slot 5: Dark Blue
Slot 2: Magenta	Slot 6: CTO
Slot 3: Yellow	Slot 7: Cyan
Slot 4: Green	Slot 8: Orange

As an alternative to the above colors, Martin™ can supply custom color filters made to special order. Please consult your Martin™ supplier for details.

Gobos

The fixture contains a rotating gobo wheel with the six rotating glass gobos shown below, viewed from the front glass side (front of the fixture):



Rotating gobo wheel

Gobo 1: Grass Lines	Gobo 4: Light Lines
Gobo 2: Organic Delight	Gobo 5: Ripple Structure Glass
Gobo 3: Brush It	Gobo 6: Lined Effect Glass

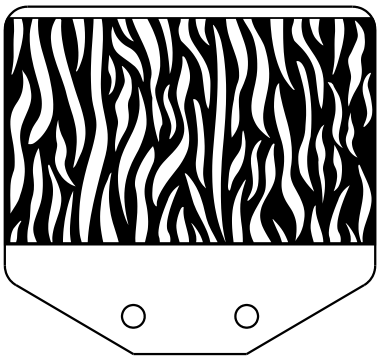
The gobos can be set to indexed positions and rotated continuously with variable speed and direction.

To project a gobo, select the gobo and action type (indexed angle or rotation) on channel 5, then adjust the indexed angle or direction and speed of rotation on channels 6 and 7 until you obtain the projection you want. Using two channels for adjustment gives 16-bit control.

Gobos are user-replaceable. You can replace them with custom gobos made to your own design provided that the gobos meet the quality and specifications of the Martin™ gobos supplied with the fixture (see ‘Gobos’ on page 42).

Animation effect

The gobo animation effect is designed to be used in combination with a rotating gobo and color filter to create a moving image of flames, grass blowing in the wind, water, etc.



Animation effect

Adjust the speed of the gobo rotation, the speed of the animation effect and fixture focus to give the most realistic animation.

Prism

The fixture has one 4-facet linear rotating and one 3-facet radial rotating prism. Either prism can be deployed to obtain rotating split beam effects. Each prism can be set to an indexed position or rotated with variable speed and direction.

Either one of the prisms or the frost filter (see below) can be deployed at one time.

Frost

The frost filter softens the light output, giving a diffuse beam.

Focus

The motorized focus lets you adjust the sharpness of projections from the controller. Gobo animation effects, for example, can be most effective if they are slightly out of focus.

Operation

Important! Keep power applied at all times during periods when the temperature may fall below freezing point.

The Exterior Projection 500 is designed to operate at ambient temperatures between -30°C (-22° F) and 45° C (113° F), but keep power applied constantly whenever the ambient temperature falls below 0° C (32° F). This allows the fixture to warm up internal components, ensuring the correct operation of moving parts and lubricants and avoiding undue wear.

If the fixture's temperature rises above its normal operating range, its light output is regulated. As the ambient temperature nears 45° C and if the fixture is exposed to strong sunlight, for example, output intensity will be reduced in order to protect the fixture.

Projection image sizes

When projecting a gobo with an image of maximum size at a perpendicular surface (i.e. tilt angle 0° relative to the surface), you can obtain up to the following image sizes in the projection with the various beam angle options available in the Exterior Projection 500:

	4 m (13 ft.)	**6 m (20 ft.)**	**8 m (26 ft.)**	**10 m (33 ft.)**	**12 m (39 ft.)**	**14 m (46 ft.)**	**16 m (53 ft.)**	**18 m (59 ft.)**	**20 m (66 ft.)**
Narrow (12°)	0.7 (2.3)	1.0 (3.4)	1.4 (4.6)	1.7 (5.7)	2.1 (6.8)	2.4 (8.0)	2.8 (9.1)	3.1 (10.2)	3.5 (11.4)
Medium (22°)	1.2 (3.9)	1.9 (6.1)	2.5 (8.1)	3.1 (10.2)	3.7 (12.2)	4.3 (14.1)	5.0 (16.2)	5.6 (18.3)	6.2 (20.3)
Wide (36°)	2.3 (7.6)	3.5 (11.4)	4.6 (15.2)	5.8 (19.1)	7.0 (22.9)	8.1 (26.7)	9.3 (30.5)	10.5 (34.3)	11.6 (38.1)
Very Wide (50°)	3.1 (10.1)	4.6 (15.2)	6.2 (20.3)	7.7 (25.3)	9.3 (30.4)	10.8 (35.4)	12.3 (40.5)	13.9 (45.6)	15.4 (50.6)

Projection diameter, gobo with max. image size– in meters (ft.)

With an open gobo slot, you can obtain up to the following projection sizes:

	4 m (13 ft.)	**6 m (20 ft.)**	**8 m (26 ft.)**	**10 m (33 ft.)**	**12 m (39 ft.)**	**14 m (46 ft.)**	**16 m (53 ft.)**	**18 m (59 ft.)**	**20 m (66 ft.)**
Narrow (12°)	0.8 (2.6)	1.2 (3.9)	1.6 (5.3)	1.9 (6.2)	2.3 (7.5)	2.7 (8.9)	3.1 (10.2)	3.5 (11.4)	3.9 (12.8)
Medium (22°)	1.4 (4.6)	2.2 (7.2)	2.9 (9.5)	3.6 (11.8)	4.3 (14.1)	5.0 (16.2)	5.7 (18.7)	6.4 (21.0)	7.2 (23.6)
Wide (36°)	2.4 (7.9)	3.6 (11.8)	4.8 (15.8)	6.0 (19.7)	7.2 (23.6)	8.4 (27.6)	9.6 (31.5)	10.8 (35.4)	12.0 (39.4)
Very Wide (50°)	3.4 (11.2)	5.2 (17.0)	6.9 (22.6)	8.6 (28.2)	10.3 (33.8)	12.0 (39.4)	13.8 (45.3)	15.5 (50.9)	17.2 (56.4)

Projection diameter, open gobo – in meters (ft.)

Maintenance

Warning! Read ‘Safety information’ on page 4 before servicing the fixture.

Important! Opening the fixture can allow moisture to enter and cause condensation on the front glass. Read ‘Managing humidity’ on page 26 and follow the guidelines in this user manual carefully.

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

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

Optical components have fragile coatings and are exposed to very high temperatures. Handle and store components with care. Wear cotton gloves while handling them. Keep them perfectly clean and free of oil and grease to reduce the risk of heat damage.

Cleaning

Regular cleaning is essential for fixture life and performance. Buildup of dust and dirt degrades the fixture’s light output and cooling ability.

Cleaning schedules will vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the Exterior Projection 500. Inspect fixtures within their first few weeks 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.

Do not use products that contain solvents, abrasives or caustic agents for cleaning, as they can cause surface damage to the fixture. The aluminum housing and front glass can be cleaned with mild detergents such as those for washing cars.

To clean the housing and front glass:

1. Isolate the fixture from AC power and allow the fixture to cool for 20 minutes.
2. Visually check that the silicone seals and the power and data cables are in good condition. If any seal or cable shows signs of damage, cracking or loss of water resistance, stop cleaning the fixture and contact a Martin authorized service technician for replacement.
3. If seals are in good condition, rinse off loose dirt with a hose or low-pressure water spray.
4. Wash the aluminum housing and front glass using warm water with a little mild detergent and a soft brush or sponge. Do not use abrasive cleaners.
5. Rinse with clean water and wipe dry.

Managing humidity

Martin™ Exterior fixtures are IP66-rated and are designed to resist water and moisture in environments with widely varying climate, temperature and humidity conditions. But if fixtures are not managed correctly during installation and service, water and moisture can enter, leading to humidity and condensation inside the fixtures. Maximize the performance and service life of your product by following the precautions in this section.

General

- Carry out service during low-humidly weather conditions (or indoors if possible). Check that fixtures are dry and free of moist air before closing them.
- Tighten cover screws exactly as directed in this manual and using a torque driver.
- Make sure that all threads are clean and dry. Do not apply lubricant to threads before assembly. While lubricant may make disassembly easier during future service, it means that tightening screws to the specified torque will compress seals too much.
- Air and water can be sucked along cables and into fixtures. A cracked or porous cable jacket can allow water into the cable. Replace any cable that is not in perfect condition. Make sure that cables from fixtures open into dry areas (e.g. junction boxes in dry locations).
- Do not clean fixtures with high-pressure water jets or immerse them.

Seals and sealing surfaces

The fixture must be sealed effectively. Covers have silicone seals that will withstand rain and water splashing but will not withstand immersion or high-pressure water jets. Reinstall covers and seals carefully if you have removed them.

- Make sure that seals and sealing surfaces are perfectly clean, dry and in perfect condition before installing a cover. If you need to clean seals, use water and a soft cloth only. Replace any seal that shows signs of aging, damage, cracking, stretching or deformation. Replacement seals are available from Martin™.
- Reinstall seals in exactly their original position.
- Install seals so that they closely follow the profile of the metal parts they are installed on. When you run your finger around the sealing surface after you have installed a cover, you should not be able to feel any places where the seal sticks out or sinks into the gap between the sealing surfaces.
- Do not use liquid gasket or any other type of sealant on sealing surfaces or seals.

Removing humidity using Evaporation Mode and silica gel desiccant

Each time you open the top cover, remove humidity from inside the fixture as directed in this chapter before you close the fixture again. See ’Reinstalling the top cover’ on page 28.

Pressure relief valves

A valve with a Gore-Tex membrane on the back of the fixture (see ‘Fixture overview’ on page 8) equalizes pressure by allowing air to pass through it when the fixture heats up and cools down, but at the same time it acts as a barrier to water in liquid form. The expulsion of warm air (with a slightly higher water vapor content) and intake of cool air (with a slightly lower water vapor content) prevents humidity buildup over time, provided that the valve works correctly and the fixture is correctly sealed.

Valves become blocked over time as the micropores in the membrane fill with particles. If a valve becomes blocked by dirt or water, excess pressure can damage seals or cause air and even water to be sucked into the fixture along cables. Valves cannot be cleaned and must be replaced if they show any signs of contamination or if they are not in perfect condition.

To obtain the maximum service life from your fixture, follow these guidelines:

- Do not allow water to collect on or near valves. Do not install a fixture with the valve membrane horizontal so that water can pool on it.
- Replace a valve with a new item if it shows any signs of contamination or is not in perfect condition.
- Replace valves after an extended period of use. Intervals for valve replacement depend on the installation environment.
- Consult your Martin™ dealer about a suitable valve replacement schedule. Contact Martin™ Service for valve replacement

Removing and reinstalling the top cover

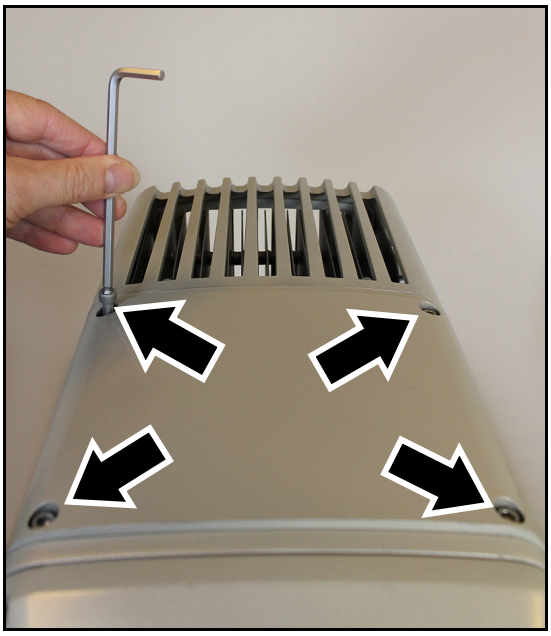
Important! Open the fixture in dry weather conditions only. Use Evaporation Mode and a new silica gel desiccant bag to avoid humidity inside the fixture.

Access to optical components is made easy by a cover on the top of the fixture.

Removing the top cover

To remove the top cover:

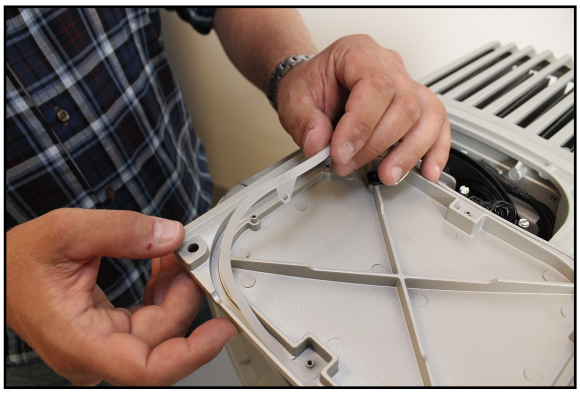
1. Disconnect the fixture from power and allow it to cool for at least 60 minutes.
2. See illustrations below. Use a 5 mm Allen key (hex wrench) to remove the four top cover screws (arrowed). Lift the top cover off the fixture. For ease of access – and if it is safe to do so – you can unclip the safety cable and remove the cover completely from the fixture.



Reinstalling the top cover

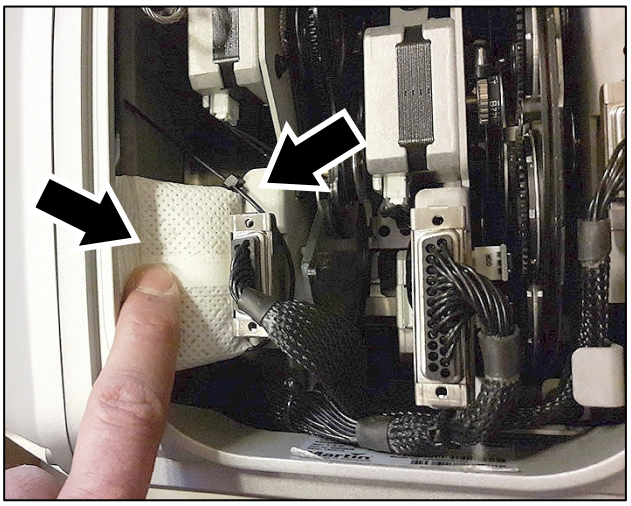
To reinstall the top cover:

1. See illustration on right. Check the silicone seal in the top cover. If it is not in perfect condition, replace it with a new item from Martin™.
2. If you unclipped the top cover safety cable, reinstall the safety cable so that it will catch the top cover and prevent it from falling while screws are loosened.
3. Place the top cover loosely over the top of the fixture so that air can enter and leave the fixture.



4. Obtain a silica gel desiccant bag (P/N 37220000) from Martin™ and a cable tie 190 – 200 mm in length. Do not remove the silica gel bag from its sealed aluminum foil bag until you are ready to install the bag as described below.

5. Go into the Service → Evaporation Mode control menu and select PASSWORD. Scroll to the service password (default = 123) and press ENTER.
6. Select COVER OPEN and press ENTER.
7. Select EVAPORATION ON to set the fixture to Evaporation Mode. This allows warm, humid air to leave the fixture and dry air to enter the fixture. WAIT will appear in the display.
8. After approx. 15 minutes the display will stop showing WAIT and start showing CLOSE COVER. Press ENTER.
9. Remove the silica gel bag from its aluminum foil bag. See illustration on right. Using a cable tie, fasten the silica gel bag to the Sub-D connector on the effects module.

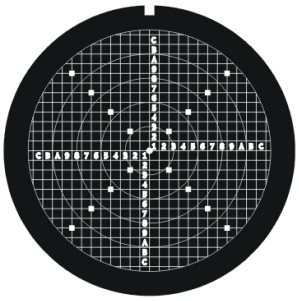


10. Check that the top cover safety cable is correctly installed.
11. Reinstall the four top cover screws by first inserting them finger-tight. Then use a torque driver and cross-tighten the screws in a diagonal pattern, increasing torque gradually in stages until you reach a torque of 1.8 Nm.

Replacing a rotating gobo

Gobos are user-replaceable, and you can replace them with custom gobos made to your own design. Gobos are exposed to severe thermal stresses, however, so custom gobos must meet the specifications and quality standards of the Martin™ gobos supplied with the fixture (see ‘Gobos’ on page 42), or they can lead to damage that is not covered by the product warranty.

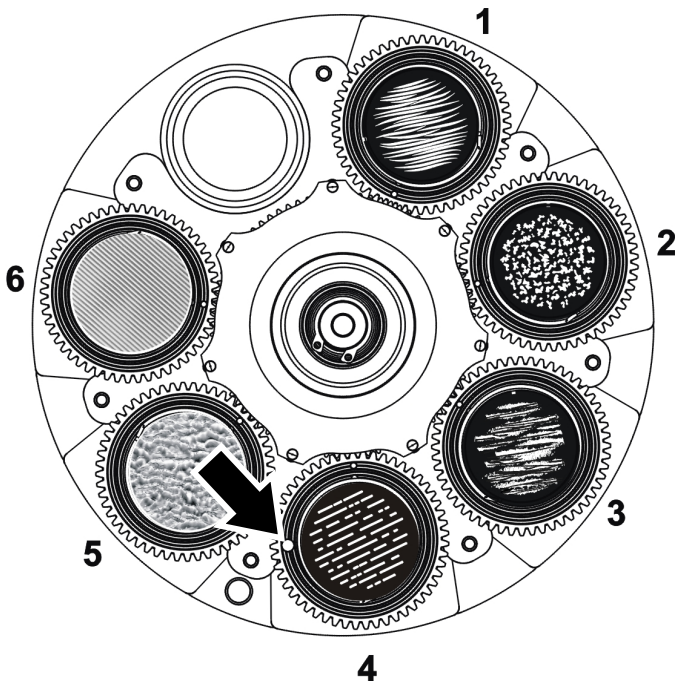
For a practical solution to custom gobo design when projection requirements are very specific, order the Projection Setup Gobo (see below) from Martin™ and use it to map projection characteristics at the installation site. You can then give precise data to the gobo designer to use as a guide.



Projection Setup Gobo for the Exterior Projection 500, P/N 91616068

Gobos 1 – 4 are printed/coated glass and share the same specifications, but gobos 5 and 6 are structured glass and have different specifications to the others. See ‘Gobos’ on page 42. Goboholders 5 and 6 are not interchangeable with any other goboholders and must always be installed in the slot they came from. Textured glass gobos must be installed in goboholders 5 and 6, and you must reinstall the thrust washers supplied with gobos 5 and 6 between the gobo retaining spring and the gobo.

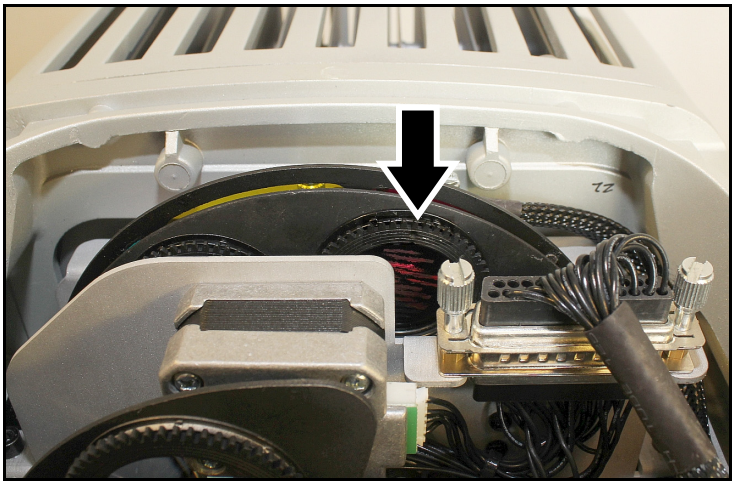
See illustration below. The goboholder in slot 4 has a magnet (arrowed) that the fixture uses to recognize the position of the gobo wheel and gobos. If you replace gobos, make sure that you always install this goboholder in its original position in slot 4.



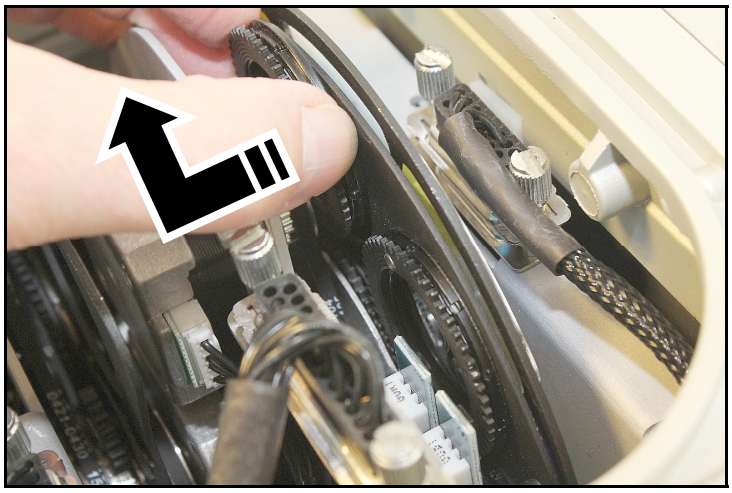
The rotating gobos in the Exterior Projection 500 are installed in goboholders that clip into the rotating gobo wheel.

To replace a gobo:

1. Remove the top cover as described under ’Removing and reinstalling the top cover’ on page 28.
2. See illustration below. Position the alignment mark (arrowed) in the goboholder at a reference point such as the midpoint between the end of the motor mounting plate and multi-connector shown below. Always remove and reinstall goboholders with alignment marks in the same position so that you keep gobos in the same orientation.

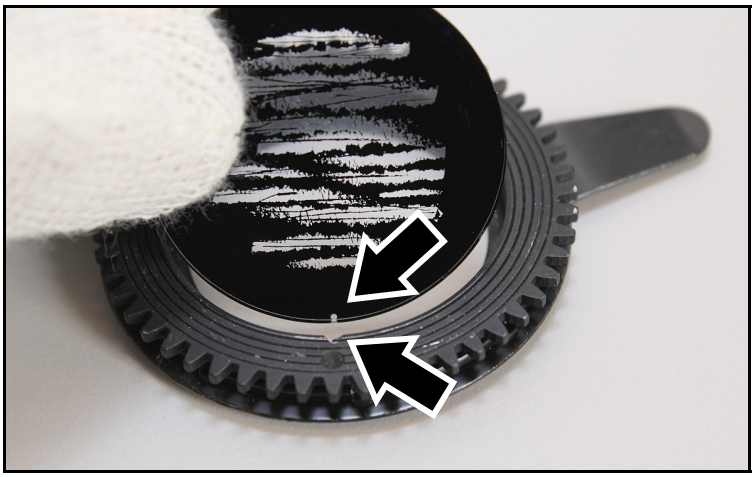


3. See illustration below. Pull the goboholder forwards, away from the wheel, then lift it up out of the wheel.



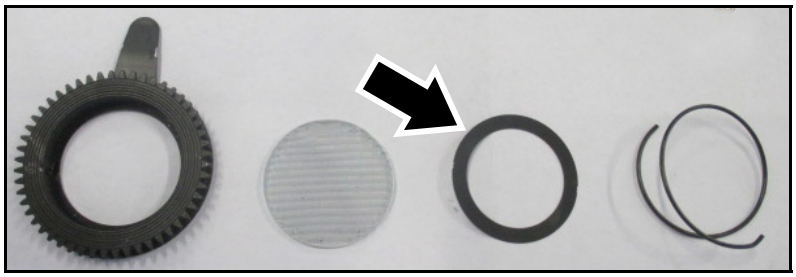
4. See illustration below. Place the goboholder on a clean, flat work surface with the teeth facing upwards. The gobo is held in place in the gobo holder by a spring. Taking care to avoid scratching or applying pressure to the gobo, lever the end of the spring out, remove the spring and then lift the gobo out of the goboholder.

5. See illustration below. Hold the gobo with the dark side facing upwards towards the teeth in the goboholder. Match up the alignment marks (arrowed) in the gobo and goboholder. Lay the new gobo flat in the goboholder.

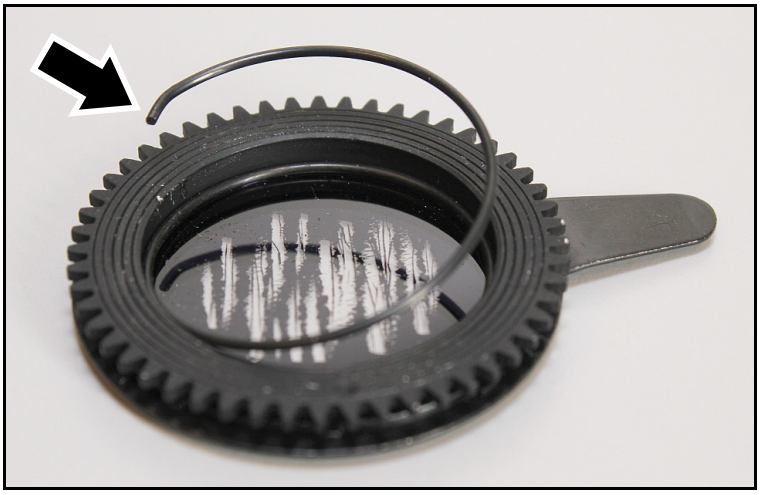


Gobos 5 and 6 only

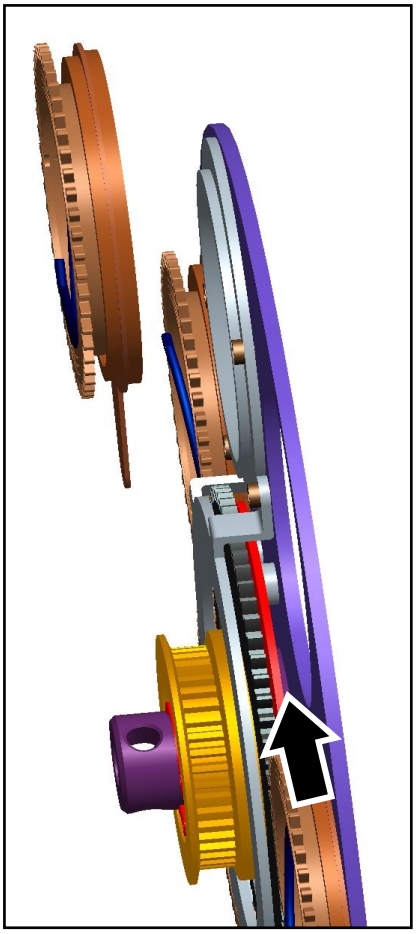
Gobos 5 and 6 are structured glass and require a thrust washer. See illustration below. Place the black thrust washer (arrowed) over the gobo before you go on to the next step.



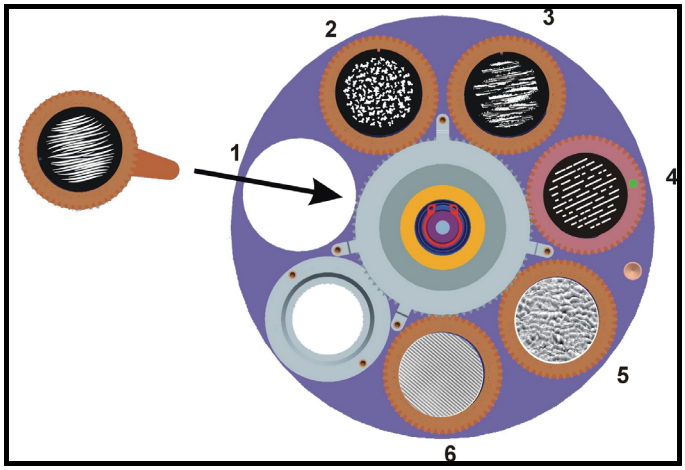
6. See illustration below. Note the end of the gobo retaining spring with the bend (arrowed) that is used for levering the spring out of the goboholder. Making sure that the bend in the spring is at the top (as shown below), press the spring down into the goboholder until the spring clips into its recess in the goboholder. Check that the spring is secure and that the gobo is still sitting flat in the goboholder.



7. Hold the goboholder up to the rotating gobo wheel in its original position. Rotate it until the alignment mark in the goboholder lines up with the reference point as shown in Step 3.



8. See illustrations below and right. Push the goboholder into position, sliding the tongue that sticks out from the goboholder into position (arrowed) behind the gobo activation cog, pressing against the gobowheel.



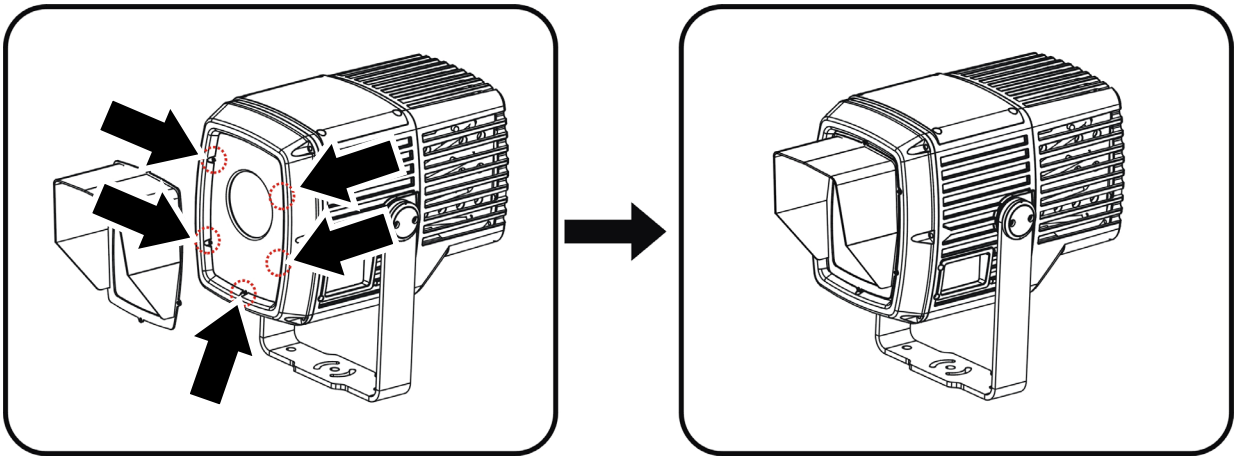
9. Check that the goboholder is held securely. Rotate the whole gobowheel with your finger and check that the goboholder rotates in the wheel while you rotate the gobowheel. If the goboholder does not rotate, it is not correctly installed and its teeth are probably not engaged correctly in the teeth in the gobowheel. Lift the goboholder out of the gobowheel and reinstall it correctly.
10. Reinstall the top cover as described under ’Removing and reinstalling the top cover’ on page 2828.

Installing a glare shield accessory

A glare shield is available as an optional accessory for the Exterior Projection 500. The shield protects from stray light and can help protect the fixture from damage caused by the sun shining on the front of the fixture. The glare shield can be installed in seconds.

To install a glare shield:

1. See illustration below. Use a 3 mm Allen key (hex wrench) to remove the five screws (arrowed) from the front of the fixture.



2. Fasten the glare shield securely to the fixture using the five screws as shown in the illustration. Use a torque driver and cross-tighten to a torque of 0.7 – 1.1 Nm.

DMX protocol

Channel	Value	Function	Fade/ Snap	Default value
1	0 - 19 20 - 49 50 - 200 201 - 210 211 - 255	**Shutter / strobe** Shutter closed Shutter open Strobe (slow → fast) Shutter open Random strobe (slow → fast)	Snap	30
2 **3**	0 - 65335	**Dimmer** 0-100%	Fade	0
4	0 7 15 22 30 37 45 52 60 67 75 82 90 97 105 112 120 127 135-160 161-163 164-166 167-169 170-172 173-175 176-178 179-181 182-184 185-192 193 – 214 215 - 221 222 - 243 244 - 247 248 - 251 252 - 255	**Color selection** ***Continuous scrolling*** Open Split open/Color 1 Color 1 Split Color 1/Color 2 Color 2 Split Color 2/Color 3 Color 3 Split Color 3/Color 4 Color 4 Split Color 4/Color 5 Color 5 Split Color 5/Color 6 Color 6 Split Color 6/Color 7 Color 7 Split Color 7/Color 8 Color 8 Split Color 8/Open Open ***Stepped scrolling*** Color 1 Color 2 Color 3 Color 4 Color 5 Color 6 Color 7 Color 8 Open ***Continuous Rotation*** Clockwise, fast → slow Stop (wheel stops at its current position) Counterclockwise, slow → fast ***Random Slots*** Fast Medium Slow	Snap	0

5	0 – 4 5 – 9 10 – 14 15 – 19 20 – 24 25 – 29 30 – 34 35 – 39 40 – 44 45 – 49 50 – 54 55 – 59 60 – 64 65-209 210 – 232 233 – 255	**Gobo selection** **(adjust action on next channels)** ***Gobo indexed position*** Open Gobo 1 indexed position Gobo 2 indexed position Gobo 3 indexed position Gobo 4 indexed position Gobo 5 indexed position Gobo 6 indexed position ***Gobo rotation*** Gobo 1 rotation Gobo 2 rotation Gobo 3 rotation Gobo 4 rotation Gobo 5 rotation Gobo 6 rotation No function ***Continuous gobo wheel scrolling*** CW rotation fast → slow CCW rotation slow → fast	Snap	0
6	0 – 65535	**Gobo indexing angle/rotation movement** **(select gobo on previous channel)** ***Gobo indexing angle*** Indexed position (0° Index at 32768)	Fade	32768
7	0 – 600 601 – 32130 32131 – 32895 32896 – 64425 64426 – 65535	***Gobo rotation speed and direction*** No rotation CW rotation fast → CW slow No rotation CCW rotation slow → CCW fast No rotation		
8	0 -4 5 -10 11 - 255	**Gobo animation** Open Stop Animation slow→ fast	Fade	0
9	0 - 5 6-10 11 - 15 16 - 20 21 - 25 26 - 30 31 - 255	**Prism/frost selection** Open Prism 1 indexing Prism 2 indexing Prism 1 rotation Prism 2 rotation Open No frost → full frost	Snap	0
10	0 – 255 0 – 2 3 – 126 127 – 129 130 – 253 254 – 255	**Prism Indexing** Indexed position, 0° Index at 128 **Prism Rotation** No rotation (prism indexed at 0°) Rotating CW fast → CW slow No rotation (prism stops at current position) Rotating CCW slow → CCW fast No rotation (prism indexed at 45°)	Fade	128
11	0 – 65535	**Focus** Infinity → near	Fade	32768
12				

13	0-9 10-14 15-39 40-44 45-49 50-54 55-59 60-64 65-69 70-255	**Fixture settings control** *No function* Reset fixture *No function* Parameter shortcuts = ON (default) Parameter shortcuts = OFF Auto-blackout = On Auto-blackout = OFF (default) Illuminate display on fixture Turn off display on fixture *No function*	Snap	0

Control menus

To access the control menus, press the MENU button and hold for three seconds. Use the UP ▲ and DOWN ▼ buttons to navigate the menus. Select menu options using the ENTER button. Exit menus using the MENU button.

Menu	Sub-menu			Notes
DMX Address	001~500			Set fixture's DMX address
Program Show	Set scene total	1-**20**		Set total number of scenes in standalone show
	Edit scene	Scene 1~20	Strobe	Set value 0-255 or percentage 0-100% for each effect
			Intensity	
			Color	
			…	
	Set show times	Set hold time	0~99.9s	Default = 4.0s
		Set fade time	0~99.9s	Default = 0.0s
Manual Mode	Manual test	Strobe	0-255	
		Intensity	0-100%	
		Color	0-255	
		…	…	
	Reset Functions	All	**No**	Reset all effects
			Yes	
		Color	**No**	Reset color wheel
			Yes	
		Gobo	**No**	Reset gobo wheel
			Yes	
		Prism/Frost	**No**	Reset prism and frost
			Yes	
		Focus	**No**	Reset focus
			Yes	
		Animation	**No**	Reset gobo animation
			Yes	
	Factory Default	Yes / **NO**		Return fixture to factory default settings
Display Setting	Inverse	On / **Off**		Flip readout in display panel through 180°
	Display auto off	No / **Yes**(1 minute)		Display panel sleeps after 1 minute
	Intensity	0%-**100%**		Adjust display panel intensity
	Display lock	**On** / Off		Enable/disable password entry
Fixture Status	LED Temperature	XXX C		Temperature of LED engine
	Power-on Hours	XXXX (Hours)		Number of hours fixture has been powered on since manufacture
	Lamp Hours	XXXX (Hours)		Number of hours light output has been activated since manufacture
	Software Version	V1.0.0		Currently installed software (firmware) version

Fixture Config	Master/Slave	Master/**Slave**		Fixture acts as master or slave in master/slave operation *Set only one fixture to be master!*
	Offline mode	Run show		When no DMX signal is present, fixture runs standalone show
		DMX last state		When no DMX signal is present, fixture displays the last effect it was displaying before the DMX signal stopped
		Black out		When no DMX signal is present, fixture blacks out
	Select variant	**EP500-MG**		Match software to fixture variant: Exterior 500 Projection Multigobo Exterior 500 Projection Framing
		EP500-FR		
	Password	0…999		Set fixture's control panel service password (factory default password is set to 123 but you can set a new password here)
Service	Fixture Status	LED Temperature	XXX C	Temperature of LED engine
		Power-on Hours	XXXX (Hours)	Number of hours fixture has been powered on since manufacture
		Lamp Hours	XXXX (Hours)	Number of hours light output has been activated since manufacture. Press Enter, then use service password (factory default = 123) to access option to reset lamp hours to zero
		Software Version	V x.x.x	Currently installed software (firmware) version
	Fixture Offset	Password	0…999	***Note: For use by Martin Service!*** Enter user password (111) for access to effect offsets. Then set an offset in effect's home position
		Color	-128~127	
		Gobos	-128~127	
		…	…	
	Evaporation Mode	Password	0…999	Enter service password (factory default = 123) for access to function. To clear humidity, open top cover slightly, press Enter. When message to close cover appears in display, close top cover, press Enter.

Default settings are shown **in bold**.

Troubleshooting

This section describes some problems that you may experience and provides some suggestions for easy troubleshooting:

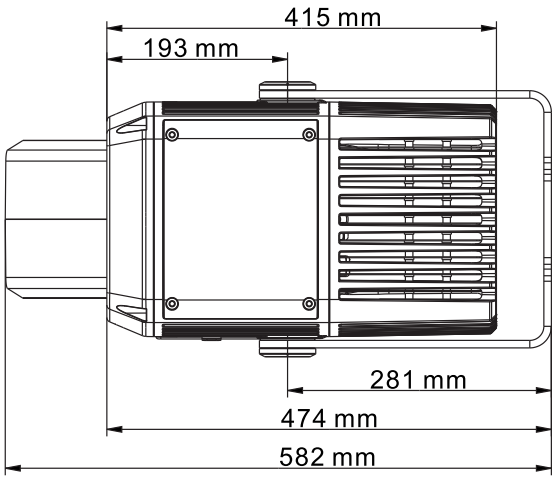
Symptom	Potential cause	Remedies
No light from fixture.	Power supply issue such as faulty connector or damaged cable.	Ensure that the mains supply is connected and supplying power to the fixture. Check all power connections and cables.
Fixture does not respond correctly to DMX control.	Incorrect DMX setup.	Ensure that fixture's DMX address matches address set on DMX control device.
	Fault in the DMX network due to connector or cable damage or potential interference from proximity to a high voltage installation.	Check that fixture's status LED shows that it is receiving DMX. If not, check all DMX cables and connections. Ensure that DMX link is terminated. Check that all components on DMX link use standard DMX polarity. Attempt to control the fixture with another DMX control device. Move or shield the DMX link if it is close to an unshielded high-voltage installation.
	Internal fault.	Contact your Martin authorized distributor or Martin Global Service for assistance.

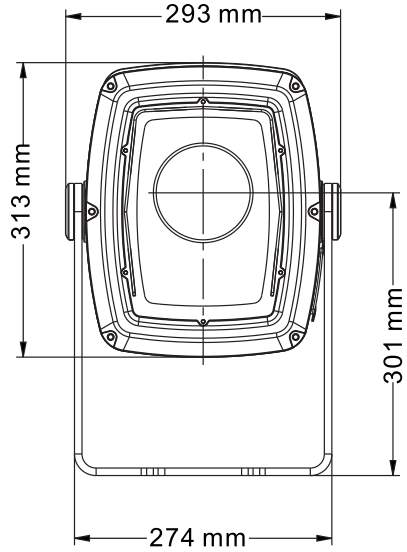
Specifications

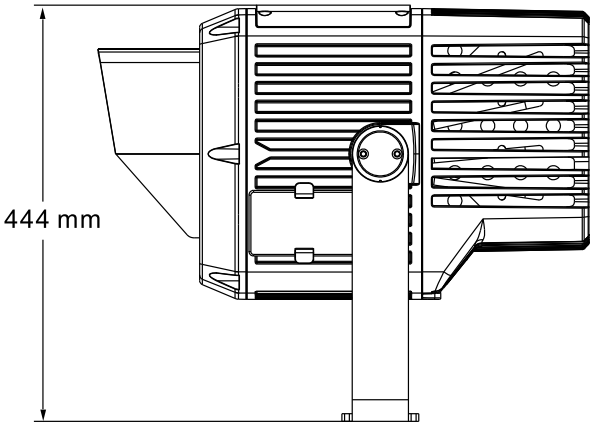
Physical

Dimensions (LxWxH) ..... 293 x 313 x 586 mm (11.5 x 12.3 x 23.1 in.)
Weight ..... 17.5 kg (38.6 lbs.)

All figures include mounting yoke







Dynamic Effects

Color wheel ..... 8 colors plus open
Rotating gobos ..... 6 rotating gobos plus open, indexing, variable rotation
Gobo animation ..... Variable speed linear animation effect
Prisms ..... Prism wheel with 4-facet linear and 3-facet radial rotating prisms
Frost (wash effect) ..... Motorized variable
Focus ..... Motorized, variable 3 m (9.8 ft. to infinity
Shutter ..... Strobe and pulse effects, instant open and blackout
Dimming ..... 0-100% constantly variable, 16-bit control

Control and Programming

DMX channels 13
Interface ..... Control panel with backlit LCD display
Control resolution ..... 8-bit DMX control of each color
DMX compliance ..... USITT DMX512-A
RDM compliance ..... ANSI/ESTA E1.20

Optics

Light source ..... 230 W white light LED engine
CRI (Color Rendering Index) 72
Color temperature, EU Models ..... 6700 K (±200 K)
Color temperature, US Models ..... 7100 K (±200 K)
LED lifetime ..... 30 000 hours (to >70% luminous output)*

**Figure obtained under manufacturer's test conditions*

Photometric Data

Max. luminous flux ..... 6500 lumens
Beam angles (cut-off):
- Narrow ..... 12°
- Medium ..... 22°
- Wide ..... 36°
- Very Wide ..... 50°

For full photometric data please see www.martin.com

Construction

Housing ..... Cast aluminum
Color ..... Hard anodized, metallic grey lacquered
Front glass ..... 5 mm (0.2 in.) anti-reflection coated tempered glass
Ingress protection ..... IP 66
Corrosion resistance ..... C5-M (very high corrosivity / marine, ISO 12944)
Impact resistance ..... IK08 (with control panel display cover plate installed)
EPA (Effective Projected Area) 0.15 m2
RoHS compliant

Gobos

Suitable material ..... Borosilicate glass, coatings heat-resistant to 450°C (842° F)
Gobo diameter ..... 30 mm, +0/-0.2 mm (1.18 in., +0/-0.008 in.)
Max. image diameter ..... 23 mm (0.91 in.)
Gobo thickness, minimum ..... 1.1 mm ±0.1 mm (0.045 ±0.004 in.)
Gobo thickness, maximum ..... 3.0 mm ±0.3 mm (0.12in. ±0.012 in.)

Color filters

Suitable material ..... Borosilicate glass, coatings heat-resistant to 450°C (842° F)
Gobo thickness ..... 1.1-3.0 mm -0.1/+0.3 mm (0.045-0.115 in. -004/+0.012 in.)

Installation

Orientation ..... Any
Mounting ..... Adjustable yoke
Minimum distance from housing to combustible materials ..... 0.1 m (4 ins.)
Minimum distance from front glass to illuminated surfaces ..... 0.5 m (1.6 ft.)
Suitable for wet locations. Do not immerse in water.

Electrical

AC power ..... 100-240/277 V nominal, 50/60 Hz
Power supply ..... Auto-ranging electronic switch-mode
Typical half-cycle RMS inrush current ..... 8.4 A
Idle power (zero intensity, no effects applied) ..... 32 W, 0.3 A

Typical Power and Current

110 V, 60 Hz ..... 320 W, 2.9 A, PF 0.977
230 V, 50 Hz ..... 310 W, 1.4 A, PF 0.971
277 V, 60 Hz ..... 305 W, 1.2 A, PF 0.950

Figures are typical, not maximum. Measurements made at nominal voltage with all LEDs at full intensity. Allow for a deviation of +/- 10%.

Thermal

Cooling ..... Convection, internal forced air circulation
Maximum ambient temperature (T_a max.) ..... 45° C (113° F)
Minimum ambient temperature (T_a min) ..... -30°C (-22° F)*

**Power must remain constantly applied in ambient temperatures below 0° C (32° F).*

Approvals

EU safety ..... EN 60598-2-1, EN 60598-2-5 (EN 60598-1), EN 62471, EN 62493
EU EMC ..... EN 55015, EN 55032, EN 55103-2, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61547
US safety ..... UL 1598
US EMC ..... CRF 47 Part 15 Class A
Canadian safety ..... CSA C22.2 No. 166
Canadian EMC ..... ICES-003 Class A
Australia/NZ ..... RCM

Accessories

Exterior Projection 500 Glare Shield ..... P/N 91611767
Exterior Projection 500 Projection Setup Gobo ..... P/N 91616068

Related Items

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

Spare Parts

Silica gel desiccant bag sealed in foil, multi-pack ..... P/N 37220000

Ordering Information

EU models

Exterior Projection 500, Narrow, EU, Aluminum ..... P/N 90506500
Exterior Projection 500, Medium, EU, Aluminum ..... P/N 90506505
Exterior Projection 500, Wide, EU, Aluminum ..... P/N 90506510
Exterior Projection 500, Very Wide, EU, Aluminum ..... P/N 90506535
Exterior Projection 500, Narrow, EU, White ..... P/N 90506540
Exterior Projection 500, Medium, EU, White ..... P/N 90506545
Exterior Projection 500, Wide, EU, White ..... P/N 90506550
Exterior Projection 500, Very Wide, EU, White ..... P/N 90506555

US Models

Exterior Projection 500, Narrow, US, Aluminum ..... P/N 90506515
Exterior Projection 500, Medium, US, Aluminum ..... P/N 90506520
Exterior Projection 500, Wide, US, Aluminum ..... P/N 90506525
Exterior Projection 500, Very Wide, US, Aluminum ..... P/N 90506530

Disposing of this product

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

Photobiological safety warning

The warning shown below is printed on this product. If it becomes difficult or impossible to read, it must be replaced with a label reproduced from the illustration below:

RISK GROUP 3
WARNING Possibly hazardous optical radiation emitted from this product. Do not look at operating lamp. Eye injury may result.
GROUPE DE RISQUE 3
AVERTISSEMENT Produit à émission de radiations visibles potentiellement dangéreuses. Ne pas regarder le faisceau en fonctionnement. Risque de lésions oculaires.

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